

July 31, 1934.

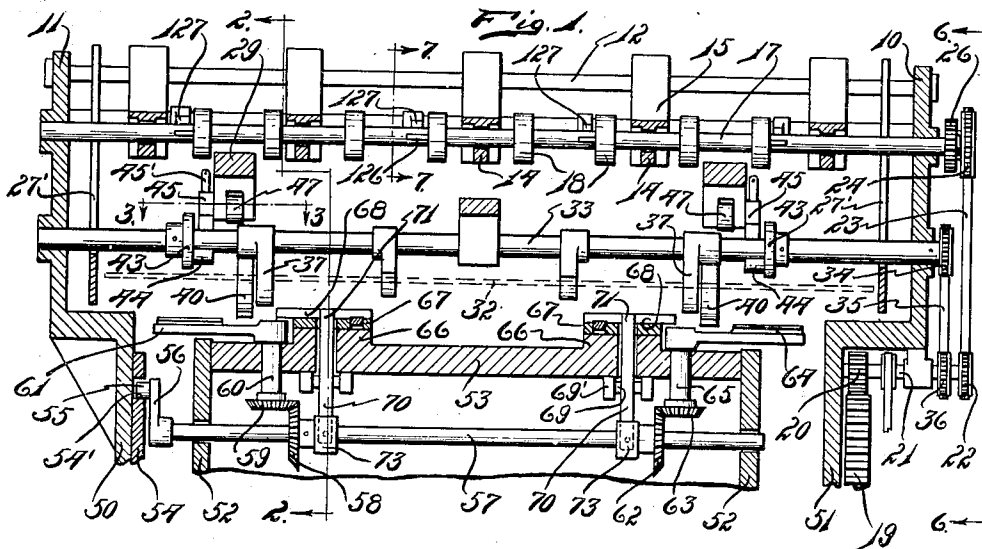
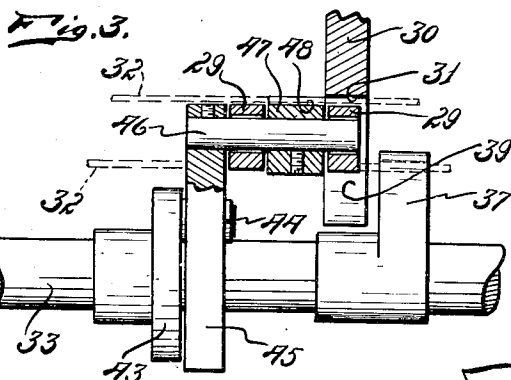
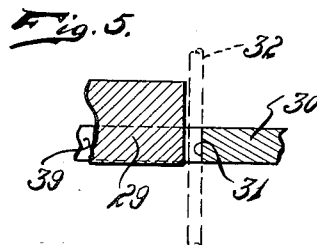
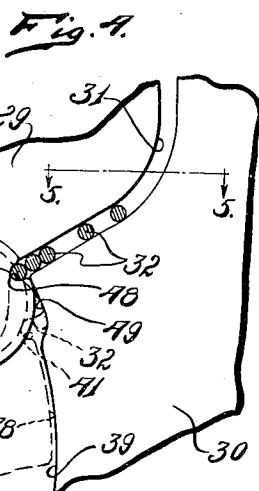
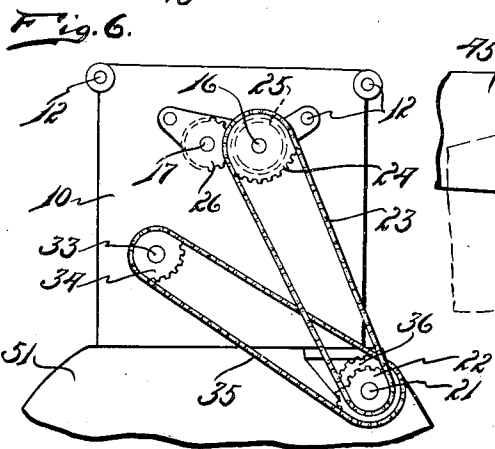
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1,968,307

FEEDING AND CLAMPING MECHANISM

Filed Feb. 29, 1932

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

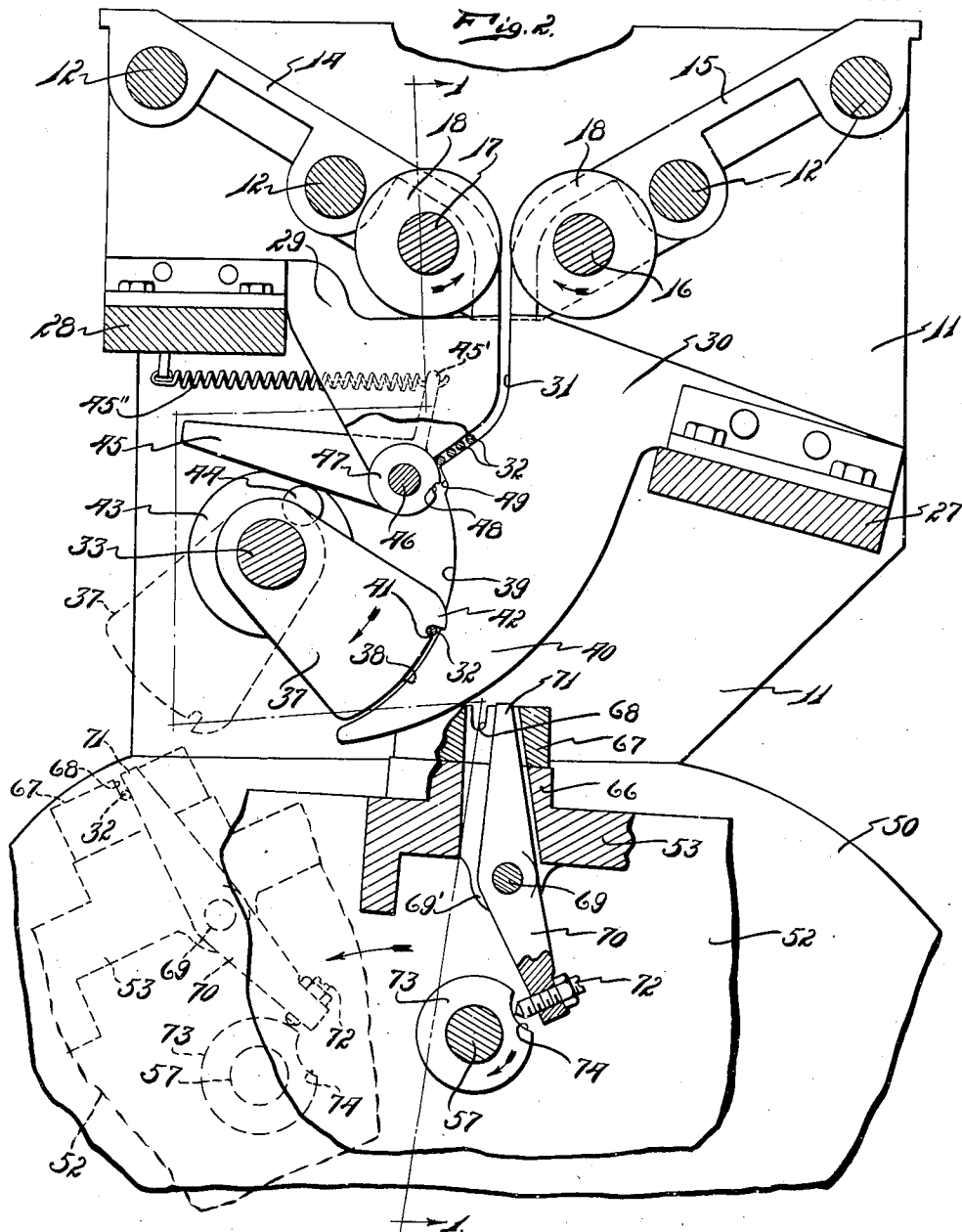
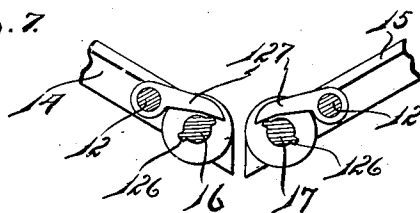


Fig. 7



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UNITED STATES PATENT OFFICE

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FEEDING AND CLAMPING MECHANISM

John H. Moore, Detroit, Mich., assignor, by mesne assignments, to Andrew Ruen Hanger Co. Inc., a corporation of Michigan

Application February 29, 1932, Serial No. 595,693

4 Claims. (Cl. 140—132)

My invention relates to a new and useful improvement in a feeding and clamping mechanism used in forming machines and particularly adapted for use in garment hanger forming machines. This application forms in part a continuation of and in part an improvement on my co-pending application Serial No. 432,322 which has matured into Patent No. 1,888,803 issued November 22, 1932.

It is an object of the present invention to provide in a forming machine of this class of a feeding mechanism whereby strands of wire may be individually fed to a receiving part of the machine and whereby a clogging of the machine or a disarrangement of the wires while being fed to the former is prevented.

Another object of the invention is the provision in a forming machine of this class of a feeding mechanism having a receiving part for receiving a single strand of wire and adapted for release of the same while at the same time a locking of the transmission or other wires from the hopper or source is prevented during the transmission.

Another object of the invention is the provision in a forming machine of this class of a feeding mechanism embodying a delivery member adapted for receiving and delivering from the discharge member a single strand of wire.

Another object of the invention is the provision in a forming machine of this class of a clamping mechanism whereby the strand of wire may be securely clamped in the receiving slot of the forming mechanism and held in position during the forming operation.

Another object of the invention is the provision in a forming machine of this class of a feeding mechanism which will be simple in structure, economical for manufacture, durable, compact, highly efficient in use formed from a minimum number of parts and easily and quickly assembled.

Another object of the invention is the provision in a forming machine of this class of a clamping mechanism which will be simple in its structure and automatic in its operation and which will lend itself particularly to a forming machine in which the forming mechanism travels past the distribution mechanism.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawings which form a part of this specification, and in which,

Fig. 1 is a longitudinal, vertical, sectional view

of a part of the invention taken on line 1—1 of Fig. 2.

Fig. 2 is a sectional view of the invention taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a fragmentary side elevational view similar to Fig. 2 showing the parts in a different position.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a view taken on line 6—6 of Fig. 7.

Fig. 7 is a fragmentary view taken on line 7—7 of Fig. 1.

In the invention I provide a hopper for end walls 10 and 11 which extend upwardly from and are supported by the vertical standards 50 and 51. These end walls are connected by the stay rods 12 and the cross bars or braces 27 and 28. These stay rods 12 project through and serve to support the guide braces 14 and 15 which project inwardly in a downwardly inclined direction. A shaft 16 is projected through the lower end of the guide brace 14. Fixedly mounted on these shafts 16 and 17 are feed rollers 18 which rotate in the direction indicated by the arrows in Fig. 2. A gear 19 which is driven by a suitable source of power meshes with and is adapted to drive the gear 20 which is fixedly mounted on the shaft 21. Fixedly mounted on this shaft 21 is a gear 22 connected by the chain belt 23 with the gear 24 which is fixedly mounted on the shaft 16. A gear 25 is fixedly mounted on the shaft 16 and meshes with a gear 26 fixedly mounted on the shaft 17 so that upon a rotation of the gear 19, the rollers 18 will be rotated in the direction indicated by the arrows in Fig. 2. Spaced inwardly from the end walls 10 and 11 are the guide plates 27'.

Mounted on the cross bar 28 and projected inwardly therefrom is a plate 29 which is spaced from a plate 30 which is mounted on the cross bar 27 and projecting inwardly therefrom. A distance sufficient to provide the slot 31 of sufficient width to fairly snugly actuate the strands of wire 32 which pass downwardly from the hopper above these strands of wire resting upon the braces 14 and 15 and being separated by the rollers 18 so as to pass singly downwardly into the slot 31. Projecting outwardly from the periphery of the shafts 16 and 17 are plates 126 which serve to engage the agitator fingers 127 which are rockably mounted on the stay rods 12 so as to agitate the strands in the hopper and

facilitate the rolling of the same onto the rollers 18.

Projecting through and journaled in the side walls 10 and 11 is a shaft 33 on which is fixedly mounted the gear 34 connected by the chain belt 35 with the gear 36 which is fixedly mounted on the shaft 21. Fixedly mounted on this shaft 33 at spaced intervals are feeding arms or plates 37 each having an arcuate outer edge 38 conforming in contour to the carved surface 39 on the prong 40 of the plate 30. A notch 41 is formed in the curved surface 38 of the plate 37 and adjacent this notch so as to follow the same on the plate 37 is a nose or projection 42. Fixedly mounted on the shaft 33 is a disc 43 carrying the eccentrically mounted stud or roller 44 which is adapted to engage the certain positions of rotation of the shaft 33, the rocker arm 45 which is mounted on the shaft 46 on which is fixedly mounted the feed roller 47 having a peripheral notch 48 formed therein, the construction is such that as the shaft 33 is rotated to a position so that the roller 44 is in a downwardly located position, the roller 47 will be moved to the position shown in Fig. 4 with the peripheral notch 48 aligning with the end of the slot 41 so that a strand of wire 32 may be moved into the notch 48. As the shaft 33 is rotated to put the roller 44 into engagement with the rocker arm 45, the roller 47 will be rocked to the position shown in Fig. 2 carrying with it the strand of wire and discharge it into the cut away portion 49 on the upper end of the surface 39. At the same time the plate 37 will be revolved into position so that the strand of wire resting in the cut away portion will have been engaged by the notch 42 and forced downwardly riding in engagement onto the surface 49. As the strand of wire moves out from the cut away portion 49 onto the surface 39, it will be forced into the peripheral notch 41 formed in the surface 38 of the plate 37. A rotatable carrier 52 is shown sectionally fragment in Fig. 1 and sectional in side elevation in Fig. 2 and this carrier 52 is mounted for rotation between the standards 50 and 51. On the carrier, which is preferably in the form of a drum, are mounted beds 53 which serve to support forming units which operate upon and form the strands of wire 32 into the desired forms. A cam plate 54 is supported on the standard 50 having a groove 54' in which engages a roller 55 projecting outwardly from the end of the arm 56 which is fixed to and rotates outwardly from the shaft 57. Fixedly mounted on the shaft 57 is a bevel gear 58 which meshes with a bevel gear 59 fixedly mounted on the shaft 60 which projects through and is journaled in the bed 53. A forming arm 61 is fixed on the upper end of the shaft 60 so as to radiate therefrom. A bevel gear 62 is mounted on the shaft 57 to mesh with the bevel gear 63 mounted on the shaft 65 on the upper end of which is fixedly mounted a forming arm 64. At each of these forming arms I have provided on the upper face of the base 53 a block 66 on which is mounted a shaper or forming block 67 having an elongated longitudinal extending slot 68 formed in its upper surface. The carrier 52 rotates in the direction indicated by the arrow shown in Fig. 2 and the relations of the curved prong 40 and the forming block 57 is clearly indicated in Fig. 2. As the carrier 52 rotates to the position that the slot 68 is in alignment with the end of the prong 40, the plate 37 will have rotated to a position so that the notch 41 will align with the slot 68 and thus the strand of wire engaged in the notch 41 will be deposited in the slot 68.

Projecting through lugs 69' is a pin 69 which serves as a pivot for a clamping arm 70, the upper end 71 of which is adapted to move into a position so as to securely clamp the strand of wire in the slot 68. A screw 72 is threaded through the opposite end of the clamp arm 70 and adapted to engage the periphery of the roller 73 which is fixedly mounted on the shaft 57 and which is provided on its periphery with a notch 74. As the rotatable carrier moves into the position where the strand of wire passes from the notch 41 into the slot 68 the roller 73 will have moved into a position so that the screw 72 will ride out of the notch 74 and rock the arm 70 so as to engage the strand of wire with the clamping end 71 and securely clamp it in the slot 68 thus holding the wire rigidly in position during the forming operation. It is believed obvious that the screw 72 affords a means of adjusting a clamping pressure.

When the roller 47 moves to the position shown in Fig. 2 this roller will serve to close the lower end of the slot 31 and prevent passage of any strands of wire from the slot. When the shaft 33 rotates and this shaft rotates in the direction indicated by the arrow in Fig. 2, farther so that the roller 44 leaves the arm 45 this arm will be rocked downwardly through the pressure of the spring 45'' connected to the arm 45' which is connected to and projects outwardly from the pin of shaft 46.

With a construction such as described, the wire may be automatically fed from the hopper individually and individually placed securely in the slots 68 or the forming blocks and clamped therein. As the carrier 52 moves through its cycle of operation to approach the discharge position of the finished product, the screw 72 will ride into the notch 74 and thus release the clamping pressure of the arm 70 on the strand of wire in the slot 68. I thus provide a feeding mechanism, accomplishing the advantages mentioned and one which is entirely automatic in its operation as well as durable in its structure.

While I have illustrated and described the preferred form of construction of my invention, I do not wish to limit myself to the precise details of the structure shown, but desire to avail myself of such variations and modifications as may come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a forming machine a wire receiving hopper for the reception of strands of wire having a discharge slot communicating therewith and leading downwardly therefrom; a rotatable member normally closing the lower end of said slot and preventing passage of strands of wire therefrom, said member having a notch formed in its periphery of such depth for the reception of the same strand of wire; a notch bearing member adjacent said rotatable member adapted for the reception of a strand of wire in its notch upon the rotation of said rotatable member to a predetermined position; rotatable means for effecting a rotation of said rotatable member to said predetermined position; and a rotatable feeding member having a wire receiving notch formed therein for engaging the strand of wire in said notch bearing member and carrying the same to a predetermined position.

2. In a forming machine of the class described a hopper adapted for the reception of strands of wire and provided with an outlet slot extending downwardly therefrom for the discharge of strands of wire therefrom; a rotatable member

mounted at the lower end of said slot and normally serving as a closure therefor and provided with a notch in its periphery adapted upon the registration of said notch with said slot, for the reception thereof from of a single strand of wire; a prong bearing member having a portion cut away, said cut away portion being located adjacent said rotatable member, and adapted for the reception of the strand of wire in the notch of said rotatable member upon the rotation of said rotatable member to a predetermined position; rotatable means for effecting the rotation of said rotatable member to said predetermined position; and resilient means for normally retaining said rotatable member in position for maintaining the notch therein in alignment with said slot.

3. In a forming machine of the class described a hopper adapted for the reception of strands of wire and provided with an outlet slot extending downwardly therefrom for the discharge of strands of wire therefrom; a rotatable member mounted at the lower end of said slot and normally serving as a closure therefor and provided with a notch in its periphery adapted upon the registration of said notch with said slot, for the reception thereof from of a single strand of wire; a prong bearing member having a portion cut away,

said cut away portion being located adjacent said rotatable member, and adapted for the reception of the strand of wire in the notch of said rotatable member upon the rotation of said rotatable member to a predetermined position; rotatable means for effecting the rotation of said rotatable member to said predetermined position; resilient means for normally retaining said rotatable member in position for maintaining the notch therein in alignment with said slot; a rotatable notch bearing feeding member adapted, upon rotation to a predetermined position, for receiving in its notch the strand of wire in the cut away portion of said prong and carrying the same to a predetermined position and discharging the same at said position.

4. In a forming machine: a wire receiving hopper provided with a slot leading therefrom for the discharge of strands of wire from said hopper; a rotatable member normally closing the lower end of said slot and having a notch formed in its periphery, of such depth as to be capable of receiving therein a strand of wire from said slot; and a conveying member adjacent said rotatable member for receiving a strand of wire from said rotatable member and conveying the same therefrom.

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