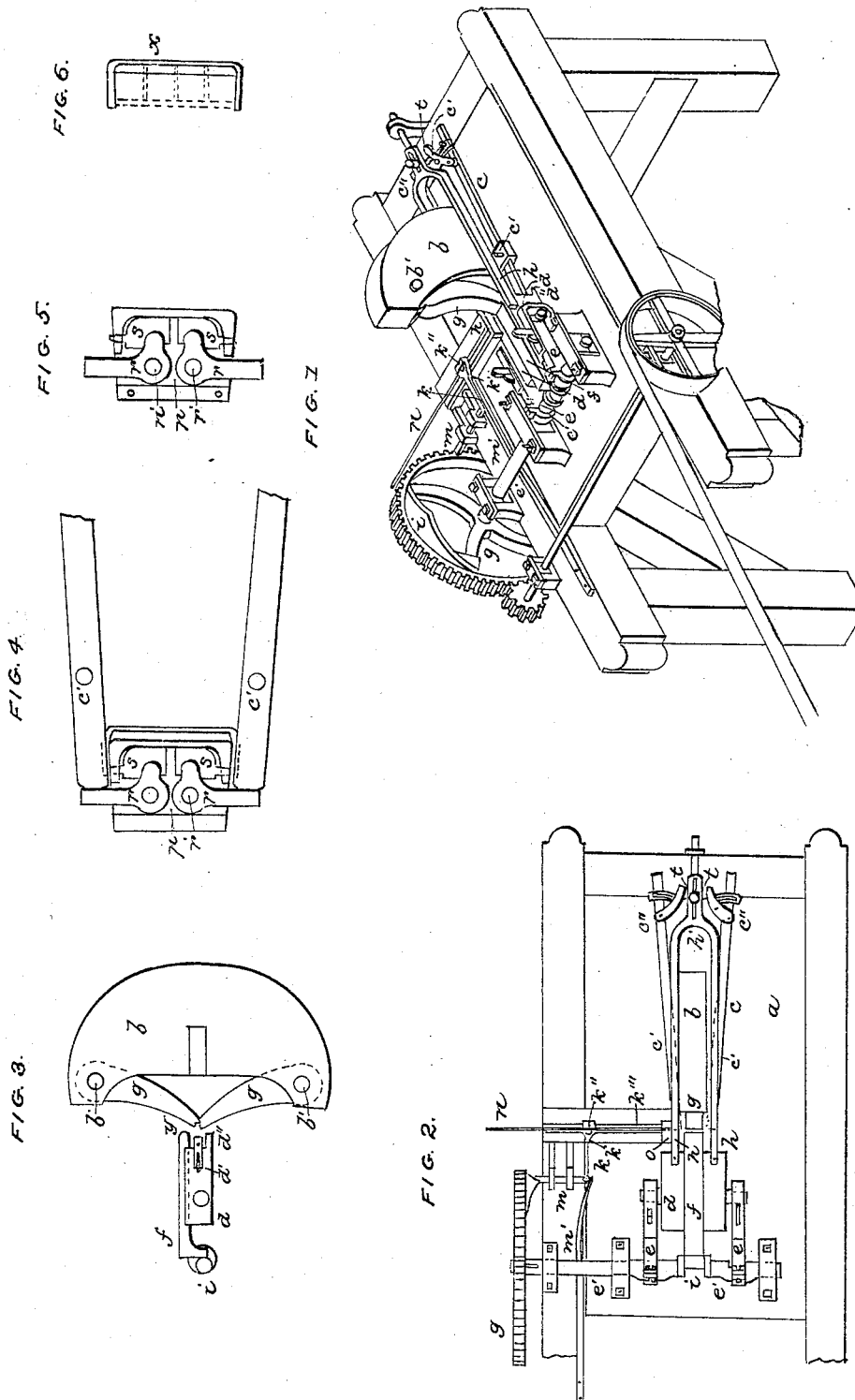


W. SCARLETT.  
Buckle Machine.

No. 6,311.

Patented April 10, 1849.



INVENTOR,

William Scarlett

# UNITED STATES PATENT OFFICE.

WILLIAM SCARLETT, OF NEWARK, NEW JERSEY.

## MACHINE FOR MAKING SUSPENDER-BUCKLES.

Specification of Letters Patent No. 6,311, dated April 10, 1849.

*To all whom it may concern:*

Be it known that I, WILLIAM SCARLETT, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Machine for the Manufacture of Buckles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings making a part of this specification, in which—

In Plate 1, Figure 1 is a perspective view of the machine for making the bows, Fig. 2 is plan of the same, Figs. 3 and 4 are plans in detail, Fig. 5 a view of the punching instrument, Fig. 6 a view of one of the bows as made by the machine.

Upon a suitable frame of wood or other material a bed plate (*a*) is laid, having either cast solid with it, or secured by bolts to it, the necessary pillar-blocks and other rests for the moving mechanism hereinafter described, and having also near one end a massive head (*b*) at right angles with the plate and projecting both above, and below it. This head is hollow to receive the ends of toggle levers (*g, g*), which are attached to it, and move on pins (*b' b'*). On each side of this head there are two levers (*e*) lying horizontally, and a little above the bed; their fulcrum is near one end (*e'*), and near the other end of each a regulating cam (*e''*), is attached for the purpose of operating them.

A square cross-head (*d*) is placed on the bed plate in front of the toggle-levers (*g g*) and is operated by short connecting rods (*e e*) and a double cranked shaft (*e' e'*). In the front of the cross-head a jaw is cut to receive the punching machine (*d'* Fig. 3) and on the top is cut lengthwise a groove in which moves a vibrating bar (*f*). This bar projects beyond the cross-head (*d*) and continues to a cam (*i*) on the main shaft. The toggle levers (*g g*) work on pins (*b' b'*) in the vertical head (*b*). Their meeting ends are of steel. The use of the toggle levers is for forming a peculiar countersunk figure upon the piece of wire out of which the bow of the buckle is made, so that a flat sunken place, may be made to receive the points of the tongue as seen at (*x*) Fig. VI. In order to accomplish this, the toggles where they meet in the center form a socket joint, in such wise that two lips project in front of the same as seen at (*y*) Fig. 3. These lips are brought in contact whenever

the toggles are straightened, and open when they are in the position seen in Fig. 3. Upon the faces of these lips (which are in the first place perfectly flat) a male and female die is cut; the male die in one face, and the female die in the other; the shape of these dies is such as to make the impression (*x*) Fig. 6 before named upon the wire forming the bow. Two rods (*h*) are next attached to the front of the cross-head (*d*) and pass along each side of the vertical head (*b*) connecting together at (*h'*) and are for the purpose of operating the levers (*e e*). The contrivance for feeding consists of an arm (*k*) vibrating on a pin (*k'*) which attaches it to a metal block (*k''*). The arm and block together, constitutes a slide which moves forward and back in a groove (*k'''*).

The arm (*k*) terminates near the block (*k''*) in two branches leaving space enough for the buckle wire (*n*) to pass between the ends of the arms and the block. The opposite end of the arm (*k*) is connected at right angles by a rod (*m*), with a cam (*l*) on the wheel (*q*). This cam gives it the forward or feeding motion, while the return, is effected by a spring (*m'*). At each end of the bow a hole is to be made to receive the ends of the cross-piece of the buckle. This is performed by a peculiar arrangement in the punching instrument (*d'* Fig. 3). Upon the plate (*p*, Fig. 5) formed as in the figure, two arms (*r r*) are placed. These are bent at a right angle and move on pins (*r' r'*). The inner ends of these cams play into two slides (*s s*) each having on it a point which passes through the side of the plate, and far enough beyond it to make a puncture of the required depth in the ends of the bow of the buckle.

The operation is as follows. The wire for making the bows is fed to the machine from a coil of any length. Motion is given the wheel (*q*) which causes the feeder (*k k' k''*) to advance as soon as the cam (*l*) strikes upon the rod (*m*); this imparts motion to the arm (*k*) which vibrating on the points (*k'*) turn far enough to seize the wire between the forward branch and the block (*k''*); this being accomplished, the whole slide, grasping the wire, now moves forward by the continued impulse of the cam to a distance corresponding with the length of the wire required to form the bow. The wire passes through a hole in a plate (*o*)

Fig. 2, and is cut off by a steel projection from the cross-head (*d*) which passes the hole as the cross-head is moved up, in a manner common to many machines, but not clearly seen in the drawings by reason of intervening parts. The piece of wire thus fed in and cut off is of sufficient length to form the bow. As it comes in it passes between the lips of the toggle (containing the dies before named) precisely in such a position that there is a piece projecting beyond, on each side of the said lips, sufficient in length to bend and form the ends of the bow. The head (*d*) still advancing, the lower part (*d'*) strikes the lower toggle lever (*g*) and forces it back thereby causing the lip ends of the toggle levers constituting the dies, to bite upon the wire held between them and thus produce the impression before named. As the toggle is forced back, the two projecting ends of the wire strike the ends of the levers (*c c*) which are at this time slightly distended, and moving still back the ends of the wire become bent to right angles with the part still held in the dies. Two adjustable rollers or points (*t t*) placed on the continuation of the rods (*h h*) now strike upon the cams (*c'' c''*) thus throwing apart the two levers, (*c c*) closing their opposite ends which at the same moment strike the cams (*r r*) of the pointing machine, thus driving out the two points (*s s*), and punching the holes in the end of the bow as may be clearly seen in Fig. 4. The bow is now finished, and ready to be delivered; the cross-head (*d*) begins to be withdrawn preparatory to relieving the bow from the jaws of the toggle; before this takes place however, it is necessary that the cross-head (*d*) should carry the punching

instrument (*d'*) out of the way, and also open the levers (*c c*). The bar (*f*) is now carried by the cam (*i*) on the main shaft up against the toggle (*g*) which it keeps from returning to a relaxed position until the cross-head with its appendages is removed and the levers (*c c*) allowed to spring open. The bar (*f*) is then withdrawn, and the toggle, springing forward by the force of the pressure of the bow, held between their ends or dies, allows the finished bow to drop out. The cam (*l*) now acts again on the feeder, another proper length of wire is thrown forward, and the operation continues as before.

What I claim as my invention and improvement and desire to secure by Letters Patent, is—

1. The combination of the dies, with the central joint of the toggle (*g g*) for holding the wire, and forming the recessed figure upon it as described, the combination of the cross head (*d*) arms (*h h*) and levers (*c c*) operating together as described.

2. I also claim the combination of the levers (*e*) and pointers (*s*) arranged within the die and acted on by the levers (*e*), for punching the holes in the ends of the bow, the whole made and operated as shown in Figs. 4 and 5.

3. I also claim the safety bar (*f*) operated by the cam (*i*) against the toggles for the purpose of keeping the toggles in their straightened position until the punching machine is withdrawn and thereby permit the discharge of the finished bow as described.

WM. SCARLETT.

Witnesses:

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