

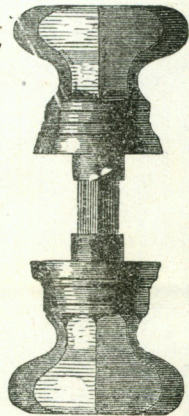


*797. CROSSWALK ON CORNHILL OPP. FRANKLIN AVE. LOOKING WEST. SEY. 02.

APR. 14 '97.

Boston Aug 9 1864

W. Bristol County
Bought of E. ROBINSON & CO.



MANUFACTURERS OF

**PATENT POWDER PROOF BANK AND SAFE LOCKS,
SILVERED GLASS KNOBS & C.**

No. 4 Washington St.

ENOCH ROBINSON, }
JAMES R. BUGBEE, }
WM. E. ROBINSON. }

ALSO,
Store, House, Ship, Desk,
DRAWER AND PADLOCKS,
Plated, Glass, Mineral, Wood, and
ARGILLO KNOBS,
PATENT DOOR SPRINGS,
Blind and Sash Fastenings,
Plated and Bronzed
BUTTS;
French Window Fixtures,
Side Door, Shutter and Flush
HOOKS,
STORE DOOR HANDLES,
Latches &c.

1 Safe Lock

600

*Rec'd Payment
E. Robinson & Co*



950. Supporting building at 139 Cornhill, San Francisco.

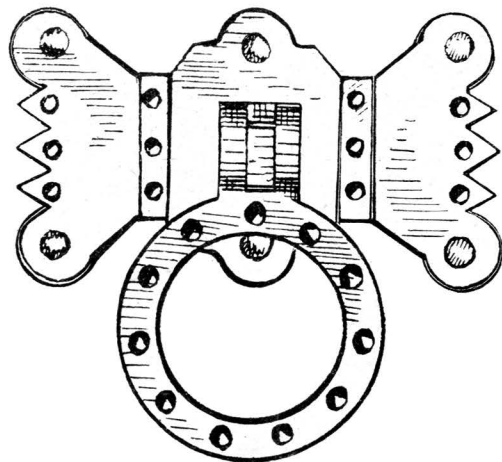
Aug. 10, 1897.

Catalogue and Price List.

OF

Polished

Brass



Furniture

Trimminḡs.

MANUFACTURED BY

ENOCH ROBINSON,

NO. 21 BRATTLE ST., BOSTON, MASS.

1888.



The following Catalogue does not comprise the full extent and variety of the Furniture Trimmings we manufacture, but further sheets are in course of preparation, embracing designs for Cabinet Handles, Hinges, and Hinge Plates.

We make especial designs for different Furniture Manufacturers and retain them for their exclusive use.

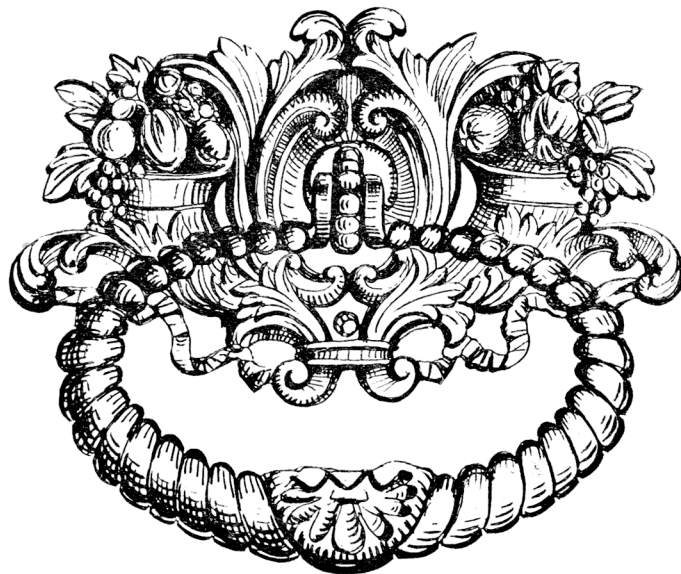
For excellence of design and workmanship, for durability in use, and for adaptability to the purposes intended, we believe our goods are not surpassed.



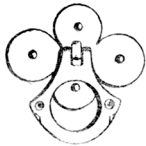
DRAWER AND CABINET HANDLES AND ESCUTCHEONS.

POLISHED AND LACQUERED BRASS.

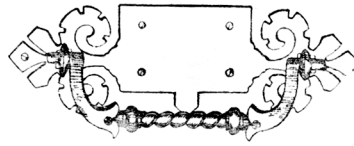
FULL SIZE.



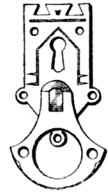
No. 429. \$12.00 per dozen.



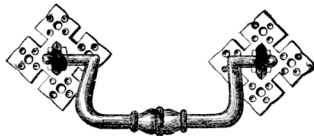
No. 1



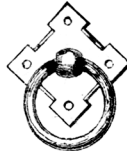
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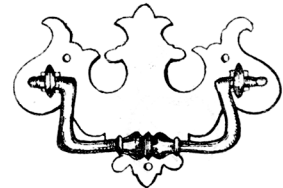
No. 5.



No. 2.

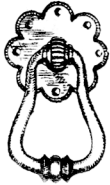


No. 4.



No. 6.

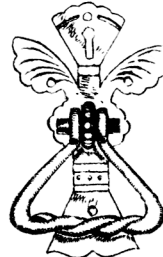
NUMBER.	SIZE.	PRICE.	DESCRIPTION.
1	$2\frac{1}{4} \times 2\frac{1}{8}$	\$4.50 per dozen.	
2	$4\frac{1}{2} \times 2$	5.50 " "	
3	$2\frac{1}{2} \times 2$	8.00 " "	
4	$2\frac{1}{4} \times 2\frac{1}{2}$	3.00 " "	
5	$3 \times 1\frac{3}{8}$	4.50 " "	
6	$2\frac{7}{8} \times 4\frac{1}{8}$	6.00 " "	



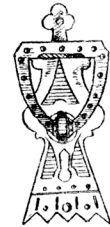
No. 19



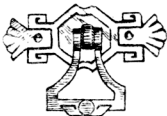
No. 21



No. 24



No. 25



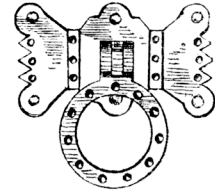
No. 20



No. 22



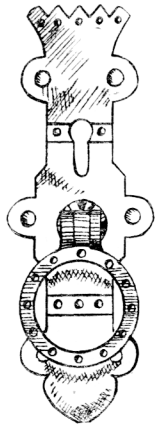
No. 23



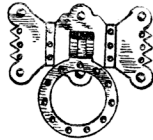
No. 26

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
19	$2\frac{5}{8} \times 1\frac{1}{2}$	\$5.00 per dozen.	
20	$2\frac{1}{2} \times 1\frac{1}{2}$	4.00 " "	
21	$5 \times 1\frac{1}{2}$	10.00 " "	
22	$2 \times 1\frac{3}{8}$	4.00 " "	
23	$2 \times 1\frac{1}{2}$	4.50 " "	
24	$3\frac{7}{8} \times 2\frac{1}{2}$	10.00 " "	
25	$3\frac{1}{4} \times 1\frac{1}{2}$	6.00 " "	
26	$2\frac{1}{2} \times 2\frac{1}{2}$	6.00 " "	

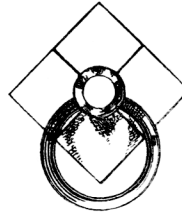
POLISHED BRASS DRAWER AND CABINET HANDLES.



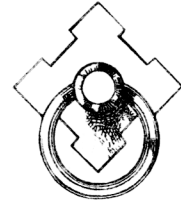
No. 28



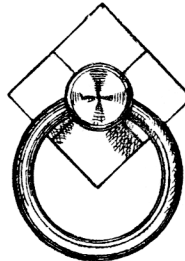
No. 27



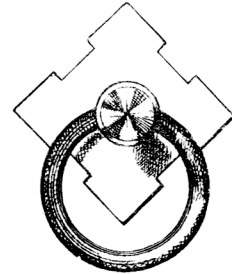
No. 83



No. 85

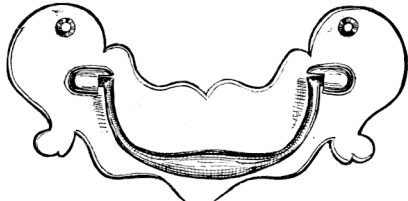


No. 84

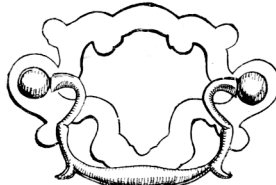


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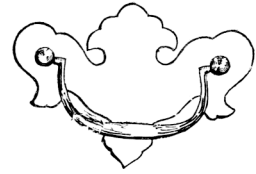
NUMBER.	SIZE.	PRICE.	DESCRIPTION.
27	1 x 1	\$3.00 per dozen.	
28	5¼ x 1¾	9.00 " "	
83	2 x 1⅞	3.00 " "	
84	2⅜ x 1⅞	3.25 " "	
85	2 x 1¾	3.00 " "	
86	2½ x 2¼	3.50 " "	



No. 401



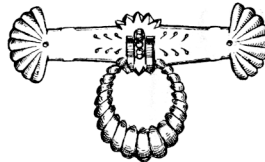
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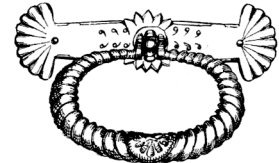
No. 261



No. 268

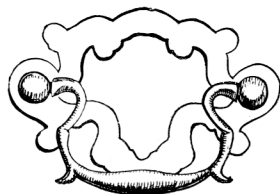


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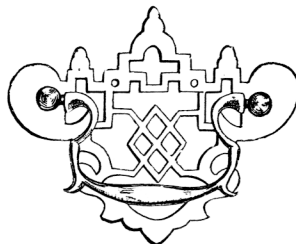


No. 431

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
401	3 x 6 $\frac{1}{4}$	\$12.00 per dozen.	
261	3 $\frac{1}{2}$ x 3 $\frac{3}{4}$	6.00 " "	
263	3 x 4 $\frac{3}{4}$	6.00 " "	
268	1 $\frac{1}{2}$ x 2 $\frac{1}{2}$	6.00 " "	
251	2 $\frac{1}{4}$ x 4 $\frac{1}{4}$	6.00 " "	
431	2 $\frac{1}{2}$ x 4	9.00 " "	



No. 263



No. 400



No. 271

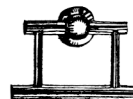
SIZE, 3 x 3 3/4.
Escutcheon for No. 400 Handle



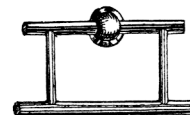
No 430



25 cents each.

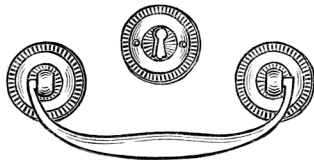


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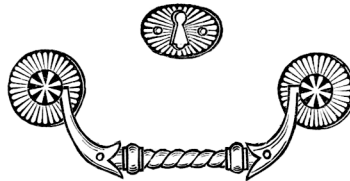


No. 255

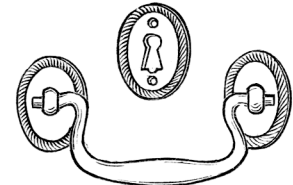
NUMBER.	SIZE.	PRICE.	DESCRIPTION.
263	3 x 4 3/4	\$6.00 per dozen.	
400	3 3/4 x 4 3/4	9.00 " "	
271	3 1/2 x 2 3/4	6.00 " "	
430	3 1/4 x 3	6.00 " "	
254	1 1/4 x 2	4.50 " "	
255	1 1/2 x 3	4.50 " "	



No. 450



No. 447



No. 52

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
450	4¾ x 2	\$6.00 per dozen.	
450	4 x 2	5.00 " "	Second size.
447	5½ x 2	6.00 " "	
447	4½ x 2	5.00 " "	Second size.
52	5¼ x 2	6.00 " "	
52	4½ x 2	5.00 " "	Second size.
450, 447 and 52		2.00 " "	Escutcheons.



No. 453



No. 454

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
451	2½ x 2½	\$6.00 per dozen.	Lion Head, Ring 2½ in. diameter.
452	2 x 2	5.00 " "	Lion Head, Ring 2 in. diameter.
453	1½ x 1½	4.00 " "	Lion Head, Ring 1¼ in. diameter.
454	1½ x 1	2.00 " "	Escutcheon.

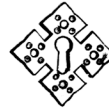
POLISHED BRASS ESCUTCHEONS.



No. 1



No. 2



No. 3



No. 4



No. 5



No. 6



No. 7



No. 8

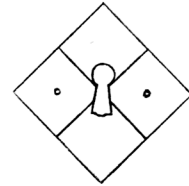
NUMBER.	SIZE.	PRICE.	DESCRIPTION
1	2 x 1 $\frac{1}{8}$	\$1.00 per dozen.	
2	1 $\frac{1}{2}$ x 2	1.00 " "	
3	1 $\frac{3}{4}$ x 1 $\frac{3}{4}$	1.00 " "	
4	1 $\frac{3}{4}$ x 1 $\frac{3}{4}$	1.00 " "	
5	3 $\frac{3}{4}$ x 1 $\frac{3}{8}$	1.50 " "	
6	1 $\frac{3}{4}$ x 1 $\frac{3}{4}$	75 " "	
7	1 $\frac{5}{8}$ x 1 $\frac{1}{4}$	75 " "	
8	2 $\frac{1}{4}$ x 4 $\frac{1}{8}$	2.50 " "	



No. 10



No. 11



No. 12



No. 13



No. 14



No. 15



No. 16

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
10	$2\frac{3}{4} \times 1\frac{1}{8}$	\$1.00 per dozen.	
11	$2\frac{1}{8} \times 2\frac{1}{8}$	1.25 " "	
12	$1\frac{7}{8} \times 1\frac{7}{8}$	1.00 " "	
13	$2\frac{1}{4} \times 2\frac{1}{4}$	1.25 " "	
14	$2\frac{1}{4} \times 2\frac{1}{4}$	1.25 " "	
15	$1\frac{3}{8} \times 3\frac{1}{2}$	2.00 " "	
16	$3\frac{1}{8} \times 1$	2.00 " "	



No. 17



No. 18



No. 19



No. 20



No. 21

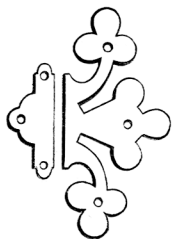


No. 22



No. 23

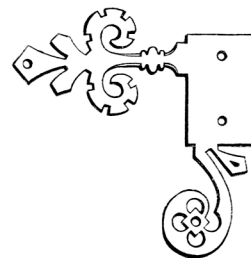
NUMBER.	SIZE.	PRICE.	DESCRIPTION.
17	$3\frac{3}{4} \times \frac{7}{8}$	\$2.00 per dozen.	
18	$1\frac{1}{4} \times 2$	1.50 " "	
19	$1\frac{1}{8} \times 1\frac{5}{8}$	2.00 " "	
20	$1\frac{3}{4} \times 1\frac{1}{2}$	1.25 " "	
21	$1\frac{1}{4} \times 1$	1.20 " "	
22	$1\frac{1}{4} \times 1\frac{1}{2}$	1.25 " "	
23	$2\frac{3}{8} \times \frac{7}{8}$	1.00 " "	



No. 1



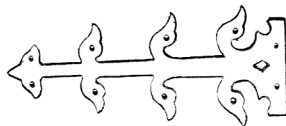
No. 2



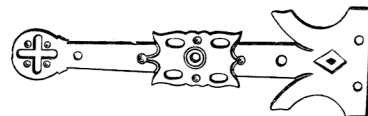
No. 3



No. 4

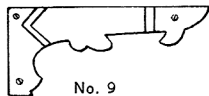


No. 5

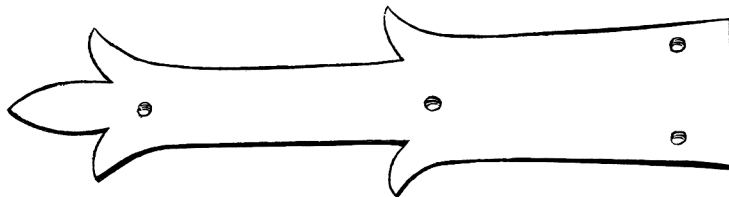


No. 6

NUMBER.	SIZE.	PRICE.	DESCRIPTION
1	$5\frac{3}{4} \times 3\frac{1}{2}$	\$3.00 per dozen.	
2	$3\frac{3}{4} \times 2\frac{5}{8}$	2.00 " "	
3	4 x 4	4.00 " "	
4	$1\frac{3}{8} \times 6\frac{3}{4}$	3.00 " "	
5	$2\frac{1}{2} \times 5\frac{7}{8}$	2.50 " "	
6	$1\frac{7}{8} \times 6\frac{1}{8}$	2.50 " "	



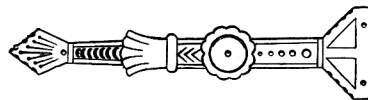
No. 9



No. 10

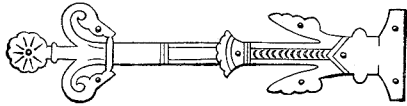


No. 7

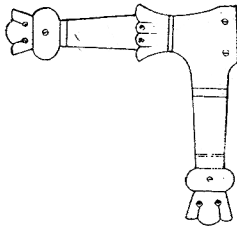


No. 13

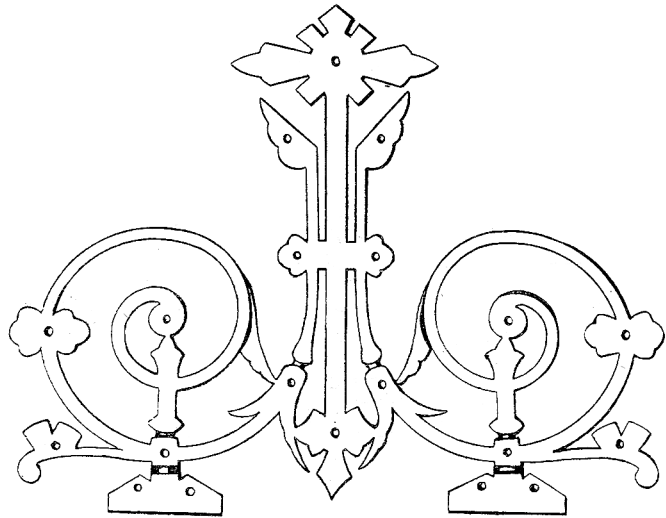
NUMBER.	SIZE.	PRICE.	DESCRIPTION.
7	$1\frac{7}{8} \times 4$	\$2.50 per dozen.	
9	$1\frac{7}{8} \times 4\frac{1}{4}$	2.50 " "	
10	$1\frac{3}{4} \times 11\frac{1}{2}$	6.00 " "	
13	$2 \times 7\frac{3}{4}$	3.37 " "	



No. 14

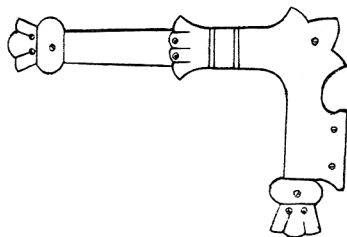


No. 20

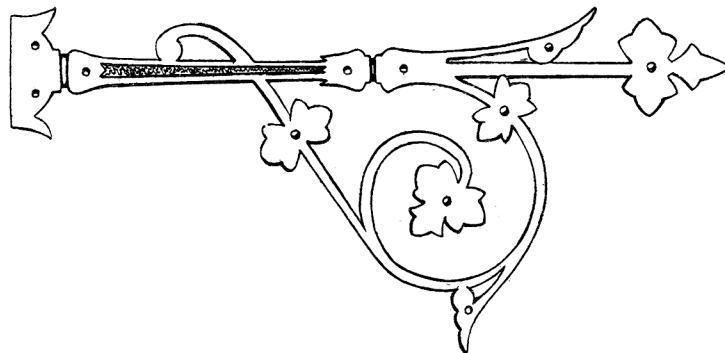


No. 26

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
14	2 x 8¼	\$3.37 per dozen.	
20	4¾ x 4½	4.00 “ “	
26	9¾ x 7½	2.00 each.	

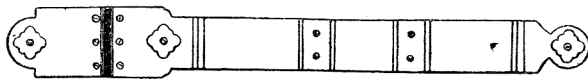


No. 21

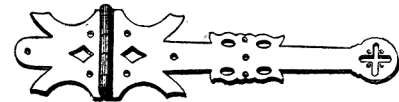


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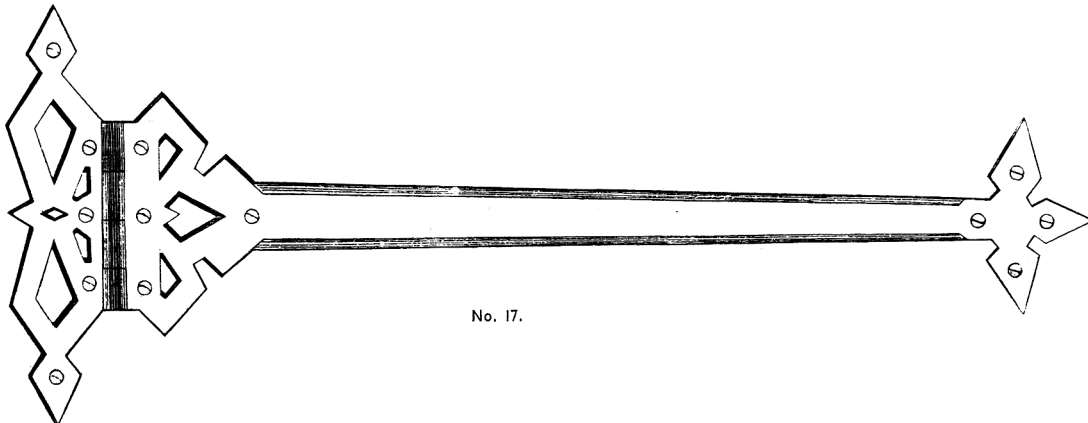
NUMBER.	SIZE.	PRICE.	DESCRIPTION.
21	4 $\frac{5}{8}$ x 7	\$5.00 per dozen.	
27	5 x 11	1.25 each.	



No. 11



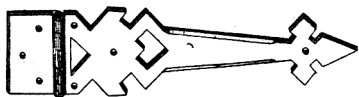
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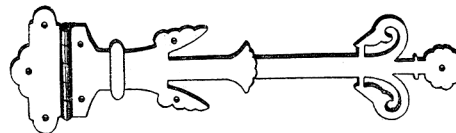
No. 17.

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
11	1½ x 10¼	\$2.00 per pair.	
15	1¾ x 8	1.50 " "	
17	6¾ x 17	4.50 " "	

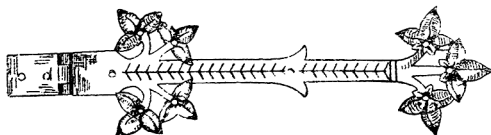
POLISHED BRASS REAL HINGES.



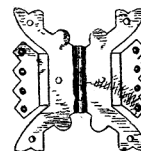
No. 18



No. 22

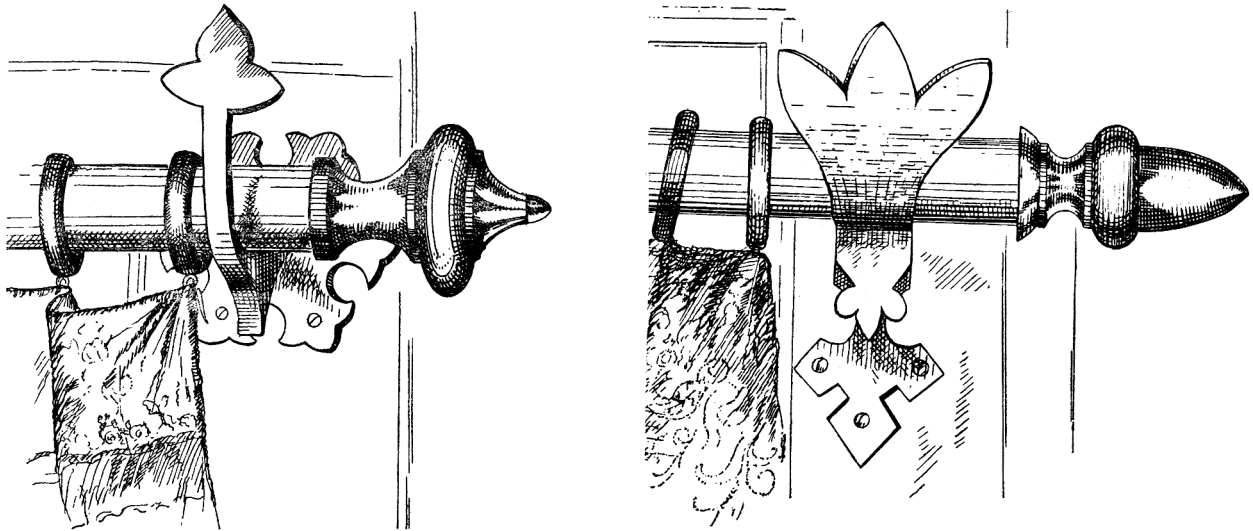


No. 24

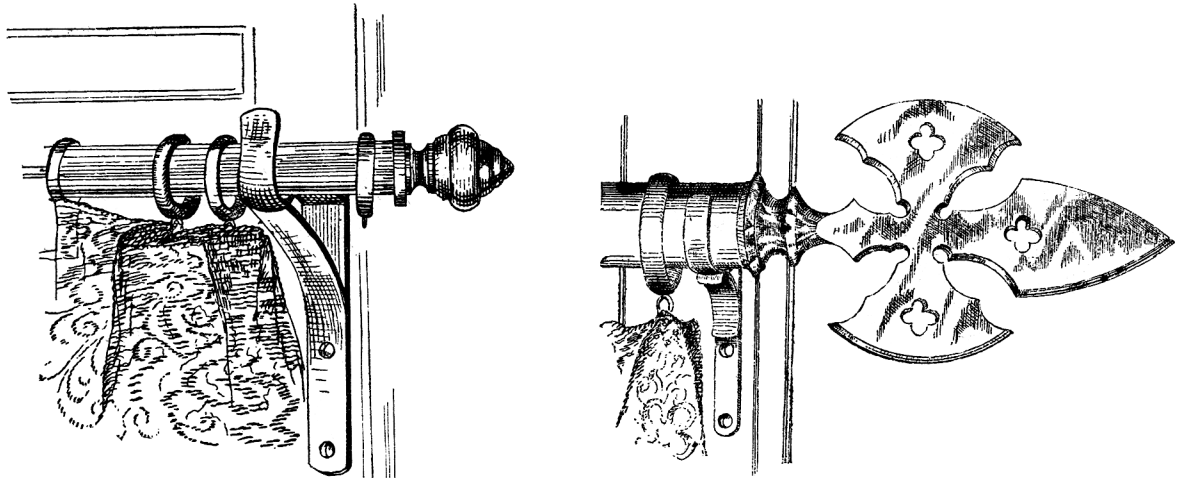


No. 25

NUMBER.	SIZE.	PRICE.	DESCRIPTION.
18	$1\frac{5}{8} \times 7\frac{1}{4}$	\$1.50 per pair.	Either Half Butt or Full Strap Hinge.
22	$2\frac{1}{2} \times 9\frac{1}{4}$	1.75 " "	Either Half Butt or Full Strap Hinge.
24	$2\frac{5}{8} \times 9$	2.50 " "	Half Butt.
25	$2\frac{7}{8} \times 2\frac{7}{8}$	1.50 " "	



Polished Brass Poles for Circular or Bay Windows made to order; also Ornaments and Brackets.



Brackets and Polished Brass Ornaments for Curtain Poles.

GOLD, SILVER, NICKEL, COPPER,

BRONZE AND BRASS PLATING.

OXIDIZING AND BRONZING

OF

EVERY DESCRIPTION

Established 1839.

ENOCH ROBINSON,
Lock, Knob, and House Trimming Manufactory,
No. 21 BRATTLE STREET, BOSTON.

Door Knobs, Butts, and Hinges in Polished Brass,
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IRON HINGE PLATES,

In great variety,

For Church Doors.



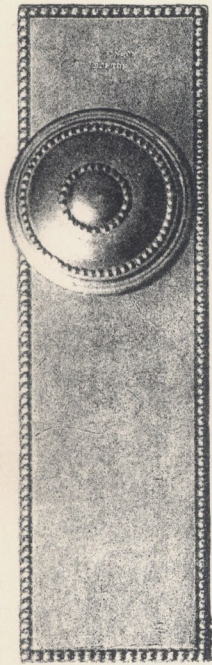
IRON, BRASS or BRONZE
HANDLES

For Church Doors.

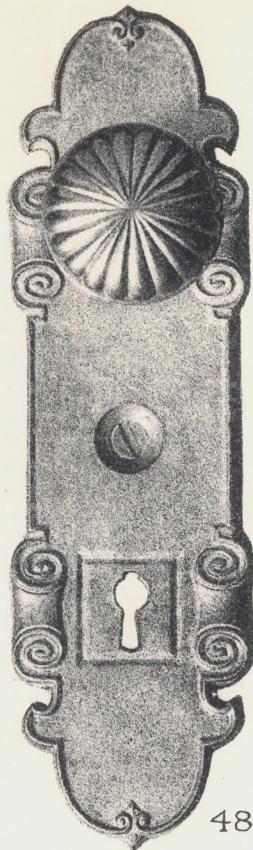


MANUFACTURER AND DEALER IN
LOCKS OF ALL DESCRIPTION FOR HOUSE, SHIP, HOTEL, INSANE ASYLUMS, ETC.

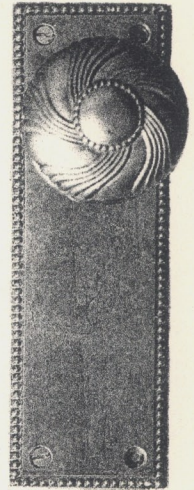
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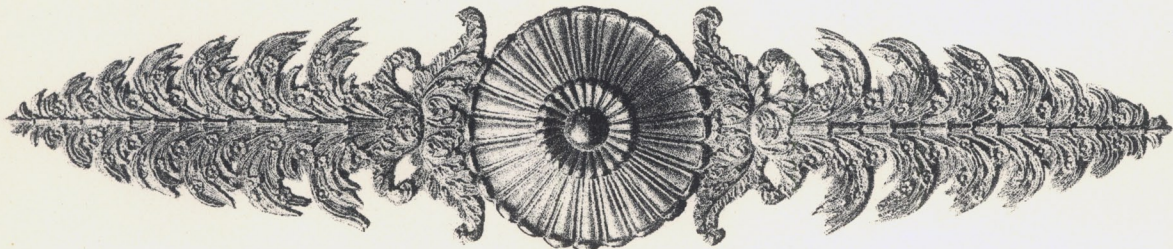
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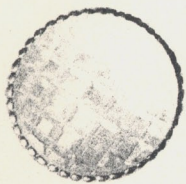
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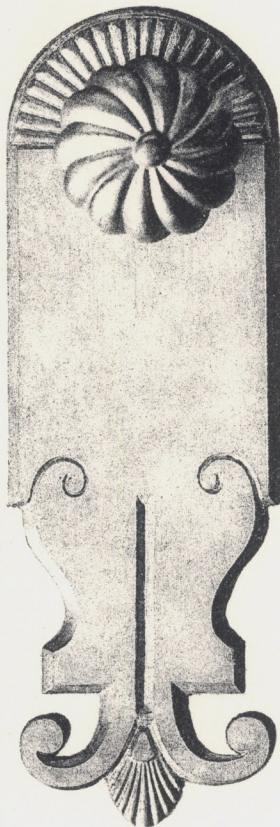
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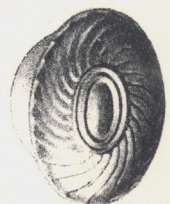
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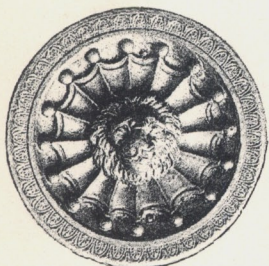
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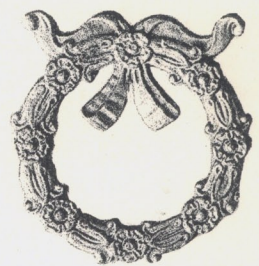
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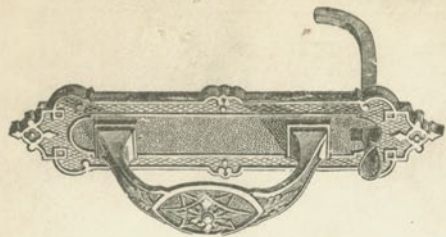


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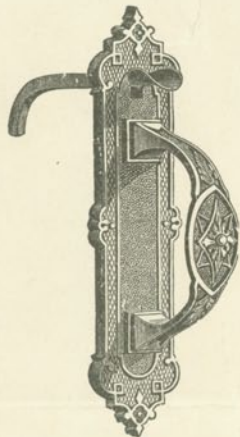
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Boston, Nov 21, 1900 189
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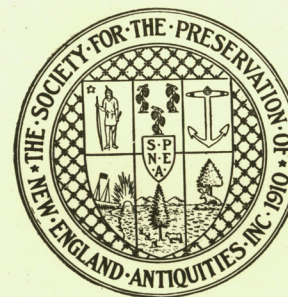
Robinson Round House, Somerville, Mass.



4455

Old-Time New England

The BULLETIN of THE
SOCIETY FOR THE PRESERVATION OF
NEW ENGLAND ANTIQUITIES



VOLUME XI
JULY 1920 — APRIL 1921

Harrison Gray Otis House
2 LYNDE STREET, BOSTON, MASSACHUSETTS
1921



THE HUMPHREY HOUSE, SWAMPSCOTT, MASS.

From a water color sketch made in October, 1889, by Mr. Herbert Browne

Harlow cottage with what must have been the very uncompromising appearance of the Pilgrim Fort.

The Plymouth Antiquarian Society is now engaged in raising money to enable it carefully to restore the house to its original condition, and to safeguard the Pilgrim timbers in its walls and ceiling. This work is in charge of Mr. Joseph Everett Chandler, architect, whose experience with many other restorations well qualifies him for the task. It is planned to furnish the restored house with the household equipment of the 17th century. The Antiquarian Society is still in need of financial assistance and persons desiring to help should make out their checks to W. L. Boyden, Treasurer Harlow House Fund, and mail them to him at the Plymouth National Bank.

**HUMPHREY HOUSE
SWAMPSCOTT,
MASS.**

The Swampscott Historical Society was incorporated in the autumn of 1920 largely for the purpose of buying for preservation the John Humphrey house, now standing at number 99 Paradise Road, but formerly on a site near Elmwood Road. In the year 1891 the house was moved from its original site and in the process lost its old chimney. The Humphrey house is by many claimed to be the oldest in New England, this claim being based on the fact that a house appears on its site on the map which Governor Winthrop sent King Charles soon after the founding of the Bay Colony. The exact date of this map is unknown but from the fact that various towns, such as Ipswich, Cambridge, Lynn and Weymouth, appear



WALL PAPER IN THE PARLOR OF THE ENOCH ROBINSON HOUSE

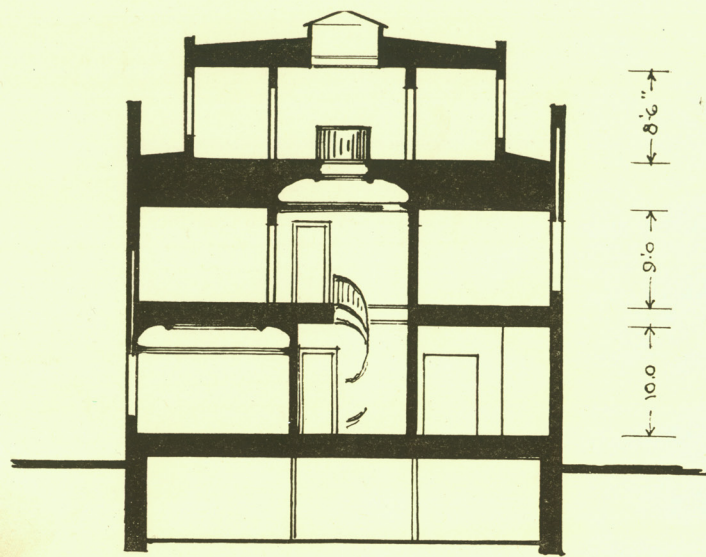
on it as Agawam, Newtown, Saugus and Wessagussett, it is inferred that it must have been made no later than 1637. To the writer's mind, however, the structural features of this house are more interesting than its date. The second story juts out over the entire front by about ten inches along its entire front, and the house has an unusually high stud, comparing favorably in that respect with the south ell added about 1692 to the house known as the "Seven Gables" in Salem. Like that too the Humphrey house was thoroughly remodeled in the style of the 18th century. Interesting discoveries may be in store for the investigating restorer, for experience has time and again shown that underneath the later work may be found the more eagerly sought original work still bearing the general imprint of its 17th century character. The Swampscott Historical Society is showing much energy in raising money, and has not only bought the house but is now raising more money for repairs and restoration.

**ENOCH ROBINSON
ROUND HOUSE
SOMERVILLE,
MASS., 1854**

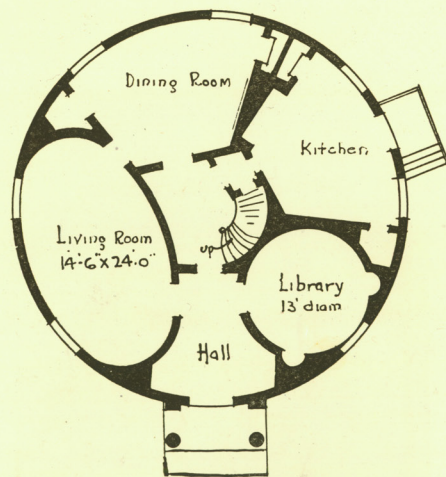
This house was offered the Society as a purchase and a careful investigation of the premises fol-



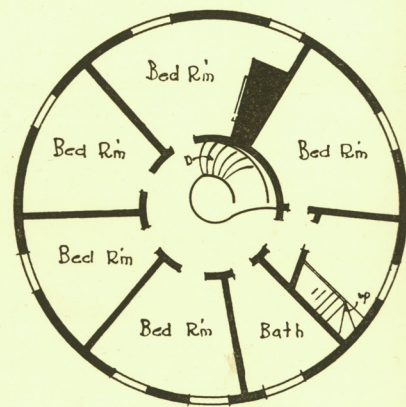
**ENOCH ROBINSON ROUND HOUSE
Somerville, Mass.**



SECTION

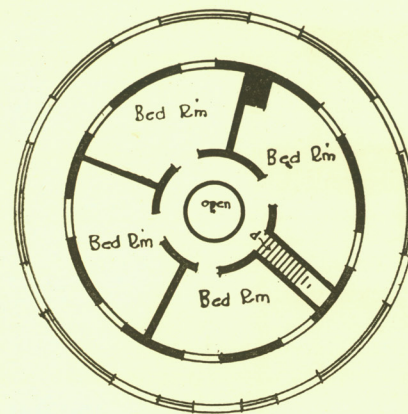


FIRST FLOOR PLAN



SECOND FLOOR PLAN

ENOCH ROBINSON ROUND HOUSE, SOMERVILLE, MASS., BUILT 1854
From measured drawings prepared for the Society through the kindness of Messrs. Little & Browne



THIRD FLOOR PLAN

ENOCH ROBINSON ROUND HOUSE
Somerville, Mass., 1854

through the kindness of Mr. Herbert Browne. On the ground floor is a round room and also an interesting oval room with a landscape wall paper, possibly of German origin. The circular hall on the second floor, poorly lighted and much cut up by doors, also has a landscape paper, an excellent one with Oriental scenery, probably of French origin and about fifty years older than that down stairs. The house is of the Victorian black walnut period with much elaborate interior decoration. Mr. Robinson, who was a dealer in hardware, gave his personal attention to the door handles on the ground floor, which are quite elaborate, showing heads in relief, baskets of flowers and other colored decorations set inside or under the glass. In many ways this would make an ideal period house for the display of mid-Victorian black walnut, but the present is probably fifty years too early for anything of the kind, since to most people that period represents the very quintessence of the ugly.

JAMES MASON HOUSE
FRANKLIN,
CONN.

Among the many houses inspected during the year at the request of members and others was

the James Mason house at Franklin, Conn. This interesting and unusual building consists of two distinct houses. Across the end of the older—which may date from the early 18th century—has been placed a newer house of about 1819, with higher stud, making a bad connection on the second story level. The older portion has a large central chimney, with the entry in front and a large room on each side. Across the back is the usual series of three rooms, namely, a kitchen in the center with a room on either side, and attached sheds and extensions add somewhat to this arrangement in the present house. The bricked-up kitchen fireplace shows evidence of its original large dimensions. The paneling in several rooms is good and rather above the average. The chimney seems to be sound and there is no reason why this older part could not be made a picturesque and attractive building. The newer structure is remarkably pretentious for a farm house so far out in the country. The exterior trim is much better than the ordinary and in the gables and cornice is excellent. The interior shows a central hall with a



JAMES MASON HOUSE
Franklin, Conn.

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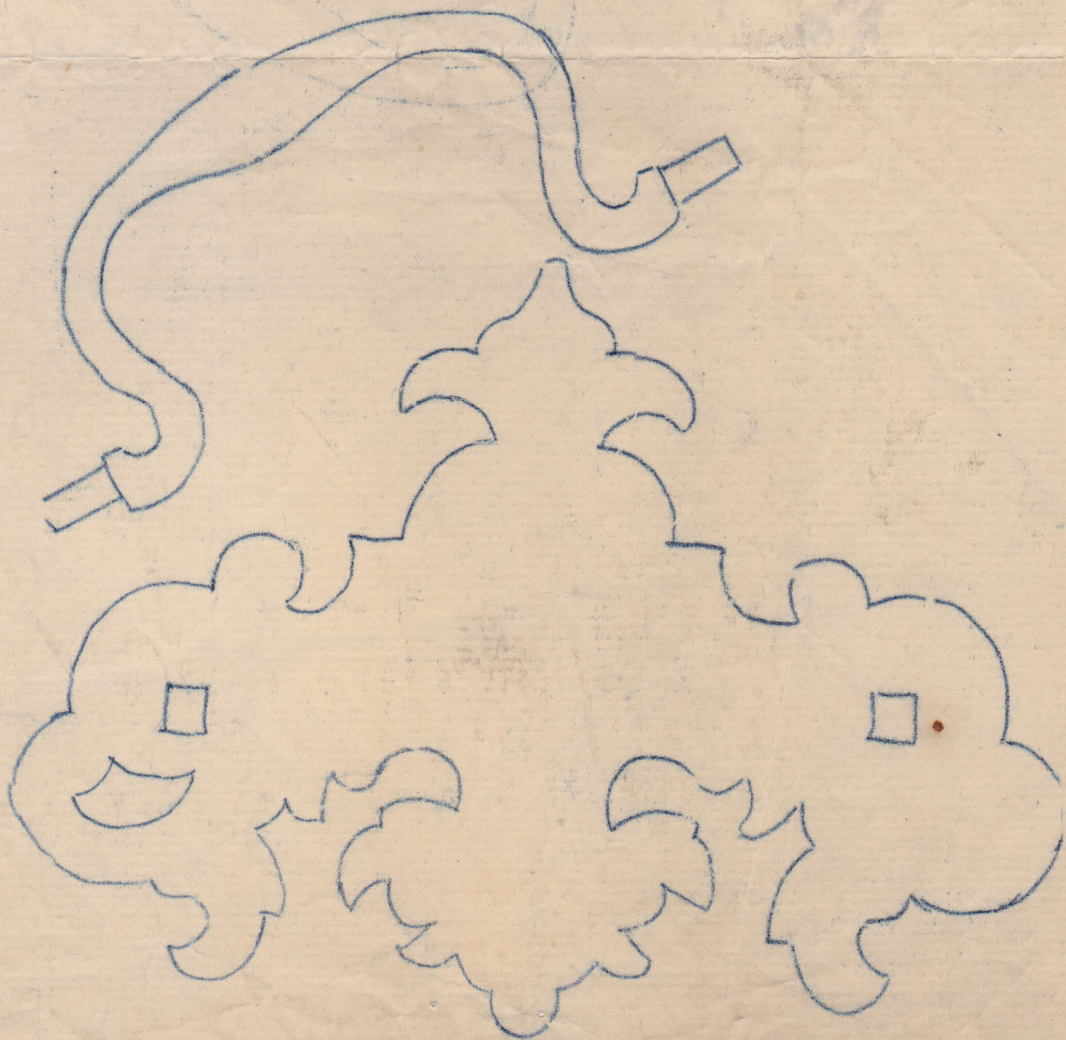
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REPORTS

OF

CASES DETERMINED

IN

The Circuit Court of the United States,

IN AND FOR

THE THIRD CIRCUIT,

COMPRISING

**THE EASTERN DISTRICT OF PENNSYLVANIA, AND
THE STATE OF NEW JERSEY.**

BY HENRY BALDWIN,

One of the Judges of that Court.

"Sed melius et tutius est, petere fontes quam sectari rivulos."
10 COKE 41, a; 117, b.

VOL. I.

PHILADELPHIA :

JAMES KAY, JUN. & BROTHER, 122 CHESTNUT STREET.

PITTSBURGH: JOHN I. KAY & CO.

1837.

WHITNEY AND OTHERS V. EMMETT AND OTHERS.

If the deposition of a witness who is attending in court is read without objection, he may be examined in chief by the party who read his deposition.

A patented invention is deemed useful if it is not frivolous; the want of utility is good cause for not granting the patent, but not for setting it aside.

The prior knowledge and use of the invention which avoids a patent, relates to the time of the application, not the discovery, and to public use with the knowledge and privity of the patentee, not to a private or surreptitious use in fraud of the patent.

If the application is made in a reasonable time after the discovery, any intermediate knowledge or use will not affect the patent. But the invention must be new to all the world.

If the patent is for an improvement, it must be substantially new, one capable of application by the means pointed out by the patent, specification, drawing, model and the old machine.

If by these means the invention and the mode of using it, are intelligible to persons skilled in the subject, the requisites of a specification by the third section of the act of 1793 are complied with.

It is not necessary that the disclosure of the secret should be such as to enable the public to use the invention after the patent has expired, as in England, such being the consideration on which patents are granted there. The difference between their patent laws and ours explained.

If the patent is broader than the invention, if not sufficiently descriptive, taken in connection with the specification, &c., the plaintiff cannot recover. But though the patent is too broad in its general terms, it will be limited by a summary and disclaimer, if they show the thing intended to be patented, and that no claim is made to any thing before known or used.

A patent is a contract with the public in the terms of the law, which must be complied with in the same good faith as other contracts, but as it gives a right of property, it ought to be protected by a liberal construction of the law and the acts of the patentee.

A circuit court can give a judgment declaring a patent void only in the cases provided for in the sixth section. If the patent is defective for any other cause, the court can only render a general judgment for the defendant.

What is a proper subject for a patent, &c.

THIS was an action to recover damages for the violation of a patent for an improved method of making glass knobs, as described in the specification.

“To all persons to whom these presents shall come, Henry Whitney, agent of the New England Glass Company, and Enoch Robinson, mechanic, both of Cambridge in the county of Middlesex, and state of Massachusetts, send greeting :

[Whitney et al. v. Emmett et al.]

“Be it known, that we, the said Henry Whitney and Enoch Robinson, have invented, constructed, made and applied to use, a new and useful improvement in the mode of manufacturing by machinery, at one operation, glass knobs or trimmings for doors, stoves, drawers, sideboards, bureaus, wardrobes, and all kinds of furniture, and other things where glass handles, knobs or ornaments may be used and fastened by spindles running through the centre of them, specified in the words following, to wit:

“This improvement in making knobs, consists in compressing them in moulds, in the manner following. The mould is made of a composition of brass and copper, cast steel or other metal, of a size and shape suitable to contain the knob, of which mould a model and drawing is deposited in the patent office. It is in two parts, a top part and bottom part; the lower or bottom part is to receive the melted glass and form the main part of the knob, and the top part is to press the knob, form its ornamental face, and to perforate it with a pin longitudinally. The bottom part is made in two pieces, fastened together by a hinge on the backside, with handles on each side, in front, to open and shut it, and a clasp to fasten it together, while receiving the melted glass and the impression. The bottom part terminates upward by a tube, cylindrical or nearly so, from one-eighth to four-eighths of an inch high, according to the size of the article to be made, into which the top part of the mould enters to compress and form the knob and stamp its face. The top part is of a size and shape suitable to enter and fill the cylindrical space at the top of the bottom part; on its face or underside is a die, figured with circles, rings, hearts, roses, leaves, fruit, animals, or any other fancy or ornamental shape, which has been or may be used in brass or other ornaments, or the face may be made plain.

“Into the top part is fastened a steel pin, of a square, round or any other shape, projecting from it perpendicularly downward, of a length sufficient to penetrate quite through the article to be made. To reject the surplus quantity of glass and prevent its accumulation in the mould from the quantity displaced by the pin in perforating the knob, a hole nearly of the size and shape of the pin, is made perpendicularly downwards through the under part of the bottom piece of the mould, through which the surplus glass is driven by the expression in forming the article.

“To use the mould, we place the bottom part on a table, on which is perpendicularly erected a standard twelve or fourteen inches high,

[Whitney et al. v. Emmett et al.]

for the purpose of attaching to it a lever, to force down the top part and give the impression, and to hang a gate turned on a pivot, to which the top part of the mould is fixed. On the end of the lever behind the standard, a spiral or other spring is fastened, which is also fastened to the table, to suspend the top part of the mould when it is raised by the lever. The position of the top is so adjusted, with reference to the bottom part of the mould, by a guide fastened to the standard, that when the power is applied to the lever to compress the glass, the top exactly shuts into the bottom part and forces the pin through the knob into the hole below it.

“The mould being thus prepared for use, the top is raised by the lever and turned a little on one side by the gate to give room to drop the melted glass into the bottom part of the mould. The glass is then gathered from the pot and dropped into the bottom part of the mould, which is already closed and secured against opening by the clasp; the gate is then turned back against the guide, so that the top of the mould is brought directly over the bottom, and by the application of power to the lever the article is at once compressed, formed and finished; the top is then raised by the lever, the clasp on the bottom part is unfastened, the mould is opened by the handles, and the knob taken out so entirely finished, that it only requires fire polishing to make it a neat article fit for immediate use.

“We do not claim to be the original inventors of the mould, as applied to the formation of glass wares, but admit that for many purposes it has been heretofore used. Our invention consists in this, a new combination of the various parts of the mould, with the use of the pin and machinery before described, in such a manner as without any blowing to produce a finished knob with a hole perforated through it, and a neck or enlargement, so that it will not come out of the mould without opening it, at one operation, by compression merely.

“In testimony that the above is a true specification of our said improvement, as above described, we have hereunto set our hands and seals, this 22d day of August, in the year of our Lord 1826.”

A drawing and model of the improved machine were produced at the trial, as also the old machine, and the one used by the defendants, which was alleged to be the same in substance as the one patented; the fact and extent of the infringement were admitted,

[Whitney et al. v. Emmett et al.]

as well as the general utility of the improved machine, so far as was required by law.

The cause turned on the validity of the patent, which was alleged to be void, because the invention was not new, and the specification defective; much evidence was heard and read on the questions of fact, but no questions of law arose except such as were founded on the patent and specification.

Mr C. Ingersoll and Mr C. J. Ingersoll, for defendants.

The patent is void on account of the defect in the specification, in not describing what parts of plaintiff's machine are old and what parts are claimed as his invention; it is the more necessary in this case as the patent embraces the whole machine, whereas it is admitted that only parts were invented by the plaintiffs. If the improvement is not so specified as to discriminate between the original and improved machine, and the patent is taken according to its terms, it is broader than the invention, and therefore void. 1 Gall. 479, 480; 11 East 110. The law requires the specification to explain the precise improvement patented; if it is for a new combination of the old parts, the improved mode of operation and construction must be particularized; if for any new parts or additions, they must be specified, and their connection with the old parts explained. The specification is defective in both particulars; the law requires that it should set out every thing necessary to enable others to avoid any interference with the thing invented, to describe it in such clear terms that others can use it, and the public have the benefits of it after the patent right has expired, otherwise it is void, although we do not make out a case of fraudulent addition or concealment, according to the terms of the sixth section of the law.

If the specification is not strictly conformable to law, the patent is void, to whatever cause it is owing; it must speak for itself, Say 254, so as to be intelligible without extraneous explanation, for the full and perfect explanation and description of the thing patented is the consideration of the grant, for the want of which it is void. 7 Wheat. 423, 468. A perfect description is the plaintiff's only title, which he must make out affirmatively on the face of the specification, for the benefit of the public, who are parties to all suits on patents, and public policy declares them void if they do not meet every requisition of the law. Davis on Patents 55, 56.

Patents being monopolies, in derogation of common law rights,

[Whitney et al. v. Emmett et al.]

are deemed odious in the law, unless they are clearly for an invention of the patentee; if the subject matter is not new, though new to the inventor, his patent is void, or if the patent embraces any thing not new. In this case the summary, which is the outline of the patent, refers to the whole machinery, without a clue to separate the old from the new, the parts disclaimed are useless, and those claimed are a mere change of the forms and proportions of the old parts. Judging from the specification, the patent is not for an improvement on a machine, or an improved machine, but for a result which is pointed out, it is wholly obscure as to the mode of operation, and the particular combination of the old and new parts which produce this result, on this account the patent is void. But if it is valid the plaintiff cannot recover in this case, because his patent is for a combination of machinery, and he has not shown that our machine adopts his whole combination, 1 Mason 474, 475, or in what particular it is an infringement of his right.

Mr Cadwalader and Mr Sergeant, for plaintiffs.

If inventors are not protected, great injustice is done them, because they cannot be restored to their rights after they have disclosed their invention to the public by a specification, which enables any person to take advantage of it. In this case the invention is very plainly described in detail in the body of the specification, and in summing it up at the close, by declaring it to consist of a new combination of the various parts of the mould, &c., disclaiming its original invention and admitting its former use. It is not necessary to describe the old machine or its parts, which are as well known and familiar to a person who understands machinery, as a watch; a patent for an improvement on a watch is good without describing the watch, Davis 45, 56, so of a steam engine, 8 Durnf. & East 98, or an improvement in mill machinery. 3 Wheat. 511, &c. The specification is addressed to engineers and persons skilled in the business to which the improvement relates, Davis 214, 216, if they understand the invention, and can produce the result, the object of the law is answered; when others are enabled to make the improved machine from the directions given in the specification, this is the scope and end of the matter, Pl. 18, required by the law, and when this can be done the patent is good, though the description may be imperfect, if it is not designedly so to mislead the public, 1 Peters C. C. Rep. 400; 1 Gall. 479, 480, and the disclosure made in the

[Whitney et al. v. Emmett et al.]

same good faith that is required in other contracts, 14 Ves. 131, 136 ; 1 Durnf. & East 606. By applying the specification to the old and improved machines, and putting them into operation, the invention is at once intelligible ; and the summary and disclaimer limit it to the new combination, 2 Mason 112 ; 8 Durnf. & East 103, so that it is as broad as the patent. By applying the same test to the defendant's machine it is apparent that the whole improvement of the plaintiffs is used ; if they allege that any part of what is claimed as the invention had been known or used before our application for a patent, the burthen of proof rests on them to prove it to have been a public use, and not one in fraud of the patent, or after notice of the application. Pennock v. Dialogue, 1 Peters 4, 14. Patents give a right of property in the invention, they are construed as other grants are, liberally in favour of the grantee, and so that they shall be sustained, where there has been a substantial compliance with the law, and the subject matter is a practical improvement. 11 East 110 ; 2 H. Bl. 495 ; 1 Durnf. & East 606.

BALDWIN, J., to the jury.

The plaintiff's patent is for a new and useful improvement, in the mode of manufacturing glass knobs by machinery at one operation, by spindles running through the centre of the knob, without blowing. The specification describes the manner of doing it, and concludes with a declaration, summing up the invention and disclaiming the right to the exclusive use of the mould, as formerly used, but claiming the invention to be a combination of the parts, with the use of the pin and machinery before described.

It is admitted by the defendants that they have infringed the right of the plaintiffs as claimed by their patent, to the extent set forth in an account furnished under an order on the equity side of this court ; also that the subject matter of the patent is so far useful as to come within the meaning of the law. But it is contended that the patent is void for two reasons. 1. Because the thing patented was not a new invention of the plaintiffs. 2. Because the specification which accompanies the patent is defective, in not discriminating between the old and new machine, and specifying the improvement patented ; and by embracing in it the old parts of the machine, making the patent broader than the invention. These objections depend on the acts of congress directing patents to be issued on certain conditions,

[Whitney et al. v. Emmett et al.]

which must be complied with in order to give action to the special authority conferred. 2 Peters 18, 21.

The subject matter of a patent is "the invention of any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereon, not known or used before the application." Act of 1793, 1 Story 300, 301, &c.

No question is raised as to the utility of the plaintiff's machine; the word "useful" in the law is well settled to be used in contradistinction to frivolous improvements and inventions, or such as are injurious to the public; 1 Mason's Rep. 185, 302; 4 Mason's Rep. 6; the want of utility may be a good reason for not issuing a patent, but is no cause for avoiding it. 1 Peters's C. C. Rep. 403, 480; 4 Wash. 12. The first important inquiry therefore is, whether the plaintiff's patent is for a new improvement or invention made by them. It had been the subject of much difference of opinion, whether the words "not known or used before the application," in the first section, meant, "but had been in use or described in some public work anterior to the supposed discovery," as in the sixth section, or "known or used previous to such application for a patent," as in the first section of the act of 1800, 1 Story 752.

It had been decided in the circuit courts that the previous knowledge and use related to the discovery, and that a patent was good though the invention was known and used at the time of the application, as the patent would relate to the discovery, unless the patentee had permitted its use under such circumstances as to authorize the presumption of abandonment, or dedication of the invention to public use. 1 Paine 300, 352; 1 Gall. 472; 4 Wash. 72, 541, 708; 2 Wash. 345; 4 Mass. 111.

But in *Pennock v. Dialogue*, the supreme court have referred the words "known and used" to the application for the patent, according to the construction given by the English courts to the statute 21 Jac. 1, ch. 3, sect. 5; 3 Ruff. 92, the words of which are, "which others at the time of making such letters patent and grants shall not use," which is thus construed, "for albeit it were newly invented, yet if any other did use it at the making of such letters patent, or the granting the privilege, it is declared and enacted to be void by this act." 3 Co. Inst. 184; Vide 3 Wh. 514, S. P.

A previous use to avoid a patent must not be a private or surreptitious use in fraud of the patentee, but a public use by his consent, by a sale by himself, or by others with his acquiescence, by which

[Whitney et al. v. Emmett et al.]

he abandons his right, or disables himself from complying with the law; it is deemed a fraud in law to take out a patent after such use. 2 Peters 20; 4 Wash. 538; Holt's N. P. 58, 60.

But unless the invention has been more or less used by others, or publicly communicated by the patentee, his patent will be sustained; the rule is well illustrated in the English cases, as adopted by the supreme court. If the first inventor makes the discovery in his closet, and confines the knowledge to himself, such knowledge will not invalidate a subsequent patent to another for the same thing. On the other hand, though persons engaged in the business to which it relates are generally ignorant of the invention, yet if one person had used it for some time with the knowledge of his two partners, and two servants engaged in its manufacture, and it appeared that a chemist had, in conversation with the patentee, suggested the basis of the invention; or when he had been informed of it by a person whom he employed to make models of the machine; or had adopted a machine which had been in a degree before used by a few, though a general ignorance of it was proved by many persons engaged in the trade, the patent is not good. Davis's Pat. Cas. 61; 2 H. Bl. 470, 487; 8 Taunt. 396, &c. and cases cited; S. C., 4 C. L. 375.

The priority of knowledge and use is a question of fact, which a jury may decide on the evidence of one witness; though numerous others of the greatest knowledge and skill in the matter are wholly ignorant of the invention, the question is on the credibility, not the number of witnesses. 8 Taunt. 395; 4 Wash. 69, 72, 543, 544. The time during which the thing patented had been known and used is not material, the criterion is its public, not its private or surreptitious use, but the use with the consent of the inventor express, or implied from circumstances. A patentee may take a reasonable time to make his specification, drawings, model, to try experiments on the effect and operation of his machinery, in order to know whether the thing patented can be produced in the mode specified; he may disclose his secret to those he may wish to consult, or call to his assistance any persons to aid him in making or using his machine, and preparations for procuring his patent. So if the machine is to operate publicly, as in steam boats, a public experiment may be made, or if the patentee is informed that others are using his invention, he may disclose it to them in order to give notice of what it consists, and caution them against its infringement. In either of these and like cases, a disclosure of the secret would not be such

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previous knowledge, or the use of the invention be such an use, as would impair the patent if taken out in a reasonable time after the discovery, the question of due diligence or negligence is for the jury on all the circumstances of the case. Though the discovery by the patentee is new, yet if he is guilty of negligence in procuring his patent, by which the invention has become publicly known, and used by any persons, he has no right of action, the use must be surreptitious in fraud of his right in order to protect it. As to the novelty of the invention the rule is this, "it must be new to all the world, not the abstract discovery, but the thing invented, not the new secret principle, but the manufacture resulting from it; it must be new at the time of the application for the patent, in the words of the law; 2 Peters 20, 22; but it will be considered as new then, if the application is within a reasonable time after the discovery, if the patentee has not sold or permitted the use of the invention. There is this difference between the patent law of England, and the United States, arising out of the phraseology of their respective laws; the words of the statute of James are, "new manufacture within this realm," which are held to authorize a patent for an invention known and used in other countries, if it is new in England. 1 Salk. 446, 447. By the act of 1800, which is a gloss or commentary on the act of 1793, 2 Peters 22, the patentee must prove that the "invention hath not been known or used in this or any foreign country," hence it is held void if known or used before any where. 1 Peters C. C. Rep. 400; 1 Wash. 170; 2 Wash. 311; 3 Wash. 433; 4 Mas. 109. The novelty of an invention is either the manufacture produced, or the manner of producing an old one; if the patent is for the former, it must be for something substantially new, different from what was before known; if the latter, the mode of operation must be different, not a mere change of the form and proportions; if both are the same in principle, structure, mode of operation, and produce the same result, they are not new, though there may be a variance in some small matter for the purpose of evasion, or as a colour for a patent. Nor is a discovery of some new principle, theory, elementary truth, or an improvement upon it, abstracted from its application, a new invention. But when such discovery is applied to any practical purpose, in the new construction, operation or effects of machinery or composition of matter, producing a new substance, or an old one in a new way, by new machinery, or a new combination of the parts of an old one, operating in a peculiar, better, cheap-

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er, or quicker method, a new mechanical employment of principle already known, the organization of a machine embodied and reduced to practice on some thing visible, tangible, vendible, and capable of enjoyment, some new mode of practically employing human art or skill. It is a "discovery," "invention" or "improvement," within the acts of congress, and a "new manufacture by the statute of James." 2 Gall. 55; 1 Mas. 191; 3 Wash. 449; 4 Wash. 71, 542; 7 Wheat. 361, 431; 8 Taunt. 391; 4 Burr. 2361; 2 H. Bl. 468; 8 D. & E. 95; 2 B. & A. 349; 1 Gall. 481; 4 Mason 6, 9. A patent may be for a mode, or method of doing a thing, mode when referred to some thing permanent, means an engine or machine, when to something fugitive, a method, which may mean engine, contrivance, device, process, instrument, mode and manner of effecting the purpose; the word principle may mean engine in an act of parliament under which the patent issued, or may mean the constituent parts thereof. A patent for a method of producing a new thing, may apply to the mechanism, a new method of operating with old machinery, or producing an old substance; a patent for a mode or method detached from all physical application, would not refer to an engine or machine, but when referred to the mode of operation, so as to produce the effect, would be considered as for an engine or machine. The words used as mode or method, are not the subject of the patent; it is the thing done by the invention, and patents are so construed *ut res magis valeat quam pereat*.

On this principle the patent of Mr Watt "for a method of lessening the consumption of steam and fuel in fire engines," was sustained; as the intent was apparent, no technical words were deemed necessary to explain its object; and it was held to be a patent for an engine, machine and manufacture; such is the established law here and in England. 3 Wheat. 512; 8 Durnf. & East 107, 108; 3 Ves. 140.

You will apply these rules and principles of law to the whole evidence, without regarding so much the words as the evident intention of the patent; ascertain what is the subject matter of the patent, and the thing patented, next whether it was invented by the plaintiffs, and then whether it had been known and used before the application for the patent, in this or any other country, in such a manner as, within the rules laid down, would invalidate the right of the privilege granted.

The plaintiffs must make out their case to be within the law in

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all the particulars required, slight evidence is sufficient; 1 Durnf. & East 606, 607; 2 Peters 18, 19; if you believe plaintiffs' witnesses, their testimony is in law sufficient to establish their right, so far as respects their invention and its novelty; the burthen of proving the previous invention, knowledge or use of the thing patented is on the defendants. They have given evidence sufficient in law to prove it, if you are satisfied of its truth in fact; the plaintiffs must rebut it by legal and credible evidence, or your verdict must be for the defendants. On this part of the case you will decide according to your opinion as to the matter of fact. Should you find that the plaintiffs are the inventors of the thing patented, and that it was not known or used so as to affect the validity of the patent, the next question is one of law, whether the invention claimed is a proper subject matter for a patent. On this point we have no hesitation in instructing you, that it is an improvement on a machine, manufacture or composition of matter, within the words and meaning of the law.

The next inquiry is, whether the patent is affected by the objections founded on the specification, viz., that it is broader than the invention, and otherwise defective. This depends on the construction of the words used to denote the intention of grantor and grantee, "as the end and scope of the matter, which is the matter itself, and the intent thereof also accomplished." Pl. 18, a.

The patent is for a new and useful improvement in the mode of manufacturing glass knobs, which is broad enough to include the whole machinery described in the specification, including the old machine and the old process of manufacture, not claimed by the plaintiffs as their invention. But the subsequent words summing up the invention intended to be patented, disclaiming the invention of the mould and other parts of the old machine, and declaring the patent to be for a new combination of the various parts of the mould, with the use of the pin and machinery before described, operate as a proviso restraining and limiting the patent to the object so specified, and excepting all other parts from the more general description. The disclaimer, at the close of the specification, estops the patentee from setting up any privilege to the part disclaimed, and the summary is equally binding on him, as a limitation to the thing patented. 2 Mason 112; 4 Wash. 14, 704; 8 Durnf. & East 96, 103, 107. The specification is a part of the patent, and, taken together, they show that the subject matter patented is not the old machine, or its

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constituent parts in their distinct operations ; but the combined result of the new and old machinery, produced by a new combination, addition and improvement. "The distinction between a machine and an improvement on a machine, or an improved machine, is too clear for them to be confounded ; a grant of the exclusive use of an improvement in a machine, principle or process, is not a grant of the improvement only but the improved machine, an improvement on a machine and an improved machine are the same." 3 Wheat. 456, 509, 517 ; 7 Wheat. 356, 423 ; 4 Wash. 9, 14, 709 ; 1 Gall. 482. A patent for a machine, consisting of an entire new combination of all its parts, is good, though each part has been used in former machines, if the machine is substantially new in its structure and mode of operation ; but if the same combination existed before, in machines of the same nature, up to a certain point, and the invention consists in adding some new machinery, in some improved mode of operation, or some new combination, the patent must be limited to the improvement, if it includes the whole machine it cannot be supported. 7 Wheat. 430, 431 ; 2 Marsh. 211, 213 ; 2 H. Bl. 487 ; 1 Peters's C. C. Rep. 343 ; 1 Gall. 482 ; 2 Mason 116 ; 4 Wash. 543. A patent must not be broader than the invention, or it will be void, not only for so much as had been known or used before the application, but also for the improvement really invented. Bull. N. P. 76 ; 11 East 110 ; 1 Gall. 440 ; 2 Gall. 54 ; 1 Mason 188 ; 2 Mason 109, 111.

The improvement patented must be the improvement invented ; 8 Taunt. 394 ; 3 Mer. 629 ; if for a discovery, it must be for something new, not for an improvement only, each item must be a new invention, and the discovery must not fail in a material part ; 2 B. & A. 345, 351 ; 4 B. & A. 549, 552 ; 1 Durnf. & East 605, 606 ; 2 Marshall 213, 214 ; 7 Wheat. 430 ; if for an improvement on a machine, the patentee must show the extent of the improvement, so that a person who understands the subject may know in what it consists ; 3 Wheat. 518 ; it need not describe the old machine, but must limit the patent to such improvement. 7 Wheat. 435.

In using the word patent, in reference to the description of the thing patented, we must be understood as including the patent, the specification attached to it, with the model and drawing in the patent office, all of which are to be taken together as the description.

In deciding on its sufficiency, the court inspect the whole description as one paper, which they assume to be true in fact, and if found

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to be in conformity with the requisitions of the law, so that it appears with reasonable certainty, either from the words used or by necessary implication, in what the invention or improvement consists, as claimed by the patentee, they will adjudge it sufficient. 1 Mason's Rep. 188, 189. A description, though in some respects obscure, imperfect, or not so intelligible as to fully answer all the objects of the law, is good if it enables the court to specify the improvement or invention patented, from the face of the patent and accompanying papers. It is enough if there is a substantial description of the thing patented, though defective in form or mode of explanation. In this respect the papers will be viewed in the same light as a declaration in a suit at law; the court, looking on them as a statement of the patentee's right and title, will overlook all defects in the mode of setting it out, if it contains a substantial averment of such matter as suffices in law to make out a cause of action. This is a question of law which the court decides, it is a question for the jury to decide, whether the statements are true in fact; the court does not look beyond the patent and the other papers, but the jury decide from the papers, the evidence of the witnesses, an inspection of the old and new machine and the model, to ascertain whether in point of fact the specification, as made out at the trial, is sufficient. 7 Wheat. 428, 433, 435, 366, 456, 457; 11 East 113; 14 Ves. 131, 135; 3 Ves. 140; 1 Paine 207, 446; 1 Durnf. & East 602, 604; 8 Durnf. & East 100, 108; 2 H. Bl. 473; 8 Taunt. 401; 1 Mason's Rep. 189.

In the present case our opinion is, that the description is sufficient in law, but whether it is sufficient in fact, is for you to decide according to your own opinion on the evidence, a comparison of the old and new machines, the mode of operation, the effect produced, and an examination of the model and all the papers. If the new machine, and its mode of construction and operation, is so explained as to enable you to specify the distinct improvement patented, then the specification is good in law and fact, unless it appears that something has been omitted which is required by the acts of congress to make the patent valid.

The third section of the act of 1793 directs certain things to be done by the applicant for a patent before he is entitled to it, and gives the reasons therefor, but does not declare that the patent shall be void, if all the acts directed have not been complied with previously to its being granted.

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The sixth section specifies the cases in which the patent shall be void, which are not the omission of what was directed in the third section, but the defendant proving "that the specification filed by the plaintiff does not contain the whole truth relative to his discovery, or that it contains more than is necessary to produce the described effect, which concealment or addition shall fully appear to have been made for the purpose of deceiving the public, or that the thing thus secured by patent was not originally discovered by the patentee, but had been in use, or had been described in some public work anterior to the supposed discovery of the patentee, or that he had surreptitiously obtained a patent for the discovery of another person, in either of which cases judgment shall be rendered for the defendant, with costs, and the patent shall be declared void."

It is the exclusive province of the legislature to discriminate between what acts are to be done to authorize a patent to issue, and those which will make it void if done or omitted. When this has been done in clear explicit terms, a court cannot superadd requisites to the grant of the patent, or include other acts than those specified, which authorize them to declare it void, or so declare it if the specified acts or omissions are not proved to be fraudulent, or the thing patented was not new, &c. Laws are construed strictly to save a right or avoid a penalty, they are construed liberally to give a remedy, or to carry into effect an object declared in the law; but if a court, by construction, add an object not so declared, apply the penal provisions of the law to a case not within its definition, or exclude from the remedy provided a case defined, it is judicial legislation of the most odious kind, necessarily retrospective, and substantially and practically *ex post facto*. It is equally so to confound the parts of a law which are merely directory as to the acts to be done, with those which prescribe acts as conditions precedent to the vesting a right, or define those acts or omissions which authorize a court to annul a grant; for the direct effect would be, to impose on a plaintiff in a patent cause a forfeiture of his right by construction, when by the provisions of the law he was entitled to damages treble the amount of the injury he had sustained. No case could arise in which the language of the supreme court, in *Fletcher v. Peck*, would be more forcibly applicable; the character of *ex post facto* legislation, so severely reprobated in their opinion, would not depend on the tribunal which exercised it. Vide 6 Cranch 138, 139.

We cannot therefore give our sanction to the positions assumed by

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the defendants' counsel, that the patent is void if the specification is in any respect defective or for whatever cause, and that the public are parties to all suits for the infringement of patent rights. Congress have, in the sixth section, prescribed the rules of our decision in cases between individuals, and defined the causes for declaring a patent void on proof by a defendant; the trial is on a question of property, of private right, unconnected with the public interest, and without any reference to the public, unless a case is made out of a design to deceive them, and we cannot better express our sentiments on this subject, than in the words of a great English judge. "It is said it is highly expedient for the public, that this patent having been so long in public use, after Mr Arkwright had failed in that trial, should continue to be open; but nothing could be more essentially mischievous, than that questions of property between A and B, should ever be permitted to be decided upon considerations of public convenience or expediency. The only question that can be agitated in Westminster Hall is, which of the two parties, in law or justice, ought to recover." By lord Loughborough. *Arkwright v. Nightingale*, *Davis's Patent Cases* 56.

We know of no principle which affords to this court a safer guide in administering justice in this building. Congress seem to have adopted it in the tenth section, by authorizing the district court in certain cases, by a summary process in the nature of a *scire facias*, to repeal the patent, which is a public prosecution in which public considerations operate, the sixth section is confined to civil suits in the circuit court. Herein consists an important difference between the patent law of England and this country. The statute of James I. did not regulate the action for an infringement of a patent right, consequently the English courts could only render judgment for the defendant, if the patent was not valid; they could not declare it void by a regular judgment, and the plaintiff could bring successive actions. The patent could be annulled, only by a *scire facias* in chancery, at the suit of the king; *King v. Arkwright*, *Davis* 144; and in a suit for damages, nothing could be decided but the right of property; *Davis* 56; the law of England having been thus declared in 1785, accounts for the sixth and tenth sections of the act of 1793, which were evidently predicated on these decisions, and passed with a direct reference to them, as held by the supreme court in 2 *Peters* 14.

In referring to the English adjudications on the statute of James,

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we must therefore be careful to take the expressions of the judges in civil suits at common law, that a "*patent is void*," as not meaning that it becomes void by a judgment in favour of a defendant, on the ground of its invalidity in law; but only that it is voidable in chancery on a scire facias for that cause, and in a court of law, void as a legal foundation for an action for damages. A judgment in a court of law concludes only the parties to the suit, the patent may be given in evidence in other suits against new defendants, till it is cancelled in chancery; here it becomes annulled by a judgment in favour of a defendant in a circuit court, on proof of the kind required by the sixth section, or a judgment in the district court against the patentee, according to the provisions of the tenth.

In England a patent is granted as a favour, on such terms as the king thinks proper to impose; Godson 46, 48; 4 B. & Ald. 553; here a patent is a matter of right, on complying with the conditions prescribed by the law. 1 Paine 355. There the patent is not accompanied with a specification, none is filed or enrolled at the time, but it is done within the period prescribed in a proviso, setting forth the requisites of the specification, as conditions to be performed in order to make the patent valid, if not done it declares the patent void; these conditions are in the discretion of the king, but neither they or the objects or reasons for granting the patent are declared or set forth; but the patent contains a declaration, that it shall be construed and adjudged, most favourably and benignly for the best advantage of the grantee, notwithstanding any defective and uncertain description of the nature and quality of the invention and its materials. Godson 50, 155, 157, and cases cited; Bull. N. P. 76; 11 East 107; 14 Ves. 136.

In deciding on the sufficiency of these specifications, lord Mansfield states the questions to be, whether it is sufficient to enable others to make up the thing patented, and the public to have the benefit of the invention after the patent has expired. Bull. N. P. 76, 77; Liardet v. Johnson, 1778.

These are the two tests which are applied to the specification, not by the words of the statute, but by the courts, in order to effectuate its supposed policy, as is very clearly expressed by Buller, J. in the King v. Arkwright. "The party must disclose his secret, and specify his invention in such a way that others may be taught by it to do the thing for which the patent is granted; for the end and meaning of the specification is to teach the public after the term for which

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the patent is granted what the privilege expired is, and it must put the public in possession of the secret in as ample and beneficial a way as the patentee himself uses it. This I take to be clear law as far as respects the specification, for the patent is the reward which, under an act of parliament, is held out for a discovery, and therefore, unless the discovery be true and fair, the patent is void; *Davis* 106, 128; such is the settled rule in England; *Davis* 55 to 60; 1 *Durnf. & East* 605, 608. In its practical application it has been uniformly held, that the clearness of the specification must be according to the subject matter of the patent, it is addressed to persons in the profession, having knowledge and skill in the subject matter, from the nature of their business; if they can so understand it as to make the thing patented, by following the directions of the specification and plan, taking the old machine to their assistance, without any new invention of their own, then the patent is good, though men ignorant of the subject to which it relates may not understand it. *Davis* 56, 128; 11 C. L. 472; 11 *East* 108.

The patentee must specify his invention clearly and explicitly; any ambiguity affectedly introduced into the specification, or any thing done to mislead the public, will make it void. 1 *Durnf. & East* 606, 607. If the specification is sufficient in any part, any other part which is not necessary to understand it may be rejected as surplusage; 2 *H. Bl.* 489; 11 *East* 111; one part may be substituted for another. 1 C. & P. 566; 11 C. L. 468. If the patentee of an old machine procures a new patent, with certain improvements on the old machine, reciting the old patent, and with a specification of the whole machine so improved, but not describing the new parts or referring to the old specification, the new patent was held good by a reference to the old specification and drawing, and comparing the new with them; 11 *East* 101, 113; the patent of *Mr Watt* was sustained on the same principle; the description was held good by referring a workman to the old engine.

The great object of the specification is to prevent the public from being misled by an evasive one having such tendency; a patent is a bargain with the public, in which the same rules of good faith prevail as in other contracts, and if the disclosure communicates the invention to the public the statute is satisfied. 14 *Ves.* 131, 136; 1 *Durnf. & East* 606, 607.

As the English statute does not require a specification, these rules and principles are matters of judicial construction, on which the

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English courts act without any statutory directions. Their patent law is a proviso, excepting from the general prohibition of grants of monopolies by the king, "grants of privilege" "for the sole working or making of any new manufacture within this realm, to the true and first inventor and inventors of such manufactures, which others at the time of making such letters and patents shall not use, so as they be not contrary to law," &c. Sect. 5, 3 Ruff. 92. On this proviso their whole system of jurisprudence as to patents is built, by a series of adjudication according to what the judges presumed to be the object and intention of parliament. The silence of the law left a wide field open to the discretion of courts, in adopting such rules as would best effectuate its design, and best promote the interests of the public. But in this country the law is more explicit.

The constitution gives congress the power "to promote the progress of science and useful arts, by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries." This is a declaration by the supreme law of the land, of its objects and purposes, and the means of effecting them, which leaves no discretion to the judges to assign or presume any other or different ones.

The acts of congress of 1790, 1 Story 80, and of 1793, 1 Story 300, are the execution by congress of their constitutional powers; the title of these acts is "to promote the progress of the useful arts;" the mode of doing it is by granting patents pursuant to the enacting clauses. The conditions of such grants are prescribed, among which is a specification or description of the invention to be patented, the requisites of which are defined: "and shall deliver a written description of his invention, and of the manner of using, or process of compounding the same, in such full, clear and exact terms as to distinguish the same from all other things before known, and to enable any person skilled in the art or science of which it is a branch, or with which it is most nearly connected, to make, compound and use the same. And in case of any machine, he shall fully explain the principle and the several modes in which he has contemplated the application of that principle or character, by which it may be distinguished from other inventions." As to the specification then nothing is left to construction as to its requisites or purposes, both are so clearly defined, and in such a manner as to leave no discretion in courts to presume what was intended, to alter, add or diminish, where the law is so explicit.

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With the constitution, the English statute and the adjudication upon it before them, congress have declared the intention of the law to be to promote the progress of the useful arts by the benefits granted to inventors; not by those accruing to the public, after the patent had expired, as in England. This is most evident from their imposing as conditions, that the invention must be new to all the world, and the patentee be a citizen of the United States. If public benefit had been the sole object, it was immaterial where the invention originated, or by whom invented; but being for the benefit of the patentee, the meritorious cause was invention, not importation, and the benefit was not extended to foreigners, in which respects the law had been otherwise settled in England.

Here the patent contains no proviso declaring it void, if the specification is not in conformity with the law; this is provided for in the sixth section as a substitute for the proviso, and defines the causes for which a circuit court can adjudge a patent void, in a civil suit, for defects in the specification. These are concealment or addition, fully appearing to have been made for the purpose of misleading the public, which is wilful fraud clearly proved; but the court cannot bring within this definition a patent with a specification defective on other grounds, still less act upon the English principle, that the specification is for the purpose of giving the public the benefit of the invention, after the expiration of the patent, as that would be in contradiction to the act of congress expressly assigning other reasons. Such has been the uniform construction of the law in the circuit courts, that a patent can be declared void for no other defect in the specification than fraudulent concealment or addition. 1 Peters's C. C. Rep. 401; 1 Wash. 171; 3 Wash. 198; 1 Mason 189, 190; 1 Gall. 434; 7 Wheat. 429, 430.

No discretion is left to the circuit courts to annul a patent for any reason not contained in the acts of congress; they have not left us free to infer motives, objects and grounds of supposed policy for requiring specifications; the third section of the act of 1793 defines them without any declaration, that the patent shall be void if the specification is defective. English decisions therefore, founded on the assumed reason for the grant of a patent, are not of authority here where the constitution and laws give other reasons, and omit the one founded on the public benefit to result from the disclosure after the expiration of the privilege. You will therefore not make that a subject of deliberation, for it is not material whether the

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public can profit by the invention during or after the term of the patent. The true inquiry is whether, in the spirit of the law, the plaintiffs have made such a description of the thing patented as to distinguish it from all others before known, and to enable others skilled in the matter, to make, compound or use it, and to explain the principle and mode of application by which it can be so distinguished from other inventions. If from the patent, specification, drawings, model and old machine, clear ideas are conveyed to men of mechanical skill in the subject matter, by which they could make or direct the making of the machine by following the directions given, the specification is good within the act of congress. 3 Wheat. 518 ; 7 Wheat. 435.

‘If the plaintiffs’ patent is valid, it gives them a right of property in the thing patented, which is entitled to full protection in courts, the wise policy of the constitution and laws, for securing to inventors the exclusive privilege to use their discoveries for a limited time, has been fully illustrated by the great results produced by the skill of our citizens. Intended for their protection and security, the law should be construed favourably and benignly in favour of patentees, in the spirit of the proviso in patents in England. When the invention is substantially new, is useful to the public, and the disclosure by the specification and other papers, is made in good faith, and fairly communicated in terms intelligible to men who understand the subject, juries ought to look favourably on the right of property and to find against a plaintiff only for some substantial defect in his title papers, or proof.

Having given you our opinion on all the questions of law applicable to the case, it is submitted to your verdict.

If you think the thing patented not new, but had been known or used any where, before the application for the patent, you will find generally for the defendants; so you will find, if the alleged improvement is in fact only a change of the form and proportions of the old machine or process.

If you think the specification, &c. not descriptive of the invention, so as to be in compliance with the requisitions of the third section of the law, through accident, mistake or ignorance, you will find for the defendants, and specify the ground of your verdict.

If you think the defect in the specification was intended to mislead the public, or should find against the plaintiffs on any other ground specified in the sixth section, you will specify it in your find-

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ing, so that the court may render the proper judgment, either generally for defendants, or add a judgment the effect of which will annul the patent.

If you think the plaintiffs have made out their case, you will find such damages as they have proved they have actually sustained, they must prove their damages, if they have not done so you are not to supply the defect.

Verdict for plaintiffs 500 dollars.

A motion was made for a new trial for excessive damages, which was argued at October term 1831.

Mr C. Ingersoll and Mr C. J. Ingersoll, for defendant.

The jury have exceeded the actual damage sustained by the plaintiff, which the law has made the standard for their verdict.

By the fourth section of the law of 1790, 1 Story 81, the plaintiff was to recover "such damages as shall be assessed by a jury," by the fifth section of the act of 1793, "three times the price of a license to use the invention;" 1 Story 302; by the third section of the act of 1800, 1 Story 753, "three times the actual damages sustained from or by reason of such offence." The meaning of this clause is apparent by a reference to the statute of James I., section 4, "shall recover three times so much as the damages he or they shall have sustained by means or occasion," &c.; 3 Ruff 92; by adding the word "actual," congress intended to exclude potential or speculative damages; actual means "real, not potential," Johnson's Dict., "real or effective," "that exists actually," "existing in fact," Webster's Dict., not what may be; 1 Gall. 485; the court must decide what are actual damages, even in case of a tort the jury ought to give the reasons of their verdict; Comb. 357; 2 Wils. 160; the court may ask them what they have made the standard of their verdict in patent cases; 1 Gall. 485; in 1 Wash. 403, 480, Judge Washington referred to the profitable use of the invention by the defendant. In 3 Wheat., App. 26, the value of the use to the defendant is stated as the rule of damages. The injury done to the character of the plaintiffs was by the defendants making an inferior article, the reduction of the price by competition are merely speculative damages; the actual damage sustained, is to be ascertained as in cases of waste, the value of the property or estate wasted. The actual loss sustained by the infringement of a patent, is the

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profit made by the defendant while he uses the invention, the saving of labour by the improved machine, without regarding the value of the use of the parts not patented; the difference in the profits resulting from the use of the old as compared with the new, calculated by the time and extent to which the defendants have used it, is the true rule. In this consists the difference between a common law tort and a patent tort, in the former the jury have a discretion in awarding damages, in the latter they have a standard prescribed to them, as definite as on a contract for the payment of money or the delivery of goods; the damages cannot exceed the interest, so in patent cases, the defendant's profits are the measure of the plaintiff's loss.

Mr Cadwalader and Mr Sergeant, for plaintiffs.

The third section of the act of 1800 is a substitute for the fifth section of the act of 1793, and actual damages mean, the injury actually sustained, and the consequences of the infringement, which are not too remote to be traced to it, the words "for or by reason of," &c. put a patent tort on the same footing as any other tort. 1 Peters's C. C. Rep. 397. A consequence of increased competition is a reduction of profits, the putting an inferior article into the market tends to throw out the pressed knob and substitute the blown knob in its place, whereas, on a fair comparison, the pressed are preferred. Here, as the infringement has been intentional, the plaintiff ought to recover the difference between the cost and the selling price of the knobs made by the defendants, by the use of the plaintiffs' improvement, which the jury have not exceeded, though they might have made an allowance for damages occasioned by wilful vexation, as may be done in trover, 6 Serg. & Rawle 426; no new trial will be granted, unless there has been a plain mistake in law or fact, 3 Binn. 320; or if damages are too small or too large, unless for some other cause in addition; 1 Wash. 154, 202; the case in Comb. 357, 358, only shows that the jury will not be allowed to exercise a despotic power. In 1 Gall. 485, 350 dollars were given for merely making the machine, and a new trial refused; S. P., 1 Peters 397; these cases establish the rule that the jury may judge of the actual damage, as in the case of tort generally; those which affect the person or reputation of another are exceptions. The true question is, not what profits the defendants have made by the infringement, but what loss the plaintiffs have sustained; of this the jury are the pro-

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per judges, and the court will not disturb their verdict, unless they decide positively that the plaintiffs have not sustained 500 dollars damages in any view of the case. The jury may ascertain the damages from any cause which has injured the plaintiff, the difficulty of liquidating them under any definite head, as a matter of account, is no objection to their putting an estimate on the amount; as the loss of sales which the plaintiffs would have made had there been no infringement. In a word, the jury may allow the plaintiff whatever they may think from the evidence he has lost by the violation of his right by the defendants, and put him in the same situation as if he had had the exclusive use of his invention during the time the defendants have used it.

The opinion of the Court was delivered by HOPKINSON, J.

The motion for a new trial in this case is rested on the alleged excessiveness of the damages. The act of congress gives the rule of damages, and if it has been violated, the verdict ought not to stand; on the other hand, the finding of a jury on a question so peculiarly within their province, will not be disturbed, unless it be made clear that they have disregarded and exceeded the measure of the law.

The congress of the United States, after two attempts, which proved to be unsatisfactory, to fix the amount of damages to be recovered from any person who should make, devise, use or sell the thing whereof the exclusive right is secured to a patentee, by an act passed on the 17th of April 1800, established a rule which has since remained as the law of such cases. The third section of the act enacts, that any person offending as above mentioned "shall forfeit and pay to the said patentee, his executors, administrators and assigns, a sum equal to three times the *actual damage sustained* by such patentee, his executors, administrators or assigns, from or by reason of such offence." The practice under this act has been for the jury to find the actual or single damages, which are afterwards trebled by the order or judgment of the court.

It is obvious that the directions of the last act of congress are not, and could not be precise on such a subject, and that a considerable latitude is necessarily given to the jury in estimating what they shall consider to be the actual damage sustained by a patentee by the violation of his right; and the courts of the United States have shown no disposition to draw the power of the jury, in this respect,

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within close and narrow limits. The elements of such a calculation in various cases that occur, are so various, and sometimes in their nature so uncertain, that the estimate of a jury must be very extravagant to enable the court to say, that they have so disregarded the rule of the law, and so clearly exceeded the limits of their authority, that their verdict cannot be supported. Are the jury to take as the actual damage sustained by the patentee, the benefit or profit made and received by the offender by the use of the invention? or the profit which the patentee would have made by the same use of his invention, but has lost by the illegal interference with his right? May they deduce the latter from the former, and consider proof of the profits made by the offender to be evidence in fact of the injury or damage sustained by the patentee? This is broad ground, on which the jury may rightfully move; and the error of their calculation must be made clear and certain, before the court can undertake to correct it by overthrowing their verdict. Still wider limits have been insisted upon for the jury by the counsel of the plaintiffs. They have contended that, as an item in the estimation of actual damages, the jury may examine and determine the loss sustained by the reduction of the price of the articles manufactured by the patented machine, in consequence of the competition brought into the market against them, when the patentee had a right to a monopoly; and going yet further, they say, that the injury done to the reputation of the manufacture, by the inferior skill and workmanship of the offender, may be fairly and legally brought into the calculation of actual damage. Whether this may or may not be done, must depend upon the particular case under consideration, and the nature of a question of damages shows that what may be a good rule in one case, would be altogether inadmissible in another. All the items or elements above mentioned may be brought into the account, provided that there be evidence satisfactory to the jury to bring them within the character and description of "actual damages," *proved in fact* to have fallen upon the plaintiff, "from or by reason of" the offence of the defendant; but they should not be allowed when they are merely hypothetical, imaginary or speculative. It is not enough that injury may have been suffered by these means; the plaintiff has a right to recover only such damages "as he can *actually prove*, and has *in fact* sustained." It must not rest in conjecture, but must be susceptible of proof, and be actually proved.

While the courts of the United States sitting on patent cases, have

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adhered to these principles in their construction of the act of congress, they have not been inclined to interfere with verdicts, but keeping them within this boundary, have rather given a loose rein to juries in the exercise of their power over the damages. This is abundantly shown by the cases referred to at the bar. In *Whittemore v. Cutter*, decided in 1813, and reported in 1 Gall. 478, the question of the damages to be recovered for the violation of a patent right, was considered by Judge Story. In that case, the plaintiff proved only that the defendant had made his patented machine, and not that he had ever used it. Here there was neither profit made by the defendant or lost by the plaintiff, nor any reduction of the price of the article manufactured by a competition in the market; nor an injury to its reputation by inferior workmanship. Where then are we to look for the constituents of damage in such a case? The counsel for the plaintiffs contended, "that although there is no evidence of actual damage, the jury ought to give damages either to the full value of the expense of making the machine or of the price at which such a machine might be sold." The judge rejected these pretensions for the most satisfactory reasons. He stated to the jury, that "it is clear by the statute that only the *actual damages* sustained can be given;" and he explains this actual damage to mean "such damages as the plaintiff can *actually prove*, and has *in fact* sustained, as contra-distinguished to mere imaginary or exemplary damages." This is a rational and satisfactory interpretation of the phrase. The judge thus instructs the jury, that "if they are of opinion that a use of the machine is actually proved, the rule of damages should be the value of the use of such machine, during such illegal use." This language is not exactly precise. It is not clear whether the judge would be understood; when he speaks of the value of the use of the machine, "he means its value to the illegal use of it, or the value which its owner could or might have derived from it during the time of the illegal use." The rules are or may be very different. If the latter were intended by the judge, it is *in fact* the *direct* and *actual* damage sustained by the patentee; if the former, it is the profit or advantage made of the machine by the offender, which may be more or less than the patentee would have derived from it. We see, however, no objection to another explanation of the language of the judge, that is, that the jury ought to take the value of the use of the machine to the spoliator, not as the direct ground of their verdict, but as a test or means by which, in the ab-

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sence of other proof, they might estimate the damage done to the plaintiff. In either construction the judge meant to conform to the language of the act of congress, and affirm the rule he set out with, "that only the actual damage sustained can be given." The jury gave 350 dollars single damages, finding at the same time, "that the defendant was guilty of making the machine only;" no attempt appears to have been made to disturb the verdict, although the judge had charged the jury, that in such a case, "the plaintiff can recover nominal damages."

The case of Gray v. James, decided in this circuit in 1817, and reported in 1 Peters 394, was an action for violating the plaintiff's patent right in the art of cutting and heading nails by one operation. Jacob Perkins was the inventor of this machine, which was so defective that, after a trial, it was altogether abandoned; and it did not appear that it had ever been used afterwards by any person. The defects of Perkins's patent were cured by one Jesse Reed, who patented his improved machine; but the two machines were precisely on the same principle. The jury gave a verdict for the plaintiff, and assessed his single damages at 750 dollars. A motion was made on the part of the defendant for a new trial and in arrest of judgment. One of the reasons in support of the motion was, that the damages given by the jury were excessive, and the argument was, that Perkins's machine was acknowledged by himself to be worthless; and that it was in fact thrown away as a useless thing, and was so considered by those who knew any thing about it, consequently his assignees sustained no damage by the use which the defendant made of it. The judge was of opinion that "the premises may be admitted, and yet the argument terminated in what is called a *non sequitur*." We cannot say that we are satisfied with the ingenious reasoning of the learned judge, to support this opinion; nor do we see how the owner of a thing, absolutely worthless, and which he had thrown away as useless, can *sustain any actual damages*, by the use of this thing made useful only by being combined with some thing else, or so changed in its operation by an invention to which the owner of the worthless machine had no title or claim. He has lost nothing, he has been deprived of nothing that was of any value to him, what then has been his injury or damage? If the act of congress had given the advantage or use made by another of a particular machine as the rule of damages, then indeed a worthless invention, made valuable by an improvement, might entitle the

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inventor to compensation for the use of his invention, and perhaps on principles of equity and justice, he ought to have it. But the law does not take this rule, but the damages actually sustained by a patentee by the use of his invention, and not the value that has been imparted to it by a subsequent inventor; nor the use which such inventor has made of it, provided he has not by such use inflicted any loss, injury or damage upon the patentee. His damages, and not another's gain, are made the rule for the jury. It is not like the case of *Whittemore v. Cutter*, where the machine made by the defendant was the same with that patented by the plaintiff, and where we have agreed that, in the absence of other evidence, the jury may assume the value of the use of the machine to the spoliator as proof of the damage or injury done to the patentee. The judge who decided the case of *Gray v. James*, seems to be hardly satisfied with supporting the verdict on the reasoning we have quoted, for he adds, "but the fact is that Perkins's machine was proved at the trial to possess intrinsic value on the single ground of saving labour, whether the value so proved justified the jury in finding the damages which they did, is a question of which this body were the proper judges upon the evidence laid before them, and the court sees no reason to find fault with them."

A patentee however whose invention, though worthless to himself, has become useful to another may not be deprived of it without his consent, for it is his property; nor can another use it for any purpose without responsibility to him. Such as it is, of much value or little value, or of no value, the law has guaranteed the exclusive possession of it to the inventor, and the law will prevent any interference with his right, and every use of the thing invented against the will of the owner. Although no damages can be recovered by the provisions of the act of congress, in a case where no damages have actually been sustained, the patentee has nevertheless a remedy for the invasion of his right peculiarly appropriate for such a case. He may have an injunction upon the wrong doer, which will prevent the unauthorized use of his invention, and put it in his power to compel the invader either to abandon it or make him a just compensation for the use of it. The court would exercise this power to do what is right and equitable between the parties, and so as to prevent imposition and wrong by either.

Without embarrassing the question now to be decided with a review of all the evidence that has been brought into the discussion,

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it will be sufficient to advert to the admitted fact that the defendants manufactured five hundred and seventy-one dozen of glass knobs, by the use of the machine invented and patented by the plaintiffs ; all of which were sold by the defendants, with the exception of some that were imperfect. From the bill produced of one of the sales, these knobs were sold at a great profit. The profit obtained by the defendants on the sale of these knobs was a fair and legal subject for the calculation and judgment of the jury on the evidence laid before them ; and they had the same right to take this profit as the rule or measure by which they would estimate the actual damage sustained by the plaintiffs by this invasion of their rights. Although the profit gained by the defendants is not the amount to be recovered by the plaintiffs as their damage, yet it is that from which a calculation or estimate of that damage may be rightfully made by the jury. If in this case the jury have taken this profit as their guide and measure in assessing the actual damage sustained by the plaintiffs, can the court say that they have done wrong, or that under the evidence laid before them we could give them a better rule? Can we say that they have exceeded the power and discretion allowed to them, so that it becomes the duty of the court to undo all that they have done, and set aside their verdict as contrary to the law or evidence of the case? we think not.

If the payment of the sum for which a judgment must be rendered against the defendants shall be oppressive or inconvenient to them we shall regret it, because they appear to have acted under a mistaken opinion of the rights of the plaintiffs, from misinformation in relation to the validity of their claims of invention, and not from an obstinate or malicious design to injure them or benefit themselves by a wilful disregard of the rights of the plaintiffs. An intelligent and impartial jury have passed upon the case ; “and the court sees no reason to find fault with them.” The plaintiffs having established their right, and having no reason to apprehend any further interference with it, it would have been satisfactory to the court if some reasonable and liberal compromise could have been made with the defendants, who appear to be industrious and useful mechanics, which would have made our judgment unnecessary. We do not feel authorized to press the suggestion further.

Rule discharged.

E. ROBINSON, F. DRAPER & I. H. LORD.

Ferrule Knob for Doors and Furniture.

Patented Oct. 20, 1836.

Fig. 2.

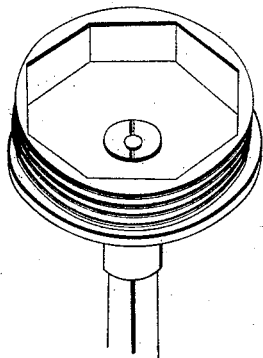


Fig. 1.

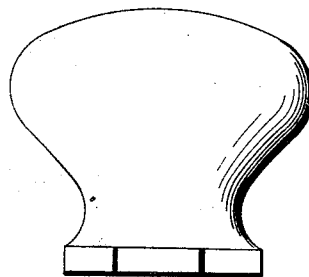


Fig. 3.

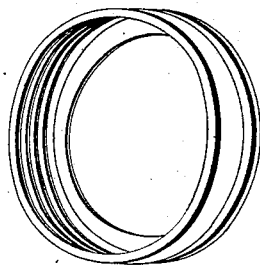


Fig. 5.

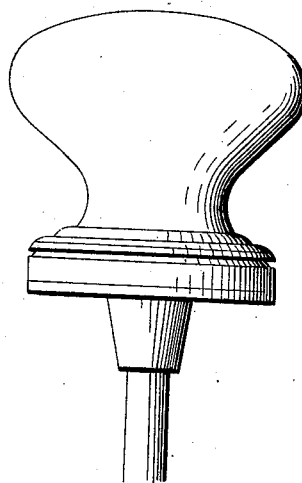
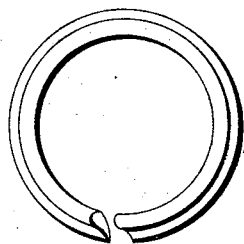


Fig. 4.



UNITED STATES PATENT OFFICE.

E. ROBINSON AND F. DRAPER, OF CAMBRIDGE, AND J. H. LORD, OF BOSTON,
MASSACHUSETTS.

FERRULE-KNOB FOR DOORS, &c.

Specification of Letters Patent No. 65, dated October 20, 1836.

To all whom it may concern:

Be it known that we, ENOCH ROBINSON
and FRANCIS DRAPER, both of Cambridge,
county of Middlesex, and Commonwealth
of Massachusetts, machinists, and JOSEPH H.
LORD, of the city of Boston and Common-
wealth aforesaid, trader, have invented and
put in use a new and useful improvement in
the manufacture of door, commode, furni-
ture, and other knobs by which the knob is
securely fastened to the plate or socket with-
out any spindle or screw being inserted into
the knob and which we call the "ferrule
knob," which said invention is specified by
us as follows, to wit:

This improvement consists in the combi-
nation of the following parts, viz: 1st, a
knob whether of glass, ivory, stone, metal
or other material fashioned in the manner
heretofore known and practised, that is with
a neck or shank, ending in a foot larger than
the neck and either cut into an octagonal
square or other form to be inserted into a
hollow or to fit a projection of correspond-
ing form in the plate or socket, or in any
other manner fitted to the socket, so that the
knob shall not turn in the socket; 2d, a
socket or plate with an octagonal square, or
other hollows, or projection fitted to a cor-
responding projection or hollow in the foot
of the knob or in any other manner fitted to
the foot of the knob, so that the knob shall
not turn in the socket; 3d, a ferrule or ring
of metal or other material proper for the
purpose just large enough to be fastened
over the foot and so round the neck of the
knob, and to be fastened to the plate or
socket after introducing an elastic split ring
between the ferrule and the foot of the knob.
The fastening of the ferrule to the socket
may most conveniently by a screw cut on
the inside of the ferrule fitting into a corre-
sponding screw, cut on the outside of the
socket, or may be made in any other man-

ner; 4th, a split elastic ring of metal or other
proper material which will open so far as to
admit of being passed over the foot of the
knob, and being then pressed together be-
tween the ferrule, and the foot of the knob,
in screwing or otherwise fastening the fer-
rule to the socket or plate, prevents the
knob from drawing out through the ferrule,
and thus confines it to the plate or socket.

We do not claim to be the inventors of
either of the said four parts or pieces, viz;
the knobs, the socket, the ferrule, and the
split ring, all of which we admit to have
been used in various machines, or manufac-
tures either separately or combined, but

We claim as our invention—

The combination of the said four parts or
pieces in manner aforesaid as a new and
useful improvement in the manufacture of
door, commode, furniture and other knobs,
and the knobs so made by the combination
of said four parts or pieces we call our fer-
rule knobs.

The said four parts separately and the
mode of combining the same will be more
fully understood by reference to the an-
nexed drawings, in which—

No. 1, is the knob, No. 2 is the socket or
plate, No. 3, is the ferrule, No. 4, is the split
ring and No. 5, is the ferrule knob, put to-
gether ready for use.

In testimony that the foregoing is a true
specification, and description of our said
improvement, we have hereunto set our
hands, this twenty second day of June in the
year of our Lord, one thousand eight hun-
dred and thirty-six.

ENOCH ROBINSON.
FRANCIS DRAPER.
JOSEPH H. LORD.

Witnesses:

GEO. I. T. ALLAGUE,
FRANKLIN DEXTER.

E. ROBINSON, F. DRAPER & I. H. LORD.

Door and Furniture Knob.

Patented Dec 2, 1836.

Fig. 1.

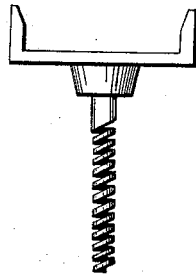


Fig. 2.

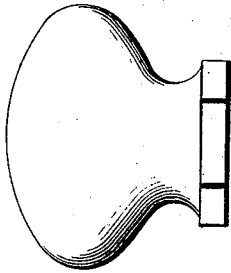
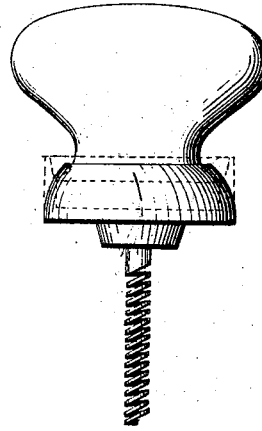


Fig. 3.



UNITED STATES PATENT OFFICE.

E. ROBINSON AND F. DRAPER, OF CAMBRIDGE, AND J. H. LORD, OF BOSTON,
MASSACHUSETTS.

DOOR, COMMODOE, &c., KNOB.

Specification of Letters Patent No. 98, dated December 2, 1836; Antedated September 2, 1836.

To all whom it may concern:

Be it known that we, ENOCH ROBINSON and FRANCIS DRAPER, both of Cambridge, in the county of Middlesex, Commonwealth of Massachusetts, and JOSEPH H. LORD, of the city of Boston and Commonwealth aforesaid, trader, have invented and put in use a new and useful improvement in the manufacture of door, commode, furniture, and other knobs by which the knob is securely fastened to the plate or socket without any spindle or screw being inserted into the knob and which we call our "socket-knob," which said invention is specified by us as follows, to wit:

This improvement consists of a combination of the common knob, having a neck or shank between, and smaller than the head, and foot of the knob, with a socket or plate either made wholly or having an edge or ring made of some soft metal capable of being set around the foot of the knob by turning in a lathe or otherwise without the application of heat. This socket is cast or otherwise made with a face, corresponding in form to that of the foot of the knob, and with a perpendicular edge or ring of soft metal around the outside of a depth somewhat greater than the thickness of the foot of the knob, the foot of the knob is then to be inserted into the cup, thus formed by the face, and edge or ring of the socket, and the edge or ring is then to be turned down and let either in a lathe or otherwise close around the foot of the knob above the largest part of the foot so as to confine the knob closely and securely to the socket, or plate. If the use of the knob requires it, it may be made more secure from turning in the socket, by fitting the foot of the knob and the face of the socket together by a cor-

responding projection in the one and depression in the other, or by making the foot of the knob of some angular form with a corresponding hollow in the socket in the manner already practised or otherwise.

We do not claim as our invention the knob properly so called, but admit that it has been known, and used before in the form mentioned, nor do we claim any part of the socket or plate except the edge or ring of soft metal after it is turned down, and set as aforesaid around the foot of the knob as a new means of combining the knob, and the socket; but our invention and improvement consists in

The combination of the knob with the socket by means of the said edge or ring of soft metal when turned down, and set around the foot of the knob, and we claim nothing more.

The said parts and the socket knob, when completed will be more fully understood by reference to the annexed drawing, in which—

No. 1, is the socket before the knob is inserted, No. 2, is the knob, and No. 3, is the socket knob after the same is finished, and ready for use.

In testimony that the foregoing is a true specification, and description of our said improvement, we have hereunto set our hands this twenty-second day of June in the year of our Lord one thousand eight hundred and thirty-six.

ENOCH ROBINSON.
FRANCIS DRAPER.
JOSEPH H. LORD.

Witnesses:

GEO. I. F. ALLAGRE,
FRANKLIN DEXTER.

UNITED STATES PATENT OFFICE.

ENOCH ROBINSON AND G. W. ROBINSON, OF BOSTON, MASSACHUSETTS.

METHOD OF ATTACHING GLASS KNOBS TO METALLIC SOCKETS.

Specification of Letters Patent No. 434, dated October 20, 1837.

To all whom it may concern:

Be it known that we, ENOCH ROBINSON and GEORGE W. ROBINSON, both of the city of Boston, in the county of Suffolk and State of Massachusetts, machinists, have invented a new and useful Improvement in Making Glass Door and other Knobs; and we do hereby declare that the following is a full and exact description thereof.

10 The glass knob is made in the common form except that near the foot and round the neck a groove or channel is made, either in the original manufacture of the knob, or afterward cut, which may be from a sixteenth to an eighth of an inch in depth, or more or less according to the size of the knob; if the foot of the knob is round, this groove may be cut into some angular or polygonal form to prevent the knob from turning in the socket, but if the foot of the knob be angular or polygonal the groove may be of even depth all round. The neck of the knob so far as it is covered by the socket must be of the same diameter with the foot. The knob thus formed is to be inserted to the depth of an inch, more or less, into a metal socket of which the upper part or edge is just large enough to receive the foot and neck of the knob, but the lower part of the cup of the socket must be made larger, that is the cavity must be of greater diameter than the foot and neck of the knob, so as to leave a space between the knob and the socket greatest at the bottom and diminishing to nothing toward the top or edge of the socket where it must fit close to the neck of the knob. A hole is to be made through the side of the socket so as to meet the groove in the neck of the knob,

when the knob is inserted; this hole may be from an eighth to three sixteenths of an inch in diameter or more if necessary to admit the melted metal.

The knob and socket being both heated to such a degree as to enable the glass to bear the heat of melted metal without cracking, the knob is to be inserted into the socket, and then melted tin or other metal is to be poured into the hole in the side of the socket until it has filled the groove in the knob, and the space between the knob and the socket; by this melted metal the knob and the socket are securely fastened together.

The bottom of the socket should be made of a thickness sufficient to admit of a hole being drilled through the side to receive a pin by which the socket may be fastened to the shaft passing into the lock or door.

We claim as our invention—

Only the combination and fastening of the metal socket and glass knob by means of melted metal introduced between them, and the adaptation of the forms of the knob and socket to effect that purpose in any manner similar in principle to the one above described.

In the drawing accompanying this specification, A A is the glass knob, B, B, B, is the socket, *c* is the groove in the neck of the knob, *d* is the hole into which the melted metal is poured, and *e* is the hole for the pin to fasten the socket to the shaft.

ENOCH ROBINSON.
G. W. ROBINSON.

Witnesses:

FRANKLIN VEXTER,
J. L. ENGLISH,

June 1, 1915.

DRAWING

434

A careful search has been made this day for the original drawing or a photolithographic copy of the same, for the purpose of reproducing the said drawing to form a part of this book, but at this time nothing can be found from which a reproduction can be made.

Finis D. Morris,

Chief of Division E.

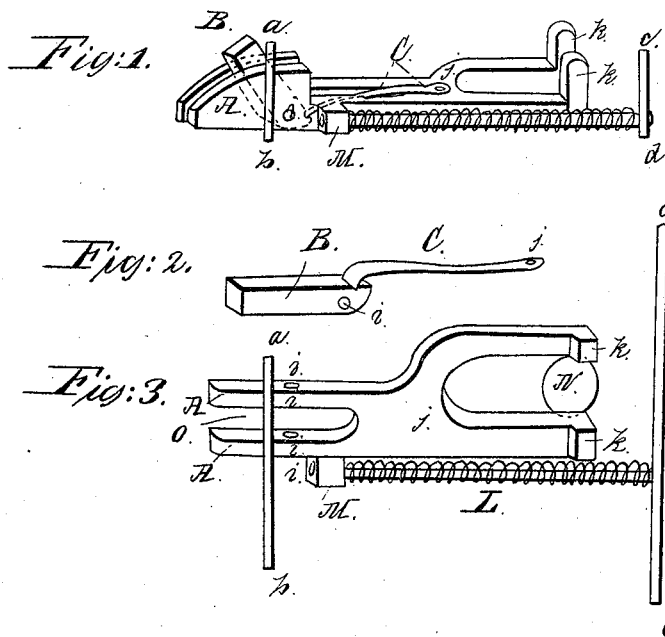
AWK.

G. W. & E. B. Robinson,

Latch.

N^o 1626.

Patented June 10, 1840.



Witnesses:

J. L. English
Franklin Steele

Inventors:

G. W. Robinson
E. B. Robinson

UNITED STATES PATENT OFFICE.

GEO. W. ROBINSON AND E. B. ROBINSON, OF BOSTON, MASSACHUSETTS.

SPRING-BOLT FOR DOOR AND OTHER LOCKS.

Specification of Letters Patent No. 1,626, dated June 10, 1840.

To all whom it may concern:

Be it known that we, GEORGE W. ROBINSON and EZRA B. ROBINSON, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Spring-Bolts of Door and other Locks; and we do hereby declare the following to be a full and exact description thereof.

Our said improvement consists in inserting a bar of steel or other metal (which may be about a quarter of an inch square for an inside door lock and about seven eighths of an inch long, and larger or smaller for other locks in proportion) into a longitudinal slit in the projecting end of the spring bolt, the bar to project just as far from the box of the lock as the bolt does and to enter into the box at the other end just far enough to turn upon a pivot, passing through the bar and through the bolt. The inner end of this bar is rounded off on the side which rests against the lock plate, and on the opposite side and between the pivot and the inner end of the bar is a transverse groove, into which the end of a flat spring plays to bear the rounded corner down against the lock plate, and to elevate the opposite end of the bar which projects from the box at an angle of about forty-five degrees with the bolt. The other end of the flat spring is fastened to the bolt nearer to the end which is connected with the knob by which the bolt is drawn back. The bar being thus elevated by the pressure of the spring upon the inner end of it, when the door shuts the end of the bar first comes in contact with the catch, and as the door closes the bar is pressed into the box, turning at the same time on the pivots and carrying the bolt in with it, without any friction against the catch, and the door is shut very easily and quietly.

A reference to the annexed drawing will make this description more intelligible.

The bolt may be thrown forward by a spiral or other spring in the usual manner,

but so adapted as not to interfere with the action of the bar.

Figure 1 is a perspective view of the bolt with the bar adapted to it, looking at it sidewise, and the dotted lines represent the continuation of the parts where they are hidden from view by the other parts. The letters represent the same parts as in the Figs. 2 and 3, though seen in different directions. Fig. 2 is a separate view of the bar and flat spring. Fig. 3 is a simplified view of the bolt without the bar and flat spring.

In the several figures where they occur, A is that part of the bolt which projects beyond the box.

a, b, c, d are the front and back pieces of the box.

B is the bar.

C is the flat spring.

i, is the hole through the bolt and bar through which the pivot passes.

j, is the place where the flat spring is fastened to the bolt.

k, l, are the projections by which the knob draws back the bolt.

L is the spiral spring by which the bolt is thrown forward, being coiled around a rod passing and playing through the projection of the bolt M.

N is the hole in the lock plate through which the shaft of the knob passes.

O, is the longitudinal slit in the bolt into which the bar is inserted.

What we claim as our invention and desire to secure by Letters Patent is—

The bar of metal turning on a pivot in the spring bolt and provided with a spring in combination with the spring bolt for the purpose and in the manner described.

In witness whereof we have hereto subscribed our names this seventh day of May 1840.

G. W. ROBINSON.
E. B. ROBINSON.

Witnesses:

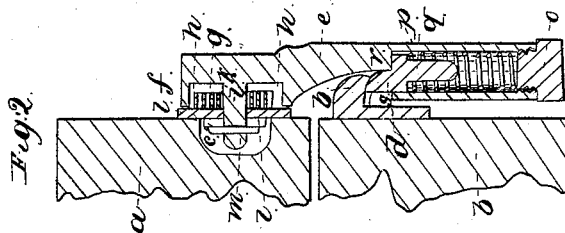
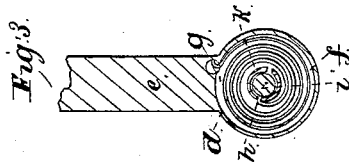
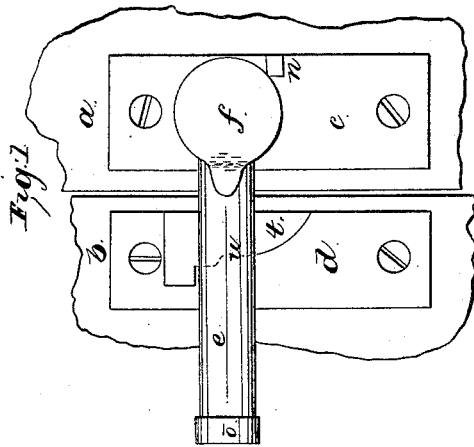
J. L. ENGLISH,
FRANKLIN DEXTER.

Robinson & Hall,

Window Fastener.

No. 2,248.

Patented Sept. 11, 1841.



UNITED STATES PATENT OFFICE.

ENOCH ROBINSON AND WM. HALL, OF BOSTON, MASSACHUSETTS.

WINDOW-FASTENING.

Specification of Letters Patent No. 2,248, dated September 11, 1841.

To all whom it may concern:

Be it known that we, ENOCH ROBINSON and WILLIAM HALL, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Window-Fastenings, and that the following is a full and exact description of the same.

The said description, taken in connection with the accompanying drawings hereinafter referred to, composes our specification, setting forth the principles of our said invention by which it may be distinguished from others of a similar character, together with such parts or combinations as we claim and for which we solicit an exclusive property to be secured to us for fourteen years by Letters Patent.

The figures of the accompanying plate of drawings represent our improvements.

Figure 1, is a plan of the apparatus attached to the sashes of a window, Fig. 2, being a vertical cross section and Fig. 3, a horizontal section of a portion of the same.

The great objections to window fastenings now in use are, that when, by shrinking or other causes, the crack or space, between the bottom of the upper and top of the lower sash (when they are together), becomes enlarged, the bolt or button binds on the catch, and so much so that at times, as to render it impossible to fasten them; and also, when this crack or opening is diminished, or the sashes fit more closely than when the apparatus was first applied, there will be a space for the play of the sashes, and when the wind is high a boisterous rattling or vibration will be produced which is a serious annoyance.

These imperfections are effectually remedied by our improvements as will be apparent, from the following description.

a, b, Figs. 1 and 2, represent the sashes. *c, d*, are rectangular metallic plates attached respectively to the sashes *a, b*, and confined by screws or otherwise. *e* is the turning or lever button, shaped as seen in plan and section in Figs. 1 and 2 and having a vertical cylinder *f* at one end in the circular space *g*, of which a coiled spring *h, h*, is arranged around the central pin or shaft *i*. This shaft passes through a cylindrical projection, *k*, from the plate *c*, and in connection with the collar *l* and pin *m*, arranged as seen in Fig. 2, serves to confine the lever button *e* to said plate in such manner as to permit it to turn freely around in either direction.

One end of the coiled spring (which is bent for the purpose), fits into a groove or notch in the side of the vertical cylinder *f*, while the other end, which is likewise bent engages with a slot or groove in the cylindrical projection *k* from the plate, *c*, which is of course kept stationary with said plate, and when the other end is turned with the button the elasticity of the coiled spring is increased and unless the button, it would be carried, by the action of the spring, against the stud or projection *n* from the plate, *c*. The other or fastening end of the button *e* is a hollow horizontal cylinder closed at one end by the screw stopper *o*, against the inner end of which, one end of a spiral spring *p, p*, rests, the other end abutting against the inside of the head of the loose pin *q*, which is kept in position by a notch *r* in the button *e* as seen in Fig. 2, against which a part of the head of the loose pin rests. The other part of said head has a right angular projection *s* the end of which is so rounded as to move easily on the curved face of the catch *t*, in the notch *u* of which it rests when the window is fastened. The catch *t*, as will be perceived by the drawings, is attached to or cast solid with the plate *d*.

From the above described arrangement of the spiral spring, &c., it will be palpable that the window fastening will operate with facility however much the sashes may be shrunk or otherwise changed after the fastening is first applied, and that any jarring or rattling of the sashes when fastened will be effectually remedied.

Having thus described our improvements we shall claim as our invention—

Constructing the fastening end of the lever or turning button, of a horizontal hollow cylinder closed at one end by a screw stopper or otherwise, and arranging in said cylinder a spiral or helical spring and loose pin, the whole being constructed, and operating together substantially in manner, and for the purpose above described.

In testimony that the foregoing is a true description of our said invention and improvements we have hereto set our signatures this thirteenth day of June in the year eighteen hundred and forty one.

ENOCH ROBINSON.
WM. HALL.

Witnesses:

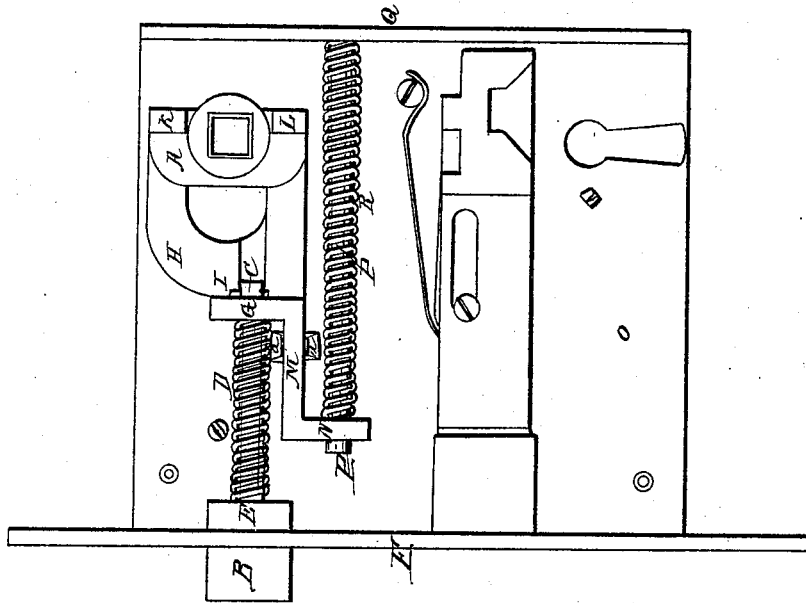
R. H. EDDY,
EZRA LINCOLN.

Robinson & Hall,

Latch.

N^o 1,995.

Patented Mar. 3, 1841.



UNITED STATES PATENT OFFICE.

ENOCH ROBINSON AND WM. HALL, OF BOSTON, MASSACHUSETTS.

LATCH OF DOOR AND OTHER LOCKS.

Specification of Letters Patent No. 1,995, dated March 3, 1841.

To all whom it may concern:

Be it known that we, ENOCH ROBINSON and WILLIAM HALL, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Locks for Doors, and that the following is a full and exact description of the same.

The said description, taken in connection with the accompanying drawing, hereinafter referred to forms our specification, setting forth and exhibiting the principles of construction of our improvement, (by which it may be distinguished from other inventions of a like character), and such parts or combinations as we claim to be our invention, and for which we solicit Letters Patent.

The drawing, herewith presented, represents the internal parts of a lock of our construction. Our improvements are confined to the arrangement of the springs, which operate the latch and knob.

A exhibits the tumbler, through which the square shank of the knob is inserted in the usual manner. That part of the bolt or spring latch B, which projects out of the side of the lock, is formed like those of most other locks, but that within the lock has a small shank C projecting back from the same, around which a helical spring D is wound as represented in the figure. One end of the spring D abuts against the rear part E of that part of the latch, which slides through the side plate F of the lock, while the other end of the spring rests against a shoulder piece G, raised perpendicular upon the fork H. The shank C passes and plays loosely through a cylindrical hole, formed through the shoulder piece G, and has a pin I inserted therein on the opposite side of the said shoulder piece. Thus it will be seen that when the bolt B recedes, the shank C moves back with the same and the spring D contracts, but on removal of the force, causing the same, the expansion of the spring, throws out the latch, until the pin I comes in contact with the side of the shoulder piece G. In order to draw back the latch at any time, to open the door, the

tumbler A, when operated by the hand applied to the knob, acts on one or the other of the two studs K, L raised on the ends of the fork H. The shoulder G is bent at right angles as represented at M, N, the part M of the same being supported during its back and forth motions, by a projection *a*, on each side thereof (as seen in the drawing), cast or otherwise applied to the plate O of the lock. A rod or piece of stout wire P, has one end inserted and riveted, or otherwise properly affixed, in the side Q of the lock, and the said rod P projects therefrom and passes through a cylindrical hole, bored through the bent part N of the shoulder piece, so as to admit the part N to freely slide thereon, when drawn back by the action of the tumbler. A strong helical spring R is placed on the rod P, one end of the same abutting against the side of the piece N, and the other, resting against the side Q of the lock case as shown in the drawing. The particular object of this spring is to act upon the tumbler, and thus throw back the knob, after it has been turned around by the hand. The force exerted by the spring D should be much weaker than that of the spring R, so that whenever the door is closed, the latch will slip back, independent of or without any action on the knob, tumbler, or the spring R.

We claim as our invention,—

Arranging the latch-bolt with an additional spring, which shall operate the same in closing the door to which the lock is applied, independently of the spring which acts on the knob, the whole being constructed substantially as hereinabove set forth.

In testimony that the above is a true description of our said invention and improvement we have hereto set our signatures this eleventh day of February, in the year eighteen hundred and forty one.

ENOCH ROBINSON.
WM. HALL.

Witnesses:

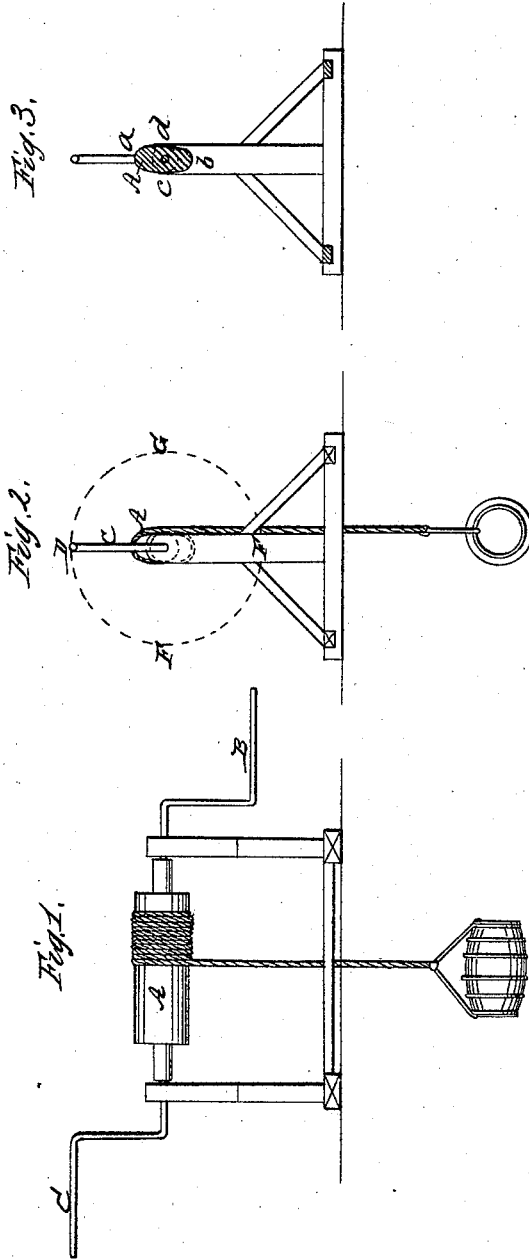
R. H. EDDY,
CALEB EDDY.

E. Robinson,

Windlass.

N^o 2,473.

Patented Feb. 28, 1842.



UNITED STATES PATENT OFFICE.

ENOCH ROBINSON, OF BOSTON, MASSACHUSETTS.

WINDLASS OR DRUM FOR RAISING WEIGHTS.

Specification of Letters Patent No. 2,473, dated February 28, 1842.

To all whom it may concern:

Be it known that I, ENOCH ROBINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and
5 useful improvement in windlasses or drums or articles on which the rope is wound by which a heavy body is elevated or drawn in any direction and to which windlasses or drums or articles the elevating or moving
10 power is applied unequally during their revolutions on their axes, and that the following is a full and exact description of the same, which description, taken in connection with the drawings therein referred to,
15 forms my specification, wherein I have set forth the nature and principles of my improvement, by which it may be distinguished from others of a similar character and such portion of the same as I claim and for
20 which I solicit Letters Patent.

In the accompanying drawings Figure 1, represents a front elevation of a windlass having my improvement Fig. 2, is an end view and Fig. 3, is a vertical and transverse
25 section.

My improvement consists in making the barrel A on which the rope is wound elliptical or oval in its transverse section, or having its diameter in one direction or from
30 *a* to *b* larger than that in the opposite or from *c* to *d* as represented in Fig. 3. The cranks B, C, by which the barrel is turned are arranged in the plane of the largest diameter or *a b*.

35 The windlass being turned by the operatives acting on the cranks, they exert the least power on the same when the cranks

are in their highest or lowest positions or at or near the points D, E Fig. 2, and the greatest when they are at or near the points
40 F G or while the cranks are horizontal. When the cranks are upright or the least power is exerted the rope is winding over the flat portions *c, d*, Fig. 3, of the barrel, with the small opposing leverage of half
45 the shorter axis of the elliptical section, and when they are horizontal the rope is being wound over the portions *a, b*, and is opposed by the leverage of half the longer axis of the elliptical section. Therefore as
50 the power of the workman decreases it is applied to the same advantage as when exerted to its greatest effect, and thus by a windlass constructed in this manner a
55 greater weight can be elevated than if made circular in cross section.

I shall claim as my invention—

Constructing the barrel on which the rope is wound, elliptical or oval in its cross section or having its diameter in one direction
60 greater than in the opposite direction, and arranging the cranks of said barrel in the plane of its longest diameter, the whole being for the object above specified.

In testimony that the foregoing is a true
65 description of my said invention and improvements I have hereto set my signature this twenty-eight day of December in the year eighteen hundred and forty.

ENOCH ROBINSON.

Witnesses:

R. N. EDDY,
JOHN NOBLE.

G. W. & E. B. Robinson,

Sash Fastener.

No. 2,452.

Patented Feb. 7, 1842.

Fig. 1.

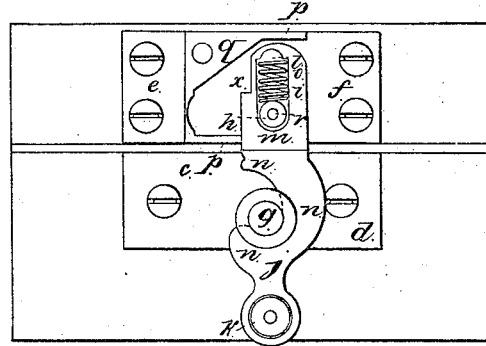


Fig. 3.

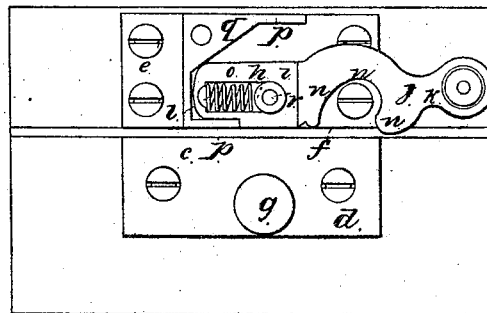
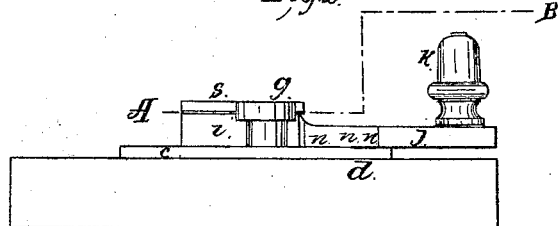


Fig. 2.



UNITED STATES PATENT OFFICE.

GEO. W. ROBINSON AND EZRA B. ROBINSON, OF BOSTON, MASSACHUSETTS.

SPRING-FASTENER FOR WINDOW-SASHES.

Specification of Letters Patent No. 2,452, dated February 7, 1842.

To all whom it may concern:

Be it known that we, GEORGE W. ROBINSON and EZRA B. ROBINSON, both of the city of Boston, in the county of Suffolk and State of Massachusetts, machinists, have invented a new and useful Improvement called a "Spring Sash-fastening," of which the following is a full and exact description.

Two metal plates of suitable size and thickness, having on them respectively the parts hereinafter described, are made to be fastened by screws or in some other convenient mode, one to the inner and the other to the outer sash. In the use of the word inner, throughout our description, we mean toward the inside of the window, and by outer, we mean toward the outside of the window. On the plate, intended for the inner sash, is a simple knob with a head, around the neck of which knob and under the head, the fastener, attached to the outer plate and hereinafter described, is made to hook.

On the plate for the outer sash, and near its inner edge and opposite to the knob mentioned above, is a strong round stem or pivot. The fastener is a flattened piece of metal reaching from near the outer edge of the plate of the outer sash, across that of the inner sash and terminating at its inner end in an elevated knob or handle for conveniently taking hold of and turning the same. The other end of the fastener is rounded off at the side corners. In that part of the fastener over the outer plate is an oblong slot, through which the pivot passes so that the fastener turns or hinges on this pivot. In the slot between the end of it and the outer side of the pivot a spiral wire or spring is inserted. From that part of the fastener over the inner plate, a circular piece is cut out, so as to form a curved hook fitted to hook around the neck of the knob attached to that plate. On the outer edge of the outer plate, commencing from near the end of the fastener, when shut or drawn forward across the plates, is a rim running a little distance along the edge of the plate, then turning at right angles and crossing the plate to the inner edge of it, then turning again and running along the inner edge of the plate to the side of the fastener, thus forming two and a half of the sides of a square box. The corner of this box, diagonally opposite to where the pivot is fixed, is solid, having a triangular piece of metal fitted to it. Over this rim is fitted a cap or top

plate covering over the end of the fastener having the oblong slot, and the spiral wire. This cap when on, forms with the rim before described a box, open on one part, in which the end of the fastener turns on the pivot. A convenient mode of fastening this cap is by a hole in the solid corner of the box, into which a pin attached to the corresponding corner of the cap is fitted and by a hole in the corner of the cap over the point, into which the diminished head of the pivot is fitted and made fast by being hammered down.

For the better explanation of our said improvement we refer to the accompanying lettered drawings, which we make part of our said specification, as follows:

c, d, is the plate for the inner sash.

e, f, is the plate for the outer sash. *g,* the headed knob on the inner plate.

h, is the stem or pivot on the outer plate on which the fastener hinges or turns.

i, j, is the fastener.

k, is the elevated knob or handle.

l, m, is the oblong slot in the fastener.

n, n, n, is the curved hook of the fastener.

o, is the spiral wire or spring.

p, p, are the sides of the box.

q, is the solid corner with the hole for the pivot of the cap piece.

r, is the diminished head of the pivot fitted to a corresponding hole in the cap piece.

s, is the top or cap.

x, is the jig on the side of the fastener.

When the fastener is open or thrown back, so as to be in a line with, the plate of the outer sash as in Figure 3, in the accompanying drawings, the spiral spring expands itself so as to draw the fastener up to the pivot *h*, making the end of the oblong slot press upon it and keeping the fastener fixed in this position; which is made still more secure by the inner rim of the box before described, fitting in to a corresponding jig *x*, on the now inner side of the slotted end of the fastener, and also by the solid piece of the corner of the box, holding it on the corner of the other side.

The distance of the knob *g*, from the pivot *h* is such that when the fastener is shut or turned forward across the plates and hooked around the neck of the knob as in Fig. 1, the spring is partially compressed, and the fastener being now drawn forward away from the pivot on which it pressed closely

when shut, the whole power of the spring acts to draw the hook *n, n*, firmly upon the neck of the knob and bring the two sashes together.

5 The action of the spiral wire as a spring is aided by the curving inward of the points of the knob of the fastener, by forcing which around the knob the fastener is jerked forward and the spring compressed, again to
10 expand a little as the hook is sprung close down upon the neck of the knob.

The effect of the solid corner of the box is to compress the spring by pressing on the rounded end of the fastener as it turns in
15 the box on its passage around from being shut to being open. When the fastener is thrown back to be opened, this pressure being lessened and at last entirely taken off as it comes into the position as in Fig. 3, the
20 spiral wire is allowed full play to spring the fastener into its place. And when the fastener is turned forward to be shut, this pressure acts to bring the point of the hook into its proper position with the neck of the

knob, so as to admit of its being easily 25 pressed around it.

What we claim as our invention and desire to secure by Letters Patent is—

The adjustment and application of the spring as before described so as to effect the 30 double purpose of drawing two sashes together and also to act upon the fastener in fixing it to its proper place as hereinbefore described when thrown backward or forward for the purpose of being opened or 35 shut.

In testimony whereof, we the said GEORGE W. ROBINSON and EZRA B. ROBINSON, hereto subscribe our names in the presence of the witnesses whose names are hereto subscribed, 40 on the twentieth day of November eighteen hundred and fifty one.

GEO. W. ROBINSON.
EZRA B. ROBINSON.

Witnesses:

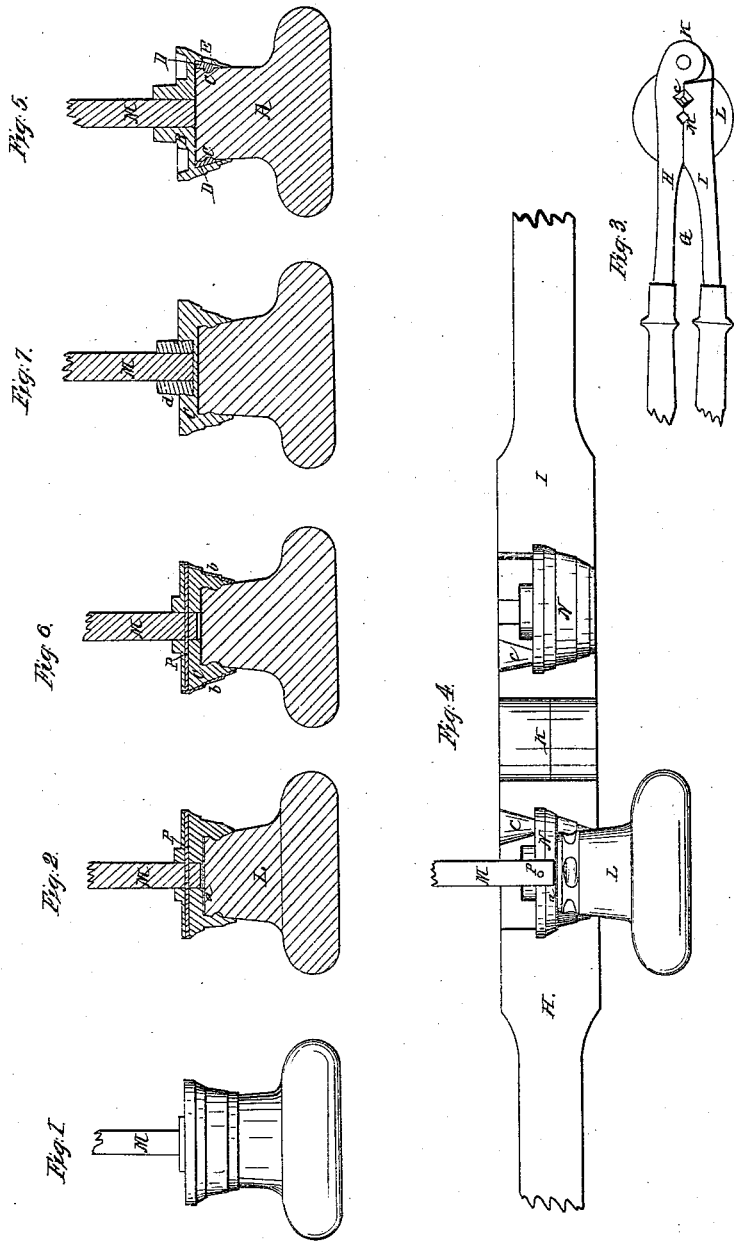
FRANKLIN DEXTER,
GEO. W. PHILLIPS.

E. Robinson,

Door Knob.

N^o 2,904.

Patented Jan. 10, 1843.



UNITED STATES PATENT OFFICE.

ENOCH ROBINSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THE METHOD OF ATTACHING DOOR-KNOBS TO THEIR SPINDLES.

Specification forming part of Letters Patent No. 2,904, dated January 10, 1843.

To all whom it may concern:

Be it known that I, ENOCH ROBINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Door-Knobs and other Articles of Similar Character; and I hereby declare that the following specification, taken in connection with the accompanying drawings, forms a full and exact description of the same.

Figure 1 of the above-mentioned drawings represents an elevation or external view of one of my improved knobs. Fig. 2 is a vertical and transverse section of the same. Figs. 3 and 4 will be hereinafter described. Fig. 5 is a vertical section of the kind of glass knob which has heretofore been and is now in general use. Figs. 6 and 7 exhibit sections of knobs manufactured according to my improved methods, all of which are hereinafter particularly explained.

The ordinary mode of confining the glass or mineral handle of a knob to its metallic socket has been to insert the glass handle A, Fig. 5, in the socket B, and to pour melted lead or other suitable metal, D D, between the socket and glass, or through a hole, E, (bored through the socket) into a circular or other proper shaped groove, C C, cut in or around the glass, as seen in Fig. 5. In this method of connecting the parts, the contraction of the melted metal in cooling causes it to shrink tightly around the glass and away from the interior circumference of the metallic socket, the effect of this contraction being to render the glass handle liable to become more or less loosened in its socket, thereby admitting air and moisture, which, tarnishing the foil on the bottom of the glass, destroys or injures the beauty of the knob. Besides, as the metallic socket must be first cast, turned, or properly prepared and fitted to the glass, as well as to the shank which passes through the door, much expense and labor are requisite, which, in a very great degree, is saved by my improved mode of operating. My new method consists in casting the whole of the metallic socket directly upon the glass handle; and for this purpose I prepare a suitable mold, G, (the same being seen in top view in Fig. 3,) formed of two parts, H I, connected together at their extremities by a hinge-joint, K, and in other respects resembling an ordinary bul-

let-mold. This mold is exhibited in Fig. 4 as open, so as to display its interior arrangement and the manner in which the glass handle L is inserted therein preparatory to casting the socket. Suitable spaces, N N, each corresponding in shape to one-half of the socket, are cut out of the adjacent or inner sides of the pieces H I, the same constituting the matrix for the formation of the socket. The foot of the neck of the glass handle L, Figs. 2 and 4, (the same having a small disk, a, of foil properly placed and secured thereon, and said neck being properly grooved or scored in the ordinary manner,) is to be inserted in the mold, as seen in Fig. 4. The shank M, (by which the knob is secured to the door or other article of furniture,) having a pin, p, Figs. 2, 4, passing through it, is also to be placed in its proper position in the mold, the same being represented in Fig. 4. The halves or parts H I of the mold are then to be closed together, all of which being accomplished, melted type-metal or other suitable metal is next to be poured into the mold through an orifice, C, until the matrix is filled and the socket formed about the foot of the neck of the glass, and the shank M and pin p passing through the latter. Thus it will be seen that by this mode of forming the socket and attaching it to the glass handle and shank it becomes much more strongly fixed thereto than by any method heretofore practiced, as by the contraction of the metal (constituting the socket) in cooling it so firmly grasps or is secured to the neck of the glass that no moisture or air can obtain access to the silver-foil, and no looseness of the parts, comparatively speaking, can take place. After the socket is removed from the mold and is suitably trimmed or prepared, it should be bronzed or painted over in the usual manner.

To remove the shank M from the socket it is only necessary to take out the pin p, which may be accomplished by means of a punch and hammer, when the shank and socket may be easily separated from each other.

If it is desirable to plate the exterior surface of the trimming or socket with silver or any other metal, a thin piece or shell of plate, b b, (seen in section in Fig. 6, and previously suitably formed by means of dies to correspond with the interior of the mold,) may be introduced into the mold at the same time

with the other parts, and the metal *c*, Fig. 6, cast therein in the mold, as before set forth. When the knob is removed from the mold, the exterior of the socket will thus be plated or finished in the manner required; or, should it be found that the cast metal is too soft or yielding to hold the shank with the requisite degree of strength, a brass or hardened metallic or other proper socket, *d*, (seen in section in Fig. 7,) for holding the foot of the shank, may be placed in the mold and the metal *c* cast about the same, as seen in Fig. 7.

From the above it will be seen that the glass or mineral part of the knob is firmly secured to the socket by the contracting-power of the whole of the metal forming the socket, whereas by the ordinary method of constructing the socket and connecting it to the knob this effect is not produced. Besides, the shank, which passes through the door, or by which the knob is fastened to any article of furniture, is secured directly to the metal which binds upon the glass, or to a socket inserted and retained therein by the contracting-power of the metal as it cools, whereas in such a knob as is represented in Fig. 5 such is not the case.

Having thus set forth the nature and principles of my invention, by which they may be distinguished from others of like character,

I shall now proceed to point out such parts thereof as I claim and consider new.

1. The above-specified improvement in forming the metallic socket upon the mineral or glass handle of a door-knob, or of uniting the glass handle to the shank by which the knob is connected with a door or other article of furniture—viz., by casting type or other suitable metal directly around said glass handle or about the same and the shank while they are placed in a mold or matrix, as above set forth, thus completing the socket or confining the glass handle and shank together at one operation.

2. The combining with the cast metallic socket *C*, Fig. 7, of another socket, *d*, of metal or other suitable material, which is introduced into the matrix, and on which the metallic socket *C* is cast, so as to encompass it, the whole being accomplished substantially in the manner and by the means above set forth.

In testimony that the foregoing is a true description of my said invention and improvement I have hereto set my signature this 2d day of December, in the year 1842.

ENOCH ROBINSON.

Witnesses:

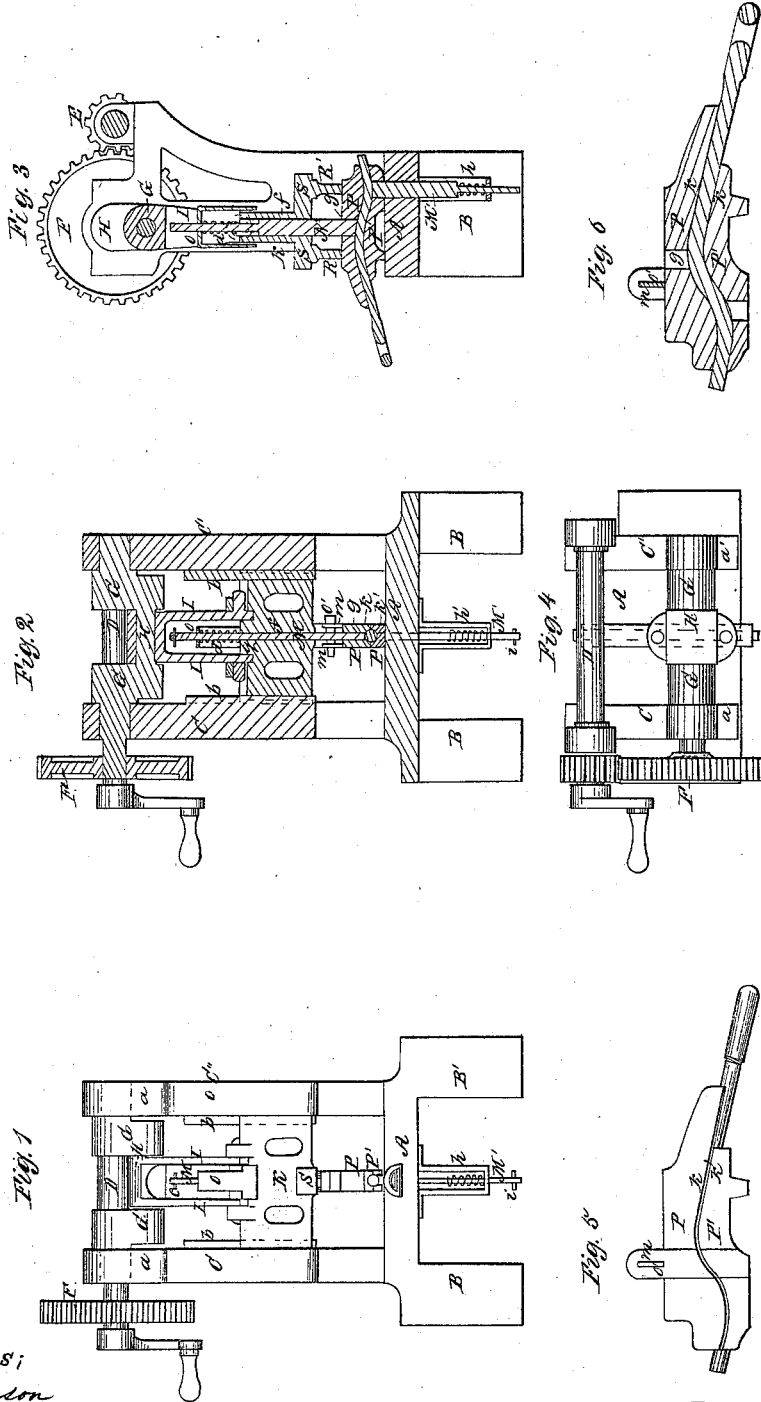
R. H. EDDY,

E. LINCOLN, Jr.

E. Robinson,
Bending Wood.

N^o 33,467.

Patented Oct. 8, 1861.



Witnesses:
Chas Robinson
A. Jenks Robinson

Inventor:
Enoch Robinson

UNITED STATES PATENT OFFICE.

ENOCH ROBINSON, OF RAYNHAM, MASSACHUSETTS, ASSIGNOR TO THE OLD COLONY IRON COMPANY, OF MASSACHUSETTS.

IMPROVED MACHINE FOR BENDING WOOD.

Specification forming part of Letters Patent No. 33,467, dated October 8, 1861.

To all whom it may concern:

Be it known that I, ENOCH ROBINSON, of Raynham, in the county of Bristol and State of Massachusetts, have invented an Improved Machine for Bending Wood; and I do hereby declare the same to be fully described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 denotes a front elevation, Figs. 2 and 3 vertical and central sections, and Fig. 4 a top view, of my said machine. Fig. 5 denotes a side view of the mold or former as removed from the bed-plate and with a shovel-handle molded into its required form. Fig. 6 is a longitudinal section of the same.

The nature of my invention consists in the combining with the former or mold for forming the article two spring supportors or compressors, the latter being arranged with respect to the bed-plate, the sliding carriage, and the former in manner as will be hereinafter described, and so as to prevent the separation of the fibers of the stick while being bent into the form described.

In the drawings, A denotes the table of the machine as supported upon two abutments B B'. From the said table there project upward two standards C C', which serve to support most of the operative parts of the machine.

D is a shaft which has its journals supported on bearings in the top parts of the standards C C'. The said shaft carries on one of its ends a pinion E, which engages with a gear F, disposed on the cranked driving-shaft G, as seen in Fig. 2, the said shaft G being supported in bearings formed in ears or projections *a a* extending up from the standards C C'. Furthermore, the said shaft G carries a bell-crank H, which is jointed to a pitman or connecting-rod I, the lower end of the said pitman being jointed or pivoted to the sliding carriage K, as seen in Fig. 1. The said carriage is formed with two grooves extending vertically through its two ends, which operate in conjunction with two ways or guides *b b* to guide the carriage K in its movements.

M is a stationary supporter or compressor, which not only extends vertically through a slot *f*, formed through the middle of the car-

riage K, but through another slot *g*, made through the upper part of the former, and leans against the top surface of the stick to be molded. The said supporter has its head supported or guided by a bridge or loop *o*, and such supporter is prevented from a too great downward movement by means of a pin *c* extending transversely through it, as seen in Figs. 1 and 2, while a spring *d*, coiled around the said supporter and having one end bearing against the shoulder *q* and the other end against the upper end of the loop *o*, serves not only to retain the said supporter in its proper place when the machine is not in use, but it serves to support the stick and the fibers of the wood to be molded from being ruptured during the process of being bent into shape.

M' is the lower supporter, the same being disposed so as to play vertically through a slot formed in the bed-plate A, and also through a corresponding slot formed through the lower half of the mold P, the said supporter bearing against the under side of the stick to be shaped. This supporter also, being formed in a similar manner to that just mentioned, serves to prevent the breaking of the fibers on the lower side of the stick while it is being bent in the machine. The lower part of the supporter M' extends down through a loop or projection *h*, arranged beneath the bed-plate, as seen in Fig. 1, a pin *i* serving to prevent a too great upward movement of the said supporter.

P P' are the two halves or parts of the mold or former, P being the upper and P' the lower part. The inner horizontal surfaces of each part are arranged on a line having the same curvatures that the piece to be molded is to have—that is, a line taken through the axis of the handle will coincide with the line formed by the joining of the two parts, and, moreover, each of the said parts has a semicircular groove *k k'* made longitudinally through it, such groove, when the two parts are brought together, being intended to embrace the piece of wood to be molded on all sides, as seen in Figs. 5 and 6. From each side of the lower part of the mold I extend upward two bars or standards *m m*, the same so embracing the mold on its opposite sides as to guide it in its

vertical movements. Through the top part of each I make two slots $n n'$ for the reception of a bar o' , which is for the purpose of confining the two parts of the mold together when the article is first molded, in order that it may retain its desired form.

$R R'$ are two projections which extend vertically downward from the sliding carriage K or from arms SS, extending therefrom, as seen in Fig. 3, the same having their lower surfaces disposed in the same horizontal plane, so as to bear with equal force upon the upper part of the mold when forced down upon it.

Having described the construction of my invention, I will now describe its operation. If we suppose any article—a shovel-handle, for instance—to have been steamed and reduced to its proper size, it is then to be placed in between the two parts of the mold, the said piece to be molded resting on the lower supporter and in the groove formed in the lower half of such mold. Next the sliding carriage K is to be caused to descend and not only force the upper supporter M down, so as to act in holding the handle in position and prevent the fibers of the wood from being rup-

tured or displaced, but so as to bring the two projections $R R'$ to bear with sufficient force upon the top surface of the mold or former to bring the piece to be molded into its desired form. The two supporters M M' are so constructed as to play freely in vertical directions, and while they press with sufficient force upon the wood near the parts which are to be bent to prevent breakage or displacement of the fibers while such stick is undergoing the process of being molded into shape they will yield so as to allow the two parts of the mold to be brought together as the article to be formed is brought into its desired form.

I claim—

The combination of the mold or former P P', the spring supporters or compressors M M', with the bed-plate and the sliding frame K, the whole being constructed, arranged, and made to operate together in manner and by means substantially as set forth.

ENOCH ROBINSON.

Witnesses:

CHAS. ROBINSON,
A. JENKS ROBINSON.

(No Model.)

E. ROBINSON.
Manufacture of Steel Scoops.

No. 234,892.

Patented Nov. 30, 1880.

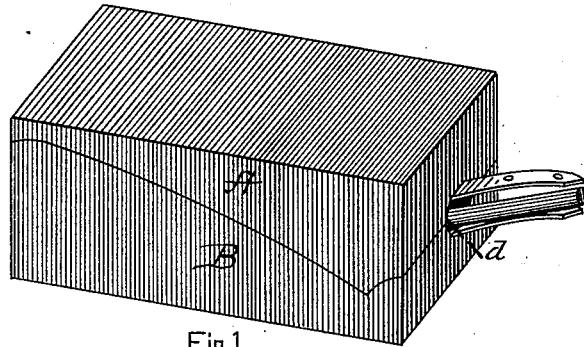


Fig. 1.

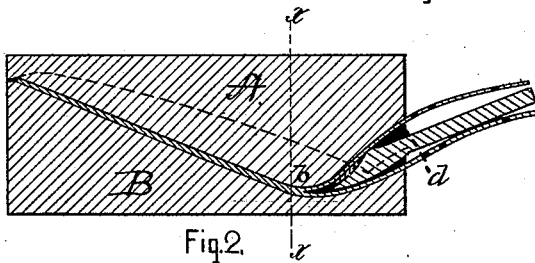


Fig. 2.

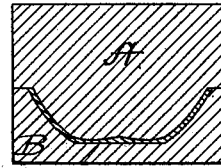


Fig. 3.

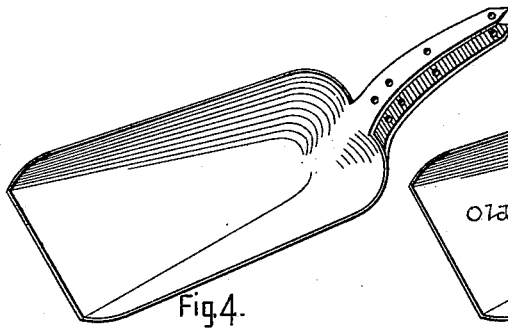


Fig. 4.

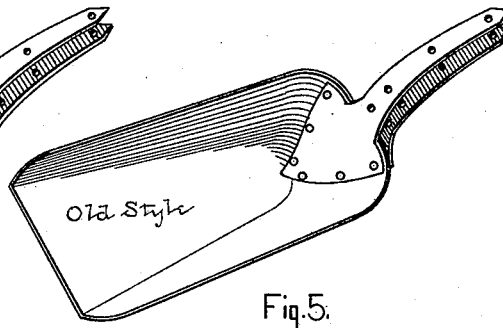


Fig. 5.

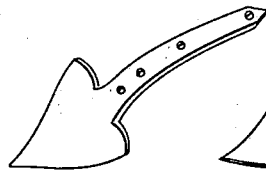


Fig. 6.

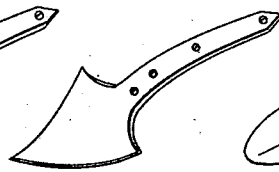


Fig. 7.

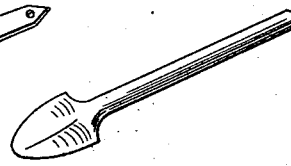


Fig. 8.

Witnesses.

Chas. T. Robinson
M. Westcott

Inventor.

Erick Robinson
by Heyman & Kane
Attorneys.

UNITED STATES PATENT OFFICE.

ENOCH ROBINSON, OF RAYNHAM, ASSIGNOR TO OLD COLONY IRON COMPANY, OF TAUNTON, MASSACHUSETTS.

MANUFACTURE OF STEEL SCOOPS.

SPECIFICATION forming part of Letters Patent No. 234,892, dated November 30, 1880.

Application filed June 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, ENOCH ROBINSON, of Raynham, in the county of Bristol and Commonwealth of Massachusetts, have invented a new and useful Improvement in the Manufacture of Steel Scoops, of which the following is a specification.

The objects of my invention are: first, to provide dies of a novel construction for the purpose of holding and maintaining the shape of a steel scoop-blade under pressure during the process of welding, and for shaping the socket-portion of the front and back straps to the configuration of the base of a handle; and, second, to provide a new method of welding a steel scoop-blade to the handle-straps by means of dies under pressure, and by the same method to so maintain the shape of the blade and handle-straps that on the release of the article from the dies it will form a complete scoop ready for the polisher and for the insertion of the handle.

Heretofore in the manufacture of shovels, a machine has been constructed having rotating or reciprocating rocking dies for the purpose of welding a single strap onto a shovel blank or blade; but such construction in practice is objectionable in that the shape of the blade is liable to be materially affected by twisting, warping, or curling in its progress through the dies, and but one strap at a time can be put on by this method. Also, dies in connection with a mandrel have been made for the special purpose of shaping the straps of a shovel or scoop for the introduction of the handle after the blade of the shovel or scoop with its straps has been completed under the common method of manufacture. This latter method has no relation to the welding process effected by my improvement.

My invention consists in the method of attaching the straps to the scoop-blade, the same consisting in heating the parts for union to a welding-heat, then arranging them in the dies with a mandrel between the straps, and finally subjecting the parts to pressure for the union.

My invention also consists in a novel construction and arrangement of the parts—lower and upper dies—as hereinafter more fully will be set forth and claimed.

In the accompanying drawings, making a part of this specification, Figure 1 is an isometrical projection of the upper and lower dies containing the scoop-blade, straps, and mandrel all in position for welding. Fig. 2 is a vertical longitudinal central sectional view of the dies, showing the position of the scoop-blade, straps, and mandrel. Fig. 3 is a transverse sectional view of the dies and scoop in position. Fig. 4 is a perspective view of my improved scoop, showing the straps welded thereto and shaped to receive a handle. Fig. 5 is a perspective view of a scoop, showing the straps riveted thereto as in the old method. Figs. 6 and 7 are perspective views of the upper and lower straps, and Fig. 8 is a representation of a steel mandrel employed during the process of welding, for shaping the upper and lower strap-plates to the form of the base of the handle.

The nature and operation of my invention will be readily understood from examination of the foregoing premises in connection with the following details of the description and method of operation.

The dies or formers are made of proper metal, and consist of upper and lower dies, A and B, matching in conformation as to the full outline of the blade of the scoop to or about the point *b*, at or near the base of the bowl or heel of the blade, where the configuration of each die diverges from the plane of contact and conforms, respectively, to the outline of the front and back strap-plates, allowing sufficient space *d* for the projection of the ends of the handle-straps with the steel mandrel between them, substantially as shown in Figs. 1 and 2 of the drawings. To effect the weld of the straps to the scoop-blade, and to maintain the shape of the straps to the outline of the handle-bulge the dies are made ready. The blank for the scoop, having been cut out in proper shape from a flat piece of steel of required thickness, and having a slit extending the proper distance in the plate and falling directly under the center of the upper strap, is then heated and made in scoop-shape by means of dies. The straps, also, are each cut out, and, being heated, are put in shape by means of dies suited to the purpose. The bowl and straps

are now placed in proper position and secured together by two rivets put near the edge of the straps on opposite sides, and through the straps and scoop-blade. The parts are then heated to a welding-heat, placed in the dies A B, with the mandrel or former between the strap-plates, and the dies subjected to pressure, which may be applied by any means affording sufficient force to make a true weld. The result of this operation is a scoop having the front and back straps smooth with the plate of the scoop, and forming an integral part thereof. After the weld is effected the upper die is removed and the scoop taken out in condition for the polisher and ready for the handle.

Having thus described my invention, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In manufacturing steel scoops, the method of attaching the straps to the scoop-blade,

which consists in heating the parts for union to a welding-heat, then arranging them in the dies with a mandrel between the strap-plates, and finally subjecting them to pressure, substantially as set forth.

2. Dies for maintaining or preserving the shape of the steel scoop during the process of welding the straps thereto, consisting of the upper and lower dies, A and B, matching in conformation as to the full outline of the blade of the scoop to the base of the heel of the blade, and conforming to the outline of the front and back handle strap-plates, with an opening for the end projections of the straps, as shown and described.

ENOCH ROBINSON.

Witnesses:

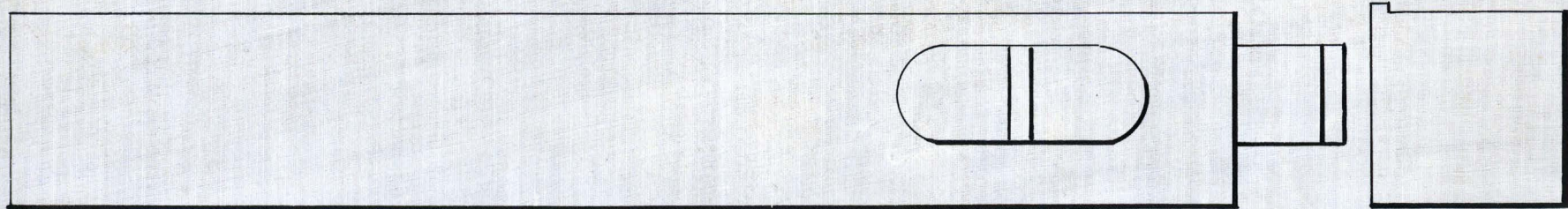
CHAS. T. ROBINSON,
M. WASTCORT.

COLONIAL DOOR TRIMMINGS.

FULL SIZE.

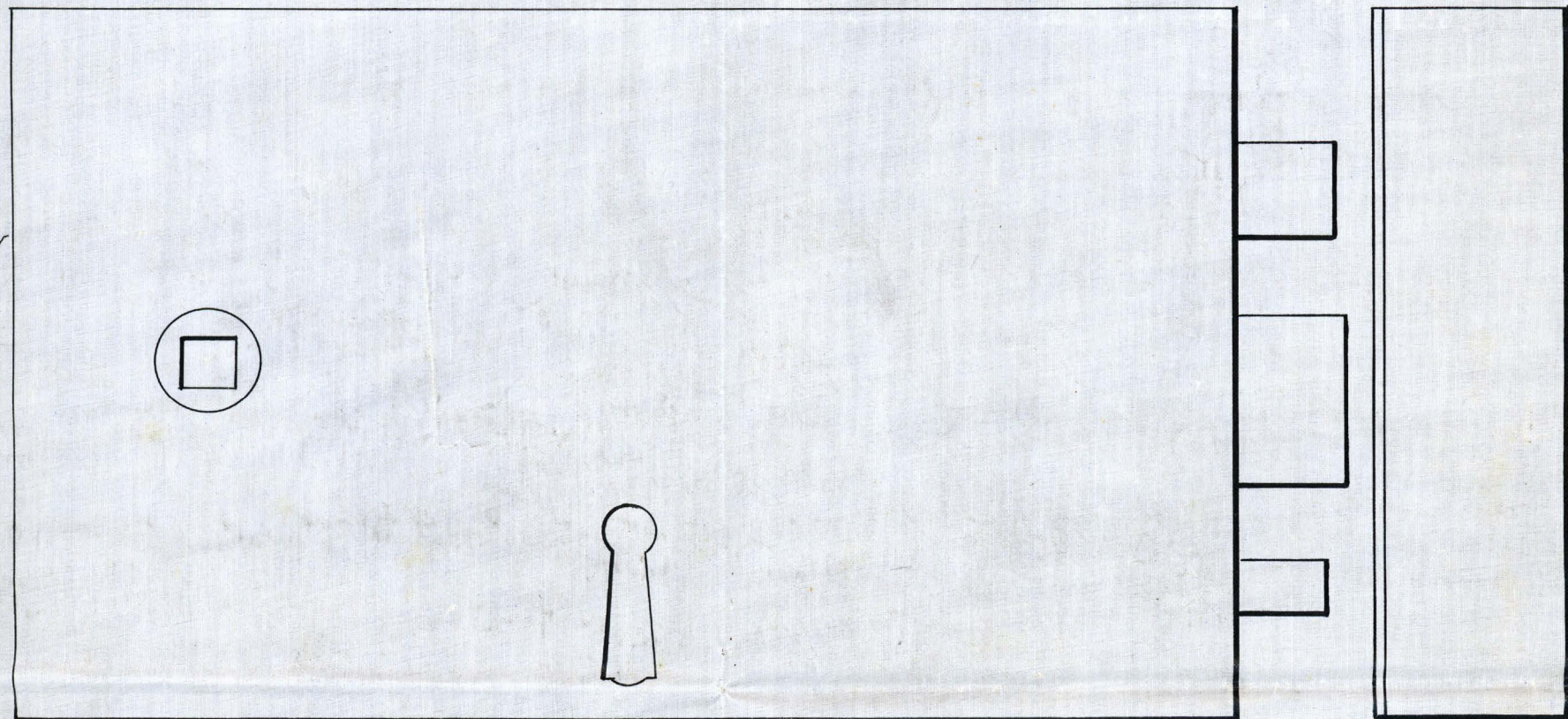
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BOTTOM VIEW



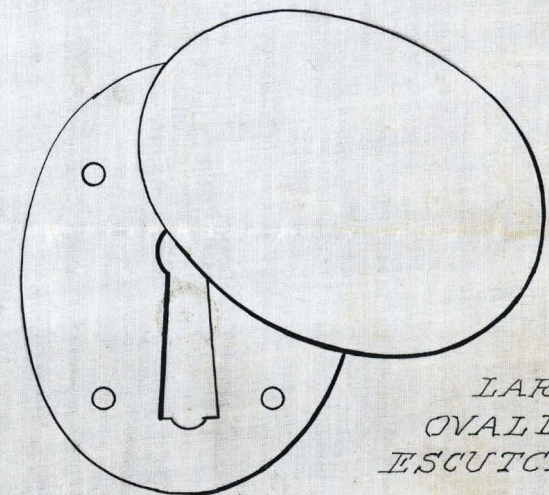
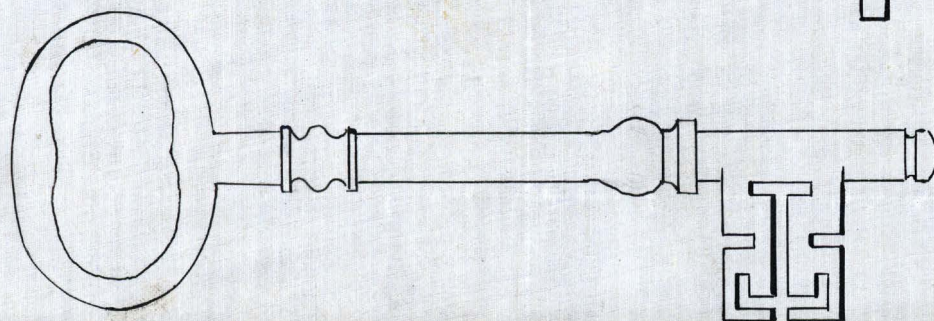
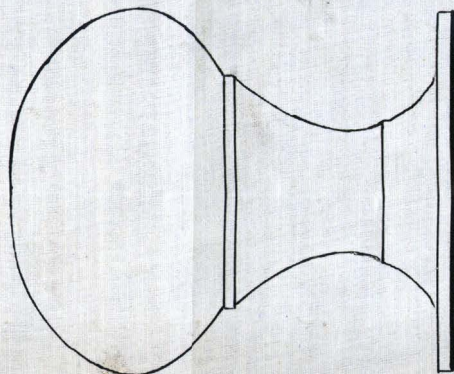
ENGLISH PATTERN
BRASS RIM LOCK.

FACE VIEW.



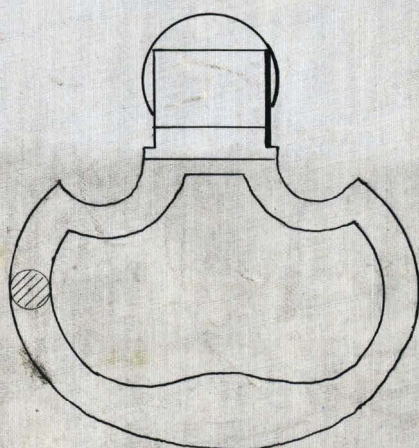
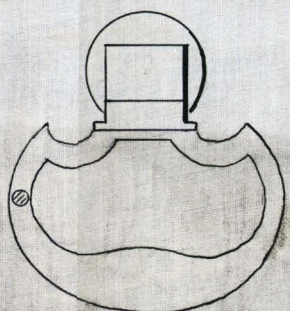
"PLAIN COLONIAL" KNOB.

ROUND

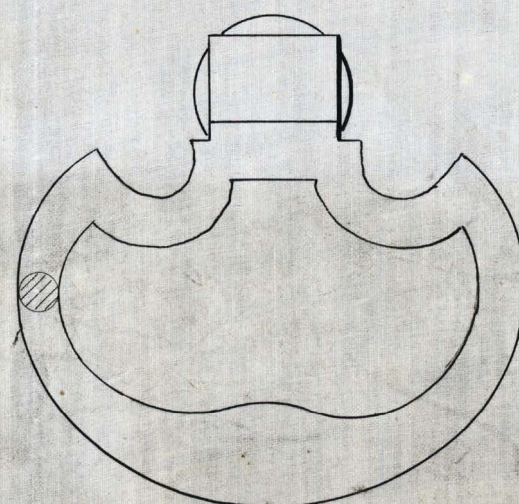


LARGE
OVAL DROP
ESCUTCHEON.

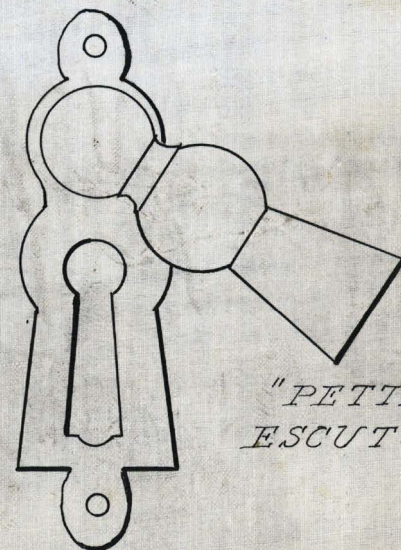
SHUTTER RING.



INSIDE
RING HANDLE



OUTSIDE
RING HANDLE



"PETTICOAT"
ESCUTCHEON.

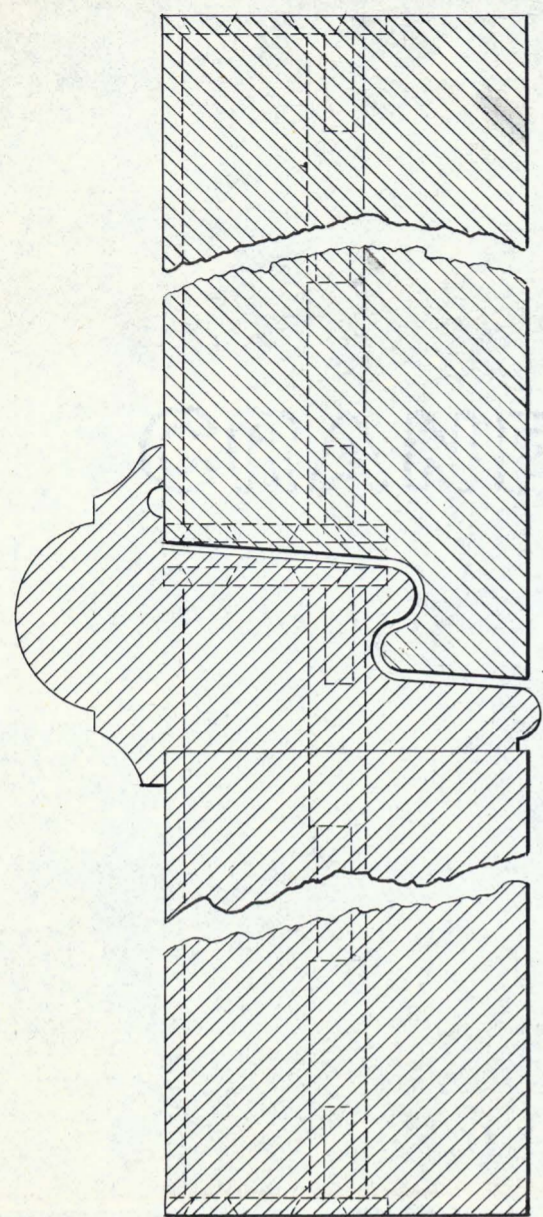
Made by

BOSTON.

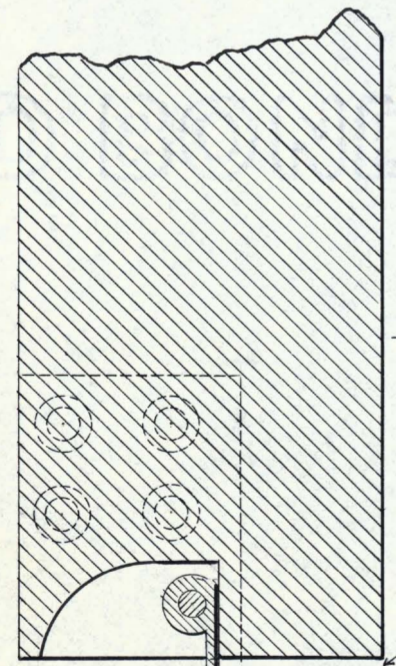


FRENCH WINDOW WEATHER-STRIP AND BOLT.

DWG
36



→ IN.

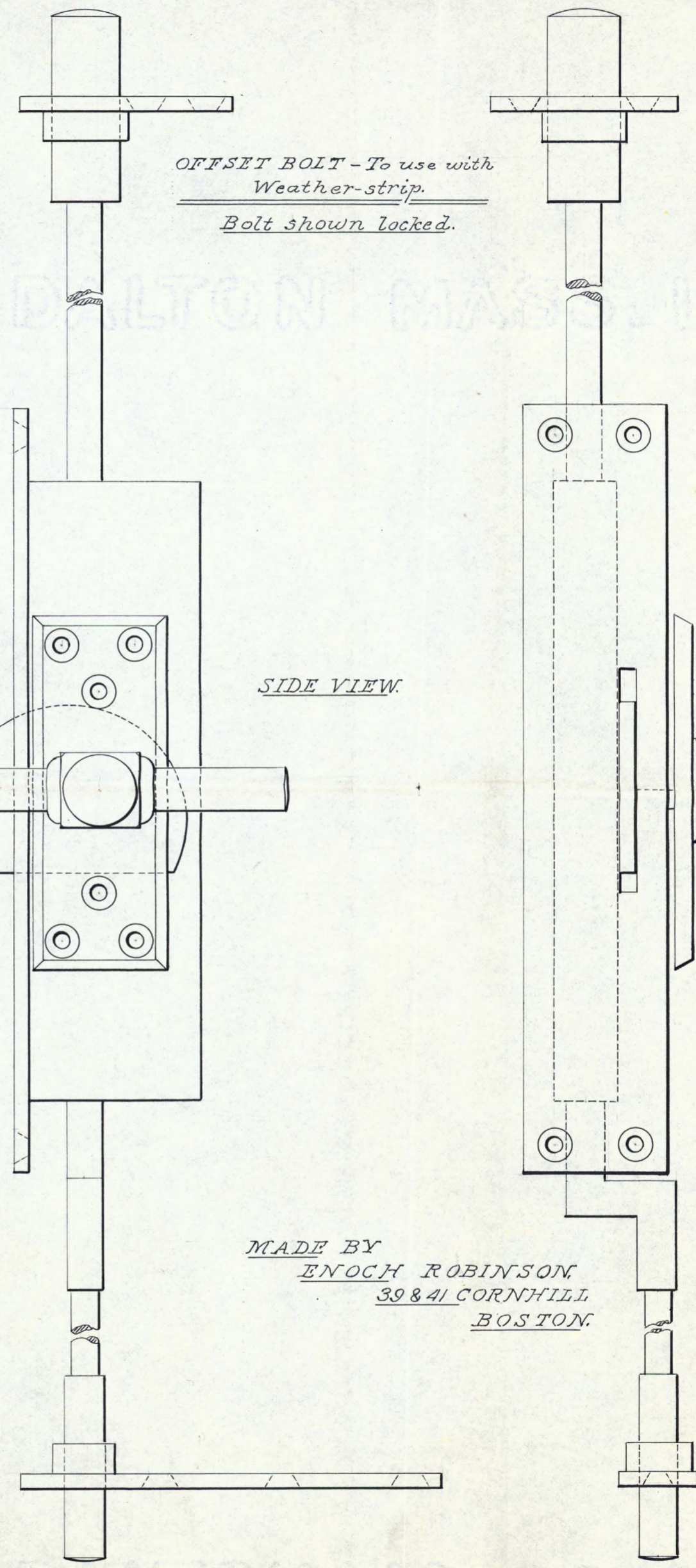
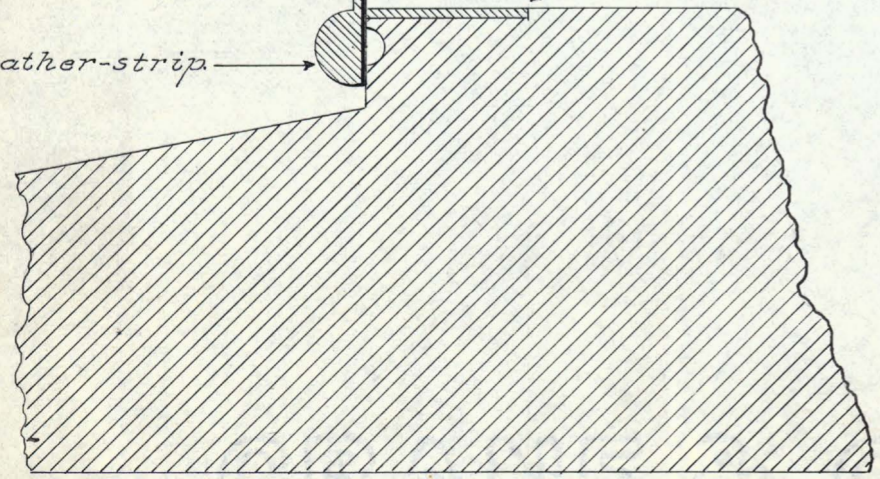


BRASS WEATHER-STRIP.

→ IN.

Brass plate to protect sill.

Weather-strip →



OFFSET BOLT - To use with Weather-strip.
Bolt shown locked.

SIDE VIEW.

FACE VIEW.

MADE BY
ENOCH ROBINSON
39 & 41 CORNHILL
BOSTON.

SCALE: FULL SIZE.

15

J. R. Bugbee,
Lock.

N^o 8,060.

Patented Apr. 22, 1851.

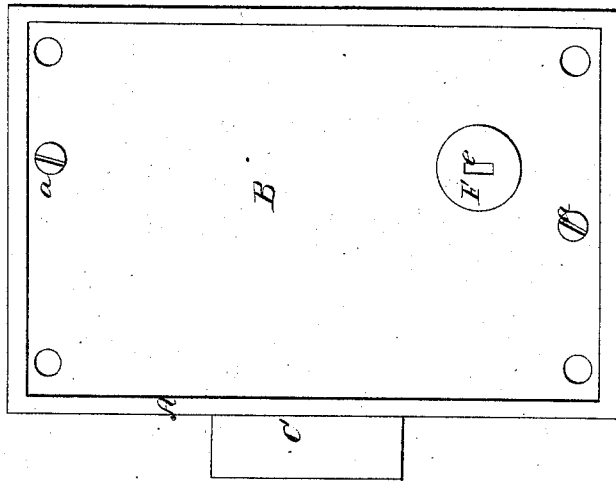


Fig. 1.

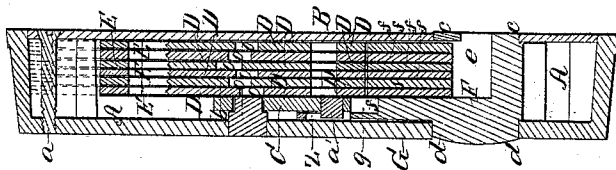


Fig. 3.

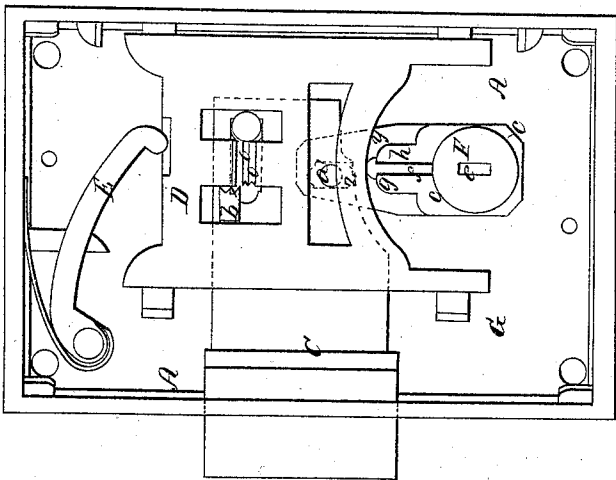


Fig. 2.

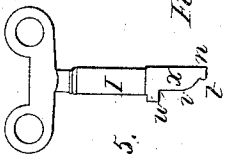


Fig. 5.

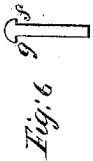


Fig. 6.



Fig. 4.

UNITED STATES PATENT OFFICE.

JAMES R. BUGBEE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO BUGBEE & ROBINSON.

IMPROVED LOCK AND KEY.

Specification forming part of Letters Patent No. 8,060, dated April 22, 1851.

To all whom it may concern:

Be it known that I, JAMES R. BUGBEE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Powder-Proof Locks for Safes, Bank-Vaults, &c.; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

In the said drawings, Figure 1 denotes a side view of a lock having my improvement. Fig. 2 shows the same as it appears when the cover-plate of the case or box is removed. Fig. 3 is a vertical and transverse section of the lock, taken through the revolving key-block. Fig. 4 is a side view of the separate bit-plate or secondary key. Fig. 5 is a side view of the wedge-key to be hereinafter described.

In the said drawings, A represents the case or box of the lock made in the usual manner and with a movable cover-plate B, which is confined in place by screws *a a*.

C is the bolt, whose stud *b* operates in connection with a series of tumblers or slide-plates D D D, &c., in the usual way, each of the said tumblers being provided with a depressing-spring E.

F is a block of metal so adapted to the lock-case as to be capable of being partially revolved, it having cylindric journals *c d*, which rest and move in corresponding apertures or bearings made, respectively, in the two side plates B G of the lock-case. One at least of these journals is made to extend entirely through the cover-plate or side plate of the lock. A rectangular recess or key-hole cavity *e* is sunk within the block. A set of tumbler-elevators or pins *fff* is inserted in the block and between the orifice *e* and the tumblers, there being a pin *f* to each tumbler, and each pin being made to extend into the cavity *e* and so adapted to the block as to be capable of being freely slid or moved upward or against its tumbler, so as to cause the elevation of the same.

A side view of one of the pins *ff*, &c., is given in Fig. 6, wherein it will be seen that the said pin is provided with a stop or head *g*, which, when the pin is at its lowest position, rests on the upper part *h* of the turning block F.

These pins or tumbler-elevators are made of equal lengths and operate in conjunction with a separate bit-plate or secondary key H. (Represented in Fig. 4.) This plate is made with a series of bits *i k l m n o*, corresponding in number with that of the tumblers and elevators. It is also made with a straight bottom *p q*, an inclined plane *q r*, and a hook *s* or other equivalent contrivance, which, in connection with a hook *t* on the end of the key I, (see Fig. 5,) enables a person to extract or remove the key H from the orifice or cavity *e*. The said key I is made with a wedge or inclined cam or plane *u v* and a plane surface *v w* on the post *x*, which is constructed of a width to correspond with and enter that of the key-hole orifice *e*. The bolt is moved by means of a projection *y*, which extends from the block F, and has a cavity or recess *z* made in it, and so as to receive a stud *a'* from the bolt, the same operating somewhat as a common key operates in throwing the bolt either backward or forward, the form of the said projection *y* and the recess being denoted in Fig. 2 by dotted lines.

In operating the lock the secondary key or bit-plate is first inserted within the orifice or key-hole *e* of the block F and with its bits standing upward or toward the elevators. Next the part *x* of the key I is forced endwise into the said cavity, so as to carry the inclined surface wedge or cam *u v* against the cam or inclined surface *q r* of the bit-plate and elevate the bit-plate and cause the part *p q* of it to rest upon the part *v w* of the key I. This operation will throw the bits against their respective tumbler-elevators and thereby raise up the tumblers, so as to carry all their cross or horizontal slots *o* into proper position to allow the stud or pin *b* of the bolt to pass through them. Now if we apply force to the key I, so as to turn it and the block F, we may throw the bolt either forward or backward, it being understood that the bearing-surfaces of the tumblers on the tumbler-elevators are to be so curved as to create no motion of the tumblers during such motions of the bolt.

A lock so constructed can be made not only powder-proof, but with so many tumblers as to be of great value as a protector against the operations of burglars, whether they be such

as are commonly resorted to in order to pick it, or blow it up, or injure it by gunpowder or any other explosive material introduced into it.

What I claim as my invention is—

The wedged or cam key I and the separate bit or secondary wedged or cam key H, in combination with the vibrating block F, the key-recess and the tumbler-elevators, the

whole being constructed, arranged, and operating substantially as hereinbefore specified.

In testimony whereof I have hereto set my signature this 6th day of March, A. D. 1851.

JAMES R. BUGBEE.

Witnesses:

R. H. EDDY,

BENJAMIN EDDY.

F. D. ROBINSON.
Latch for Doors, &c.

No. 161,705.

Patented April 6, 1875.

Fig. 1.

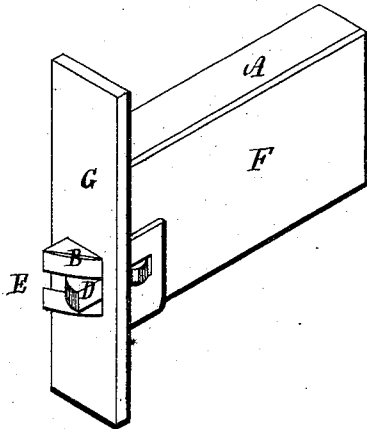
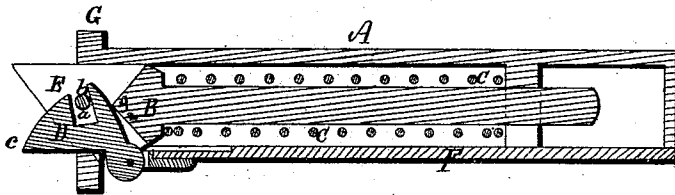


Fig. 2.
Enlarged.



WITNESSES.

H. H. Newell.
H. C. Boardman.

F. D. Robinson
J. Curtis Atty.

UNITED STATES PATENT OFFICE.

FRANCIS D. ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ALBERT M. ROBINSON, OF SAME PLACE.

IMPROVEMENT IN LATCHES FOR DOORS, &c.

Specification forming part of Letters Patent No. 161,705, dated April 6, 1875; application filed February 17, 1875.

To all whom it may concern:

Be it known that I, FRANCIS D. ROBINSON, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Locks or Latches for Doors, &c., of which the following is a specification:

This invention relates to means whereby the resistance offered by the bolt of a lock or latch upon the closing of the door or other object to which it is attached is very greatly reduced, and the bolt under all circumstances is compelled to recede upon abutting against the door-jamb.

The drawings accompanying this specification represent, in Figure 1, a perspective view, and in Fig. 2 a horizontal section, of a door-latch provided with my improvement.

In these drawings, A represents the case, and B the bolt, of an ordinary door-latch, the spring which advances the bolt in the usual manner being shown at C. In carrying out my improvement, I produce, from a flat block of metal, a lever, D, of the form shown in Fig. 2 of the drawings, and I dispose this lever within a horizontal furcation, E, made in the outer end of the bolt B, the inner end of the lever D being pivoted to the plate F of the case A a short distance in rear of the face-plate G of the latter, while the outer end or nose *c* of the said lever D protrudes beyond the said face-plate to an extent about equal to the projecting portion or nose of the bolt B. A bar, *a*, spans the furcation E of the bolt B at a point to intercept or enter a notch, *b*, created in the upper part of the lever D, the purpose of such bar being to enable the said bolt, when retracted by the knob, to compel the lever D to retreat within the interior of the case A. The rear side or spur *b* of the lever D abuts against the rear wall or boundary of the furcation E of the bolt B, and serves to retract such bolt, as hereinafter stated, and to lessen the friction between the lever and bolt as much as possible I reduce the portion of the bolt against which the spur abuts to an obtuse-angled edge, as shown at *g*.

As the door is closed, the nose *c* of the bolt D abuts against the door-jamb, and is turned upon its pivot in the arc of a circle, and pushed inward and rearward toward the handle of the latch, and, as a consequence, through the agency of the projection *b*, overcomes the stress of the spring C, and retracts the bolt without the latter coming in contact with the said door-jamb until it enters its socket in the latter.

The bolt D may be actuated by its handles and spindle without regard to the lever D.

As the door is being entirely closed the wiping effect of the door-jamb upon the lever D gradually increases, owing to the fact that the fulcrum of the lever recedes from such door-jamb, and by this means I obtain the greatest power over the bolt at the time most needed—that is, as its nose retreats within the case A, as it is at this time that the spring C offers the greatest resistance.

In the present construction of locks and latches for doors, &c., the action of the door-jamb upon the projecting nose of the bolt tends to crowd the body of the latter against the plate A of the latch, more power being required to overcome the friction between the bolt and case than to retract the spring which advances the bolt, and this resistance multiplies rapidly as the thickness of the bolt is reduced, and the angle of its slope becomes more obtuse.

In my invention, practically, the only power requisite to be overcome is the stress of the spring, and I provide a powerful and direct leverage to effect this compression of the spring, and, as before stated, automatically increase this leverage as the resistance of the spring increases.

A great advantage in my invention is seen in the fact that I am enabled to produce a mortise-lock of the thinnest class, and which contains a thin bolt, which shall possess all the advantages of a thick bolt whose nose is formed with an acute-angled slope. I also avoid much of the wear which now ensues between the bolt and door.

In conclusion, I would state that I do not claim, broadly, the use in a latch of an auxiliary lever to force back the bolt; but,

What I do claim, and desire to secure by Letters Patent, is—

The combination, with the sliding bolt, slotted at its front end, as described, of the notched or forked lever D, pivoted to the

latch-case to work in the slot of the bolt, and engaging with its notched or forked part a transverse pin, *b*, extending across the slot, substantially as shown and set forth.

FRANCIS D. ROBINSON.

Witnesses:

FRED. CURTIS,

W. E. BOARDMAN.

F. D. ROBINSON.
Assignor to A. M. ROBINSON.
Latches for Doors.

No. 8,008.

Reissued Dec. 25, 1877.

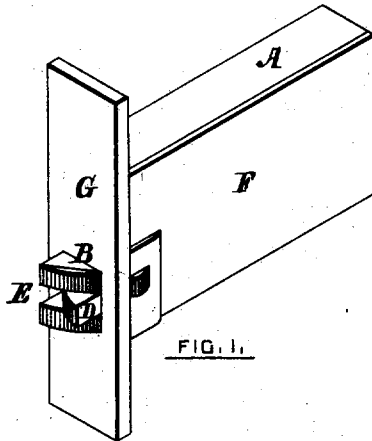


FIG. 1.

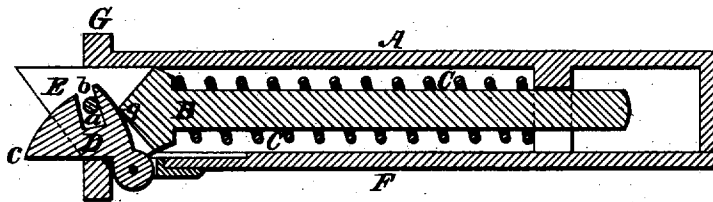


FIG. 2.

WITNESSES,

INVENTOR,

Geo. W. Cummings
Thos. D. Banks

Francis D. Robinson

UNITED STATES PATENT OFFICE.

FRANCIS D. ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO
ALBERT M. ROBINSON, OF SAME PLACE.

IMPROVEMENT IN LATCHES FOR DOORS.

Specification forming part of Letters Patent No. 161,705, dated April 6, 1875; Reissue No. 8,008, dated December 25, 1877; application filed August 22, 1876.

To all whom it may concern:

Be it known that I, FRANCIS D. ROBINSON, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Latches for Doors, &c., of which the following is a specification:

This invention relates to means whereby the resistance offered by the latch-bolt of a lock or latch, upon the closing of the door or other object to which it is attached, is very greatly reduced, and the bolt under all circumstances is compelled to recede so soon as the front edge of the door enters the rabbet in the door-frame.

Latch-bolts have heretofore been provided with devices for forcing the bolt into the case independently of the contact with a nosing or striker-plate of the inclined face on the latch-bolts.

Latches embodying my invention differ from all others heretofore known to me, in that I employ therein a bolt-operating lever which is provided with a striking-face, which projects at an abrupt angle from the face-plate of the case, and is so pivoted that its outer end, in the act of forcing back the bolt, moves in the arc of a circle more rapidly than the bolt moves in receding; also, in that my operating-lever is practically a bell-crank lever, which is operatively connected with the bolt and case by means of a single pivot, and therefore it moves the bolt longitudinally without imparting thereto any lateral movement; also, in that the striking-face of the operating-lever is parallel with the holding-face of the latch-bolt; also, in that the latch-bolt is connected with the lever by a pin-and-slot connection; and, also, still further, in that the latch-bolt is provided with an angular edge, against which the operating-lever abuts in forcing back the bolt.

It is owing to these novel features in the construction of my operating-lever, and to the novel and peculiar manner in which it is combined with the latch-bolt and case, that my improved latches are applicable to thin mortise-locks, are prompt and easy in operation, are durable, and so occupy a keeper-mortise as to obviate the undue rattling of a latched door.

The drawings accompanying this specifica-

tion represent, in Figure 1 a perspective view, and in Fig. 2 a horizontal section, of a door-latch provided with my improvement.

In these drawings, A represents the case, and B the latch-bolt, of an ordinary door-latch, the spring which advances the bolt in the usual manner being shown at C.

The bolt B is well fitted to the case, and is capable only of longitudinal movement.

In carrying out my improvement, I produce, from a flat block of metal, a latch-operating lever, D, of the form shown in Fig. 2 of the drawings, and I dispose this lever within a horizontal furcation, E, Fig. 1, made in the outer end of the bolt B, the inner end of the lever D being pivoted to the plate F of the case A a short distance in rear of the face-plate G of the latter, while the outer end or nose *c* of the said lever D protrudes beyond the said face-plate to an extent about equal to the projecting portion or nose of the bolt B.

The striking-face of lever D projects at an abrupt angle from the face-plate of the case, and it will be seen that it is so pivoted that its outer end, moving in the arc of a circle, will move more rapidly than the bolt, because said outer end is farther from the pivot than is the point of contact of the lever with the bolt, and the power of the bolt-spring is easily overcome, because the closing force of the door is applied to the longest arm of the lever, and transmitted to the bolt through its shortest arm. This lever is a bell-crank lever, and it is operatively connected with the case and bolt by a single pivot, which is located near the junction of the lever-arms, and therefore the bolt has only a movement to and fro in a straight line, without that lateral vibratory movement of its outer end which would result from the pivoting of a lever both to bolt and case, as has heretofore been done. This single pivot permits the outer end of the lever to travel faster than the bolt, which results in a gaining leverage in overcoming the power of the bolt-spring. The striking-face of the lever being practically parallel with the holding-face of the bolt, the two cooperate with the sides of the keeper-mortise in holding a closed door against undue vibration.

A bar, *a*, spans the furcation *E* of the bolt *B* at a point to intercept or enter a notch, *b*, created in the upper part of the lever *D*, the purpose of such bar being to enable the said bolt, when retracted by the knob, to compel the lever *D* to retreat within the interior of the case *A*. The rear side or spur *b* of the lever *D* abuts against the rear wall or boundary of the furcation *E* of the bolt *B*, and serves to retract such bolt, as hereinafter stated; and to lessen the friction between the lever and bolt as much as possible, I reduce the portion of the bolt against which the spur abuts to an obtuse-angled edge, as shown at *g*.

As the door is closed the abrupt striking-face of the lever *D* strikes against the door-jamb or striker-plate, and said lever is thereby turned upon its pivot in the arc of a circle, and pushed inward and rearward toward the handle of the latch, and overcomes the stress of the spring *C*, and retracts the bolt without the latter coming in contact with the said door-jamb until it enters its socket in the latter.

The bolt *B* may be actuated by its handles and spindle independently of the lever *D*.

As the door is being entirely closed the wiping effect of the door-jamb upon the lever *D* gradually increases, owing to the fact that the fulcrum of the lever recedes from such door-jamb; and by this means I obtain the greatest power over the bolt at the time most needed—that is, as its nose retreats within the case *A*, as it is at this time that the spring *C* offers the greatest resistance.

In the present usual construction of locks and latches for doors, &c., the action of the door-jamb upon the projecting nose of the bolt tends to crowd the body of the latter against the plate *A* of the latch, more power being required to overcome the friction between the bolt and case than to retract the spring which advances the bolt, and this resistance multiplies rapidly as the thickness of the bolt is reduced and the angle of its slope becomes more obtuse.

In my invention, practically, the only power requisite to be overcome is the resistance of the spring, for the reason that there is no frictional contact between the beveled face of the latch-bolt and the striker-plate of the door-jamb, and the small amount of such contact between the nose of the lever *D* and such plate becomes unimportant as a resistance to be overcome, in consequence of the fact that

such lever is arranged to vibrate upon a pivot. I also provide a powerful and direct leverage to effect the latch compression of the spring, and, as before stated, automatically increase this leverage as the resistance of the spring increases.

It will be seen that the striking-face of the lever *D* is parallel with the holding-face of the latch-bolt, and this secures a more prompt and direct leverage as between the door-jamb or striker-plate and the lever than would be the case if the striking-face of the lever were inclined like the latch-face of a bolt.

A great advantage in my invention is seen in the fact that I am enabled to produce a mortise-lock of the thinnest class, and which contains a thin bolt which shall possess all the advantages of a thick bolt whose nose is formed with an acute-angled slope. I also avoid much of the wear which now ensues between the bolt and door.

What is claimed as the invention, and is desired to be secured by Letters Patent, is—

1. The combination, with a latch-bolt, of a pivoted operating-lever, the outer end of which, in forcing back the bolt, moves in the arc of a circle more rapidly than the bolt in receding, and which is provided with a striking-face projecting at an abrupt angle from the face-plate, substantially as described.

2. The combination, by means of a pin-and-slot connection, of the sliding spring latch-bolt and operating-lever, pivoted as described, whereby the said lever is made to vibrate backward when the latch-bolt is retracted by the turning of the knob-spindle, substantially as specified.

3. The combination, with a latch-bolt, of an operating-lever having a striking-face which is parallel with the holding-face of the latch-bolt, substantially as described.

4. The operating-lever, in combination with a latch-bolt having an angular edge against which the operating-lever abuts, substantially as described.

5. The combination, with a latch-bolt which is limited to a longitudinal movement, of a bell-crank lever which is operatively connected with the bolt and case by a single pivot, substantially as described.

FRANCIS D. ROBINSON.

Witnesses:

GEO. W. CUMMINGS,
THOMAS G. BANKS.