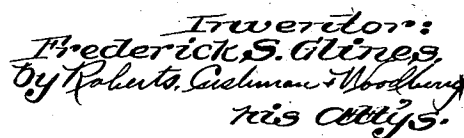


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April 2, 1940.

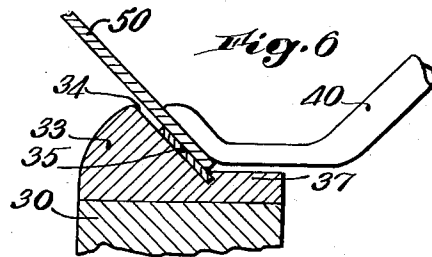
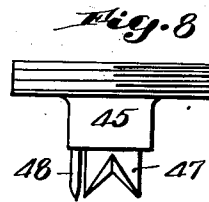
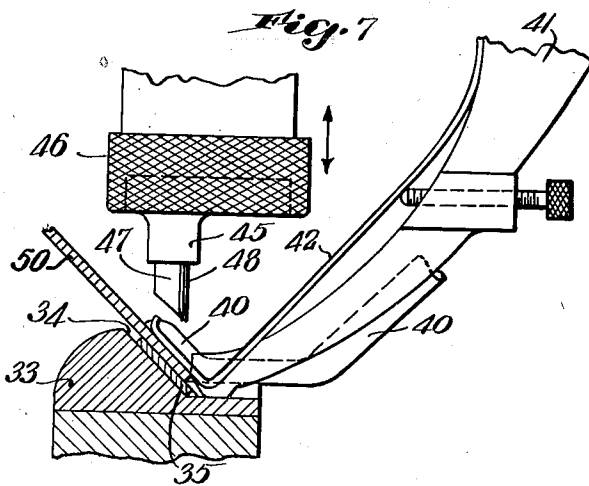
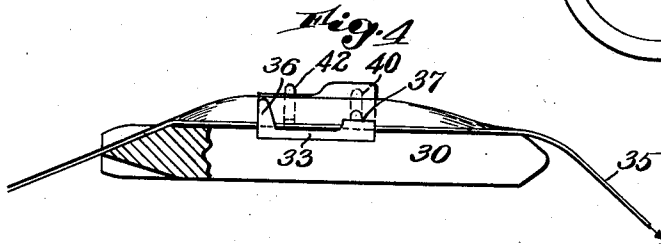
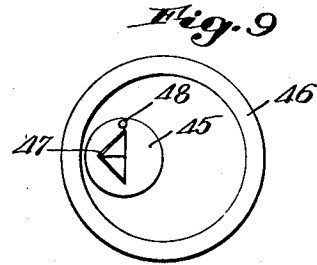
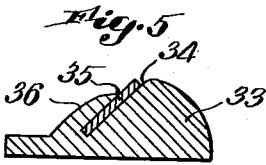
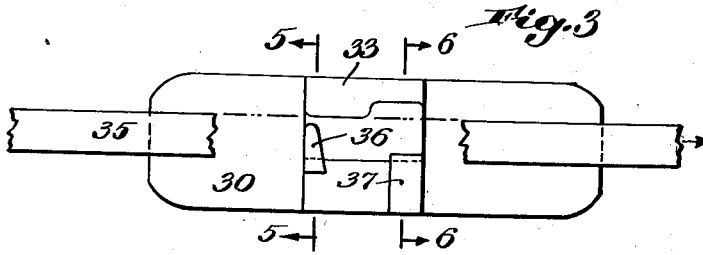
F. S. GLINES

2,195,485

PINKING MACHINE

Filed May 4, 1939

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,195,485

PINKING MACHINE

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Application May 4, 1939, Serial No. 271,702

8 Claims. (Cl. 164—89)

This invention relates to pinking machines and more particularly to an automatic work feeding machine by which the edge of parts of shoe uppers, harness and the like is pinked by being provided with a plurality of V-shaped notches at an inclination thereto. I believe that such notches have been made heretofore only by the use of suitably formed dies by which a plurality of notches are made simultaneously.

I have discovered that such notches can be made with an automatic work feeding perforating machine of the type shown in the patents to Lautenschlager Nos. 843,899, dated February 12, 1907, and 1,176,472, dated March 21, 1916, and the primary object of my invention is to adapt such a perforating machine to carry out this discovery whereby the sizes of the notches can be varied as desired, the work is fed step by step past the perforating punch, and the notches can be made with equal facility upon edges of any contour, e. g., straight, concave or convex.

This invention will be readily understood from a consideration of the following description and of the accompanying drawings, in which:

Fig. 1 is a side elevation of a machine embodying this invention;

Fig. 2 is a front elevation on an enlarged scale, of the notch forming elements of that machine;

Fig. 3 is an enlarged plan view of the anvil of the machine;

Fig. 4 is a side elevation partly broken away of such anvil;

Fig. 5 is an enlarged sectional view taken along the line 5—5 in Fig. 3;

Fig. 6 is a view similar to Fig. 5 taken along the line 6—6 in Fig. 3 showing in addition the work being handled and the presser foot by which the work is held in position;

Fig. 7 is an enlarged view in side elevation of the work held in the anvil shown in section and the punch in position above the work;

Fig. 8 is a view in elevation of the perforating tool;

Fig. 9 is a bottom plan view thereof;

Figs. 10, 11 and 12 illustrate various ways in which the edges of the work may be trimmed;

Fig. 13 is an enlarged sectional view taken along the line 13—13 in Fig. 10; and

Fig. 14 illustrates a work piece with which the waste strip is associated.

The perforating machine selected to illustrate this invention comprises a frame 21 having an arm 22 in which is supported a vertically reciprocable punch bar 23. The bar 23 is mounted to revolve in a sleeve 24 carried by a horizontally

reciprocable plate 25 mounted upon rods 26 received in and carried by bearings 27 in the arm 22. The bar 23 and plate 25 are reciprocated in timed relation by suitable means carried by the frame. Such means are old and well known in perforating machines of this type and hence will not be described in detail although certain elements thereof are shown in Fig. 1 of the drawings.

Supported upon the frame 21 is an anvil 30 mounted in an opening 31 in a table 32. Carried by the anvil 30 is a work supporting base plate 33 so shaped as to provide an inclined surface 34 against which rests a cushion strip 35 commonly used in machines of this type (see Figs. 5, 6 and 7). Tongues 36 and 37 here shown as integral parts of the base plate, act to hold the strip 35 against the surface 34.

Carried by the arm 22 is a presser foot 40 and a combined work gauge 41 and yieldable hold-down finger 42. The gauge 41 is adjustably attached to the arm 22 so that the position of the work may be changed as desired (see Fig. 1). The presser foot 40 is actuated by means, not shown, to hold the work rigidly in position during the punching operation, and to release the work and allow its feeding after each such punching operation.

The cutter head 45 is removably secured to the lower end of the bar 23 by a knurled nut 46. The cutter 47 is V-shaped in cross section and beveled at its lower edge and is mounted eccentrically of the head (see Fig. 9) for reasons which will be pointed out below. A work feed pin 48 is mounted in the head at one end of the cutter.

The work 50 is placed on the base plate 33 over the cushion strip 35 and against the gauge 41 (see Fig. 7) and held in such position by the presser foot 40 and hold-down finger 42. The presser foot and finger engage the work at opposite sides of the base plate as shown by dotted lines in Fig. 4. The cutter 47 acts upon the portion of the work between the foot 40 and finger 42.

The inclination of the lower edge of the cutter 47 is similar to that of the surface 34 and since the work rests against the surface the cutter will trim the edge of the work and form notches 51 thereat, as shown in Figs. 10, 11, 12 and 14. The bases of the notches extend downwardly and outwardly and thus offer a pleasing appearance to the work.

As the cutter 47 enters the work and forms a notch 51 the feed pin 48 simultaneously enters a piece of the work which is in the notch next to

be cut and is therefore waste. This connection of cutter and pin is illustrated in Fig. 14 wherein the holes 52 made by the pin are in a waste strip 53 separated from the body of the work by the notches 51. The waste strip 53 is shown in Fig. 14 as of appreciable width but it may and ordinarily is as narrow as possible and may be merely the portions in the notches, the tips of the notches being at the edge of the work. Suitable means, not shown, permit such adjustment through proper setting of the punch bar 23 and gauge 41. The tongue 37 is made of such height that the work rests evenly upon the gauge and the tongue.

After the cutter and pin have entered the work the presser foot 40 is automatically raised and the cutter head advanced one step, whereupon the foot 40 is again lowered and the cutter head is raised and returned to its normal position ready for the next operation. The inclined lower edge of the cutter tends to urge the work downwardly against the gauge 41 and tongue 37. However, the operator keeps one or both hands on the work and insures that it stays in place. When the edge being trimmed is concave as in Fig. 12, or convex, the operator not only holds the work in place but also turns the work in accordance with the desired contour of the edge. This movement of the work takes place while the cutter 47 and pin 46 are embedded in the work and feeding it, and to facilitate such trimming the cutter is mounted eccentrically on the head 45. It will be understood that the punch bar 23 is so mounted that it may be oscillated rotatably about its vertical axis. The means for so mounting the bar are not here shown or described, because they are old and well known in machines of this type, as shown for example in the Lautenschlager Patent No. 843,899, mentioned above. The sizes of the notches depend upon the length of the feed step and may, of course, be changed as desired. For example, the feed step when making the edge shown in Fig. 10, is longer than when making the edge shown in Fig. 11. Means for so varying the length of the feed step are old and well-known in this art and since this invention is not directed thereto, such means have not been shown or described in detail herein. Suitable means for adjusting the length of the feed step are shown and described in the Patent to Lautenschlager No. 845,899, supra. See particularly Figs. 2, 3 and 10 of the drawings and the paragraph beginning at line 99 of page 1 of the specification wherein the adjustment of the bolt 49 in the arm 46 for this purpose is set forth.

The essence of this invention resides in the combination with a perforating machine of an anvil provided with a base plate so formed that the work is held at an incline and the cutter of the machine forms inclined notches in the edge of the work supported upon the base plate. While one embodiment of this invention has been shown and described it will be understood that the invention is not limited thereto and that other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A pinking machine comprising in combination with a work feeding and perforating machine having a reciprocable punch bar and a V-shaped cutter carried by the head of the punch bar, a work supporting base plate having an inclined surface against which the work rests with

its edge below the punch bar whereby the cutter forms in the edge of the work a plurality of inclined notches.

2. A pinking machine comprising in combination with a work feeding and perforating machine having a reciprocable punch bar and a V-shaped cutter carried by the head of the punch bar, an anvil below the punch bar, a work supporting base plate carried by said anvil and having an inclined surface against which the work rests and a gauge in contact with the edge of the work to position the latter whereby the cutter forms in the edge of the work a plurality of inclined notches.

3. A pinking machine comprising in combination with a work feeding and perforating machine having a reciprocable punch bar and a V-shaped cutter carried by the head of the punch bar, and having a beveled lower surface, a work supporting base plate having an inclined surface against which the work rests, the inclination of the surface corresponding to that of the cutter surface, and a gauge in contact with the edge of the work whereby the cutter forms in the edge of the work a plurality of inclined notches and, by reason of the inclinations of the cutter and work, holds the edge of the work against the gauge.

4. A pinking machine comprising the combination with a work feeding and perforating machine having a punch bar carrying a V-shaped cutter with a beveled lower surface and a presser foot, the presser foot terminating in an inclined toe, of a work supporting base plate having an inclined surface against which the work rests, the inclination of that surface corresponding to that of the beveled lower surface of the cutter and that of the toe of the presser foot whereby the work is held in position by the presser foot while notches are formed by the cutter in the edge of the work.

5. A pinking machine comprising the combination with a work feeding and perforating machine having a punch bar carrying a V-shaped cutter with a beveled lower surface and a presser foot, the presser foot terminating in an inclined toe, of a work supporting base plate having an inclined surface against which the work rests below the cutter and toe of the presser foot, said punch bar being so mounted to oscillate and to feed the work so that when work having a curved edge is being notched, the cutter, after the presser foot is raised, simultaneously advances the work and turns therewith.

6. A pinking machine comprising the combination with a work feeding and perforating machine having a punch bar carrying a V-shaped cutter with a beveled lower surface and a presser foot, the presser foot terminating in an inclined toe, of a work supporting base plate having an inclined surface against which the work rests below the cutter and toe of the presser foot and a gauge against which the edge of the work rests, said cutter and presser foot alternately engaging the work and said presser foot bearing upon both the work and the waste strip after it has been severed by the cutter from the workpiece.

7. In a pinking machine comprising the combination with a work feeding and perforating machine having a reciprocable punch bar carrying a V-shaped cutter with a beveled lower surface of a work supporting base plate having an inclined surface against which the work rests with its edge below the cutter, the lower surface of the cutter corresponding to that of the

surface against which the work rests whereby the lower surface of the cutter engages the work concomitantly and the side walls of the notches formed by the cutter in the edge of the work taper downwardly and outwardly.

8. In a machine for pinking work along a curved edge a work feeding punch bar having in addition to the feeding movement a reciprocating and oscillating movement, a V-shaped cutter mounted upon the punch bar and having a beveled cutting edge, a work supporting base

plate having an inclined surface against which the work rests with its edge below the cutter, a presser foot adapted to hold the work intermittently against the inclined surface of the base plate, and means for reciprocating said punch bar and presser foot alternately whereby the presser foot is raised when the work is fed along by the bar and the bar is free to oscillate with the cutter in engagement with the work as the latter is guided along its curved edge.

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