March 29, 1932. H. GINGELL 1,851,625

HEEL SEAT CUTTING MECHANISM

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Fig. 1.

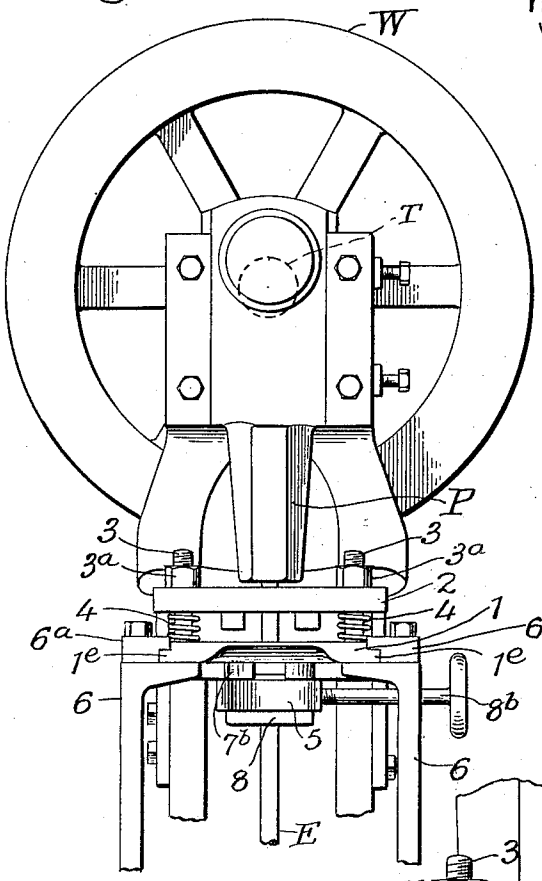

Fig. 2.

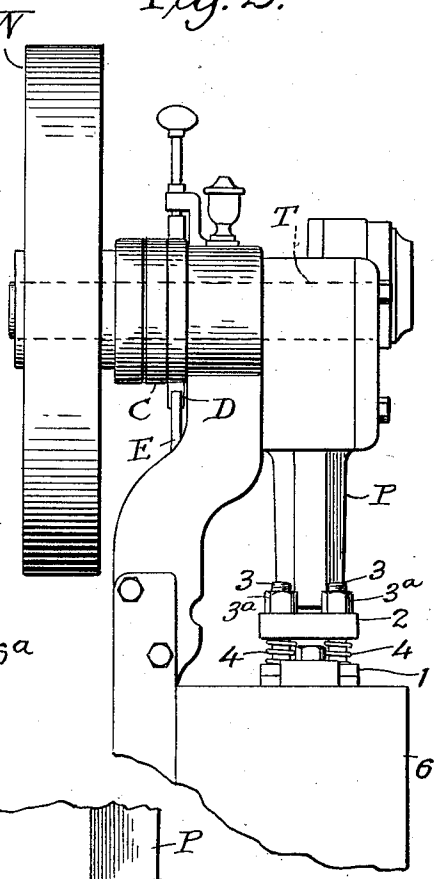

Fig. 3.

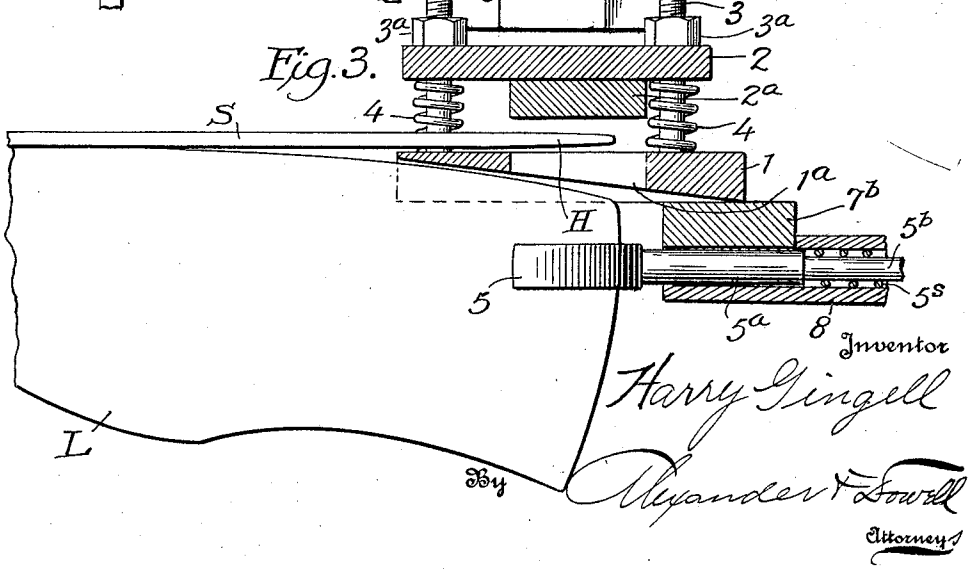

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Fig. 4.

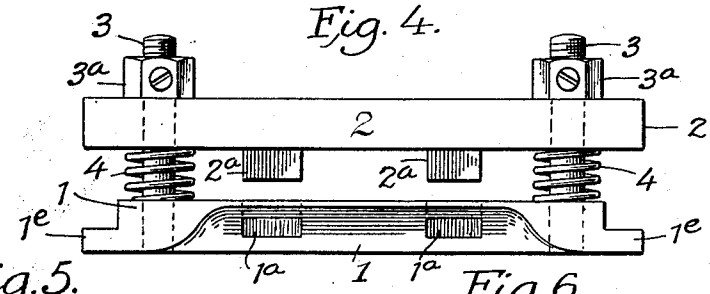


Fig. 5.

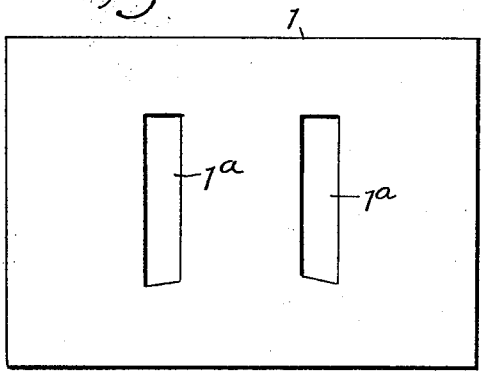


Fig. 6.

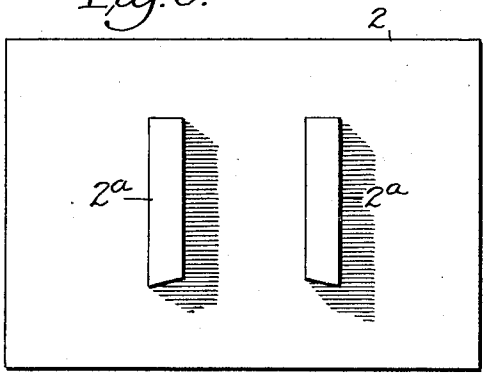


Fig. 7.

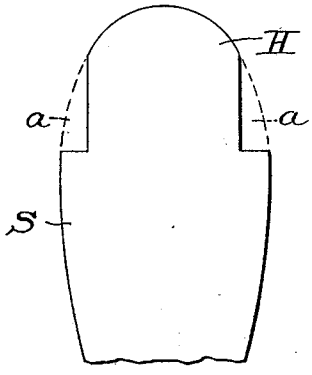
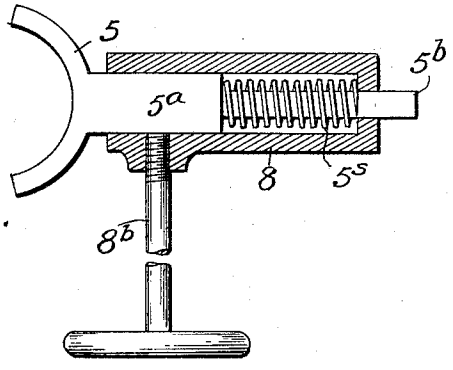


Fig. 8.



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UNITED STATES PATENT OFFICE

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HEEL SEAT CUTTING MECHANISM

Application filed November 21, 1930. Serial No. 497,275.

This invention is a novel improvement in machines for cutting heel seats in soles of shoes, either before or after the soles have been attached to the shoe. The invention is an improvement in the type of machines shown in Keith et al. Patent No. 104,599 and Allen Patent No. 1,027,638. Its principal object is to provide a simple mechanism whereby segments may be simultaneously cut from opposite sides of the heel portion of a sole preferably after the sole is attached to the shoe, so that the heel when seated thereon will mak a close fit with the counter portion of the shoe upper.

A further object is to provide a heel seating mechanism which can be readily attached to or mounted for operation on an ordinary die press or the like so that the attachment can be easily operated by power if desired.

The attachment essentially comprises a movable punch plate cooperating with a fixed die plate to cut segments from opposite sides of the heel portion of a sole; the die plate being preferably tapered on its under side to a thin edge at its front side so that the unattached heel portion of a shoe sole can be easily slipped thereover when positioning a shoe thereunder. The punch plate is normally spaced from the die plate by springs. The die plate can be depressed by manually operated means; but is preferably actuated by a reciprocating plunger which may be automatically stopped at the end of each reciprocation by ordinary stop means to enable shoes to be positioned under the die plate for operation thereon, and removed after the operation and replaced by another to be operated upon.

I preferably arrange beneath the die plate a gage or stop against which the shoe is positioned preparatory to being operated upon.

In operation a shoe with a sole attached is positioned against the gage and beneath the die plate, the thin edge of the die plate enters between the unattached end of the sole and the heel portion of the shoe as the latter is positioned against the gage, such heel portion of the sole overlying the die plate and then the punch plate is forced down and puches segments from opposite sides of the heel portion of the sole.

The present invention has particular reference to the construction of the said die plate, the cooperating punch plate, and the means for mounting them in operative relation.

The said devices can be readily attached to various forms of punch presses, and in the machine shown the devices are mounted on an ordinary type of punch press so that they may be actuated by the mechanism of said press.

I will explain the invention in detail with reference to the accompanying drawings. The novel features of construction and novel combinations of parts for which protection is desired are epitomized in the appended claims.

In said drawings;

Fig. 1 is a front view of part of an ordinary die press with my novel heel seating attachment applied thereto.

Fig. 2 is a side view of Fig. 1.

Fig. 3 is an enlarged detail vertical sectional view.

Fig. 4 is an enlarged front view of the punch and die plate assembly detached.

Fig. 5 is a top plan view of the die plate detached.

Fig. 6 is a bottom plan view of the punch plate detached.

Fig. 7 is a detail view of the heel portion of a sole.

Fig. 8 is a detail sectional view of the gage supporting devices.

The essential features of my heel seating attachment are a die plate 1; a related punch plate 2, mounted above the die plate but accurately positioned and guided in its movement relative to the die plate by means of stud bolts 3 fixed to the die plate and projecting through guide openings in the punch plate; which is normally spaced from the die plate by springs 4 strung on the stud bolts 3 between the die and punch plate; the separation of the die plate from the punch plate is limited by suitable adjustable stops, such as nuts 3*a* screwed on the threaded upper ends of the studs 3.

The die plate 1 is provided with two spaced die openings 1*a* with which cooperate correspondingly located complementary punches 2*a* on the lower face of the punch plate. The punches and die openings operate on the heel portion of a shoe sole as hereinafter explained.

The forward edge of the die plate 1 intermediate its ends is preferably beveled on its upper side, being thinnest at its front edge as shown in Figs. 3 and 4, and tapering rearwardly and downwardly to its rear and this thin edge of the die plate enters between the unattached portion H of the sole and the body L of the shoe when the heel portion of the shoe is being positioned below the die plate and against the gage 5 as shown in Fig. 3. This greatly facilitates the operation of the device and relieves the operator from the necessity of lifting the unattached heel portion H of the sole from the shoe in order to correctly position it between the die plates 1 and 2. The punch and die plates are adapted to cut segments such as *a* from opposite sides of the heel portion of a performed shoe sole S, as indicated in Fig. 7. The heel portion of the previously shaped sole is inserted between the die and punch plates when the latter is in raised position, and then the punch plate forced down and its punches cooperate with the die openings to simultaneously cut segments *a* from opposite sides of the heel portion H of the sole. Such heel portion after being thus shaped is adapted to enter a corresponding recess in the upper portion of the heel which is subsequently fastened to the shoe.

The punch plate may be forced down or toward the die plate so as to cause the punches to operate with the dies by any suitably manually operable means but preferably power means are employed for this purpose.

The said attachment may be mounted upon any suitable operating press. As shown it is mounted on an ordinary die press, the die plate being supported on upright members 6 bolted to the frame of the press below the plunger thereof; said die plate preferably has flanges 1*e* at its ends which are engaged by clamps 6*a* attached to the upper ends of members 6 so as to properly position the die plate thereon and hold it rigidly in position beneath the reciprocatory plunger P of the press. The plunger P can be reciprocated by any suitable means as commonly used in such presses, from or by the shaft T on which is rotatably mounted a wheel W that can be locked on or disengaged from the shaft by means of clutch member C. The clutch member can be thrown into and out of operation by a stop D which may be moved into operative position by means of trip rod E connected to a treadle, not shown. Such operating and controlling devices for plunger P are common in the art (see for example Ronan Patent 956,422 or Allen Patent 1,027,638) and form no part of the present invention and further description thereof is needless.

Preferably beneath the die plate 1 is arranged a gage 5 as commonly used in heel seating machines against which the heel portion of the last L, carrying the shoe to be operated upon, is positioned prior to operating the punch plate. This gage may be of any suitable construction, and as shown has a shank 5*a* slidably fitted in a holder 8 fastened to a cross plate 7*b* attached to the members 6 below the die plate 1. The shank has a reduced portion 5*b* extending through an opening in the rear end of the guide 8, and an expansion spring 5*s* is interposed between the shank 5*a* and the end of the guide 8.

The gage 5 when in use may be adjusted to suit the size of shoes to be operated upon, and then rigidly fastened by any suitable means, as a hand screw 8*b* tapped through a threaded opening in the side of the guide 8 and engaging the shank 5*a*, see Fig. 8.

The device may also be used in the form shown for shaping the heel portion of the shoes attached to the upper of the shoe but before the heel portions are themselves secured. When so used a last with a shoe thereon having its sole partly attached but its heel portion loose, is positioned beneath the die plate with the loose heel portion H of the sole overlying the die plate 1 and between the latter and the punch plate 2 as shown in Fig. 3. Then the plunger is operated to depress the punch plate to cut segments *a* from opposite sides of the heel portion of the sole. The last is then removed and the heel portion of the sole afterwards fastened to the insole, and a heel attached thereto.

The operation of the device will be clearly understood from the foregoing description and the drawings. It is obvious that the attachment can be readily placed on various types of punch presses, so that the die plate can be depressed by the plunger of such press when the latter is reciprocated.

I claim:

1. In a heel seating machine, the combination with a press having a plunger; of heel seating devices mounted on the press in position to be operated by the plunger; said devices including a die plate tapered on its underside and thinnest at its upper forward edge to facilitate positioning of the unattached heel portion of the sole of a shoe thereon; a cooperating punch plate, and means for normally separating the plates.

2. In heel seat cutting mechanism, a press having a reciprocable plunger; supporting members on the press frame below the plunger, a die plate mounted upon said members and tapered on its underside and thinnest at its upper forward edge, the thin edge

of the die plate being adapted to enter between the heel portion of the sole and the shoe, as the latter is positioned beneath the die plate, a punch plate operating with the die plate, and means for normally separating the plates.

3. In heel seat cutting mechanism, a press having a reciprocable plunger; supporting members on the press frame below the plunger, a die plate mounted upon said members tapered on its underside and thinnest at its upper forward edge, the thin edge of the die being adapted to enter between the heel portion of the sole and the shoe, a cooperating punch plate having punches corresponding with a die, guides for the punch plate, springs for normally separating the plates, and a gage for positioning a shoe under the die plate.

4. Heel seating devices comprising a die plate having two die openings therein separated less than the width of the heel portion of the shoe sole, a cooperating punch plate having two punches opposite to and corresponding with the die openings in the die plate, means for normally separating the plates, and means for relatively moving the plates to cause the dies and punches to cut segments from opposite sides of the heel portion of a sole inserted therebetween.

5. Heel seating devices comprising a die plate having two die openings separated less than the width of the heel portion of a sole, a cooperating punch plate having two punches opposite to and corresponding with the die openings in the die plate, guides attached to one plate and engaging the other plate, springs interposed between the plates for normally separating them, a gage beneath the die plate for positioning a shoe thereunder with the heel portion of the sole overlying the die plate, and means adapted to depress the punch plate to cause the dies to cut segments from opposite sides of the heel portion of a sole inserted therebetween.

6. In a heel seating machine, the combination of a press having a reciprocable plunger; heel seating devices including a die plate mounted upon the press frame having spaced openings below the plunger, said die plate being tapered on its underside and thinnest at its upper forward edge, the thin edge of the die plate being adapted to enter between the heel portion of the sole and the shoe as the latter is positioned beneath the die plate, a cooperating punch plate having spaced punches corresponding with the openings in the die plate, studs attached to one plate and engaging guide openings in the other plate, and spring means for normally separating the plates.

7. In a heel seat cutting machine, the combination of a press having a reciprocable plunger; supporting members mounted on the press frame below the plunger, a die plate mounted upon said members said plate having spaced openings and tapered on its underside and thinnest at its upper forward edge, the thin edge of the die plate being adapted to enter between the heel portion of the sole and the shoe, a cooperating punch plate having spaced punches corresponding with the die openings in the die plate, guide studs attached to one plate and engaging guide openings in the other plate, springs strung on the bolts between the plates for normally separating the plates, means for limiting the separation of the plates, and a gage beneath the die plate for positioning a shoe thereunder.

HARRY GINGELL.