Jan. 18, 1927. 1,615,137

F. J. RUBY

FEEDING MECHANISM

Filed April 18, 1924

Fig. 1.

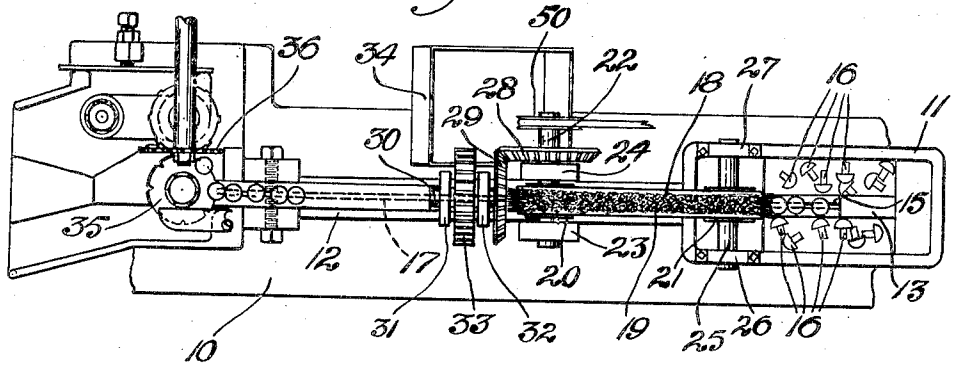


Fig. 2.

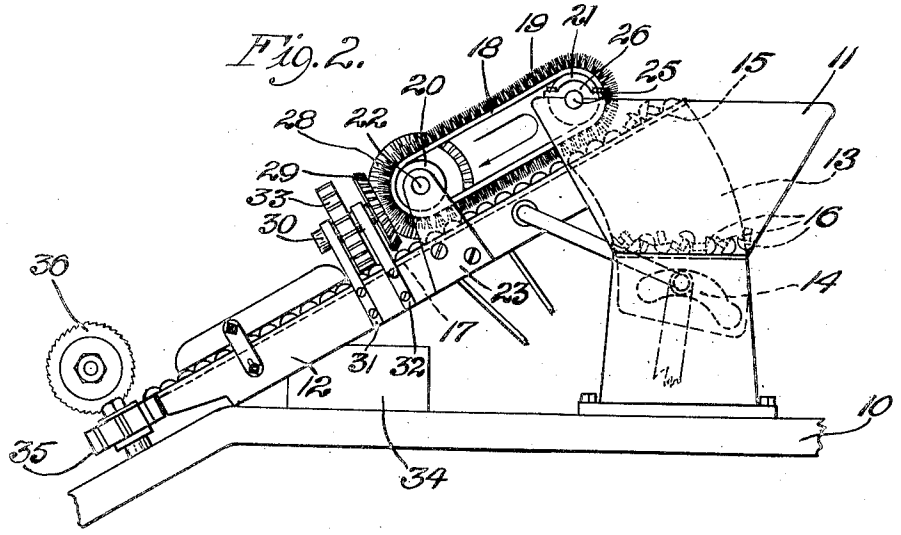


Fig. 3.

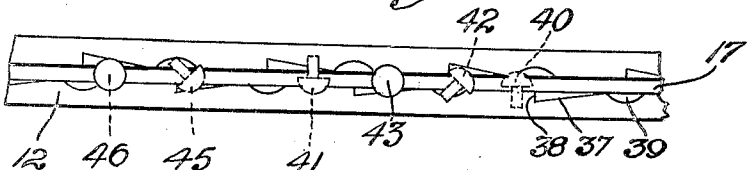
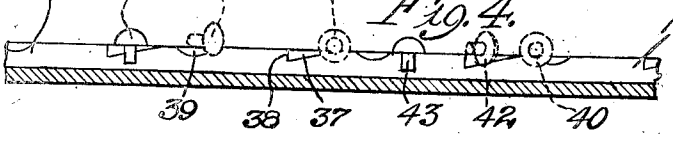


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK JOHN RUBY, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FEEDING MECHANISM.

Application filed April 18, 1924. Serial No. 707,532.

This invention relates to improvements in feeding mechanisms, and more particularly to a mechanism for properly seating articles and for ejecting improperly seated articles.

An object of this invention is to provide an improved feeding mechanism for properly seating therein articles such as top heavy screws and the like.

Another object of this invention is to provide in a feeding mechanism means for ejecting an improperly seated article without affecting the adjacent properly seated articles.

Other objects and advantages will more fully appear from the following detailed description taken in connection with the accompanying drawings which illustrate one embodiment thereof.

In the drawings,

Fig. 1 is a fragmentary plan view of a mechanism embodying the features of the invention applied to a screw slotting machine;

Fig. 2 is a fragmentary front elevation of Fig. 1;

Fig. 3 is an enlarged detail view of the slide-way, and

Fig. 4 is a front view partly in section of the structure shown in Fig. 3.

Referring now to the drawings in detail in which like reference numerals designate similar parts throughout the several views, 10 denotes generally a frame to which is suitably secured a hopper 11 and an associated slide-way 12. Located in the hopper 12 is a lift 13 which is adapted to be reciprocated in an arcuate path by a system of levers 14 operated by any suitable means (not shown). The upper end of the lift 13 is provided with a groove 15 for picking up headed blanks 16 in the hopper 11, and in operation when the lift 13 is at the peak of its upward stroke the groove 15 is in alignment with a groove 17 in the slide-way 12.

Positioned immediately over the upper extremity of the groove 17 of the slide-way 12 and over a part of the groove 15, when the lift 13 is at the end of its upward stroke, is an endless belt 18 having an outer surface of bristles 19 suitably secured thereto, the bristles 19 being in engagement with the heads of the headed blanks 16. The belt 18 is carried by two pulleys 20 and 21 and is driven in the direction indicated by the arrow by a pulley 50, operated by any suitable means (not shown), both the pulleys 50 and 20 being splined to a shaft 22, which is rotatably supported by two brackets 23 and 24 which are secured respectively to the sides of the slide-way 12. The pulley 21 is keyed to a shaft 25 which is rotatably supported in opposite sides of the hopper 11 by bearings 26 and 27.

Secured to the shaft 22 adjacent the bracket 24 is a bevel gear 28 which meshes with and drives a similar bevel gear 29 secured to a shaft 30 rotatably supported by brackets 31 and 32 which are suitably secured to the sides of the slide-way 12. Positioned between the brackets 31 and 32 and secured to the shaft 30 is an ejector or kick-out wheel 33 of usual construction, which is adapted to rotate at right angles to the groove 17 in the slide-way 12. The teeth of the kick-out wheel 33 clear the heads of the blanks 16 which are properly seated but eject all improperly seated blanks 16. Located to one side of the wheel 33 and on the frame 10 is a receptacle 34 for receiving the ejected blanks 16.

Positioned adjacent the lower extremity of the slide-way 12 is a clamping or indexing disk 35, rotatably mounted on the frame 10, which may be operated by any suitable means (not shown). This disk 35 is adapted to take up the headed blanks 16 as they leave the groove 17 in the slide-way 12 and to carry them under a slotting saw 36 which may also be operated by any suitable means (not shown). The sides of that portion of the groove 17 under the belt 18 are provided with a plurality of interference points 37 (Figs. 3 and 4) each having a shoulder 38 and a plurality of clearance points 39 which cooperate with the bristles 19 in properly seating the headed blanks 16. It will be noted that the width of the groove 17 may be varied in order for it to accommodate various size articles to be fed.

The operation of the mechanism is as follows:

The blanks 16 within the hopper 11 are picked up in the groove 15 of the lift 13 and when the lift 13 reaches the peak of its upward stroke, the groove 15 being then in alignment with the groove 17, the headed blanks 16 are brushed into the groove 17 of

the slide-way 12 by the bristles 19 on the belt 18 which is driven by the pulley 50 as previously explained.

The headed blanks 16 as they are propelled or brushed along in the groove 17 by the belt 18 assume various positions as denoted by reference characters 40 and 41 (Figs. 3 and 4).

The blank 16 in position 40 is shown lying on its side with its head adjacent one of the sides of the groove 17 and not in its correct position in the groove. The bristles 19 of the belt 18 move the said blank 16 along from position 40 to position 42 in which the head of the said blank is in contact with the shoulder 38 of the interference point 37. It will be noted that the shank of the blank 16 shown in position 42 extends into the space provided by the clearance point 39. The bristles 19 come into contact with the head of the blank 16 in position 42, and through the medium of the clearance point 39, which allows the blank 16 to escape from the point of interference, turn the blank 16 over into its correct position 43.

The blank 16 in position 41 is shown lying on its side in an opposite position to the blank 16 shown at position 40. This blank 16 in being propelled along the groove 17 assumes a position 45 similar to that assumed by the blank 16 shown in position 42, and then by the bristles 19 is in like manner caused to turn over into its proper position 46.

As more fully described previously the shaft 22, carrying the pulleys 50 and 20 also drives, through bevel gears 28 and 29, the kick-out wheel 33. Should any of the blanks 16 be jammed or improperly seated after they pass from under the bristles 19 they are ejected by the kick-out wheel or ejector 33 and fall into the receptacle 34 from which they may be removed from time to time and placed into the hopper 11.

The blanks 16 are constantly being propelled downward in the groove 17 of the slide-way 12 by the bristles 19 and upon their reaching the lower extremity of the slide-way 12, they are carried around by the disk 35 under the saw 36 which slots their heads, and are then ejected into any suitable receptacle (not shown).

It is readily apparent from the above description that not only are the blanks 16 propelled forward much faster, but that the seating of the blanks 16 is greatly accelerated.

Furthermore, by arranging the kick-out wheel or ejector 33 at right angles to the groove 17 in the slide-way 12 only the improperly steated blanks are ejected thereby increasing the efficiency of the feeding mechanism.

What is claimed is:

1. In a feeding mechanism, a slide-way provided with a groove having a diagonal slot with a shoulder and an opposite associated arcuate slot.

2. In a feeding mechanism, a slide-way provided with a groove having points of interference and corresponding opposite points of clearance, the points of interference adapted to engage the heads of improperly seated articles as they move along, and through the associated points of clearance, to cause them to be turned over into their proper position.

3. In a feeding mechanism, a slide-way provided with a groove having a point of interference which is adapted to engage and retard improperly seated articles and an associated point of clearance comprising an enlargement in the groove which is adapted to permit the article to escape from the point of interference to be properly seated.

4. In a feeding mechanism, a slide-way provided with a groove having diagonal slots, each provided with a shoulder and opposite associated arcuate slots, the shoulder of the diagonal slots being adapted to engage the heads of improperly seated articles as they move along, and through the clearance afforded by the arcuate slots to permit them to be turned over into their correct positions.

5. In a feeding mechanism, a slide-way and a rotatable brush positioned immediately over said slide-way and adapted to cooperate with the slide-way in properly seating articles, the slide-way being provided with a groove in which the articles are propelled by the brush, the said groove having a point of interference which is adapted to intercept improperly seated articles, and an associated point of clearance comprising an enlargement in the groove which is adapted to permit the article to escape from the point of interference to be seated by the cooperating brush.

6. In a feeding mechanism, a slide-way provided with a groove having a plurality of points of interference and points of clearance, a rotatable brush located immediately thereover adapted to cooperate with the points of interference and clearance in the seating of articles within the said groove, and means for ejecting any articles not properly seated thereby.

7. In a feeding mechanism, a hopper for holding small articles, a slide-way associated therewith, a lift reciprocable in an arcuate path within the hopper and adapted to bring articles into alignment with the slide-way, a groove in said slide-way provided with a plurality of points of interference and clearance, a rotatable brush adapted to cooperate with the points of interference and clearance in the groove in properly seating the articles and also adapted to propel them down the said slide-way and a kick-out

wheel for ejecting any of the articles not properly seated thereby.

8. In a feeding mechanism, a slide-way provided with a groove having a plurality of points of interference and points of clearance, means associated with the slide-way and cooperating with the points of interference and clearance in the seating of articles within the said groove, the said points of interference adapted to engage the heads of improperly seated articles as they move along, and through the associated points of clearance, to permit them to be turned over into their proper position, and means for ejecting any articles not properly seated thereby.

In witness whereof, I hereunto subscribe my name this 5th day of April A. D., 1924.

FRANK JOHN RUBY.