

June 2, 1936.

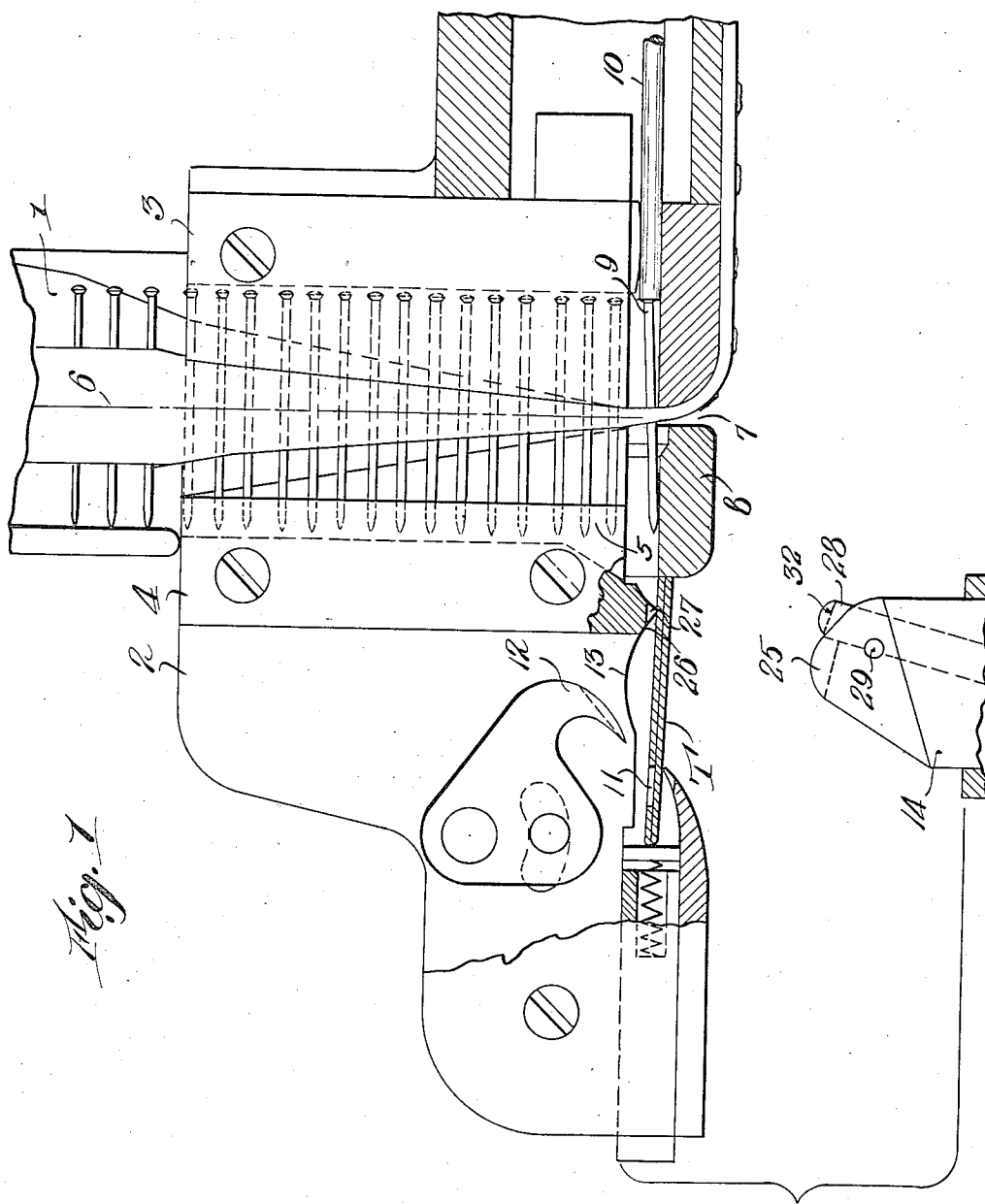
C. A. FLOOD

2,042,888

PINNING MACHINE

Filed May 27, 1935

3 Sheets-Sheet 1



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June 2, 1936.

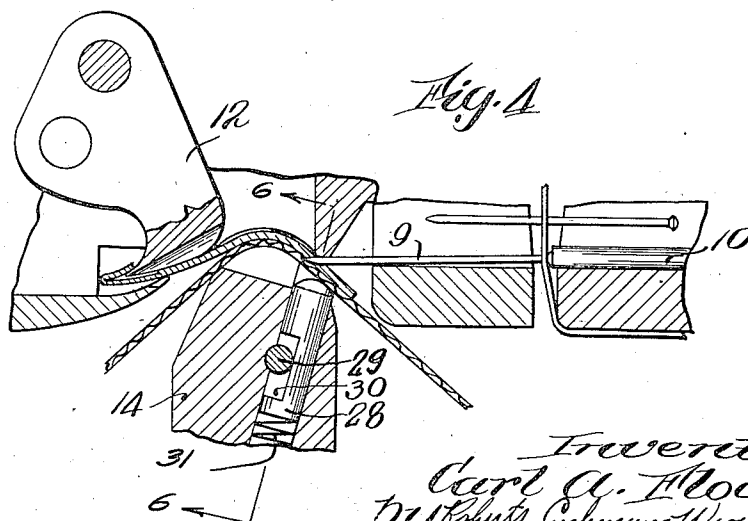
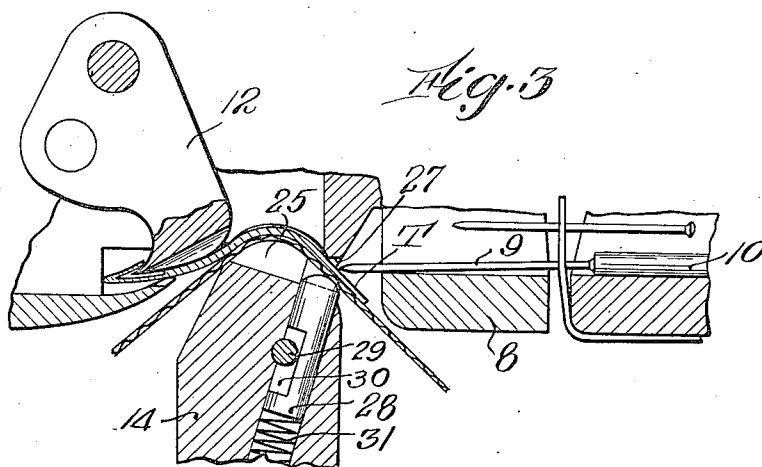
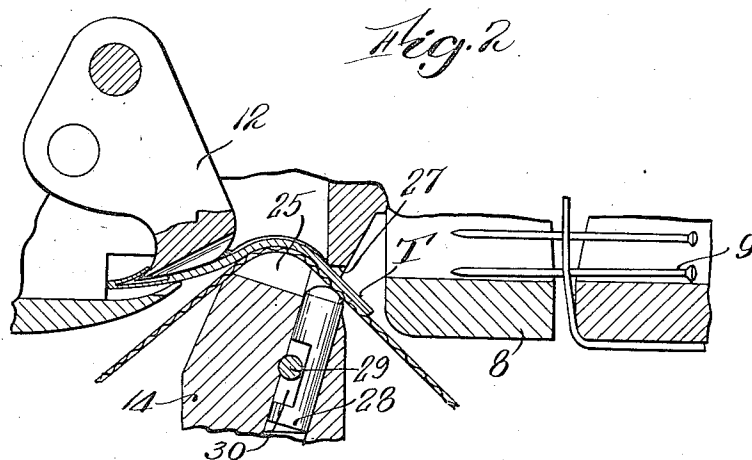
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PINNING MACHINE

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3 Sheets-Sheet 2



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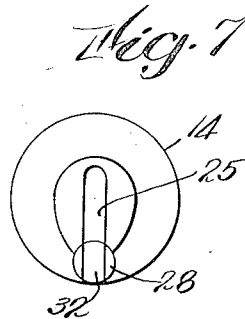
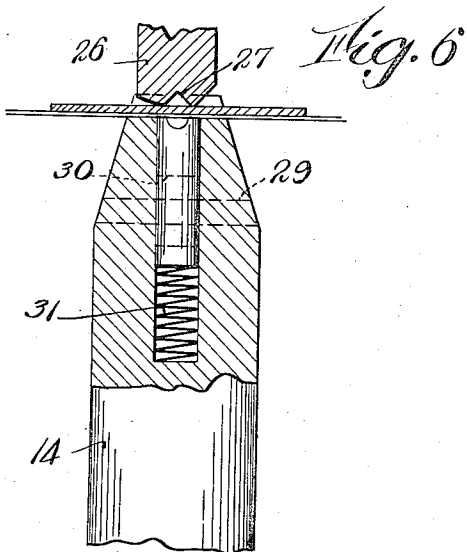
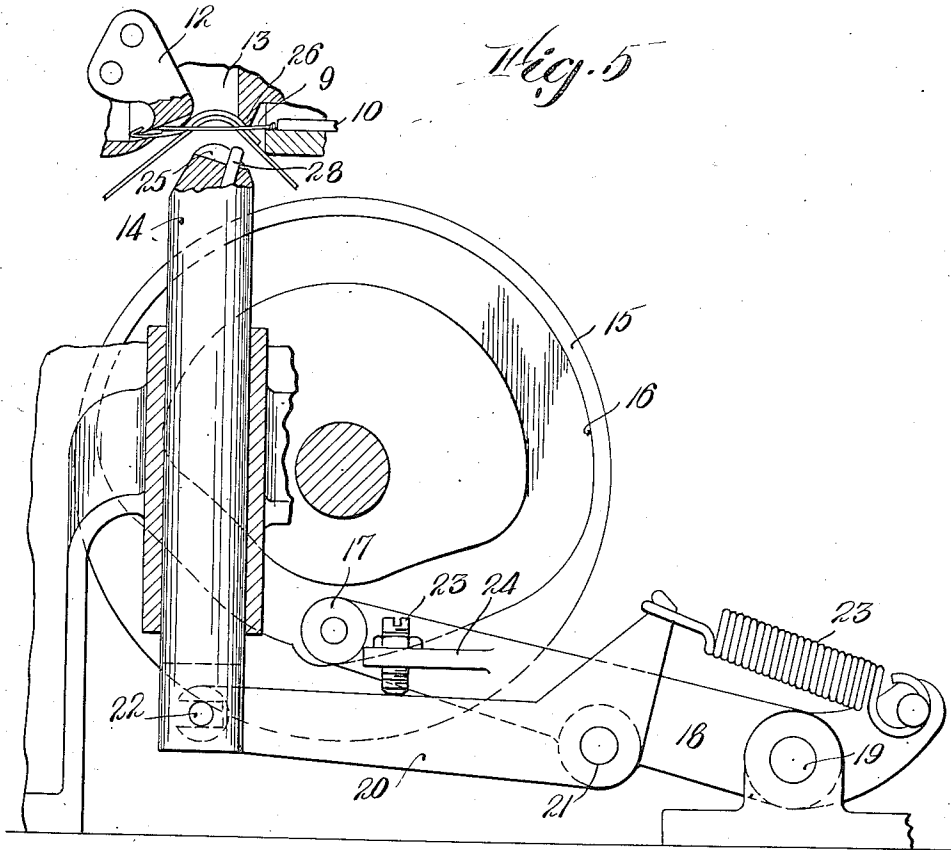
C. A. FLOOD

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PINNING MACHINE

Filed May 27, 1935

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,042,888

PINNING MACHINE

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Application May 27, 1935, Serial No. 23,659

14 Claims. (Cl. 93—88)

This invention relates to machines for pinning together fabric and tags and other articles and more particularly to machines of the type disclosed in my prior application Serial No. 565,466, filed September 28, 1931. These machines have a fixed abutment in the form of a concave block (usually called a die-block) and a round-nosed plunger (usually called an anvil) movable toward the abutment to flex the articles preparatory to the insertion of a pin transversely of the curvature. In order to accommodate goods of different thicknesses and to prevent damage to the goods the anvil is advanced by a spring until it reaches a fixed stop which stops the anvil somewhat short of the abutment. The rounded nose of the anvil is grooved to provide a pin passage and in line with the groove a grooved guide or starting notch is arranged to start the pin into articles at the proper point.

In the case of closely woven fabrics the pin points, which are usually rather blunt, often jam the fabric into the anvil groove instead of piercing the fabric as intended; and the principal object of the present invention is to prevent this jamming tendency and to insure the proper piercing of the articles at the proper point.

According to this invention the articles to be pinned are gripped in the region of and/or in advance of the point of the entry of the pin so that the articles are held against the force required to push a blunt pin therethrough. Thus the portion of the articles in the region of the point of entry of the pin are held in position while the pin is being inserted instead of being jammed into the anvil groove. In a more specific aspect of the invention the anvil (or other abutment or crimping member) is provided with a salient surface, preferably a small spring-pressed plunger, for pinching the articles against the starting notch so that a blunt pin point, instead of pushing the fabric into the aforesaid groove, is constrained to pierce the fabric. By making the plunger spring-pressed it accommodates goods of different thicknesses, pinching the goods against the starting notch with approximately the same pressure irrespective of variations in the thickness of the goods and/or variations in the location at which the spring-pressed anvil is stopped by the aforesaid fixed stop.

For the purpose of illustration a typical embodiment of the invention is shown in the accompanying drawings in which,

Fig. 1 is a front elevation of a portion of the machine showing parts in section, a ticket in pin-

ning position, the ends thereof retracted and with no fabric between the ticket and anvil;

Fig. 2 is a similar view showing the fabric in position and the anvil advanced to flex the ticket and fabric;

Fig. 3 is a similar view showing a pin advanced to the position where it is about to enter the ticket;

Fig. 4 is a similar view showing the pin passing through the ticket and fabric;

Fig. 5 is a similar view showing the pin fully inserted and the anvil again retracted, together with the mechanism for actuating the anvil;

Fig. 6 is a section on 6—6 of Fig. 4; and

Fig. 7 is an end elevation of the anvil.

The particular embodiment of the invention chosen for the purpose of illustration is similar to that disclosed in the aforesaid pending application and is constructed as follows. The pins are fed into the machine on a paper strip 1 which feeds downwardly in front of a back plate 2 between two guides 3 and 4 on the forward side of the back plate, the guides having flanges 5 which overlap the heads and points of the pins, respectively. As the paper strip 1 feeds downwardly it is gradually folded upon itself about its center line 6 and at the bottom of the guideway the strip feeds from the machine in folded condition through a slot 7. The strip is fed intermittently to bring successive pins against the upper surface of the plate 8 containing the slot 7, in which position the foremost pin 9 is advanced point foremost by a plunger 10 from the paper strip into the articles to be pinned together. The tickets to be pinned are fed from the rear (Fig. 1) to the position occupied by the ticket T. As shown in Fig. 1 these tickets are formed of two plies with an opening 11 in the upper ply through which a pin guide 12 is inserted to steer the point of the pin through the opening between the two plies so that when the pin is fully inserted the point is not exposed.

Immediately above the ticket T in Fig. 1 is a curved die-block 13 and below the ticket is a vertically reciprocating plunger 14 which is lifted from the position shown in Fig. 1 to the position shown in Figs. 2, 3, and 4 to flex the ticket and fabric, the fabric being laid over the upper end of the plunger before the latter rises. The mechanism for reciprocating the plunger 14 up and down comprises a cam 15 containing a cam groove 16, a cam follower 17 in the groove 16, a lever 18 pivoted at 19 carrying the cam follower, a second lever 20 pivoted at 21 and interconnected with the lower end of the plunger with a pin-and-

slot connection 22 and a tension spring 23 interconnecting the upturned ends of levers 18 and 20.

From Fig. 5 it will be evident that the lever 18 is held in position by the cam follower 17 in the cam groove 16, and that the spring 23 tends to rotate the lever 20 in a clockwise direction about its pivot 21, thereby tending to lift the plunger 14. The upward movement of the plunger is limited by a set-screw 23 threaded through a lug 24 in the lever 18 and bearing against the upper side of the lever 20. This set-screw is adjusted so that when the cam follower 17 is in its uppermost position the plunger 14 has risen to a position which, while high enough to flex the ticket and fabric, is not high enough to clamp the ticket and fabric against the die-block 13 (unless indeed the fabric is very thick). In this uppermost position of the plunger the pin 9 just clears the bottom of the pin groove 25 in the nose of the plunger.

In order to guide the pin into the ticket at the proper point a pin guide 26 is provided adjacent the point where the pin should first pierce the ticket. As shown in Figs. 1 and 6, this guide is provided with a notch 27 through which the pin passes, the two sides of the notch restraining sideways deflection of the pin and the bottom of the notch preventing a blunt pin point from sliding up the smooth surface of the ticket beyond the point where the upper side of the pin seats against the bottom of the notch.

As thus far described, the machine is similar to that disclosed in the aforesaid pending application; and further description of the old parts is unnecessary for the purpose of the present disclosure. According to this invention a spring-pressed plunger 28 projects from the nose of the anvil 14. This plunger has a limited back-and-forth movement in a socket in the anvil, this movement being restricted by a pin 29 engaging in a recess 30 in the side of the pin. The plunger is normally pushed outwardly to the position shown in Fig. 1 by means of a compression spring 31 in the bottom of the plunger socket. The upper end of the plunger 28 is provided with a groove 32 to serve as a passageway for the pin. When the anvil 14 rises to the position shown in Figs. 2, 3, and 4, the end of the plunger 28 pinches the ticket and fabric against the guide 26, the notch 27 in the guide 26 registering with the notch 32 in the plunger 28. After the plunger 28 has pinched the ticket and fabric against the guide 26 with a predetermined pressure, depending upon the strength of spring 31, further upward movement of the anvil merely compresses the spring 31. By virtue of the pinching action between the plunger 28 and the guide 26 the fabric is held, at a point slightly in advance of the point where the pin enters the fabric, against the force required to pierce the fabric. Thus, in the case of blunt pins the fabric is not jammed into the groove 25 but is held taut while the pin is forced through. After the pin has been twice pushed through the ticket and fabric, the point is directed into the opening 11 by the guide 12, as shown in Fig. 5. After the pin has pierced the ticket and fabric the second time, the anvil 14 may start downwardly while the pin point is being directed by the guide 12 into the opening 11. When the pin has been fully inserted the guide 12 swings upwardly to the retracted position shown in Fig. 1 whereupon the pinned article may be removed from the machine.

It should be understood that the present disclosure is for the purpose of illustration only and

that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. A machine for pinning articles such as tags and fabric comprising relatively movable abutments shaped to flex the articles, means for inserting a pin through the article transversely of the flexure, and means for gripping the article in advance of the point of entry of the pin, the latter means having a surface engageable with the article.

2. Apparatus for pinning articles comprising opposing members shaped to press the articles together in curvature, means including a spring for yieldingly forcing one member toward the other member, means for stopping the movable member at a predetermined position before it reaches the other member, thereby blocking the action of said spring, means for inserting a pin through the articles transversely of said curvature from one side of said members, and means at said side of the member for gripping the articles to resist the force required to insert the pin through the articles.

3. Apparatus for applying straight pins to material, comprising a crimping abutment, a plunger for moving the material against said abutment to crimp the material, the plunger having a pin groove, means for advancing a pin point foremost through the material along a line extending through said groove transversely of the crimp in the material, and means for holding the material against the force required to insert the pin there-through, the latter means having a surface engageable with the article.

4. A machine for pinning articles such as tags and fabric comprising relatively movable abutments shaped to flex the articles, means for inserting a pin through the article transversely of the flexure, a guide associated with one abutment for guiding the pin into the article and a salient surface on the other abutment for holding the article against said guide adjacent the point of entry of the pin.

5. A machine for pinning articles such as tags and fabric comprising relatively movable abutments shaped to flex the articles, means for inserting a pin through the article transversely of the flexure, a guide associated with one abutment for guiding the pin into the article and a nose yieldingly mounted on the other abutment for holding the article against said guide adjacent the point of entry of the pin.

6. A machine for pinning articles such as tags and fabric comprising relatively movable abutments shaped to flex the articles, means for inserting a pin through the article transversely of the flexure, a guide associated with one abutment for guiding the pin into the article and a spring-pressed plunger projecting from the other abutment for holding the article against said guide adjacent the point of entry of the pin.

7. Apparatus for pinning articles comprising opposing members shaped to press the articles together in curvature, means including a spring for yieldingly forcing one member toward the other member, means for stopping the movable member at a predetermined position before it reaches the other member, thereby blocking the action of said spring, a guide associated with one member for guiding a pin into the articles, a salient surface on the other member for pinching the articles against said guide adjacent the point of entry of the pin, and means for inserting a pin

through the articles transversely of said curvature.

8. Apparatus for pinning articles comprising opposing members shaped to press the articles together in curvature, means including a spring for yieldingly forcing one member toward the other member, means for stopping the movable member at a predetermined position before it reaches the other member, thereby blocking the action of said spring, a guide associated with one member for guiding a pin into the articles, a nose yieldingly mounted on the other member for pinching the articles against said guide adjacent the point of entry of the pin, and means for inserting a pin through the articles transversely of said curvature.

9. Apparatus for pinning articles comprising opposing members shaped to press the articles together in curvature, means including a spring for yieldingly forcing one member toward the other member, means for stopping the movable member at a predetermined position before it reaches the other member, thereby blocking the action of said spring, a guide associated with one member for guiding a pin into the articles, a spring-pressed plunger projecting from the other member for pinching the articles against said guide adjacent the point of entry of the pin, and means for inserting a pin through the articles transversely of said curvature.

10. Apparatus for applying straight pins to material, comprising a crimping abutment, a plunger for moving the material against said abutment to crimp the material, the plunger having a pin groove, means for advancing a pin point foremost through the material along a line extending through said groove transversely of the crimp in the material, a guide associated with said abutment for guiding the pin into said material, and a salient surface on the plunger for holding the material against said guide in the region of the point of the pin.

11. Apparatus for applying straight pins to material, comprising a crimping abutment, a plunger for moving the material against said abutment to crimp the material, the plunger having a pin groove, means for advancing a pin point

foremost through the material along a line extending through said groove transversely of the crimp in the material, a guide associated with said abutment for guiding the pin into said material, and a nose yieldingly mounted on the plunger for holding the material against said guide in the region of the point of entry of the pin.

12. Apparatus for applying straight pins to material, comprising a crimping abutment, a plunger for moving the material against said abutment to crimp the material, the plunger having a pin groove, means for advancing a pin point foremost through the material along a line extending through said groove transversely of the crimp in the material, a guide associated with said abutment for guiding the pin into said material, and a spring-pressed plunger projecting from the plunger for holding the material against said guide in the region of the point of entry of the pin.

13. Apparatus for applying straight pins to material, comprising a crimping abutment, an anvil for moving the material against said abutment to crimp the material, the anvil having a pin groove, means for advancing a pin point foremost through the material along a line extending through said groove transversely of the crimp in the material, a starting notch associated with said abutment for guiding the pin into said material, a grooved nose yieldingly mounted on the anvil for holding the material against said starting notch in the region of the point of entry of the pin.

14. Apparatus for applying straight pins to material, comprising a crimping abutment, an anvil for moving the material against said abutment to crimp the material, the anvil having a pin groove, means for advancing a pin point foremost through the material along a line extending through said groove transversely of the crimp in the material, a notched guide associated with said abutment for guiding the pin into said material, a spring-pressed plunger projecting from the anvil for holding the material against said guide in the region of the point of the pin, said plunger having a notch registering with the notch in said guide.

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