

Sept. 6, 1932.

A. F. FROUSSARD

1,876,285

HEEL CUTTING MACHINE

Filed Oct. 15, 1930

2 Sheets-Sheet 1

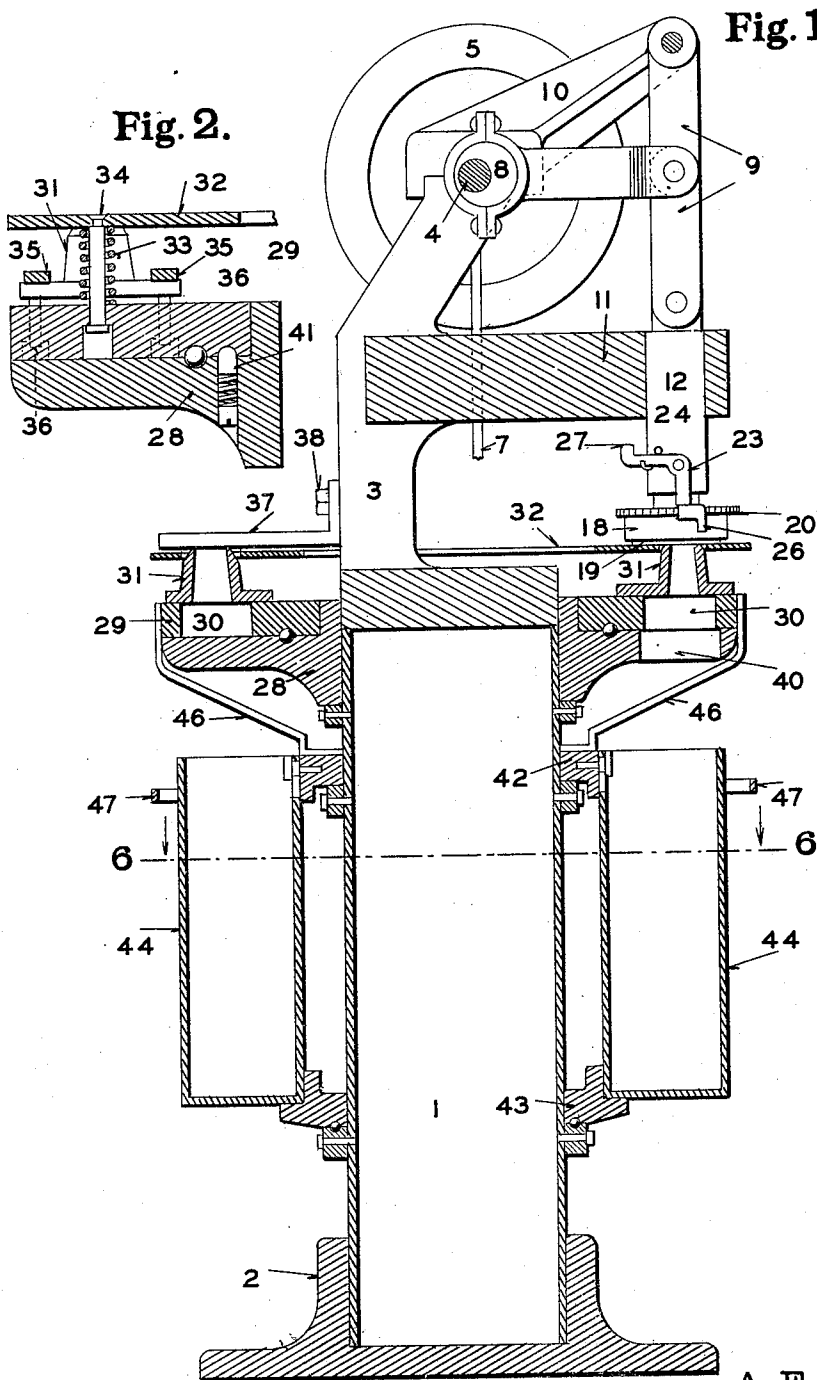


Fig. 1.

Fig. 2.

Inventor

A. F. Froussard

By

E. E. Huffman
Att'y.

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Fig. 3.

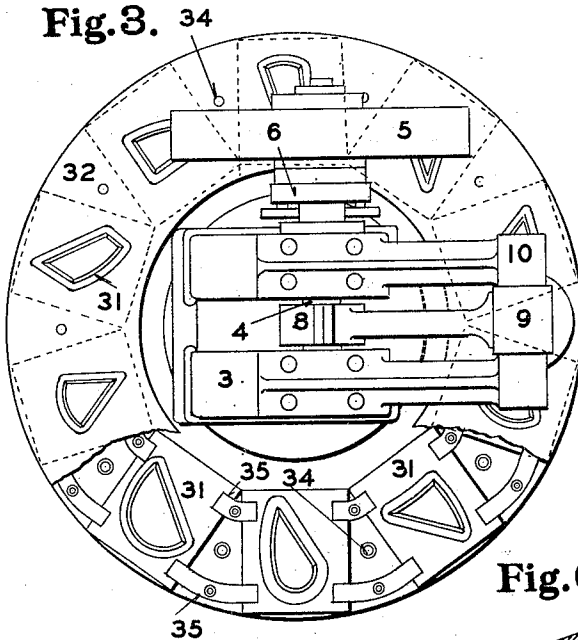


Fig. 4.

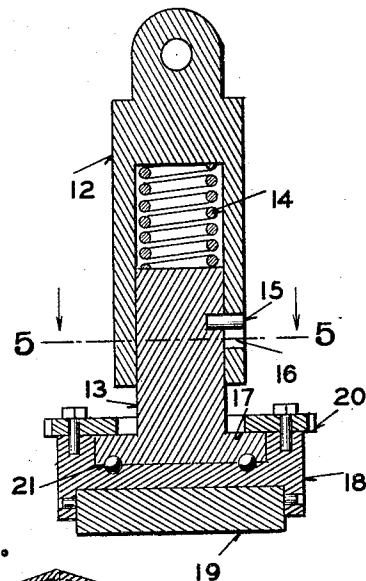


Fig. 6.

Fig. 5.

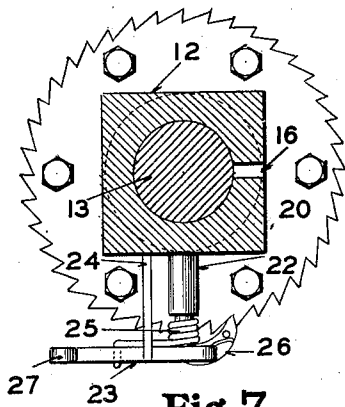
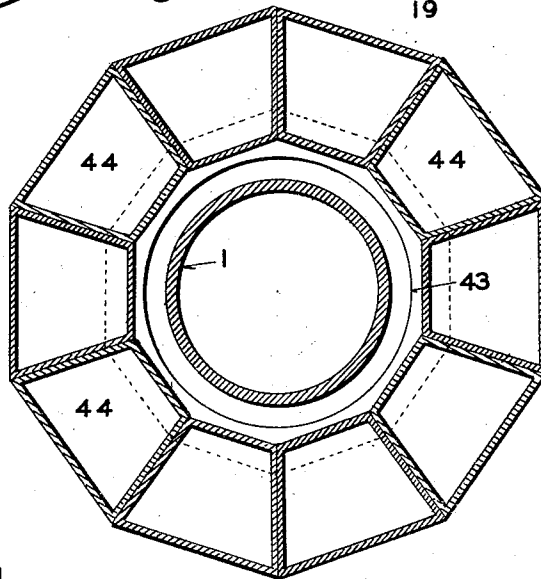
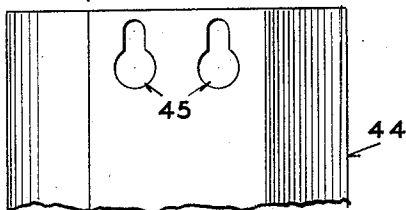


Fig. 7.



Inventor
A. F. Froussard

By

E. G. Huffman
Att'y.

UNITED STATES PATENT OFFICE

ALBERT F. FROUSSARD, OF ST. LOUIS, MISSOURI

HEEL CUTTING MACHINE

Application filed October 15, 1930. Serial No. 488,744.

My invention relates to a machine for cutting out the layers of leather from which shoe heels are built up, and particularly to a machine adapted to utilize scrap leather for this purpose.

In using scrap leather for the purpose of forming heels it is seldom that a scrap is of sufficient size to form a complete heel layer. Heretofore it has been customary to provide a workman with a number of complementary dies, cutting pieces of such size and shape that two or more, when placed together, will form a complete heel layer. Upon these dies the workman places the scraps, accomplishing the cutting operation by striking the scraps with a mallet formed of or faced with wood or similar yielding material. There are several objections to this method of cutting the heel layers. It involves an excessive amount of hard manual labor; further, the cutting edges of the dies are liable to be broken off if the direction of the blow of the mallet is not exactly perpendicular as to the plane of the cutting edge; and finally, the mallets themselves are soon cut so badly as to require renewal. It is the object of my invention to provide a machine for cutting heel layers from scrap leather which will not only overcome these objectionable features, but will perform the cutting operation more rapidly than can be accomplished by hand.

In the accompanying drawings, which illustrate one form of machine made in accordance with my invention, Figure 1 is a vertical section; Figure 2 is an enlarged section through the die supporting table; Figure 3 is a top plan view; Figure 4 is an enlarged vertical section of the plunger; Figure 5 is a section taken on the line 5—5 of Figure 4; Figure 6 is a section taken on the line 6—6 of Figure 1; and Figure 7 is an enlarged view showing a detail of one of the removable containers.

The machine is supported from a cylindrical upright 1 carried by a base 2 and having mounted on its upper end a frame 3 similar in general form to that shown in Patent No. 1,574,078 granted to me February 23, 1926. Mounted in the frame is a shaft 4 driven from a pulley 5 through a clutch

mechanism 6, which will not be described in detail as it is the same as that shown in my prior patent above mentioned, except that the fixed retractor 52 therein referred to is omitted. The clutch is controlled by a rod 7 which may be connected to an operating handle or treadle (not shown). Mounted on the shaft 4 is an eccentric 8 connected to a toggle 9 the upper link of which is pivoted to an arm 10 extending upwardly and forwardly from the frame and the lower link of which is pivoted to a plunger sliding in a plunger bearing 11.

The plunger comprises a rectangular part 12 and a cylindrical stem 13 sliding therein with a coil spring 14 interposed between the parts, as shown in Figure 4. A pin 15 in the stem and moving in a slot 16 in the part 12 limits the relative movement of the two parts. On the lower end of the stem is a disk 17 let into the upper face of a rotary member 18 carrying a block 19 of fibre or similar material for cooperating with the cutting dies hereinafter described. The member 18 is secured to the disk by an annulus 20 overlapping the disk and having its projecting periphery provided with ratchet teeth. A ball bearing 21 may be interposed between the disk and member to reduce friction. In order to rotate the member 18 I provide the part 12 of the plunger with a stud 22 on which is pivoted a bell-crank lever 23 normally held against a stop 24 by a spring 25 and provided with a pawl 26 engaging with the teeth of the annulus 20. One end of the bell-crank lever is provided with a finger 27 so positioned that at the upward end of the movement of the plunger it will strike the under face of the plunger bearing 11 and move the lever on the stud a sufficient distance to move the annulus forward one tooth.

Surrounding the base of the frame 3 is a table 28 on which is rotatably mounted a ring-shaped die carrying member 29 having formed therein openings 30 corresponding in number to the dies 31 carried by member 29. A ring 32 of sheet metal serves to support the scrap in position over the die. This ring is yieldingly supported flush with the cutting edges of the die by coil springs 33 surround-

ing headed studs 34 carried by the ring and having slight vertical movement in the member 29. The die when new rests directly on the member 29, being held in position by clamping bars 35. When, however, the height of the die is reduced by sharpening it is necessary to adjust it vertically to keep the cutting edge flush with the top of the ring 32. This is accomplished by means of set screws 36, one of which is positioned under each corner of each die. The ring itself may serve to position the cutting edges of the dies but greater accuracy may be secured by the use of a setting guide 37 secured to the frame by a bolt 38 so that it may be removed when not in use in order not to interfere with the rotation of the dies.

Formed in the table 28 directly under the plunger is an opening 40 for the passage of cuttings. In order to insure the register of openings 30 with this opening 40 during the cutting operation, the underface of the member 29 is provided with hemispherical recesses corresponding in number with the dies and cooperating with a spring-pressed pin 41 which thus forms a detent to yieldingly lock the member to the table. Rotatably mounted on the upright 1 are upper and lower receptacle supports 42 and 43, respectively. Receptacles 44 are removably carried on the supports by means of key hole slots 45 (Figure 7) engaging with headed pins on the support 42. Arms 46 connect the support 42 with the member 29 so that the receptacles rotate with the said member and consequently each receptacle receives cuttings from only one die. Handles 47 provide means for removing the receptacles to dump the cuttings.

In using the machine the operator places a scrap of leather over the largest die which it will cover and then rotates the member 29, by grasping the edge of the ring 32, until the leather covered die is positioned under the plunger. The exact position is determined by the "feel" when the pin 41 enters the corresponding recess in the bottom of the member. The clutch mechanism is now actuated by means of the control rod 7 causing the plunger to descend and force the cutting through the die. The cushioning effect of the spring 14 prevents undue jar during the cutting operation, and the continual and gradual rotation of the cutting block prevents its contact with a given die in the same position at successive strikes and thus greatly lengthens the life of the block.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a device of the class described, the combination with a rotary carrier, of a plurality of dies mounted thereon, a plunger cooperating with any selected die, means for independently adjusting each of said dies ver-

tically, and a die gauge for securing alignment of the cutting edges of the dies.

2. In a device of the class described, the combination with an upright, of a table carried on said upright, an annular die carrying member mounted on the upper face of said table concentric with said upright, a plurality of dies mounted on said member, a plurality of receptacles mounted to rotate around said upright below said table, connections bridging the table and extending between said die carrying member and said receptacles to cause said parts to move in unison, and a plunger cooperating with said dies.

3. In a device of the class described, the combination with an upright, of a table carried on said upright, an annular die carrying member mounted on the upper face of said table concentric with said upright, a plurality of dies mounted on said member, a receptacle support mounted to rotate around said upright below the table, connections bridging the table and extending between said member and support, whereby said parts rotate in unison, a plurality of receptacles removably carried by said support, and a plunger cooperating with said dies.

4. In a device of the class described, the combination with an upright, of a table carried on said upright, an annular die carrying member mounted on the upper face of said table concentric with said upright, a plurality of dies mounted on said member, said table being provided with an opening for the passage of cuttings, a plurality of receptacles mounted to rotate around said upright below the table, connections bridging the table and extending between said die carrying member and said receptacles to cause said parts to move in unison, means for locking a selected die in position over the opening in said table, and a plunger cooperating with said dies.

In testimony whereof, I hereunto affix my signature, this 11th day of October, 1930.

ALBERT F. FROUSSARD.