

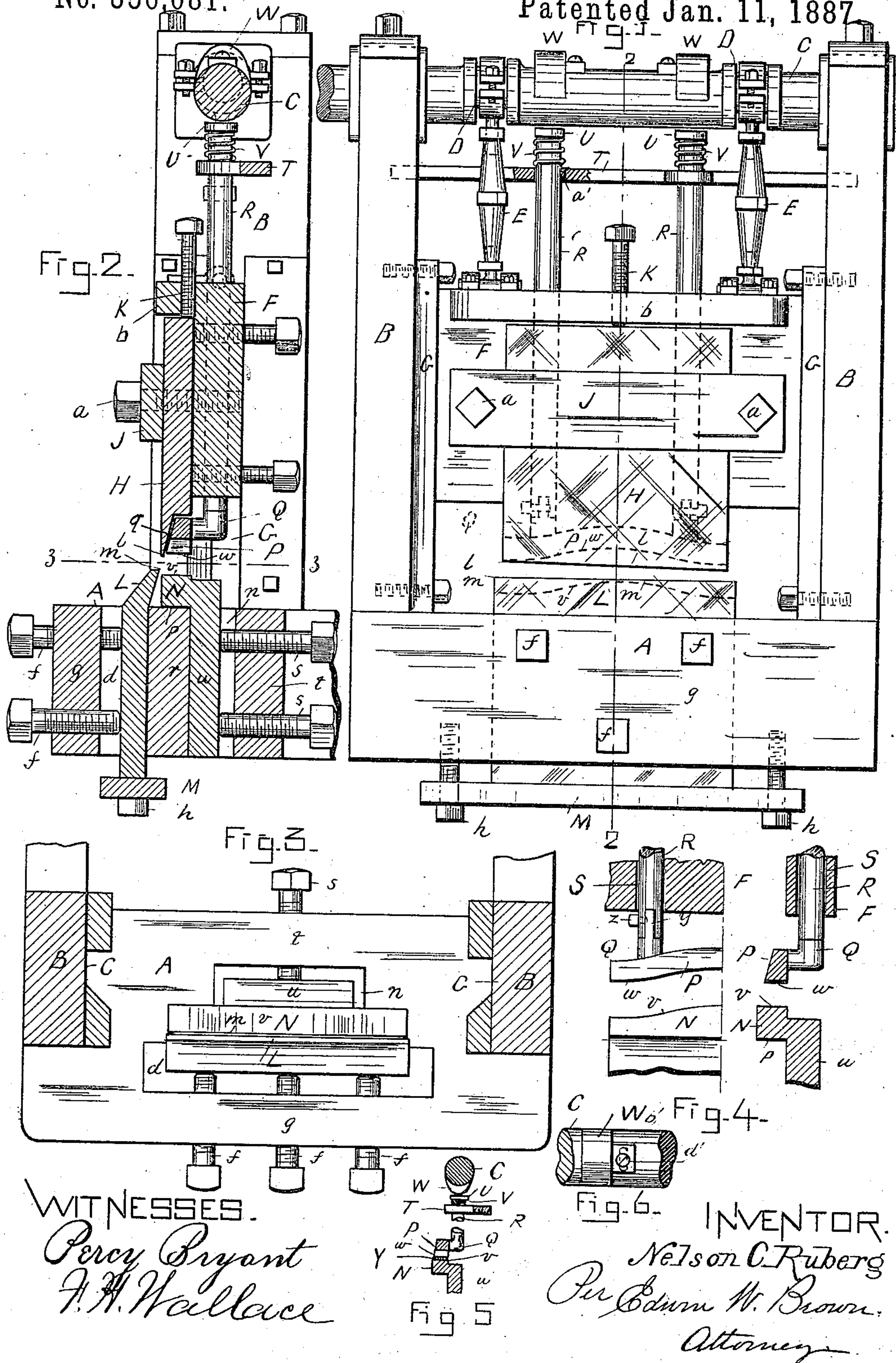
(No Model.)

N. C. RUBERG.

MACHINE FOR MAKING METALLIC SHOE SHANKS.

No. 356,081.

Patented Jan. 11, 1887



UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING METALLIC SHOE-SHANKS.

SPECIFICATION forming part of Letters Patent No. 356,081, dated January 11, 1887.

Application filed May 25, 1886. Serial No. 203,257. (No model.)

To all whom it may concern:

Be it known that I, NELSON C. RUBERG, a citizen of the United States, residing at South Braintree, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Shank-Machines, of which the following is a specification.

This invention relates to improvements in machines for cutting and forming metal shanks for boots and shoes; and the invention consists in the construction and arrangement of cutters for cutting the shank from the strip of metal, and dies for shaping and forming the shank after it has been cut, all substantially as herein-
after fully described, reference being had to the accompanying plate of drawings, in which is illustrated a machine for cutting and forming shanks for boots and shoes constructed and arranged for operation in accordance with this invention.

Figure 1 is a front elevation; Fig. 2, a vertical cross-section on line 2 2, Fig. 1; Fig. 3, a horizontal section on line 3 3, Fig. 2; Figs. 4, 5, and 6, detail views, to be hereinafter referred to.

In the drawings, A represents a bed-piece, and B uprights or standards secured to the bed-piece in any suitable manner.

C is a horizontal shaft adapted to revolve in suitable bearings in the upper ends of the standards, and having two crank-arms, D D, which are connected by pitman-rods E E to a cross-head or block, F, adapted to slide up and down in guideways G of and between the standards B.

H is a knife or cutter secured to the front side of the block F by a bar, J, and screws a, passing through said bar and screwing into the block, by which the cutter is firmly held in position on the block when properly adjusted thereon.

K is a screw in the flange b of the head F, against which the knife H abuts, and by screwing it in or out its height is adjusted and upward movement on the block limited.

L is a cutter or knife located within a socket, d, in the bed-piece, and adapted to be moved up and down thereon, and to be secured when properly adjusted thereon by the screws f, screwing through the portion g and against

the knife L. The knife also rests upon a horizontal bar, M, secured to the head-piece by screws h.

By revolving the shaft the head-block, through its cranks and pitman-rods connected thereto, is moved up and down, and in such movement the knife H moves up and down and passes behind but close to the back of the cutter L, for their two edges, l m, if a strip of metal, &c., is placed between them, to cut off a piece in a similar manner to the cutting by shears.

Back of the cutter L and under the cutter H is a block or die, N, secured within an opening, n, in the bed-piece, and resting by its shoulder p on the bed-piece, and held against the part r by the screws s s, screwing through the portion t of the bed-piece and against the part u of the block or die N. The upper face, v, of the block N is as wide at least and of the shape longitudinally as the shank is to be when pressed and formed.

P is a block or die above the block N, its under face, w, corresponding in its length, width, and outline with the face v of the block N, so that if placed together they will closely fit each other at all points. This block or plate P is located just back of the cutting-edge l of the movable knife H, a portion of the back part of the knife being cut away, as at q, for the die or block P to be disposed therein, as shown in cross-section in Fig. 2. This die or block P has two arms, Q Q, one at each end, which project back therefrom a short distance, where they turn up and are connected by a tongue-and-groove joint, y, and pin z, each to the lower end of a separate rod or bar, R, passing loosely up through vertical sockets S S in the head-block F, and then through openings a' in a horizontal guide-bar, T, secured to the standards B, and each rod R having a head, U, and a spiral spring, V, between such head and the guide-bar T, the tension of the springs V serving to keep the plate or die P raised from the block N.

On the shaft C are two cams, W W, one each above and over each of the rods R R, so that as the shaft revolves the cams will bear and press upon the upper ends of the rods and force them down, and the die P upon the die

N for the piece of metal, &c., placed between the dies to be pressed, according to the form of their contiguous faces.

In the operation of the machine the strip of metal from which the shank is to be cut is placed between the two knives and the shaft revolved in any suitable manner, and as it revolves the head-block F is moved downward by the cranks and pitman-rods, carrying with it its knife or cutter H, which, with the other cutter, L, cuts a piece or a shank off the metal strip. Immediately after the shank is cut off, as the shaft continues to revolve, the cams W W come into position to act upon and press down the bars R R, and through them the block or die-plate P, which firmly presses the piece just cut from the metal strip between it and the under die, N, shaping and forming it between the two in conformity therewith. The continued revolution of the shaft raises the cutter H and swings the cams W out of the way of the die-rods R, which allows the springs V by their tension to act against the under sides of the heads of the rods and raise the die-block P from the lower die, N, leaving the shank pressed thereon free to be removed therefrom. The metal strip is then moved along for another shank to be cut therefrom and formed, as before, and so on. Thus at each revolution of the shaft a shank is cut from the metal strip and pressed and formed into the shape desired.

The die-plate P is so arranged in relation to the movements of the cutter H for its cams to cause it to operate on and press the shank immediately after it has been cut off by the cutters. The cams are attached to the shaft so that they can be moved thereon in order to regulate the operation of the die P as desired after the operation of the cutters, a slot, *b'*, transversely of the shaft, being made in each cam, through which a screw, *d'*, passes and screws into the shaft, so that each cam can be moved around and adjusted on the periphery of the shaft within the length of the slot and secured by the tightening of its screw.

The dies N P can have their contiguous and operating faces *v w* of any desired form, and the die P attached to the upright rods in any suitable manner.

By removing the pins *z* the die P can be separated from its arms and another one substituted, as desired.

Fig. 4 shows in detail a front view of the two dies N P and the connection of the die with its guide-rod R, and a vertical section across the two dies.

Fig. 5 is a detail section on line 2 2, similar to Fig. 2, but of a reduced size, showing the cam W on the shaft in its lower position and bearing upon the die-rod R to press it down upon the shank Y (in cross-section) between it and the die N, the intermediate portion of the guide-rod being broken out.

Fig. 6 is a plan view of one of the cams W and the mode of attaching it to the shaft.

Any suitable mechanism can be applied to the press for regulating the distance the strip of metal shall be fed into the machine to cut the desired width of shank, and also for removing the shank after it is pressed and formed.

The movable die-block can be arranged to move in other ways than that particularly shown without departing from this invention, the essential feature of which is its arrangement for operation close to or just back of the cutting-edge of the knife, so as to act upon the shank immediately after it is cut and without having to move or carry it forward to the dies, as is now generally the case.

The movable cutter can be of a thickness to obviate its being cut away, as described, for the movable die to be in its desired forward position. It is preferable, however, to make it as described, on account of being stronger.

Having thus described my invention, what I claim is—

1. In combination with knives H L, arranged for operation substantially as described, a stationary die-block, and a movable die-block arranged for operation just back of the cutting-edges of the knives, for the purposes specified.

2. In combination with a stationary cutter and die-block, a movable cutter, and a movable die-block, the movable cutter having a recess, *q*, back of its cutting-edge, in which the movable die-block P is disposed, for the purpose specified.

3. The combination, with a stationary die-block, N, and a die-block, P, having arms R, and arranged to slide within suitable guide-supports, and provided with springs, of a shaft, C, having cams W, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

NELSON C. RUBERG.

Witnesses:

EDWIN W. BROWN,
PERCY BRYANT.