

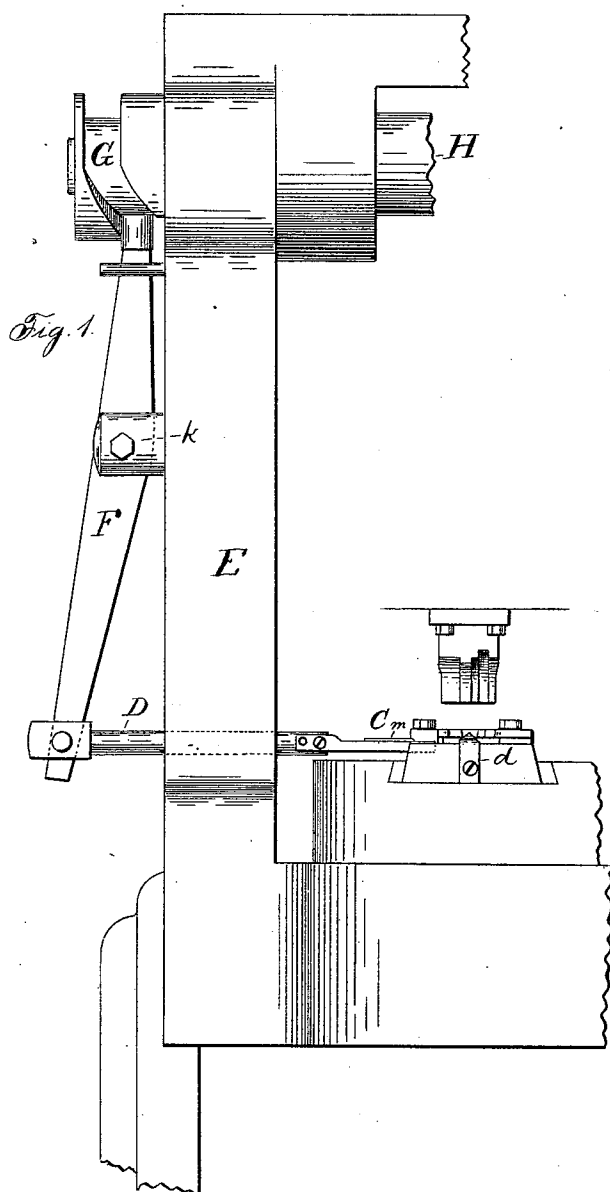
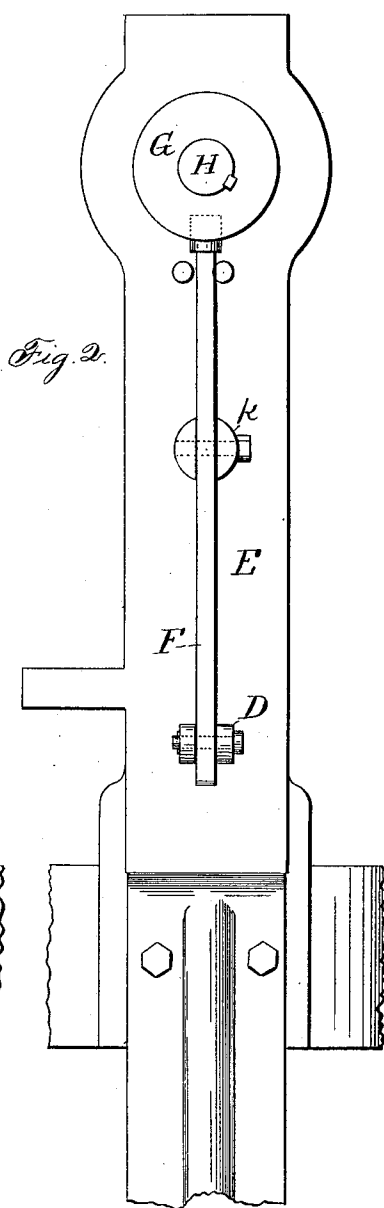
(No Model.)

2 Sheets—Sheet 1.

G. B. COWLES.  
MACHINE FOR MAKING LOCK CAPS.

No. 368,133.

Patented Aug. 9, 1887.



*Witnesses:*  
*John Edward J.*  
*Eddy A. Smith,*

*Inventor.*  
*George B. Cowles*  
*By James Shepard*  
*Atty.*

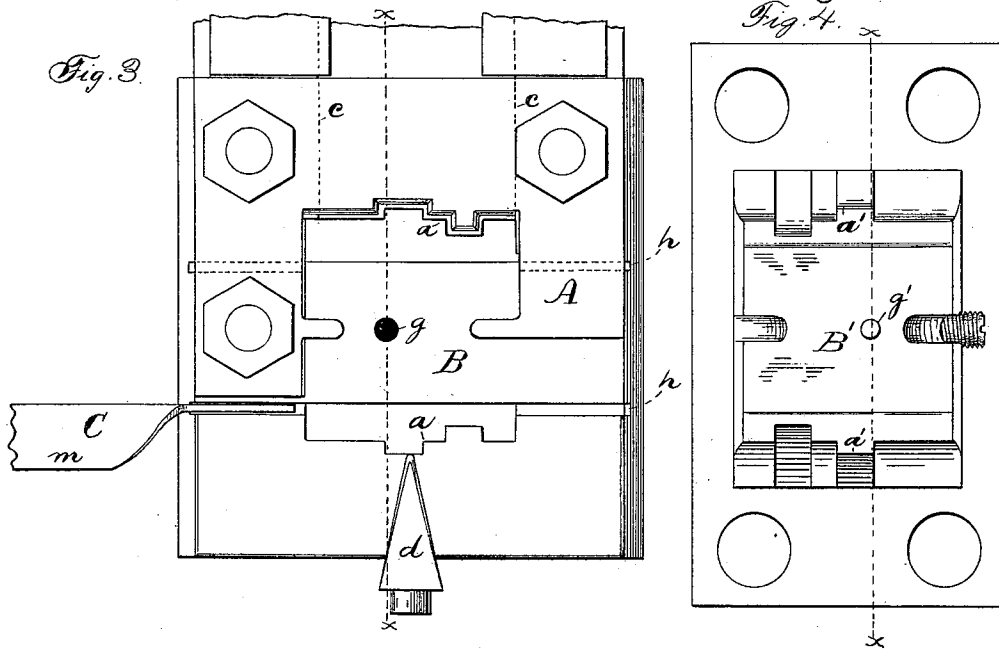
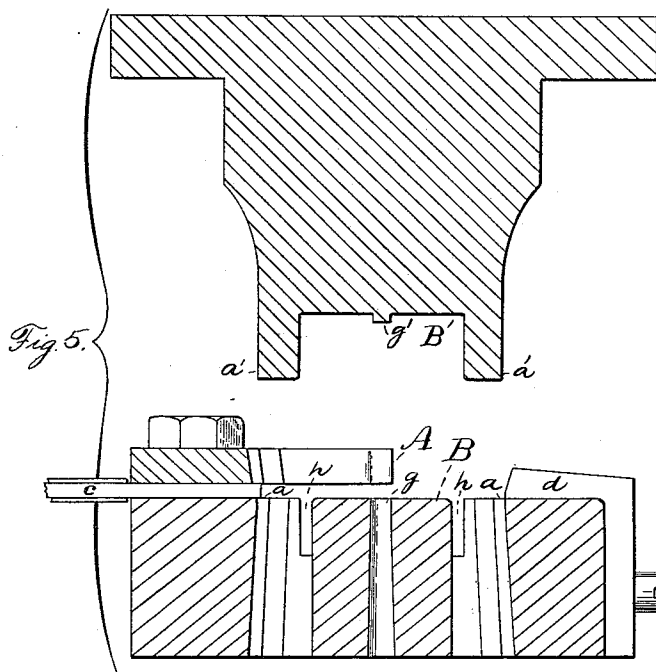
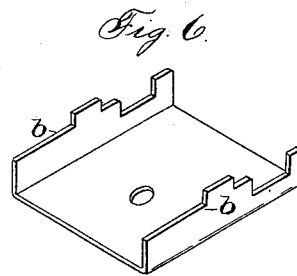
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# UNITED STATES PATENT OFFICE.

GEORGE B. COWLES, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE  
CORBIN CABINET LOCK COMPANY, OF SAME PLACE.

## MACHINE FOR MAKING LOCK-CAPS.

SPECIFICATION forming part of Letters Patent No. 368,133, dated August 9, 1887.

Application filed September 1, 1884. Serial No. 141,892. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE B. COWLES, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Dies and Mechanism for Cutting, Bending, and Punching Lock-Caps, of which the following is a specification.

Figure 1 is a front elevation of my dies, the knocking-out mechanism, and so much of a power-press as is necessary to show their connection. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the die proper. Fig. 4 is a reverse plan view of the punch belonging to said die. Fig. 5 is a vertical section, partly in elevation, of said die and punch on the plane  $x x$  of Figs. 3 and 4; and Fig. 6 is a perspective view of the product of said die—namely, the cap for a lock-case.

My die and punch is intended to be used in any ordinary power-press.

The contour of the blanking-die at its edges  $a a$  corresponds to the edges  $b b$ , Fig. 6, of the cap, which will vary from time to time, according to the particular cap to be made. The die is provided with a take-off,  $A$ , side gages,  $c$ , Fig. 5, which are also indicated by the broken lines  $c$  in Fig. 3, and also with a stop-gage,  $d$ . Instead of cutting out from the die all of the metal between its confronting cutting-edges  $a a$  a portion thereof is left in the middle of the die or subsequently inserted for forming the punch  $B$ , or male member of the swaging-die. This punch also answers as the die-block in which to form the die  $g$ , or dies for cutting the hole or holes in the cap. The punch is provided with cutting-edges  $a' a'$ , which are fitted to the edges  $a a$  of the die, with a central die, groove, or recess,  $B'$ , for receiving the punch  $B$ , and with a short punch,  $g'$ , which is fitted to the die  $g$ . The die proper is also provided on its upper side with two transverse grooves,  $h h$ , of a depth greater or fully equal to the turned-down edges of the cap. The walls of said grooves are so placed with relation to the punch  $B$  that their confronting sides are in the same plane as the side walls of the punch  $B$ .

$C$  designates the knock-out, which is attached to a reciprocating rod or slide,  $D$ , arranged in suitable guides—as, for instance, a

hole through the frame  $E$  of the press. The outer end of this rod is secured to the lever  $F$ , which lever is pivoted to a fixed stud,  $k$ , on the frame of the press, with its upper end extending into the groove of the cam  $G$ , which is secured to the main shaft  $H$ . This cam is so set upon the press-shaft that it will impart a reciprocating motion to the knock-out  $C$  while the punch is receding from the die. The knock-out  $C$  has its end resting in one of the transverse grooves  $h$ , and is also provided with a horizontal flange,  $m$ , which moves over the upper surface of the blanking-die.

Sheet metal—as, for instance, iron—is selected of the desired width for the cap and is run in under the take-off  $A$ , between the gages  $c c$ , until its end comes in contact with the stop  $d$ . The punch is then caused to descend, when its first action is to cut the iron upon the edges  $a a$ , leaving the side edges of the iron uncut. The punch continues to descend, and the punch  $B$  on the main or lower die and the recess  $B'$  in the punch or upper member act jointly to turn down two edges of the cap. Just as the swaging action is nearly completed, and while the iron is held firmly in place by the swaging-die and punch, the short punch  $g'$  and its die  $g$  act to punch the hole in the cap, thus blanking, swaging, and punching the cap all at one operation and by one motion of a single-acting press, thereby producing the cap shown in Fig. 6. It is evident, however, that when the cut edges of the cap are turned down within the die and over a solid portion in the middle of said die, this cap cannot pass downward through the die in the ordinary manner of discharging blanks, nor can it be crowded forward by the action of feeding up more stock, and for this reason the knock-out  $C$  and the mechanism shown in Figs. 1 and 2 are employed. While the punch is receding from the die the cam  $G$  and connecting mechanism act to force the knock-out  $C$  to the right, when it will strike one of the turned-down portions of the metal and carry the swaged cap far enough to one side to make room for more stock to be fed forward, after which the knock-out is returned. The horizontal flange  $m$  of the knock-out also acts to push forward out of the way any loose piece of scrap that may be lying on the upper surface of the die.

The knock-out may have throw enough to discharge the cap wholly from the die, or it may be moved to one side far enough to clear the die by the direct action of the knock-out and then let one cap be pushed out of the die by the succeeding cap. I have illustrated but one knock-out, which is sufficient for this work; but, if desired, a similar knock-out might also be attached to the slide or rod D and work in like manner in the other groove *h*.

I do not wish to limit myself in my claims for the dies to the knocking-out mechanism shown and described, as it is evident that other automatic mechanism might be substituted therefor, or the caps might be removed by hand. I have also illustrated the die as cutting upon two edges only and turning down two edges of the cap; but I intend to employ the same general construction of the die and punch for cutting upon four sides and turning down four edges of the cap.

I am aware that a prior patent shows and describes dies by which a disk-shaped blank for a watch-case center is cut, then swaged, and a central hole punched in it all at one blow of a single-acting press, and such dies are hereby disclaimed.

I claim as my invention—

1. The herein-described swaging and punching die for swaging and punching a lock-cap after it is blanked, which consists of the swaging-punch, which forms the die-block of the cutting-die *g*, the take-off A, set over said die-block, and the swaging-die for embracing said swaging-punch and having therein the short punch *g'*, the whole operating together to swage and punch a lock-cap by one blow of a single-acting press, substantially as described, and for the purpose specified.

2. The combination of the blanking and swaging dies and punches having transverse grooves in the upper side of said blanking-die and the automatic knock-out acting through one of said grooves, substantially as described, and for the purpose specified.

3. The combination of the blanking-die having cutting-edges *a a*, the central solid portion, which forms one member of the swage, and the grooves *h h* by the side of said solid portion, with a companion blanking-punch having the middleswaging-die, substantially as described, and for the purpose specified.

GEORGE B. COWLES.

Witnesses:

GEO. W. CORBIN,  
S. N. CHAFFEE.