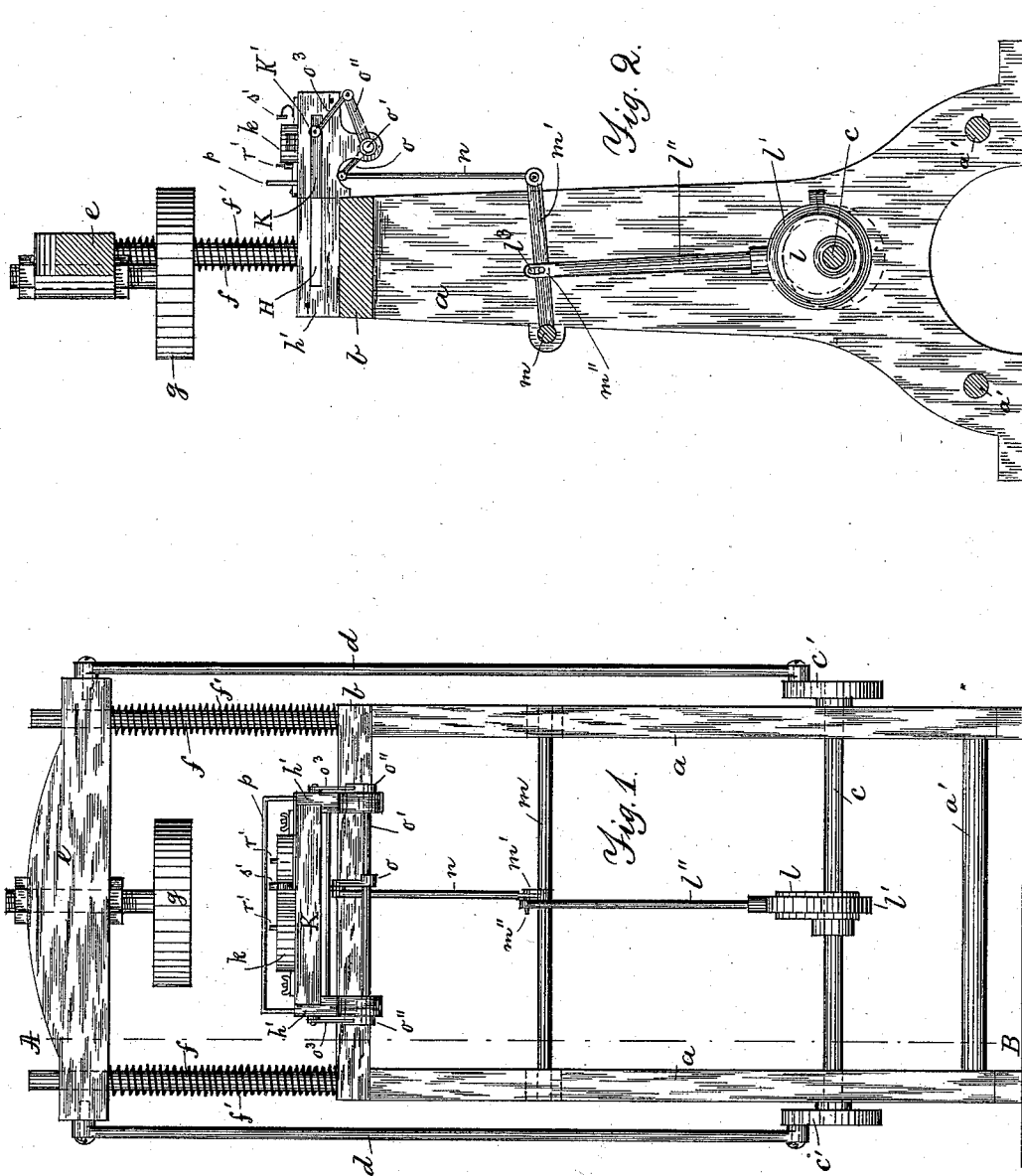


W. O. CREE & G. A. CLOUGH, Jr.

DIEING OUT MACHINE FOR BOOT OR SHOE SOLES.

No. 382,294.

Patented May 8, 1888.



Witnesses:
 Carl A. Andrien.
 Osborne R. Perry.

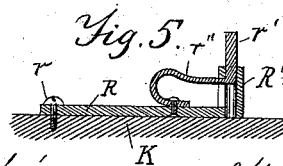
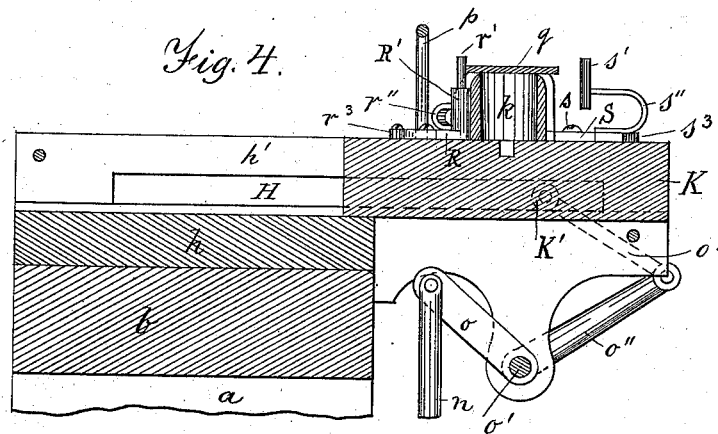
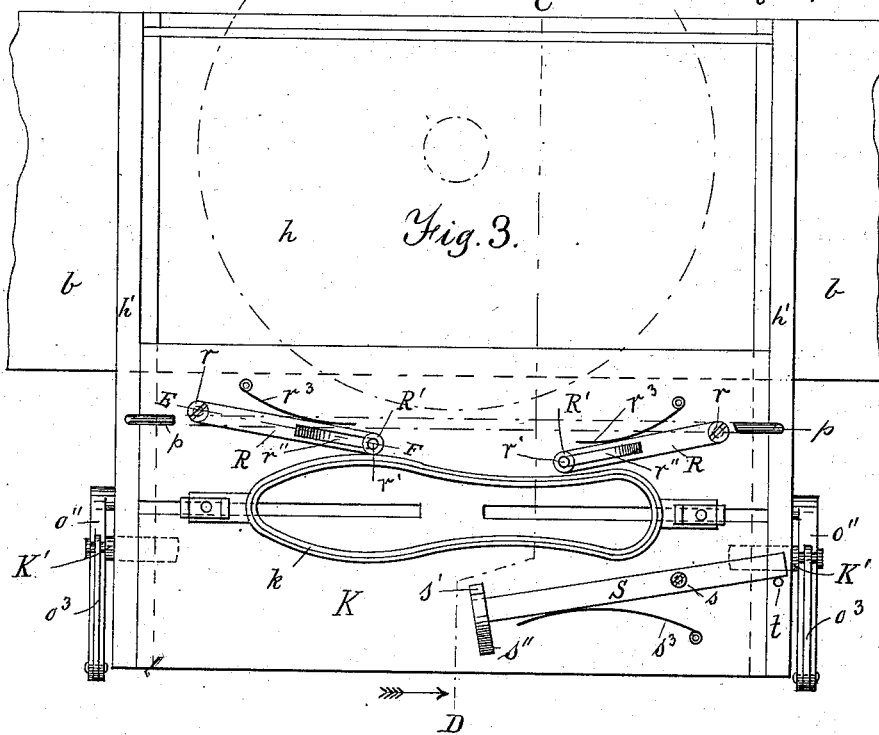
Inventors.
 William O. Cree and George A. Clough, Jr.
 by Alban Andrien.
 their atty.

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UNITED STATES PATENT OFFICE.

WILLIAM O. CREE AND GEORGE A. CLOUGH, JR., OF BEVERLY,
MASSACHUSETTS.

DIEING-OUT MACHINE FOR BOOT OR SHOE SOLES.

SPECIFICATION forming part of Letters Patent No. 382,294, dated May 8, 1888.

Application filed February 24, 1888. Serial No. 265,122. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM O. CREE and GEORGE A. CLOUGH, Jr., both citizens of the United States, and residents of Beverly, in the county of Essex and State of Massachusetts, have jointly invented new and useful Improvements in Dieing-Out Machines for Boot or Shoe Soles, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in dieing-out machines for boot or shoe soles, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a front elevation of the machine; and Fig. 2 represents a vertical section on the line A B, shown in Fig. 1. Fig. 3 represents an enlarged detail plan view of the movable die-carrying block and its guides; and Fig. 4 represents a cross-section on the line C D, shown in Fig. 3. Fig. 5 represents a cross-section on the line E F, shown in Fig. 3.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In ordinary sole-cutting or dieing-out machines there is always great danger to the operator's hands while he is in the act of manipulating the soles, and in the use of such machines operators have injured or lost one or more fingers. It is our aim with this invention so to construct and arrange the various parts of the machine as to avoid all liability to accidents, as above stated, for which purpose we construct our improved machine as follows:

a a represent the upright frames or standards, to the upper end of which is secured, in a suitable manner, the table-top *b*, as is common in machines of this kind.

a' a' are suitable stays or braces, that connect the lower ends of the standards *a a*, as usual. In bearings in said frames *a a* is journaled the shaft *c*, to the outer ends of which are secured the cranks or eccentrics *c' c'*, connected to rods *d d*, the upper ends of which are journaled or connected in a suitable manner to the up-and-down movable head *e*, as is common in sole-cutting and similar machines.

f f are guide rods or posts secured to the ta-

ble *b* or frames *a a*, said rods passing loosely through vertical perforations in the beam or head *e*, as shown in Fig. 1.

f' f' are coiled springs surrounding the posts *f f* between the top of table *b* and under side of the head *e*, which serve to assist the upward motion of said head *e*. To the head is secured, in any well-known manner, the die or presser block *g*, as shown in Figs. 1 and 2.

During the operation of the machine the shaft *c* is set in a rotary motion by means of belt-power applied to a pulley, or by means of gears or equivalent well-known devices, which are, however, not represented in the drawings, as they form no part of our present invention. It will thus be seen that an up-and-down motion is imparted to the head *e* and its block *g* by the rotation of the shaft *c*. Thus far the machine is made similar to other machines for this purpose.

With the machine we use a horizontally-movable die and die-carrier constructed, arranged, and operated as follows: To the table *b* is secured, in a suitable manner, the plate *h*, having guides *h' h'* at its sides, as shown, in which the die-carrier *K* is permitted to slide to and from the operator during the operation of the machine. To the top of the carrier *K* is secured, in a suitable manner, the die *k*, which is of the form and size usually employed for dieing out soles.

The carrier *K* is automatically reciprocated by means of intermediate connecting mechanism from the rotary shaft *c* as follows: To said shaft *c* is secured the eccentric-disk *l*, having the ring *l'* surrounding it, as shown in Figs. 1 and 2. To the ring *l'* is secured the rod *l''*, having a slot, *l³*, in its upper end, as shown in said Figs. 1 and 2. In bearings in the sides or frames *a a* is journaled the rock-shaft *m*, to which is secured the lever *m'*, said lever having a pin or bolt, *m''*, secured to it, which pin or bolt passes through the slot *l³* in the upper end of the rod *l''*, as shown in Fig. 2. To the forward end of the lever *m'* is hinged the rod *n*, the upper end of which is hinged to the lever *o*, secured to the rock-shaft *o'*, which is journaled in stationary bearings secured to the guides *h' h'* or any other stationary part of the machine. To the ends of the rock shaft *o'* are secured the levers *o'' o''*, to the ends of

which are hinged the links $o^3 o^3$, as shown. The upper ends of said links $o^3 o^3$ are hinged to pins or trunnions $K' K'$, secured to opposite sides of the die-carrier K.

5 H H are slotted perforations in the guides $h' h'$ for receiving the trunnions or projections $K' K'$, which latter pass through said slots H H, as shown.

It will thus be seen that the die-carrier K is 10 automatically reciprocated by the rotary motion of the shaft c , and the respective parts are so timed as to cause the carrier K to reach the limit of its forward motion at or about the time the die-block g reaches its highest position, and vice versa. The object of the slot l^3 15 in the upper end of the rod l'' is to allow the die-carrier K to remain stationary for a brief time after it has reached the limit of its rear position, so as to allow the block g to rise above the die k , after the sole has been cut sufficiently to clear said die before the latter commences to move forward.

p is a guard secured to and projecting upwardly from the stationary guides $h' h'$, and it 25 serves to prevent the operator from placing his hands or fingers beneath the vertically-movable block g , and thus to prevent any liability to accidents. The said guard p extends from one guide to the other at a height sufficiently to permit the die k and its centering 30 devices for the sole and the latter to pass freely below such guard as the die-carrier is reciprocated.

q in Fig. 4 represents the sole-blank that is 35 to be cut, it being for this purpose placed on top of the die k when the latter is in its forward position, as shown in Fig. 4.

In connection with the movable die-carrier and its die we use a sole-blank centering and 40 holding device constructed as follows: At the rear of the die k are pivoted at $r r$ a pair of levers, R R, each one having in its free end a vertical sleeve or guide, R' , in which is vertically movable the spring-pressed pin r' , which 45 latter is normally held in its highest position, (shown in Figs. 4 and 5,) by the influence of a spring, r'' , as shown. The free end of each lever R is normally held with a yielding pressure against the rear of the die k by the influence of a spring, r^3 , as shown in Fig. 3. 50 The levers R R are made yielding in this manner to compensate for variations in the sizes of the dies that are used.

In front of the die k is pivoted at s the lever 55 S, to the inner end of which is attached the vertically-yielding pin s' , which is preferably attached to the lever S by means of a yielding spring, s'' , as shown in Figs. 3 and 4. The pin s' is automatically forced against the forward 60 edge of the sole q by the influence of a spring, s^3 , as shown in Fig. 3.

In placing the sole q upon the die k it is necessary that the pin s' should be temporarily withdrawn from the die, and this is automatically accomplished by means of a pin, t , 65 secured to one of the stationary guides h' , or any other stationary part of the machine, as shown

in Fig. 3. As the carrier K reaches or approaches the end of its forward stroke, the rear or outer end of the lever S comes in contact with the stationary pin t , and thereby 70 causes the said lever S to turn around its fulcrum s to the position shown in Figs. 3 and 4, thus withdrawing the pin s' from the die and enabling the operator to place the sole-blank 75 q upon the die.

The operation of the machine is as follows: When the carrier K is in its forward position, as shown in the drawings, and the block g is in its upper position, the operator places the 80 sole-blank q on top of the die k , as shown in Fig. 4, and in placing the sole-blank on the die it is not essential that its rear edge should be pressed up against the rear guide-pins, $r' r'$, as when the carrier K commences to move 85 backward the lever S is liberated from the pin t , causing the spring s^3 to force the pin s' against the front edge of the sole-blank, by which the latter is moved backward until its rear edge is brought to a stop against the rear 90 pins, $r' r'$, causing the said sole-blank to be centered relative to the die k in position ready to be died out. During the rotation of the shaft c the carrier K, its die k , and the sole-blank q , held upon it, are moved backward by 95 the mechanism, as described, until said die reaches its limit of stroke, the block g in the meantime being forced downward until it reaches the sole-blank and the die, causing the sole to be cut, and during such operation of 100 cutting or dying out the sole, the pins $r' r' s'$ are caused to yield downward against the influence of their respective springs r'' , r'' , and s'' . After the sole has been cut, the block g commences to rise before the carrier K is moved 105 forward, so as to cause the die k to be liberated from the block g in the manner as hereinbefore set forth, and as the block g rises, the spring-pressed pins r'' , r'' , and s'' are forced upward, and the carrier K, its die, and died-out sole are moved forward to the end of the 110 stroke, and as they approach or reach the latter the outer end of the lever S comes in contact with the stationary pin or projection t , causing said lever and its pin s' to be automatically moved to the position shown in Figs. 3 and 4, thus liberating the sole and enabling it to be easily removed by the operator without liability to accident and replaced by another sole-blank to be cut, and so on. 120

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent and claim—

1. In a sole-cutting machine, the vertically-reciprocating block g and the horizontally-movable carrier K, in combination with the 125 connecting mechanism from the rotary shaft c , consisting of the eccentric l , the rod l'' , having slot l^3 in its upper end, the rock-lever m' and its pin m'' , the link n , the rock-shaft o' , having lever o connected to said link n , and levers o'' 130 o'' , connected to the carrier K by means of the links $o^3 o^3$, substantially as and for the purpose set forth.

2. In a sole-cutting machine, the movable die-carrier K and its die *k*, in combination with the sole centering and holding device, consisting of the spring-pressed pins *r' r'*, arranged
5 on the adjustable levers R R, and the spring-pressed pin *s'*, arranged on the spring-pressed lever S, substantially as and for the purpose set forth.

3. The reciprocating die-carrier K and its
10 die *k*, in combination with the vertically-yielding pins *r' r'*, and the vertically-yielding pin *s'*, mounted on the spring-pressed lever S, and the stationary pin or projection *t*, for auto-

matically withdrawing the said pin *s'* from the die *k* in placing or removing the sole on and 15 from the die, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 20th day of February, A. D. 1888.

WILLIAM O. CREE.

GEORGE A. CLOUGH, JR.

Witnesses:

ALBAN ANDRÉN,
AXEL T. SCHER.