W. J. S. RITSCHER.

PAPER PINNING MACHINE.

APPLICATION FILED MAR. 24, 1913.

1,255,640.

Patented Feb. 5, 1918.

2 SHEETS—SHEET 1.

FIG. 1.

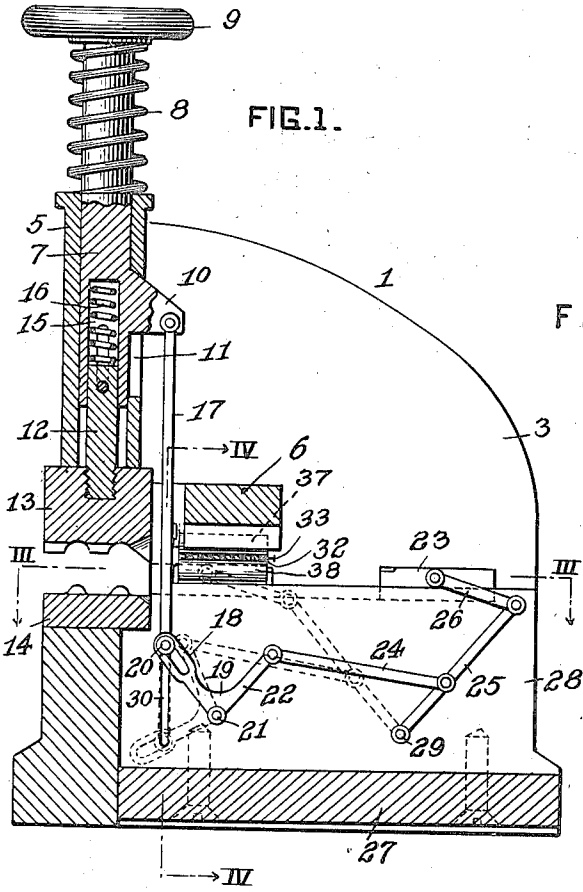


FIG. 2.

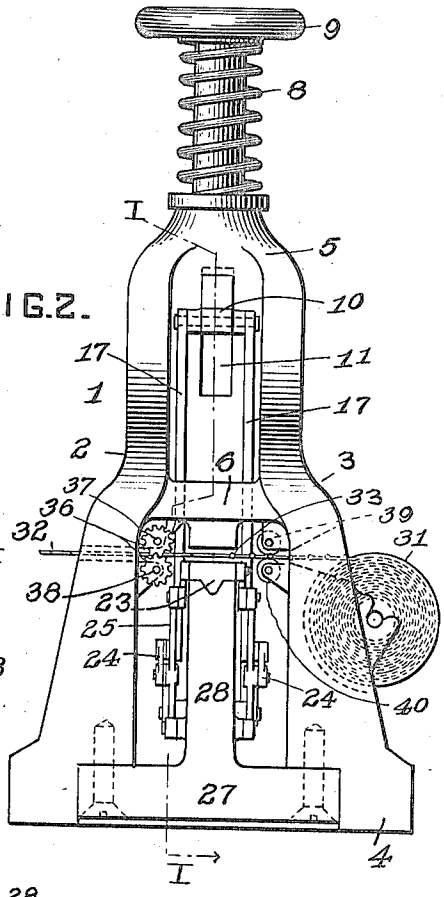
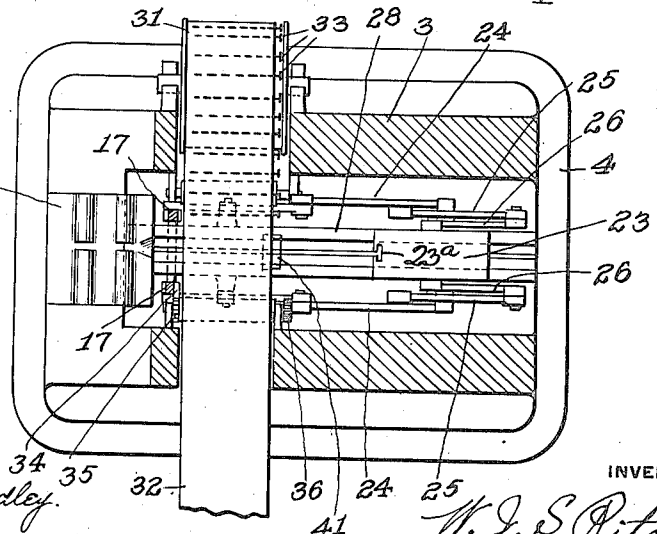


FIG. 3.



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 4.

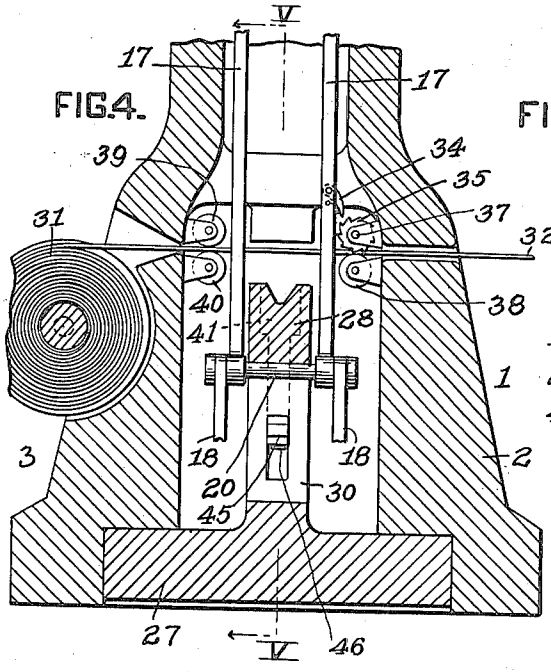


FIG. 5.

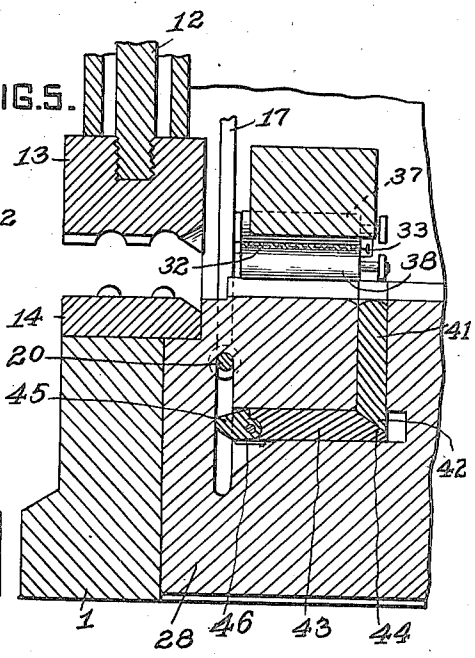


FIG. 6.

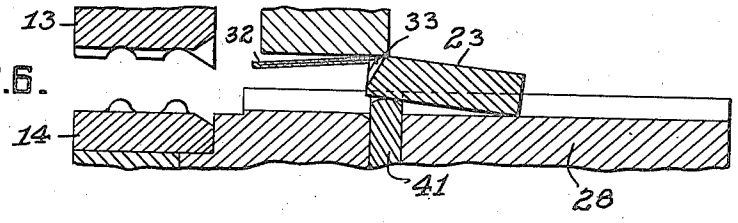


FIG. 7.

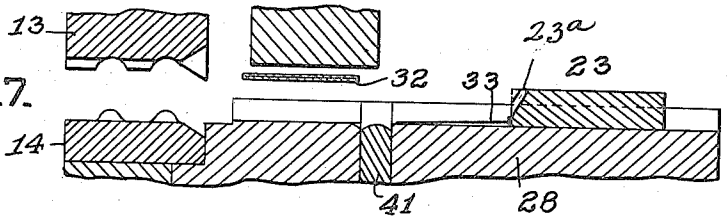
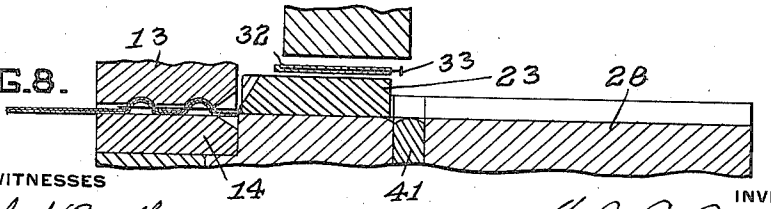


FIG. 8.



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PAPER-PINNING MACHINE.

1,255,640. Specification of Letters Patent. Patented Feb. 5, 1918.

Application filed March 24, 1913. Serial No. 756,288.

To all whom it may concern:

Be it known that I, WILLIAM J. S. RITSCHER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Paper-Pinning Machines, of which the following is a specification.

An object of my invention is to provide a paper pinning machine including automatically operable means for inserting a pin or similar member through two or more pieces of paper, etc., such for example, as two sheets of letter paper, or a sheet of letter paper and a check.

A further object of the present invention is to provide in a machine of the character described, means for automatically feeding pins from a supply of pins into position to be acted upon by the means for inserting successive pins through pieces of paper, etc.

In the accompanying drawings, which illustrate an application of my invention:

Figure 1 is a part side elevational view and a part vertical sectional view, the section being taken on line I—I of Fig. 2;

Fig. 2 is an end view;

Fig. 3, is a part plan and a part horizontal section, the section being taken on line III—III of Fig. 1;

Fig. 4 is a vertical sectional view taken on line IV—IV of Fig. 1 looking in the direction of the arrows;

Fig. 5 is a similar view taken on line V—V of Fig. 4; and

Figs. 6, 7, and 8 are sectional diagrammatic views particularly illustrating the different positions assumed by the combined pin pusher and carrier employed in the apparatus.

Referring to the drawings, 1 designates a housing preferably including two spaced members 2 and 3 projecting upwardly from a rectangular base 4, and merging into a hollow vertically extending member 5, and being further connected with each other by a cross-piece 6, as particularly shown by Figs. 1 and 2.

Located within the hollow member 5, and adapted to be reciprocated therein, I provide a spring controlled plunger 7, with the spring 8 interposed between the upper end of member 5 and a head 9 of the plunger. Plunger 7 is provided with a projecting lug 10 entered in a slot 11 of member 5. Connected with the plunger 7 by means of a threaded connecting member 12, I provide a movable die-block or paper crimping member 13. Member 13 is adapted to co-act with a stationary block 14 to crimp or emboss the paper or other material through which a pin is adapted to be inserted.

Plunger 7 is provided with a hollow space 15 adapted to receive a spring 16 having an end bearing against the upper wall of the space 15 and its opposite end bearing against the connecting member. The space 15 is provided to permit a continued downward movement of the plunger after member 13 makes contact with member 14 and the paper has been crimped; and the function of the spring is to maintain member 13 down upon the paper, etc., until a pin has been passed through the crimped portion.

Pivotally secured to the projecting lug 10 of the plunger, I provide two connecting rods 17 extending downwardly therefrom, and having their lower ends respectively connected with the slotted arm 18 of a bell-crank lever 19 by means of a rod 20. As illustrated and as preferred, I employ two bell-crank levers 19 fulcrumed on a cross rod 21. The opposite arms 22 of the respective bell-crank levers 19 are each connected with a combined, reciprocating pin pusher and carrier 23 by means of rods or connecting links 24, 25, and 26. The member 23 is provided with a slot 23ª adapted when the member 23 is on its return stroke to receive and engage the head of a pin for the purpose of withdrawing a pin free of the roll of paper.

From the foregoing, it will be noted that the movement or reciprocation of the combined pin pusher and carrier 23 is effected by the vertical movement of the plunger 7, and that during the downward or forward stroke of the plunger 7, the combined pusher and carrier 23 is moved from the position shown in full lines in Fig. 1 to the position shown in dotted lines.

Located between and projecting up into the space between the members 2 and 3 of the housing, I provide a plate 27 having a centrally disposed upwardly projecting member 28, the latter constituting a track or race-way for the combined pusher and carrier 23, and also serving as a support for the shafts or rods 20, 21, and 29. Member 28 is also provided with a slot 30 adapted to

receive the rod 20 connecting the lower ends of rods 17.

31 designates a roll containing a supply of pins which are adapted to be automatically fed into operative position to be engaged by the combined pin pusher and carrier. The means shown for moving the strip 32, containing the pins 33, into the desired positions, include a dog 34 carried on one of the connecting rods 17, a ratchet 35 and gears 36 respectively mounted on rollers 37 and 38, and idlers 39 and 40.

The dog 34, during a downward stroke of the plunger and the connecting rods 17, engages with the ratchet 35, thereby turning the same and the coacting gears 36 together with the rollers 37 and 38, thus feeding the strip forward to bring a pin into operative position to be engaged by the combined pusher and carrier 23 during its backward movement. The position of the pin, while in its strip and just prior to being engaged by the combined pusher and carrier, is shown in Fig. 1. As illustrated, the pin is located slightly above the reciprocating member 23, and in order that said member may engage the head of the pin during its backward travel, it is necessary to raise member 23 slightly. To accomplish this, I provide a vertically movable member 41 adapted to extend upwardly through the member 28 and strike the member 23, as particularly illustrated in Fig. 6, thus raising the member 23 to have an edge of the latter engage a head of a pin.

The lower edge 42 of member 41 is inclined and rests upon a horizontally disposed member 43, which latter at one end is formed wedge-shaped as indicated by 44. Located at the opposite end of member 43, I provide a spring controlled pivoted head or dog 45 disposed in the path of travel of the rod 20 and adapted to be engaged thereby during the vertical movements of said rod. 46 designates the spring controlling the dog 45, and it will be noted that during a downward movement of rod 20, said rod will strike the dog 45, but a sliding movement will not be imparted to member 43 until the rod 20 makes contact with the dog 45 on its return or upward travel.

The pin grasped by the member 23 is carried rearwardly and drops into the position shown in Fig. 7, ready to be engaged by the combined pusher and carrier on its next succeeding forward stroke, and passed forward and through the crimped portion of the sheets of paper, etc., as particularly shown by Fig. 8.

As will be readily understood, the construction herein disclosed is operative to effect a transfer of a selected pin from a pin strip to a position in which the several pieces of paper are fastened together, this operation being completed in such manner as to leave the pin and strip unimpaired. In providing this operation, the selected pin is first withdrawn from the strip, leaving the latter unbroken and thereby permitting of the use of feeding rolls on opposite sides of the path of the reciprocating element, an effect which will prevent sagging of the strip and place the pins successively in proper position to have their heads engaged by the reciprocating element. As will be understood, the completion of the movement of the element in the direction of its pin withdrawing movement leaves the pin free to pass from holding engagement with the element by its head dropping through the slotted passageway 23^a and be positioned in advance of the element ready to be driven into the pieces through the crimped portions when the element is moved in its opposite direction.

What I claim is:—

1. In apparatus of the character described, the combination with a plunger, of means for inserting a pin through pieces of paper by movements of the pin in a direction angular to the direction of movement of the plunger, said means including a pin strip, a reciprocating member adapted to operate upon a pin to direct the pin movements from the strip to paper fastening position, and means connecting the member and plunger.

2. In apparatus of the character described, the combination with a spring controlled plunger, of a pin strip, a reciprocating member adapted to operate upon a pin to control the pin movements from the strip to paper fastening position, and positively operated means actuated by the plunger for reciprocating the member in opposite directions.

3. In an apparatus of the character described, the combination with a spring controlled plunger, of a reciprocating pin pusher, positively operable means actuated by the plunger for reciprocating the pusher, and means for raising the pusher during a reciprocation thereof.

4. In an apparatus of the character described the combination with a spring controlled plunger, of a reciprocating pin pusher, means for raising the pusher during a reciprocation thereof, and means actuated by the plunger for reciprocating the pusher, said means including a bell-crank lever, a rod connecting said lever and plunger, and rods connecting the pusher and bell-crank lever.

5. In an apparatus of the character described, the combination with a spring controlled plunger, of a reciprocating pusher movable at an angle with the path of travel of the plunger, means for raising the pusher during a reciprocation thereof, means actuated by the plunger for reciprocating the pusher including a bell-crank lever having a

slotted arm, a rod connecting the plunger and the slotted arm, and rods connecting the other arm of said lever and the pusher.

6. In an apparatus of the character described, the combination with a spring controlled plunger, of a reciprocating pin pusher, means actuated by the plunger for reciprocating the pusher including a bell-crank lever having a slotted arm, a rod connecting the plunger with the slotted arm, rods connecting the other arm of said lever and the pusher, and means for raising the pusher during a reciprocation thereof.

7. In an apparatus of the character described, the combination with a plunger and paper crimping means, of a reciprocating combined pin pusher and carrier, and means actuated by the plunger for reciprocating the pin pusher and carrier.

8. In an apparatus of the character described, the combination with a plunger and paper crimping means, of a reciprocating combined pin pusher and carrier, means actuated by the plunger for reciprocating the pin pusher and carrier, and means for raising the pin pusher and carrier during a reciprocation thereof.

9. In an apparatus of the character described, the combination with a plunger, means for automatically feeding a supply of pins, a reciprocating combined pin pusher and carrier, and means actuated by the plunger for reciprocating the pusher and carrier.

10. In apparatus of the character described and in combination, means for crimping paper, a pin strip, and means for transferring a pin from the strip to and into fastening position within the crimped portion of the paper.

11. In an apparatus of the character described, means including a plunger for crimping paper, and positively operable means actuated by the plunger for passing a pin through the crimped paper.

12. In an apparatus of the character described, means including a plunger for crimping paper, a reciprocating pin pusher, positively operated means actuated by the plunger for reciprocating the pusher, and means for raising the pusher during a reciprocation thereof.

13. In an apparatus of the character described, means including a plunger for crimping paper, a reciprocating pin pusher, and positively operated means actuated by the plunger for reciprocating the pusher.

14. In a machine for fastening pieces of paper together, a pin strip, and means for withdrawing a selected pin from the strip and transferring it to paper-fastening position, said means operating to withdraw the pin in such a way as to maintain the strip unimpaired.

15. In a machine for fastening pieces of paper together, a pin strip, and means for withdrawing a selected pin from the strip and transferring it to paper-fastening position, said means including a reciprocating member adapted to engage the pin and operative in the several pin manipulations, said means operating in a manner to maintain the strip unimpaired.

16. In a machine for fastening pieces of paper together, a pin strip, and means for withdrawing a selected pin from the strip and transferring it to paper-fastening position, said means including a reciprocating member adapted to withdraw the pin during its movement in one direction and apply it to the pieces of paper in another direction of its movement.

17. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a selected pin from the strip to paper-fastening position, said means including an element coöperating with the pin head to withdraw the pin from its strip.

18. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a selected pin from the strip to paper-fastening position, said means including an element coöperating with the pin head to withdraw the pin from its strip, said element also acting to place the pin in its paper-fastening position.

19. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a selected pin from the strip to paper-fastening position, said means including an element coöperating with the pin head to withdraw the pin from its strip, said element also acting to place the pin in its paper-fastening position, said strip being located out of the pin applying path of movement of said element.

20. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a selected pin from the strip to paper-fastening position, said means including an element coöperating with the pin head to withdraw the pin from its strip, said element also acting to place the pin in its paper-fastening position, said strip being located out of the pin applying path of movement of said element, and mechanism for moving said element out of said path to engage the pin head to withdraw the pin.

21. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a selected pin from the strip to paper-fastening position, said means including an element coöperating with the pin head to withdraw the pin from its strip, said element also acting to place the pin in its paper-fastening position, said strip being located out of the pin applying path of movement of said element, and mechanism for moving said element out of said path to engage the pin head to withdraw the pin,

said element having reciprocating movements with the withdrawal and pin applying operations taking place in movements in opposite directions.

22. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper-fastening position, said means being arranged to move the pin in opposite directions of its length during such transfer.

23. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper-fastening position, said means being arranged to move the pin in opposite directions of its length during such transfer, to successively withdraw the pin from the strip and to place it in paper-fastening position.

24. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper-fastening position, the pin being movable in opposite directions of its length during such transfer, said movements acting to successively withdraw the pin from the strip and place it in paper-fastening position, said means including a reciprocating element adapted to engage opposite sides of the pin head to provide the successive movements to the pin.

25. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper-fastening position, the pin being movable in opposite directions of its length during such transfer, said movements acting to successively withdraw the pin from the strip and place it in paper-fastening position, said means including a reciprocating element adapted to temporarily engage the inner side of the pin head to withdraw the pin, said element being so constructed as to permit automatic disengagement of the pin head and element upon completion of the withdrawal operation with the pin head positioned in advance of the element so that the latter may drive the pin to paper fastening position.

26. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper fastening position, said means including an element movable in opposite directions in applying the pin, the movement in one direction withdrawing the pin from the strip, the movement in the opposite direction placing the pin in its paper fastening position.

27. In a machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper fastening position, said means including an element operating in a cycle with each paper fastening operation, said element having movements in opposite directions during each cycle, the movement in one direction providing a withdrawal of the pin from its strip, the movement in the opposite direction providing a movement of the pin to paper fastening position.

28. In machine for fastening pieces of paper together, a pin strip, and means for transferring a pin from the strip to paper fastening position, said means including an element operating in a cycle with each paper fastening operation, said element having movements in opposite directions during each cycle, the initial direction of movement of the element placing a pin in paper fastening position, the opposite movement of the element providing a withdrawal of a pin from the pin strip to form the supply pin for the succeeding paper fastening operation.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. S. RITSCHER. [L. S.]

Witnesses:

W. W. WOODRUFF,

A. H. MCNAMEE.