(No Model.)

H. B. SARGENT.

MANUFACTURE OF DOOR KEYS.

No. 383,012. Patented May 15, 1888.

Fig. 1

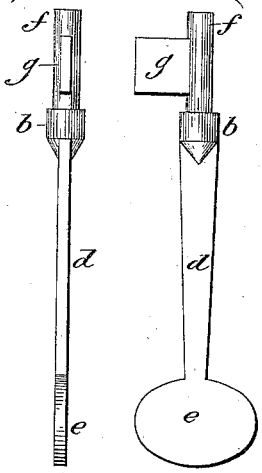


Fig. 2

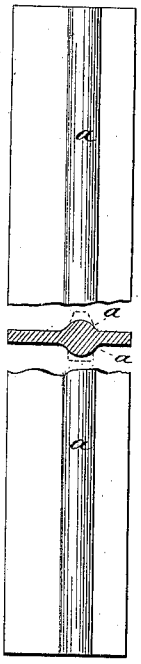


Fig. 3

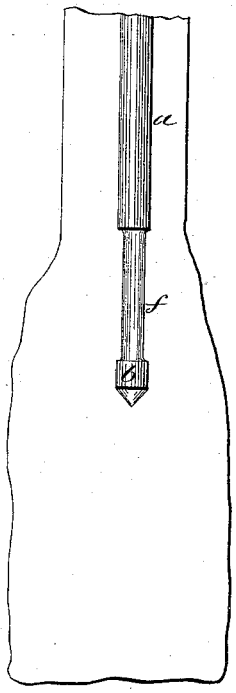
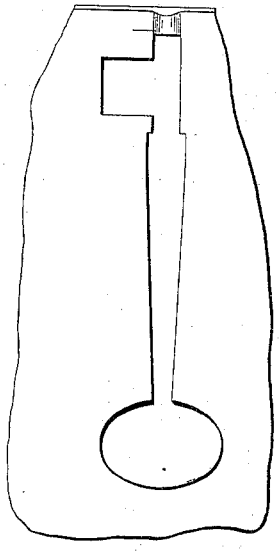


Fig. 4



Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY B. SARGENT, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO SARGENT & COMPANY, OF SAME PLACE.

MANUFACTURE OF DOOR-KEYS.

SPECIFICATION forming part of Letters Patent No. 383,012, dated May 15, 1888.

Application filed February 27, 1888. Serial No. 265,418. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. SARGENT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in the Manufacture of Door-Keys; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, two views of the key-blank complete; Fig. 2, a side view of the bar, broken to illustrate transverse section of the same; Fig. 3, the bar, showing the ribs flattened and the shoulder portion and bit portion of the spindle shaped; Fig. 4, the shaped portion of the bar after the key-blank has been cut therefrom.

This invention relates to an improvement in that class of door-keys which are commonly known as "flat keys"—that is to say, a key in which the spindle and bow are flat thin metal, as sheet metal, in contradistinction to a cylindrical-shaped or cast-metal spindle; but in such class of keys it is substantially necessary that the bit end of the key shall be cylindrical, so as to be properly supported in the lock, and also that the bit end shall be constructed with a shoulder, which will determine the position of the bit in the lock—that is, a shoulder which will strike the face of the lock when the bit is in proper position for operation.

Numerous devices have been employed to produce these keys. They have been cut from sheet metal with enlargements applied at the bit end to form the cylindrical shoulder and cylindrical portion of the spindle. In other cases the flat metal has been upset to give sufficiently increased thickness to produce the cylindrical portion and shoulder.

The object of my invention is to simplify the formation of this class of keys; and it consists in, first, rolling a bar of metal flat in transverse section, but with a longitudinal rib upon the two flat sides, distant from one edge substantially the depth of the bit, the two ribs producing a cylindrical shape corresponding, substantially, to the larger cylindrical portion of the spindle required; second, striking the said bar to bring the said ribs into the plane of the flat sides of the bar from the shoulder portion of the spindle, and contracting the rib from the shoulder portion to the tip of the spindle; third, cutting the blank for the key from the said struck portion of the bar, as more fully hereinafter described.

I first roll a bar from which the key-blanks are to be formed, as represented in Fig. 2. This bar is in width substantially the width required for the bow, little more or less, and of substantially corresponding thickness. Longitudinally on each side of this bar a rib, *a*, is formed, distant from one edge substantially the depth of the bit required for the key. These ribs present a convex surface, and the ribs upon the two sides produce substantially a cylindrical shape, which corresponds to the shoulder portion of the key required.

In Fig. 1 I represent the key to be produced, *b* being the shoulder portion, *d* the spindle portion, *e e* the bow, *f* the bit end of the spindle, and *g* the bit. The shoulder portion *b* and the bit portion *f* of the spindle are required to be cylindrical. The bit portion is flat, and that portion *d* between the bow *e* and the shoulder portion *b* is flat, as is also the bow portion *e*.

In suitable dies the bar is struck upon its flat sides, so as to force a portion of the ribs into a flat surface in the plane with the adjacent portions of the bar, as represented in Fig. 3, leaving the shoulder portion *b* of the ribs on the flat surfaces, but gradually dying out into said flat surfaces. The bit portion *f* is contracted to the required diameter from the shoulder portion in length sufficient for the bit end of the spindle. Then in suitable cutting-dies the key-blank is cut from this shaped portion of the bar, as indicated in broken lines, Fig. 4, the key-blank coming therefrom of the requisite shape, as seen in Fig. 1, which completes the blank.

The bars are rolled to any desirable length and keys are successively formed, first flattening the bar and giving the requisite shape to the bit end of the spindle, and then cutting one blank therefrom, as described. Then a second operation on the adjacent portion of the bar will produce a second key-blank, and so on, the bit being heated for the operations in the usual manner.

Under this manufacture of keys all upsetting operations are avoided, and the key is produced solid throughout, with but substantially two operations, and these of such a character as to be produced successively and by the same hand, so that it practically amounts to producing the blank completely shaped at a single operation.

The completed blank is treated in finishing the key in the usual manner, the blank itself, as a blank, not differing materially from such blanks made by other methods.

While I prefer to make the two ribs so as to form substantially a cylindrical shape, it will be understood that the ribs may be of other shape, as indicated in broken lines, Fig. 2, and yet produce the same result, under the action of instrumentalities which operate to shape the rod preparatory to cutting the blank, it only being essential that the ribs shall contain sufficient metal to fully form the cylindrical portion of the blank.

I claim—

The herein-described improvement in the manufacture of door-keys, consisting in, first, rolling a flat bar with a longitudinal rib, *a*, upon each side; second, flattening the said ribs into the plane of the adjacent portions of the bar, but leaving the shoulder portion *b* projecting from each side of the said flattened portion and the bit portion of the spindle reduced in diameter; third, cutting the blank from the said flat-shaped portion of the bar, substantially as described.

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