May 27, 1924. 1,495,753

H. LEVINE

CLASP ATTACHING MACHINE FOR ENVELOPES AND THE LIKE

Filed Aug. 3, 1922 2 Sheets-Sheet 1

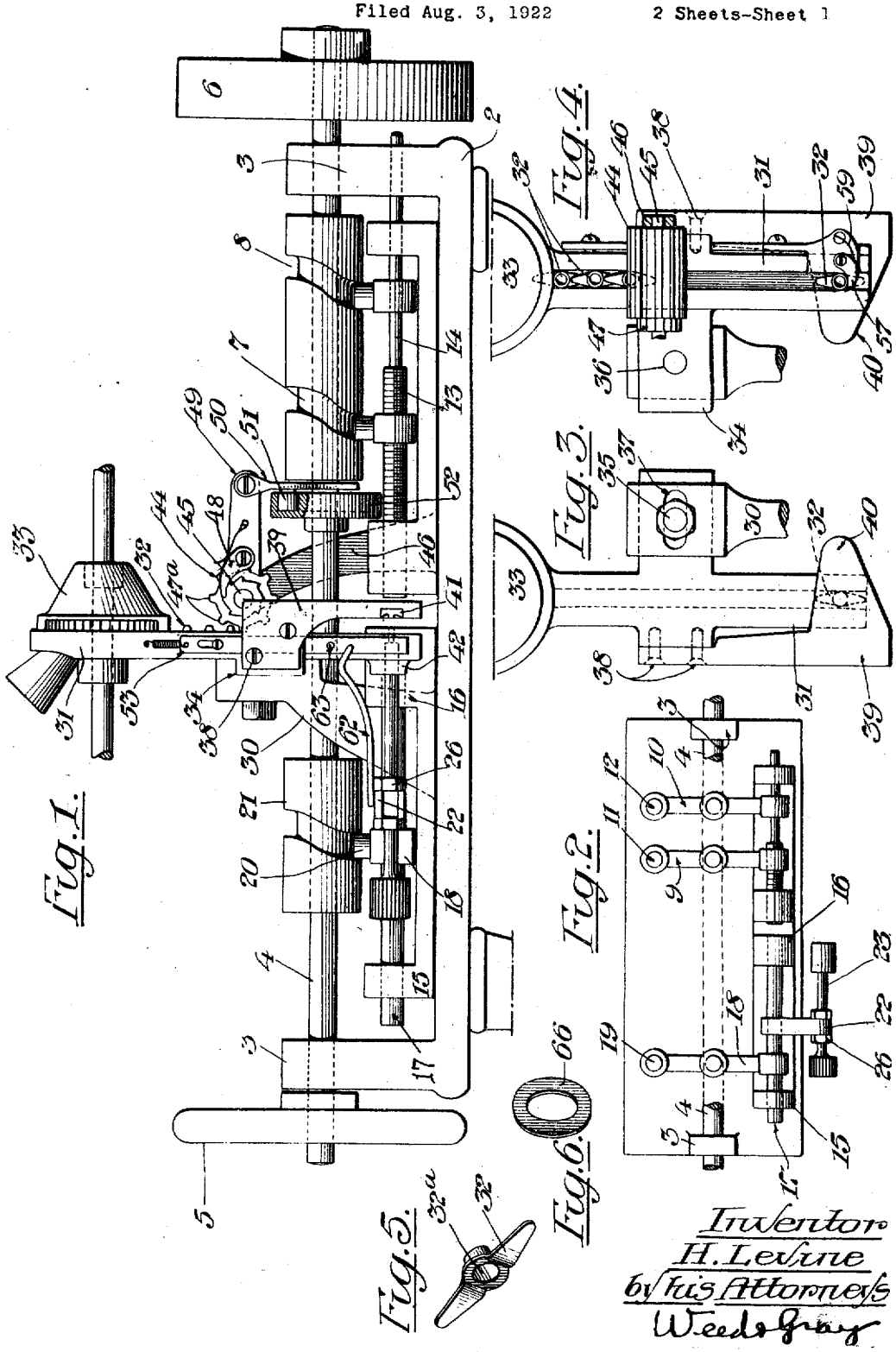


Fig. 1.

Fig. 4.

Fig. 3.

Fig. 2.

Fig. 6.

Fig. 5.

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Fig. 7.

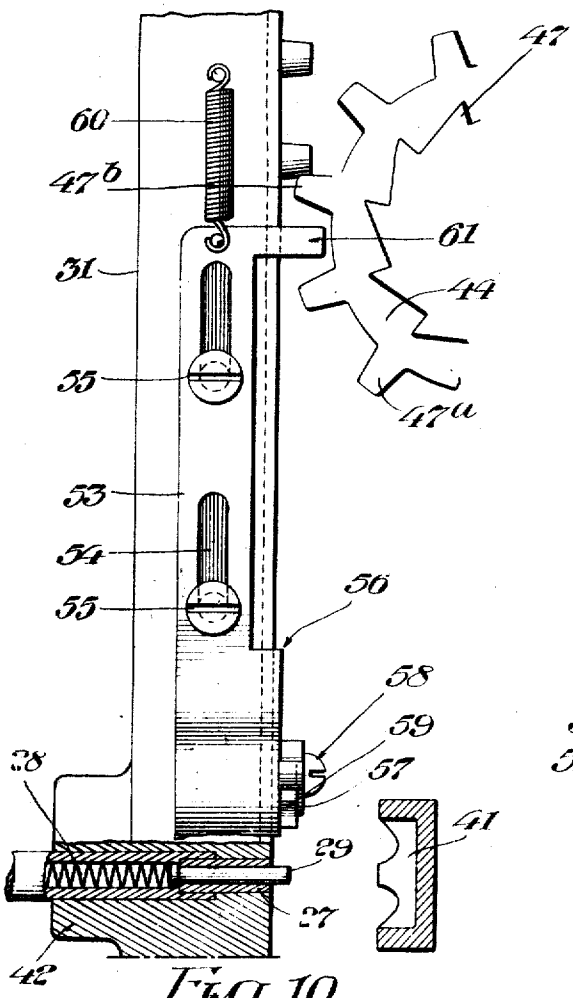


Fig. 8.

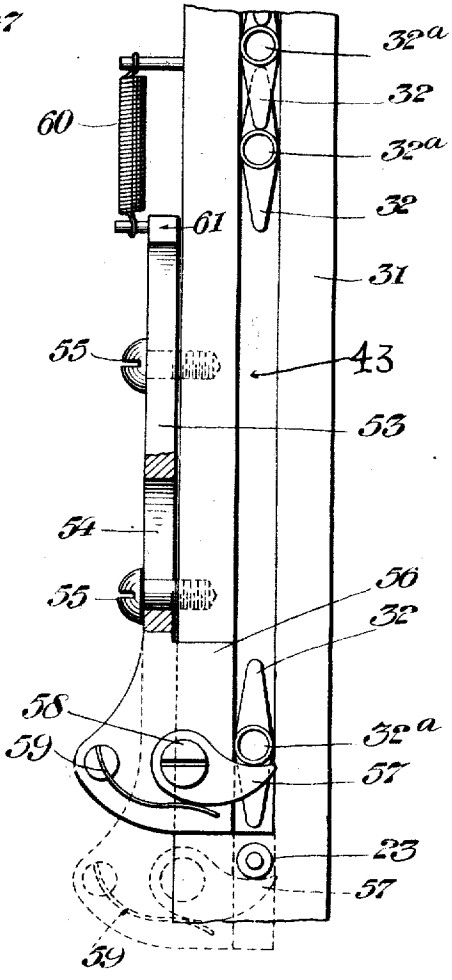


Fig. 10.

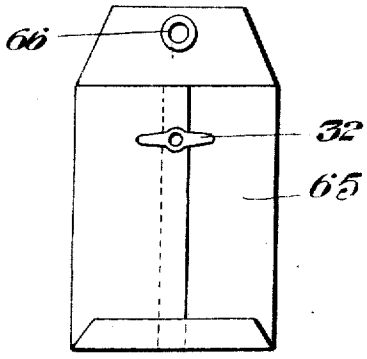
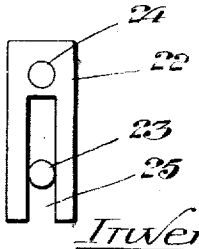


Fig. 9.



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UNITED STATES PATENT OFFICE.

HARRY LEVINE, OF BROOKLYN, NEW YORK, ASSIGNOR TO PAPER CRAFTS CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CLASP-ATTACHING MACHINE FOR ENVELOPES AND THE LIKE.

Application filed August 3, 1922. Serial No. 579,378.

To all whom it may concern:

Be it known that I, HARRY LEVINE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Clasp-Attaching Machines for Envelopes and the like, of which the following is a specification.

This invention relates to clasp attaching machines for envelopes and the like, and more particularly to mechanism for attaching to envelopes pronged eyelet clasps or clips which in use cooperate with reinforced perforations on the flaps of the envelopes, the latter being formed by suitable mechanism preferably forming a part of the present machine and operative simultaneously with the clasp attaching mechanism, an object of the present invention being to provide an improved machine wherein the clip or clasp applying mechanism and the feed channel for guiding the pronged clips thereto are so constructed as to be simultaneously adjustable, or shiftable together into various positions.

A further object of this invention is to provide an improved clasp attaching machine having an improved feeding mechanism for permitting the proper feed of the clasps or clips, such mechanism being positively operated as by camming means thereby eliminating the necessity for using springs which are short lived and which often break, thus stopping the operation of the machine until they are replaced.

A further object of this invention is to provide an improved means for feeding the clips to the clip applying mechanism, which means in the present instance is substantially a two-step feed, and is adapted to permit faster operation of the clip applying mechanism due to the utilization of the time required for the withdrawal and forward movement of the punches in feeding the clasps or clips into the path thereof.

A further object of this invention is to provide a clasp attaching machine having means shiftable into and out of the path of operation of the eyelet riveting means for successively feeding the clasps thereto. In the present instance such means is operated in conjunction with the escapement means, the latter feeding the clasps successively to this shiftable means, which is operated at predetermined times to shift the clasps in one direction into position to be engaged by the riveting means, and is shifted in the opposite direction at predetermined times out of the path of the riveting means.

A further object of this invention is to provide an escapement mechanism comprising rotatable and preferably intermittently rotatable means and clasp positioning means for receiving the clasps from the rotatable means, both of said means being positively controlled by a common means and in the present instance intercontrolled.

A further object of this invention is to provide in a clasp attaching machine means for adjusting the feed channel and riveting punch without withdrawing the latter and also to provide means for permitting the punch to be adjusted and removed without removing it endwise or axially from its support.

Other objects of this invention will appear in the following description thereof, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters indicate corresponding parts in the several views and wherein Fig. 1 is a side elevation of a machine embodying my invention; Fig. 2 is a plan view illustrating certain operating parts, others being removed and broken away for clearness; Fig. 3 is a detail elevation illustrating the feed channel and particularly the manner of adjustment thereof, the support for the riveting die being shown at the reverse side of the channel from that in Fig. 1; Fig. 4 is a front elevation of the feed channel partly broken away and other operating parts, the riveting die support and feed slide being shown at the reverse side of the feed channel from that in Fig. 1; Fig. 5 illustrates a pronged eyelet clasp or clip; Fig. 6 illustrates the perforated patch which is attached to the envelope shown in Fig. 10; Fig. 7 is a detail view illustrating particularly the clasp feeding mechanism; Fig. 8 is a detail front elevation thereof; Fig. 9 is a detail view illustrating the support for the riveting punch; and Fig. 10 is a view of an envelope with a pronged eyelet clasp attached thereto.

In the drawings wherein I have illustrated a preferred embodiment of my invention, it will be seen that the present machine comprises a suitable bed or table 2 provided with end bearings 3 for supporting

the cam shaft 4 having at one end the usual hand wheel 5, and at the opposite end a driving wheel 6. Carried by the cam shaft are a pair of cams 7 and 8 adapted to operate with a pair of cam levers 9 and 10 fulcrumed at 11 and 12 upon the bed. These levers are connected to the patch die mechanism 13 and 14 for the purpose of operating the same. Carried in suitable bearings 15 and 16 at the opposite side of the bed of the machine is a patch die tube 17 which is operated by means of a cam lever 18 secured thereto and fulcrumed on the bed at 19. This lever is provided with a roll 20 running in the cam 21 carried by the cam shaft 4. Secured to the tube 17 is a laterally extending supporting sleeve 22 for the punch 23 of the clip or clasp attaching mechanism. This sleeve 22, it will be noted, referring particularly to Fig. 9, is bored at 24 to receive the tube 17 and is also provided with an open slot 25 for adjustably and removably receiving and supporting the punch 23. The punch is held in position in the slot 25 by means of adjusting collars or nuts 26 threaded to the punch and located at either side of the sleeve 22. The punch 23 at its operating end, is bored to receive the tube 27 and is counterbored to receive a spring 28, which impinges against the head of the centralizing pin 29. A further detailed description of the operating mechanism of the machine is not deemed necessary herein as this construction is well known in the art.

Extending from the bed of the machine is a suitable standard or support 30 constructed for the purpose of supporting the feed channel 31 for lateral adjustment. The feed channel may be of any suitable construction and the clips or clasps 32 are fed thereto by means of a hopper 33. A detailed description of the hopper mechanism and the feed channel per se is not deemed necessary herein as the same may be of any desired construction as is well known in the art.

The frame extension or support 30 is provided with a suitable guideway cooperating with a guide portion 34 extending from the feed channel, the latter being adjusted laterally in the guideway of the support 30 by means of set screw 35 extending into a hole 36 in the guide 34 of the feed channel and adapted to be loosened so as to permit lateral adjustment in a slot 37 of the support 30. In order to avoid the disadvantages of separate adjustment of the feed channel and clasp attaching mechanism, the present organization is such as to permit simultaneous adjustment of the feed channel and clasp attaching mechanism. Bolted to the side of the feed channel as at 38 is a depending bracket or supporting arm 39, the lower end thereof having a part 40 extending laterally across the path of operation of the clasp attaching mechanism. The die member or anvil 41 comprising a cooperating part of the clasp or clip applying means is carried by the extension 40 of the bracket 39. Thus it will be seen that upon adjustment of the feed channel the die member 41 will also be simultaneously adjusted. The forward operating end of the punch it will be understood operates in a hole extending through the lower end of the feed channel, the punch having a bearing in a boss 42 carried at the rear of the feed channel. Not only is the die member 41 shifted into adjusted positions with the feed channel, but the construction is such that the punch 23 is also simultaneously adjusted therewith and without necessitating either the removal of the punch from the feed channel or the removal of the punch from the support 22. This simultaneous adjustment of the channel 31, riveting punch 23, and die member 41 is readily accomplished by loosening the collars or nuts 26 carried by the punch, and by loosening the adjusting screw 35, and then shifting all of the parts together into their proper positions, the lateral adjustment of the punch being permitted by virtue of the slot 25 in the support 22. Furthermore since the slot 25 is open, the punch can be readily removed merely by unscrewing the nut 26, withdrawing the punch 23 from the feed channel and then shifting it transversely out of the slot 25.

For the purpose of properly feeding the clasps into proper attaching position and at the same time for the purpose of preventing the loss of any time due to the reciprocation of the riveting punch 23, I have provided improved escapement mechanism which preferably comprises improved means for successively releasing the clasps and also means for receiving the clasps therefrom and shiftable into and out of the path of operation of the punch for positioning the clasps relatively thereto. The clips or clasps are fed from the hopper 33 into the channel or trough 43 of the feed channel proper, and in the present instance the clips are engaged and released successively by means of a rotatable drum or other member 44 mounted on a shaft 45 carried at the upper end of a standard or other extended bearing member 46. In the present instance the wheel or drum 44 is provided with spaced projections or teeth 47^a, which upon rotation of the wheel are carried into the path of the clips 32, one tooth or projection moving into position beneath the central projecting part of a clip and supporting the column of clips while the projection or tooth next below releases a clip. The clips are guided endwise in the channel and fed by gravity in overlapping relation as shown in Fig. 8 and it will be noted that the teeth or projections 47^a are spaced apart a distance less than the

length of a clip so that when the lowermost clip is released by a projection the next succeeding projection will simultaneously move into position beneath the clip above. In the present instance the rotatable member 44 is rotated intermittently or in a step by step manner, which may be accomplished by means of a ratchet 47 secured to the member 44 and a pawl 48 pivoted to an oscillating lever 49 journalled on the shaft 45. At its outer end the arm or lever 49 is provided with a depending forked member 50 having bifurcated ends freely embracing the cam shaft 4 and provided with a cam roll 51 engaging a cam 52 mounted on the cam shaft. It will be understood that in operation the cam 52 will cause the member 50 to be reciprocated in a vertical plane thereby operating the ratchet and pawl mechanism and rotating the drum 44 intermittently.

The clips after being released from the escapement wheel 44 are positively guided into attaching position by means of a shiftable mechanism which in the present instance is carried by the feed channel. This mechanism as herein shown may comprise a slide 53 having guide slots 54 for receiving guide screws 55 secured to the feed channel. The slide 53 it will be seen may have a shiftable movement measured by the length of the slots 54 and the range of movement may be adjusted by adjusting the vertical position of the screws 55. At its lower end the slide 53 has a right angled extension 56 terminating at the channel 43 and slidable over the front face of the feed channel proper. A guide stop 57 is pivoted at 58 to the extension 56 and is preferably hook shaped to form a seat for the clips. This stop 57 is controlled by means of a spring 59. A coiled spring 60 may be secured to the upper end of the slide and also connected to the feed channel for retracting the slide, and the latter is provided with an extension 61 extending into the path of the teeth 47^a.

In the operation of this combined feeding and escapement mechanism, it will be seen that as the wheel 44 rotates and the lug or projection 47^b moves downwardly (see Fig. 7) to release a clip, the same projection 47^b will also engage the projection 61, thus shifting the slide downwardly. Immediately upon the seating of the clip 32 upon the stop 57, the latter will be carried by the slide into the path of operation of the punch 23 and therebelow so as to guide the clip into alinement with the punch as shown in dotted lines in Fig. 8. The punch is then shifted forwardly by the camming mechanism, and as soon as the centralizing pin 29 engages and is centralized in the eyelet 32^a of the clip or clasp, the lug or tooth 47^b in its movement is disengaged from the projection 61, the slide being immediately retracted by virtue of the spring 60. The hooked end of the guide stop 57 is also retracted since the pivotal support thereof permits the same to be swung out of engagement with the clasp against the spring 59. During the completion of the riveting operation and the retraction of the punch, a new clip may be released by the escapement wheel and seated on the guide stop 57.

Referring to Fig. 1 it will be seen that the slide 53 may be retracted by means of a cam 62 secured to the sleeve 22 and having the forward end thereof engaging a suitable roll or pin 63 on the slide. This cam 62 will be so constructed as to cause the same to engage the pin 63 and retract the slide during the forward operative movement of the punch. It will be understood of course that the pronged eyelet clips or clasps 32 may be attached by the present mechanism to an envelope 65, other mechanism in the machine, not forming a part of this invention, being preferably employed to form the reinforced perforation 66 in the flap of the envelope.

It will be understood that the mechanism is so timed that the punch will engage the pronged eyelet clip at the instant the feed slide 53 reaches its lower position, and at this instant the tooth or lug of the escapement wheel in its rotation is disengaged from the slide, thereby permitting the spring 60 or cam 62 or both to positively retract the slide and permit another clip to be released and seated on the guide stop 57. Therefore there is no lost time in the operation of this machine by virtue of this combined or two-step feed or control of the clips, since it is not necessary for the punch to be withdrawn or released before a clip can be released by the escapement wheel.

I claim as my invention:

1. In a machine of the class described, the combination of clip applying mechanism including a punch and a cooperating die, a feed channel for guiding clips thereto, means for adjusting said punch and feed channel, and means for connecting said die to the feed channel for adjustment therewith.

2. In a machine of the class described, the combination of clip applying mechanism including a punch and a cooperating die, a feed channel for guiding clips thereto, means for adjusting said feed channel, and means for supporting said die from the feed channel for adjustment therewith.

3. In a machine of the class described the combination of clip applying mechanism including a punch and a die, an upright feed channel, means for supporting said punch at one side of the feed channel, and means for supporting said die from the feed channel at the opposite side thereof and for definitely spacing said die from said feed channel.

4. In a machine of the class described the combination of clip applying mechanism including a punch and a cooperating die, a feed channel for guiding clips thereto, means for adjusting said feed channel, means for connecting said die to the feed channel for adjustment therewith, and means for adjusting the punch.

5. In a machine of the class described, the combination of clip applying mechanism, a feed channel for guiding clips thereto, said mechanism including a die connected to said feed channel, and a punch, a common means for shifting said feed channel and die together into different adjusted positions, and means for adjusting said punch and also for permitting removal of the same.

6. In a machine of the class described, the combination of clip applying mechanism including a punch and a cooperating die, a feed channel for guiding clips thereto, means for shifting said feed channel, punch and die together into different adjusted positions, and means having an open guideway for removably supporting said punch.

7. In a machine of the class described the combination of a rotary shaft, clip applying mechanism, rotatable escapement means having a series of projecting teeth, means connected to said shaft for automatically rotating said escapement means, and a feed channel for successively guiding clips endwise against the top of said teeth when in clip engaging position.

8. In a machine of the class described the combination of a rotary shaft, clip applying mechanism, rotatable escapement means having a series of rigid clip engaging projections, means connected to said shaft for automatically rotating said escapement means, and a feed channel for successively guiding clips endwise against the top of said projections when in clip engaging position, each adjacent pair of projections operating to successively release a clip and support a clip in said channel.

9. In a machine of the class described the combination of a rotary shaft, clip applying mechanism, rotatable escapement means having a series of clip engaging projections, means connected to said shaft for rotating said escapement means, a feed channel for successively guiding clips endwise to said projections, and means for supporting said escapement means in position to cause said projections to travel into clip engaging position exteriorly of said channel.

10. In a machine of the class described the combination of a rotary shaft, clip applying mechanism, a rotatable escapement wheel having a series of radially extending projections, a channel for guiding a column of clips endwise in overlapping relation to said escapement wheel, the projections of said escapement wheel being spaced apart a distance less than the length of a clip, and means connected to said shaft for rotating said escapement wheel.

11. In a machine of the class described the combination of a rotary shaft, clip applying mechanism, a feed channel for guiding clips thereto, a rotatable escapement wheel having a series of radially extending projections successively movable into clip supporting position beneath the central projecting portions of the clips, and means connected to said shaft for rotating said escapement wheel.

12. In a machine of the class described, the combination of a rotary shaft, clip applying mechanism, a feed channel for guiding the clips thereto, a rotable escapement wheel having a series of radial projections successively movable into clip supporting position beneath the central projecting portions of the clips, said projections being spaced apart a distance less than the length of a clip and operative to successively release a clip and support a column of clips in said channel, and means connected to said shaft for rotating said escapement wheel.

13. In a machine of the class described, the combination of clip applying mechanism, a feed channel, rotatable escapement means for successively controlling the feed of the clips, and a slide adapted to reciprocate relatively to said channel and having means for maintaining the clips in position relatively to said clip applying mechanism.

14. In a machine of the class described the combination of clip applying mechanism, a feed channel for guiding a column of clips thereto, a two-motion reciprocating slide shiftable relatively to said feed channel, and a clip engaging member having a fixed connection with said slide and reciprocating therewith for positioning the clips in clip applying position.

15. In a machine of the class described, the combination of clip applying mechanism, a vertical feed channel for guiding clips thereto, escapement means for controlling the feed thereto, and means slidable relatively to said feed channel for guiding the clips.

16. In a machine of the class described, the combination of clip applying mechanism, a vertical feed channel for guiding clips thereto, escapement means for controlling the feed thereof, and clip engaging means shiftable over said feed channel for guiding the clips.

17. In a machine of the class described, the combination of clip applying mechanism, a feed channel for guiding clips thereto, escapement means for controlling the feed thereof, a clip engaging slide carried by the feed channel and shiftable relatively thereto in a vertical plane.

18. In a machine of the class described

the combination of clip applying mechanism, a feed channel for guiding clips thereto, escapement means for controlling the feed thereof, and shiftable means for guiding the clips into a clip applying position and operated by said escapement means.

19. In a machine of the class described, the combination of clip applying mechanism, a feed channel for guiding clips thereto, intermittently rotatable escapement means for successively releasing the clips in said channel, and means slidable relatively to the feed channel for guiding the clips.

20. In a machine of the class described, the combination of a rotary shaft, clip applying mechanism, a feed channel for guiding clips thereto, intermittently rotatable escapement means engageable with the clips for controlling the feed thereof, means connected to said shaft for rotating the same, a clip engaging slide, and means connected to said shaft for reciprocating said slide.

21. In a machine of the class described, the combination of clip applying mechanism, a feed channel for guiding clips thereto, escapement means for controlling the feed thereof, and shiftable means for guiding the clips into a clip applying position, said shiftable means being operated by the escapement means after a clip is released thereby.

22. In a machine of the class described, the combination of clip applying mechanism, a feed channel for guiding the clips thereto, rotatable escapement means having radial projections for successively engaging and releasing the clips, reciprocating means carried by the feed channel for guiding the clips into clip applying position, and having means extending into the path of said radial projections whereby the reciprocating means will be operated by said escapement means.

23. In a machine of the class described the combination of clasp attaching means, a feed channel for guiding the clasps thereto, and vertically reciprocating means shiftable relatively to said channel into and out of the path of operation of said attaching means for successively guiding the clasps.

24. In a machine of the class described the combination of clasp attaching means, a feed channel, means for feeding a clasp into the path of said attaching means and shiftable relatively to the feed channel from a position above the path of operation of said attaching means to a position therebelow, and means for returning said means to a position above the path of operation of the attaching means.

25. In a machine of the class described the combination of clasp attaching means, a feed channel, and a pair of means movable relatively to said feed channel for controlling the feed of the clasps to said attaching means, one thereof movable toward and from clip applying position.

26. In a machine of the class described the combination of clasp attaching means, a feed channel, a pair of means for controlling the feed of the clasps to said attaching means, a rotary shaft, a cam carried thereby for operating one of said means, and a second cam carried thereby for operating the other means.

27. In a machine of the class described the combination of clasp attaching means including a punch, and a stationary supporting bearing for the punch having a slot for receiving the same and for permitting transverse adjustment of the punch, said slot being open to permit the removal of the punch.

28. In a machine of the class described the combination of clasp attaching means, a feed channel, a slide carried thereby and having a pivoted clasp controlling member, means for shifting the slide and thereby shifting said member from a position above the punch of a position adjacent to the path of operation thereof.

29. In a machine of the class described the combination of clasp attaching means, a feed channel, a slide carried thereby and having a pivoted clasp controlling member, means for shifting the slide and thereby shifting said member from a position above the punch to a position adjacent to the path of operation thereof, and means for returning said member upon engagement of the punch with a clasp.

Signed at New York city, New York, this 22nd day of June, 1922.

HARRY LEVINE.