

F. A. BROOKS & H. WILLARD.
Machinery for Making Lock Casings.

No. 231,209.

Patented Aug. 17, 1880.

Fig. 1.

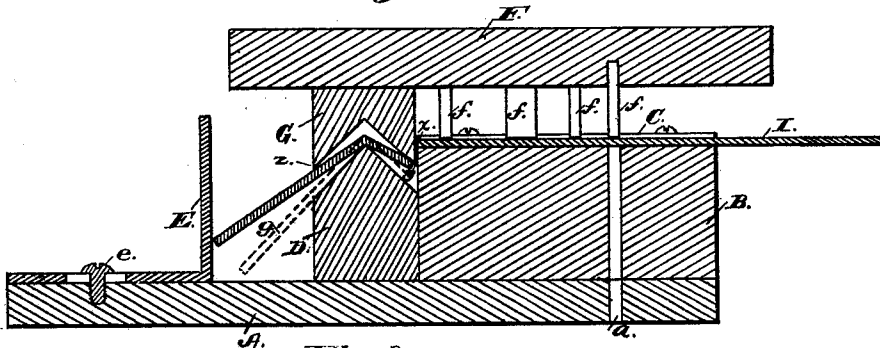


Fig. 2.

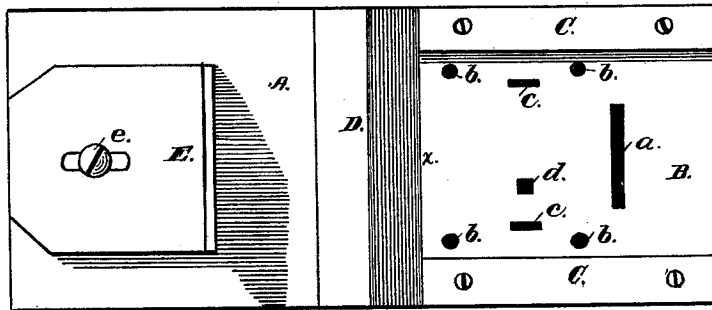
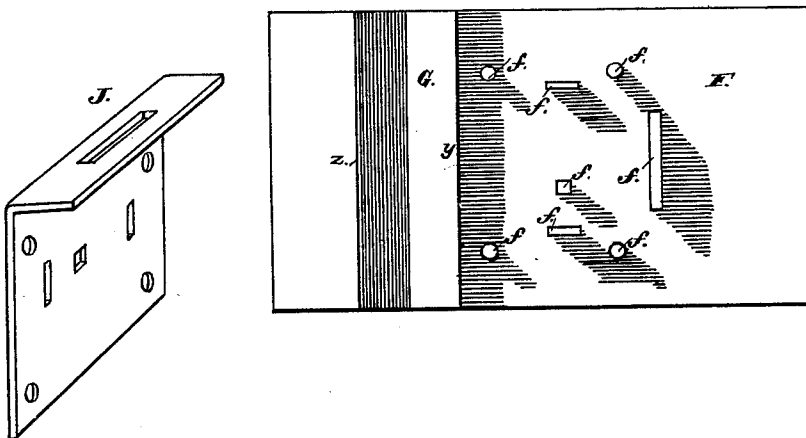


Fig. 3.



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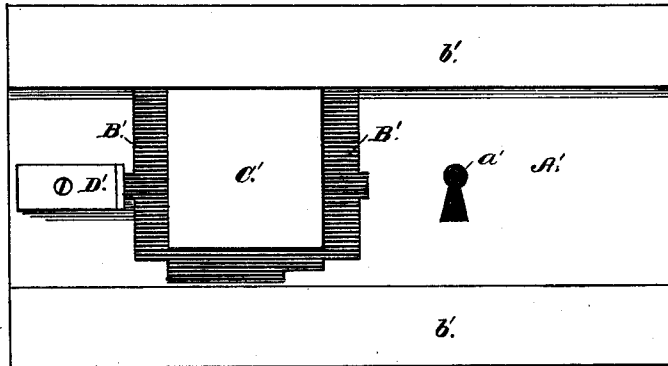


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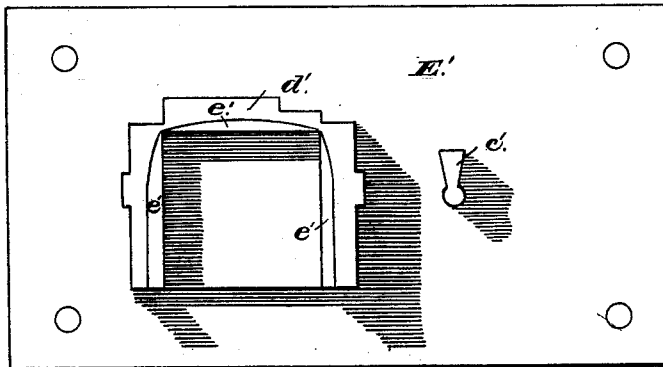


Fig. 3.

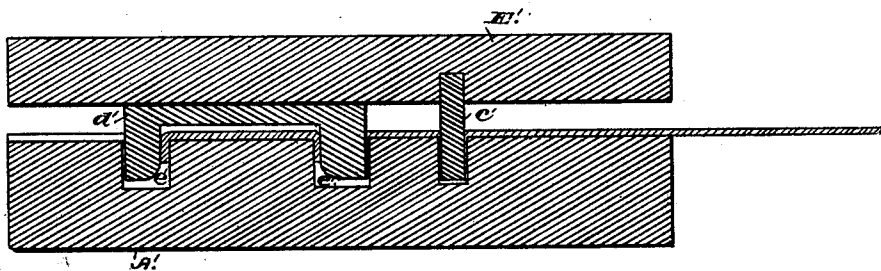
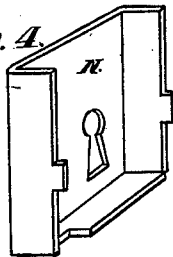


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK A. BROOKS AND HORATIO WILLARD, OF DAYTON, OHIO.

MACHINERY FOR MAKING LOCK-CASINGS.

SPECIFICATION forming part of Letters Patent No. 231,209, dated August 17, 1880.

Application filed February 13, 1880.

To all whom it may concern:

Be it known that we, FREDERICK A. BROOKS and HORATIO WILLARD, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Machinery for Making Lock-Casings; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to an improvement in machinery for making wrought-metal lock-casings.

It consists in the construction of two sets of dies peculiarly constructed and arranged, and by the operation of which strips of metal of the proper width and thickness are punched, cut, and pressed to form the two parts of the lock-case, as will be herewith set forth and specifically claimed.

In the accompanying drawings, Figure 1, Sheet 1, is a sectional view, in side elevation, of the punching and shaping dies. Fig. 2, Sheet 1, is a plan view of the base or female portion of the same. Fig. 3, Sheet 1, is an inverted plan view of the male portion of the same. Fig. 1, Sheet 2, is a plan view of the female portion of the second die. Fig. 2, Sheet 2, is an inverted plan view of the same. Fig. 3, Sheet 2, is a central sectional view, in elevation, through both portions. Fig. 4, Sheet 2, is a perspective view of the finished case.

First describing the devices represented on Sheet 1 of the drawings, A is the base-plate, of metal, and, if desired, may form part of the power-press, of any suitable construction. (Not here shown.) Upon this is attached in any convenient way the die or female B, which may be a rectangular metal block or die having recesses *a b c d* for the bolt-opening, the screw-holes, and the rivet-holes, respectively. Upon the upper side of this block B are guides C, which may be adjustable, if desired.

Just in the rear of the block B is a second stationary or adjustable metal former, D, having a rectangular wedge-shaped top, as seen, and this top edge is on a level with the top of the block B. Some little distance in the rear of the former D is a rectangular stop-plate, E, adjustably fastened by a set-screw, *e*, to the bed-plate A, so that its distance from the former D may be regulated.

The male portion F, which is attached to the movable portion of the press, so as to descend upon the block B and former D with a reciprocating motion, consists of a rectangular or other suitably-shaped metal block, having secured in it so as to project from its under surface steel punches *f*, Figs. 1 and 3. These punches are of such shape and so adjusted as to accurately fit the corresponding apertures *a b c d* in the block B. Also, fitted to the under side of the block F is the combined cutting and bending die G, of the shape shown, with a recess in its under face, which, when the block descends, fits over the former D.

Now, the operation is as follows, supposing the block F, with its punches and cap, to be rising and falling uniformly by power applied from the press: A strip of metal, I, of any length, just as it comes from the mills, but of uniform and proper width and thickness, is slipped between the guides C until its end is exactly flush with the rear edge, *x*, of the block B, when the punches descend and punch out the bolt-opening, the screw-holes, and the rivet-holes. As soon as the punches ascend the operator pushes the strip I through until it is arrested by the stop-plate E, when, the block F again descending, the edge *y* of the female die G catches the strip between it and the edge *x* of the block B and cuts it through at that point, thus severing a piece of the proper length for one part of the lock-casing. At the same time and by the same operation the strip I has been a second time punched. Now, to follow the process upon the severed piece, as soon as it is cut it is caught between the edges *y* and *z* of the cap G and the top edge of the former D, as seen in Fig. 1, and is bent upon the latter, so as to form a selvage or the top part of the lock-casing containing the bolt-opening, as seen by the dotted lines *g*, Fig. 1. This completes the plate, with all its necessary holes and slots, ready for receiving the back part of the casing. This plate is seen in perspective at J. By this means every downward stroke of the block G and its attachments forms a completed plate, J, punched and bent ready for use in a lock-casing.

Sheet 2 shows the same invention as applied to the construction of the back part of the casing. Here the lower or female die, A',

has the key-hole recess *a'* and the irregular recess *B'*, of the shape shown, containing a rectangular former-block, *C'*, located as shown. This latter, in its function, corresponds with the former-block *D* of Sheet 1. A stop, *D'*, of the shape shown, is employed, as in Sheet 1, and likewise guide-strips *b'*. The upper or male portion, *E'*, carries on its under side the key-hole punch *c'* and a cap-piece, *d'*. This latter is shaped externally so as to fit exactly into the irregular recess *B'*, and it contains on its under surface a recess which fits over the former-block *C'*. The lower inner edges of the walls of this recess are rounded, as seen at *c'*.

The operation of this pair of dies is exactly similar to that of the dies above described, and the fed-in strip is punched, cut, and bent at one operation into the back piece, *N*, Fig. 4, of the lock-casing.

The advantages of this process are obvious, and the great savings of time and metal are important. Another great advantage is, that by means of the formers employed, which bend the metal toward the edge instead of from it, a lower quality of iron can be employed, thus enabling casings of good quality to be made from cheaper material than by the present processes.

We are aware that trunk corner-clamps have been formed in a press containing punching, cutting, and bending dies, each separate and distinct from the other, but capable of punching, cutting, and bending the corner-clamps in a continued operation. But this machine necessitated the use of a slide to carry the blank, after it had been punched and cut, to the bending-die, so that while all three sets of dies descended uniformly, yet the action of

each was independent, and an extra handling of the blank was required after it was punched and cut. Our machine obviates this by the use of the combined cutting and bending dies, without the necessity of extra handling, for the same motion that carries the strip to be freshly punched locates the part already punched so as to be severed and bent by the same die and without intermediate shifting.

What we claim as new is—

1. In machinery for forming wrought-metal lock-casings, the combination, with the punching-dies *B* and *F*, constructed as described, of the bending-die *D*, having a rectangular wedge-shaped top, and the shearing and bending die *G*, substantially in the manner and for the purpose specified.

2. In machinery for forming wrought-metal lock-casings, the combination, with the punching-dies *B* and *F* and shearing and bending dies *D* and *G*, of the adjustable stop-plate *E*, the parts constructed and relatively arranged in the manner and for the purpose specified.

3. In machinery for forming wrought-metal lock-casings, the combination of the female die *A'*, containing the recessed former-block *C'*, and the male die *E'*, carrying the shearing and bending cap *d'*, the parts constructed and relatively arranged substantially in the manner and for the purpose specified.

Witness our hands this 2d day of January, A. D. 1880.

FREDERICK A. BROOKS.
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Witnesses:

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CHAS. M. PECK.