

N. W. HUNT.
MACHINE FOR MAKING WASHERS.
APPLICATION FILED JUNE 9, 1911.

1,011,434.

Patented Dec. 12, 1911.

2 SHEETS—SHEET 1.

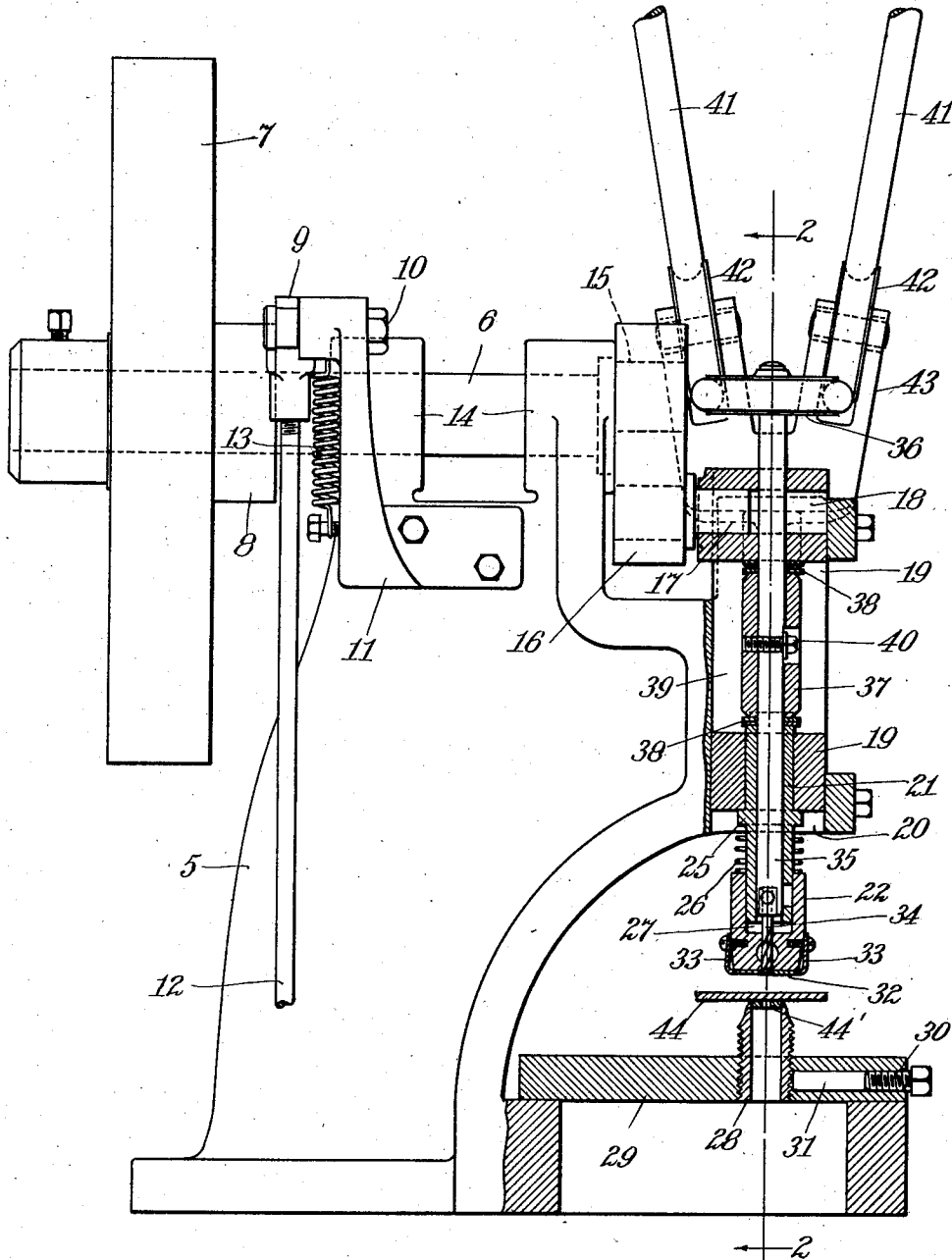


Fig. 1.

Witnesses:
Leonard A. Powell
Sydney C. Taft.

Inventor:
Nelson W. Hunt,
By his attorney, Charles S. Gooding.

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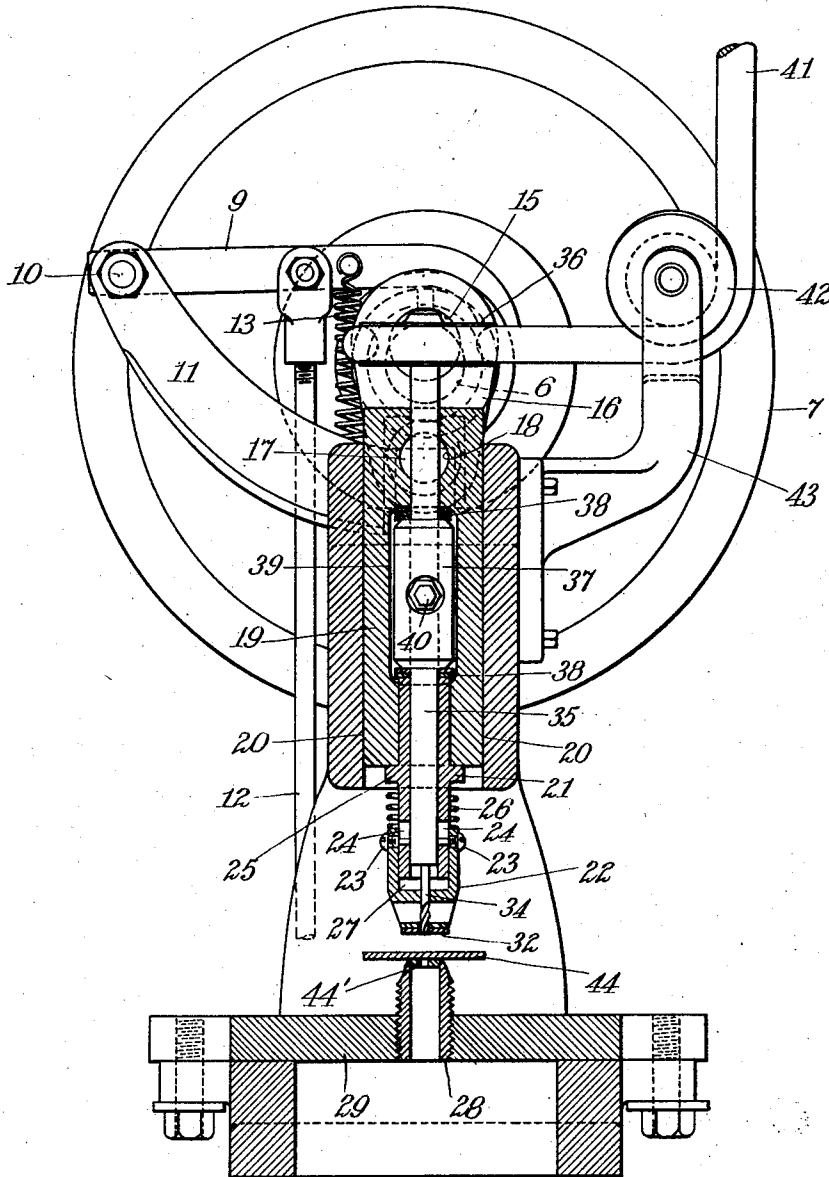


Fig. 2.

Witnesses:
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Sydney E. Taft.

Inventor:
Nelson W. Hunt,
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UNITED STATES PATENT OFFICE.

NELSON W. HUNT, OF LYNN, MASSACHUSETTS.

MACHINE FOR MAKING WASHERS.

1,011,434.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed June 9, 1911. Serial No. 632,103.

To all whom it may concern:

Be it known that I, NELSON W. HUNT, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Machines for Making Washers, of which the following is a specification.

This invention relates to machines for making washers from sheet material, especially leather washers.

The object of the invention is to provide a machine of the character set forth which is simple in its construction and easily operated and which will hold a sheet of material, such as leather, in position upon a hollow punch while said piece of sheet material is being drilled, and which will then complete the operation by forcing the piece of leather against the hollow punch until a piece of material is cut out of said sheet of the size of the interior diameter of the hollow punch, thus completing the washer.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a side elevation, partly broken away and shown in section, of my improved machine for making washers. Fig. 2 is a sectional elevation taken on line 2—2 of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 5 is the frame of the machine; 6 the driving shaft; 7 the driving pulley rotatably mounted on said shaft and locked thereto by a clutch 8 which is operated by means of a clutch lever 9 pivoted at 10 to a bracket 11 fast to the frame of the machine. Said clutch lever is moved upwardly to throw the clutch into engagement with the clutch pulley by a rod 12 operated by a suitable treadle (not shown in the drawings.) The clutch lever 9 is thrown downwardly to throw the clutch out of engagement with the pulley by means of a spring 13.

The shaft 6 is mounted in suitable bearings 14, 14, and on the front end of said shaft is a crank-pin 15 which has mounted thereon a link 16. The link 16 has a pin 17 which projects therefrom into a hole 18

in the upper end of a slide 19. The slide 19 is guided in ways 20 in the frame 5 of the machine and has fastened to its lower end a bushing 21 upon which is slidably mounted a presser foot 22. The presser foot 22 encircles the lower end of the cylindrical bushing 21 and has two screws 23, 23 fast thereto, the inner ends of said screws projecting into slots 24, 24 in the bushing 21, these screws preventing the presser foot 22 from rotating upon the bushing 21, but allowing said presser foot to slide longitudinally of said bushing.

Between the upper end of the presser foot 22 and a flange 25 on said bushing is interposed a spring 26 which acts normally to hold the presser foot in the position illustrated in Figs. 1 and 2 relatively to the bushing 21 or to the slide 19 of which said bushing forms a part. When the bushing 21 is moved downwardly in the presser foot 22, as hereinafter described, and the spring 26 is compressed sufficiently, the bottom of the bushing 21 will engage the presser foot at the bottom of the hole 27 in said presser foot.

A hollow punch 28 has screw-threaded engagement with a base plate 29 which is fast to the frame 5 of the machine and is held in a stationary position by means of a set-screw 30 and plug 31, so that said hollow punch may be adjusted to compensate for wear.

The presser foot 22 has a cutter plate 32 which is detachably fastened to said presser foot by means of clamp-plates 33, 33. This cutter plate is made of relatively soft material so that when it is brought into contact with the cutting edge of the hollow punch 28 it will not injure the same.

A drill 34 is fastened to a rotary shaft 35 journaled in the bushing 21 and in the upper end of the slide 19. Said shaft has fastened to its upper end a pulley 36 and is prevented from moving longitudinally thereof in the slide 19 by a sleeve 37 and washers 38, 38 which are mounted upon the shaft 35 within a recess 39 in said slide. The sleeve 37 is fastened to the shaft 35 by a screw 40.

Rotary motion is imparted to the pulley 36 by an endless belt 41 which passes therefrom around idler pulleys 42, 42 journaled

to rotate upon a bracket 43 fast to the frame of the machine, the belt 41 being driven by a suitable pulley on an overhead shaft.

The general operation of the mechanism hereinbefore specifically described is as follows: A piece of sheet material 44, of any desired size, either large or small, is placed upon the upper end of the hollow punch 28, as illustrated in Figs. 1 and 2. The operator then places his foot upon the treadle and raises the lever 9 to allow the clutch 8 to engage the pulley 7 and lock the same to the shaft 6 in a manner well known to those skilled in this art. The shaft 6 upon being rotated imparts a reciprocatory motion to the slide 19 by means of the crank-pin 15, link 16, and pin 17, and said slide 19 descending causes the cutter plate 32 to engage the upper face of the piece of sheet material 44 and press the same against the punch with a yielding pressure. At this time the drill commences its work of drilling a hole through the sheet material 44 and the slide 19 continues its downward movement. As soon as the drill has passed through the piece of sheet material, the bottom of the bushing 21 which forms a part of the slide 19 engages the bottom of the hole 27 in the presser foot 22. The material is then pushed downwardly upon the hollow punch, forcing a piece 44' out of the piece of sheet material 44 and into the interior of the hollow punch 28, said piece 44' being that piece in which the hole has previously been drilled by the drill 34. The slide 19 then moves upwardly until the bottom of the slots 24, 24 engage the inwardly projecting ends of the screws 23, 23, when said presser foot will be removed from engagement with the sheet material upon a further upward movement of the slide 19. It will be seen that the presser foot, therefore, first acts to hold the sheet material in position upon the hollow punch while the drill does its work of drilling a hole therein, and that said presser foot then completes its work by forcing the sheet material down on the punch with a portion of said sheet material forced into said punch to form the completed washer, the cutting edge of the punch contacting, at the completion of the cutting of the washer, with the cutter plate 32 of relatively soft material, and upon the retreating or upward movement of the slide the presser foot stays in contact with the sheet material and holds the same firmly in position while the drill retreats, together with the slide, and thus the sheet material is stripped off of the drill, until finally the presser foot and slide move upwardly together during the latter part of the upward movement of the slide 19 to allow the sheet material to be placed by the operator in a new position upon the hollow punch 28, and a new washer drilled and cut, as hereinbefore described.

If desired, one washer may be cut and the machine then stopped, or, as the operator becomes expert, all of the washers desired may be cut before the pulley is thrown out by the clutch and the machine then stopped.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. A machine for making washers having, in combination, a hollow punch, a presser foot, means to move said presser foot toward said hollow punch, whereby a sheet of material may be first clamped between said parts and a piece subsequently cut therefrom by said punch, and a rotary drill in alinement with said punch and movable longitudinally thereof whereby a hole may be drilled in the piece cut from said sheet of material.

2. A machine for making washers having, in combination, a hollow punch, a slide, a presser foot on said slide, means to move said slide toward said hollow punch, whereby a sheet of material may be first clamped between said presser foot and punch and a piece subsequently cut therefrom by said punch, and a drill rotatably mounted on said slide in alinement with said punch whereby a hole may be drilled in the piece cut from said sheet of material.

3. A machine for making washers having, in combination, a hollow punch, a slide, a presser foot slidably mounted on said slide, a spring interposed between said presser foot and slide, means to move said slide toward said hollow punch, whereby a sheet of material may be clamped between said presser foot and punch with a yielding pressure, a drill rotatably mounted on said slide in alinement with said punch, whereby a hole may be drilled in said sheet of material, said slide adapted, after compressing said spring, to positively engage said presser foot, whereby a piece of said sheet of material with said hole therein may be cut therefrom and forced into said hollow punch.

4. A machine for making washers having, in combination, a hollow punch, a presser foot, a cutter plate of relatively soft material on said presser foot, means to move said presser foot toward said hollow punch whereby a sheet of material may be first clamped between said cutter plate and punch and a piece subsequently cut from said sheet of material by said punch, and a rotary drill in alinement with said punch and movable longitudinally thereof whereby a hole may be drilled in the piece cut from said sheet of material.

5. A machine for making washers having, in combination, a hollow punch, a slide, a presser foot slidably mounted on said slide, a spring interposed between said presser foot and slide, means to move said slide toward said hollow punch, whereby a sheet of ma-

terial may be clamped between said presser
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hollow punch.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

NELSON W. HUNT.

Witnesses:

LOUIS A. JONES,
CHARLES S. GOODING.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
