

J. J. DODGE.
FEEDING DEVICE.

APPLICATION FILED SEPT. 9, 1910.

Patented Dec. 26, 1911.

2 SHEETS-SHEET 1

1,012,999.

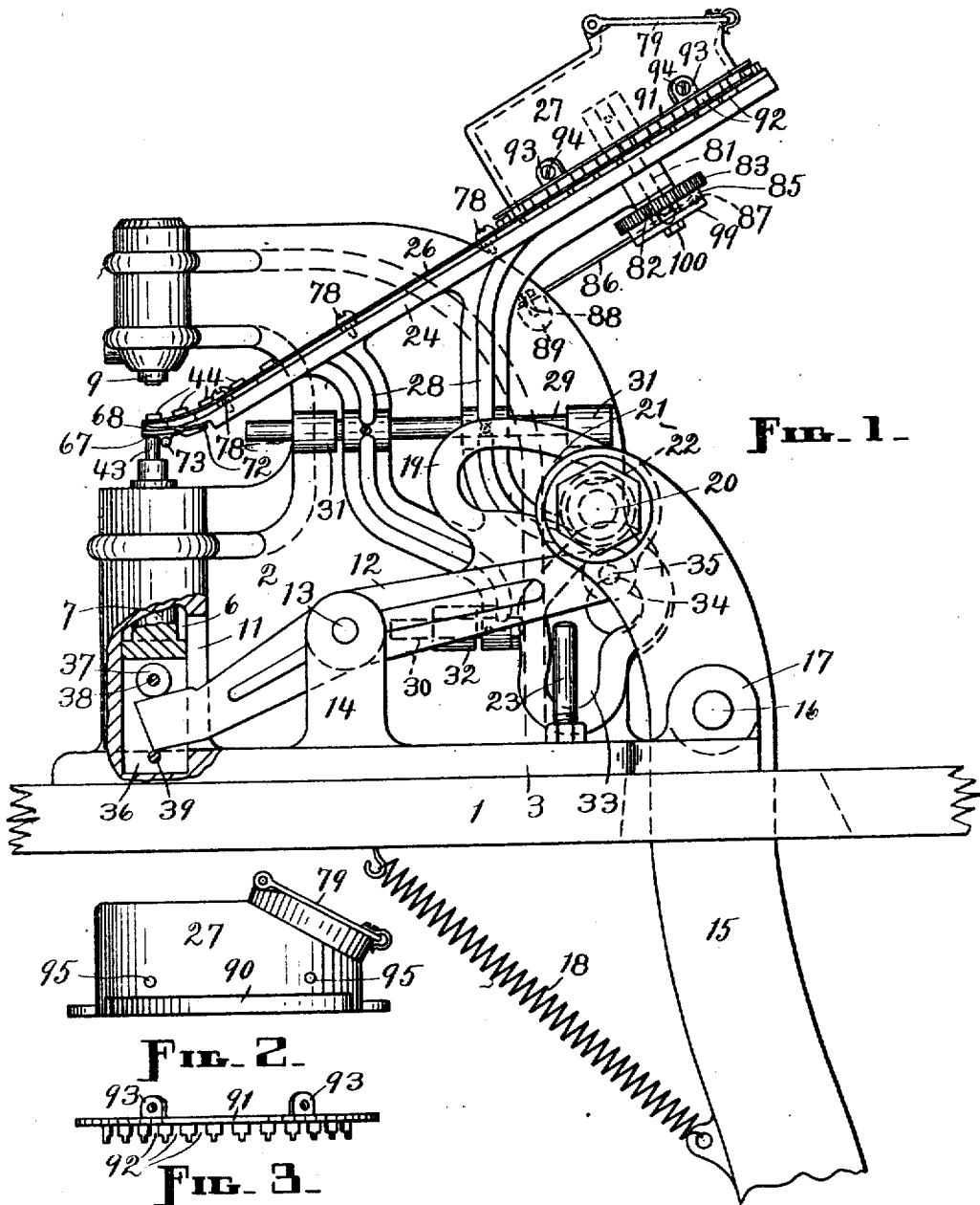


FIG. 1.

FIG. 2.

FIG. 3.

WITNESSES:

A. C. Fairbanks.
J. M. Davenport.

INVENTOR.

John J. Dodge,
BY Webster & Co.
ATTORNEYS.

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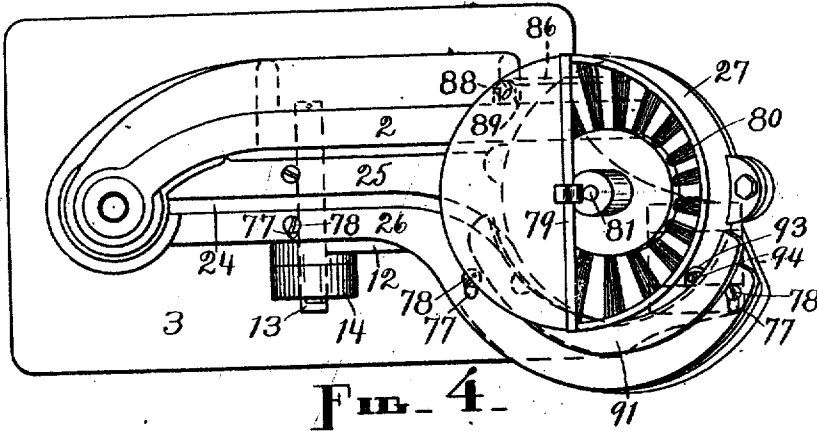


FIG. 4.

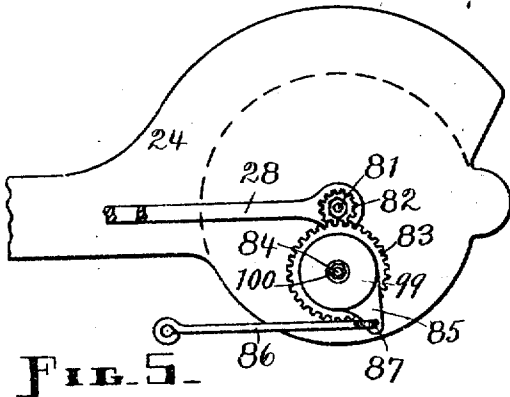


FIG. 5.

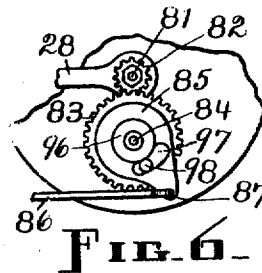


FIG. 6.

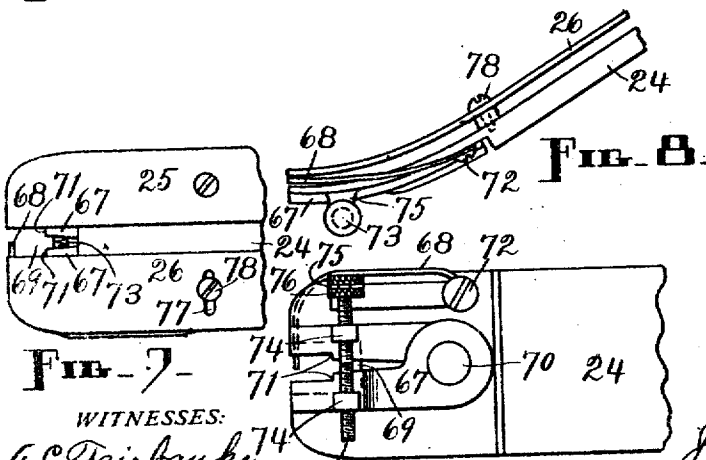


FIG. 7.

WITNESSES:

A. C. Fairbanks,
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FIG. 9.

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UNITED STATES PATENT OFFICE.

JOHN J. DOIDGE, OF SOUTH FRAMINGHAM, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO R. H. LONG MACHINERY COMPANY, OF SOUTH FRAMINGHAM, MASSACHUSETTS, A CORPORATION OF CONNECTICUT.

FEEDING DEVICE.

1,012,999.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Original application filed July 28, 1909, Serial No. 510,123. Divided and this application filed September 9, 1910. Serial No. 581,275.

To all whom it may concern:

Be it known that I, JOHN J. DOIDGE, a subject of the King of Great Britain, residing at South Framingham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Feeding Devices, of which the following is a specification, the same being a divisional part of an application filed by me in the United States Patent Office July 28, 1909, Serial No. 510,123.

My invention relates to improvements in machines for setting eyelets and the like, of the type which comprises stationary and movable eyelet sets and a raceway movable into and out of the path of travel of the movable set for delivering eyelets thereto, and more especially to devices for feeding eyelets in such a machine, and said invention consists of improved mechanism for agitating the eyelets in the hopper, of certain peculiar adjustable means for the raceway, and other features, all as hereinafter set forth.

The object of my invention is to provide means, in a machine of the class above mentioned, for expeditiously and quickly feeding eyelets to the punching and setting members of such machine, to the end that an eyelet can be set in the stock at each progressive movement of the operating mechanism of the machine.

A further object is to afford means whereby the machine is enabled to feed and handle eyelets of different sizes.

I attain these objects by the means and mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine which embodies a practical form of my invention, portions being broken away to disclose more clearly the manner in which the movable-set plunger is operated; Fig. 2, a side elevation of the eyelet hopper detached and without the selector; Fig. 3, a side elevation of said selector, detached; Fig. 4, a top plan of the machine, the cover of the hopper being open; Fig. 5, a bottom view of the upper, rear terminal of the raceway, and of the attached mechanism for agitating the brush in the hopper above; Fig. 6, a bottom view of said mechanism without the washer and nut; Fig. 7, an enlarged

top plan of the lower, forward terminal or toe of said raceway; Fig. 8, an enlarged side elevation or edge view of such toe with its attachments, and, Fig. 9, an enlarged underside view of the parts shown in the two preceding views.

Similar figures refer to similar parts throughout the several views.

In Fig. 1, 1 represents a portion of a table or bench upon which the machine is mounted.

The machine with which the present invention is incorporated is described briefly as follows: A frame or support 2, having a base 3 which rests upon and is secured to the table 1, carries the operating parts and members of the machine. Mounted to reciprocate in a vertical passage 6 in the front part of the support 2 is a plunger 7, above which is a fixed set 9 in the head of said support. The back wall of the passage 6 is slotted at 11 to admit into such passage the front terminal of a lever 12 which is pivoted at 13 to a lug 14 that rises from the base 3. An operating lever 15 is pivoted at 16 to a lug 17 that also rises from the base. The table 1 and the base 3 are slotted to accommodate the lever 15. Although the lower portion of the lever 15 is broken off in Fig. 1, it will be understood that such lever is of the usual pedal- and spring-operated variety, the spring appearing at 18. Pivotal connection between the upper end of the lever 15 and a projection 19 rising from the rear terminal of the lever 12 is had by means of a bolt 20 extending from said lever 15 into a slot 21 in said projection, the arrangement of parts and the shape and position of said slot being such that, when the upper terminal of the lever 15 is rocked forward and downward, the rear terminal of said lever 12 is carried downward, through the medium of said bolt and an anti-friction roller 22 thereon operating in said slot, and at the same time the front terminal of said lever 12 is carried upward, while the return stroke of such upper terminal of said lever 15 stores the lever 12 to its former position. 23 is a stop for the lever 15.

A raceway of the preferred type comprises a smooth floor which inclines down-

wardly, and a pair of guide rails spaced apart a distance which is slightly greater than the diameter of an eyelet barrel intended to lie and slide between them, and spaced from the floor sufficiently to permit the head of the eyelet to travel between the floor and the adjacent faces of said rails. Such a floor is represented at 24, and such rails are represented at 25 and 26. The rail 25 is preferably fixed, while the rail 26 is preferably adjustable in the manner and for the purpose presently to be explained. A hopper 27 for the eyelets is fastened on the raceway at the upper, rear end thereof. The floor 24 is supported by and on a bracket 28 which is provided with two horizontal fixed rods 29 and 30 slidably mounted in lugs 31—31 and 32 on one side of the support 2. In the lower portion of the bracket 28 is an irregular-shaped cam-slot 33 in which operates an anti-friction roller 34 on a stud 35 that projects from the rear end of the lever 12. The parts just described are constructed and arranged so that the downward movement of the rear end of the lever 12 causes, through the medium of the stud 25 and its roller in the cam-slot 33, the raceway to move backward, and the upward movement of said rear end of said lever causes said raceway to move forward, through the same medium.

The plunger 7 has a bifurcated base 36 to receive the front end or head of the lever 12, and said base is provided with an anti-friction roller 37 on a pin or stud 38 above said head, and with a pin 39 below said head, so that said plunger must follow the head in its up and down movement. The plunger 7 carries a set 43 which operates in conjunction with the set 9 in the usual manner to punch the hole in the stock and introduce an eyelet 44 and upset it therein.

The toe of the raceway or that part of the raceway that comes into intimate relation to the set 43 is equipped with adjustable members 67—67 and a spring stop 68 for the lowermost eyelet 44, best shown in Figs. 7, 8 and 9. The floor 24 has a central indentation or recess 69 in its front end, and the members 67 have their rear ends pivoted at 70 to the underside of said floor back of said recess and extend forward beneath the same. The members 67 are in the form of arms each with an indentation 71 in its inner edge at the front terminal. The stop 68 is a resilient member having its rear end fastened at 72 to the underside of the floor 24, and its free forward terminal bent over in front of the open end of the raceway, such terminal extending about half way across such open end. The lowermost eyelet 44 is received on and supported by the indented terminals of the members 67 and is prevented from escaping from the raceway by the stop 68.

The indentations 71 permit the set 43 to pass up and "pick" the eyelet on the members 67, and then when the raceway is moved backward out of the way of said set the eyelet and the set force the stop 68 to one side, but said stop immediately returns to position in front of the next eyelet which slides down in the raceway onto the members 67.

In order to make provision for supporting eyelets of different sizes on the members 67 and to accommodate such members to movable sets of different sizes, a right- and left-hand screw 73 is tapped into lugs 74—74 on the bottoms of said members, and a slotted lug 75 is fixed on the bottom of the floor 24 to receive said screw between its head and a set-nut 76 on the screw. The set-nut 76 and the head of the screw 73 tightly embrace the lug 75 and so hold the members 67 in place, and adjustment of said members is effected by loosening said nut, turning said screw in whichever direction may be necessary to open or close said members as occasion requires, and retightening the nut.

As already noted, the guiding rail 25 is fixed, while the guiding rail 26 is laterally adjustable so as to adapt the raceway to eyelets of different sizes. The space for the barrels of the eyelets is the only one that need be changed, since the space for the heads of the eyelets, that is, the space between the floor 24 and the guiding rails, is large enough for the largest eyelets and does not require changing for the smaller ones. In this case transverse slots 77 are provided in the guiding rail 26 for screws 78 which pass through such slots into threaded engagement with the floor 24. Upon loosening the screws 78 the rail 26 can be moved to make the space between it and the rail 25 wider or narrower as may be required, after which said screws must, of course, be re-set.

The hopper 27, which is a reservoir for the eyelets, has a cover 79 and is provided with an internal agitator brush 80 which is mounted on a shaft or spindle 81 journaled in the floor 24 and the rear end of the bracket 28. As is well known, the object of the brush 80 is to sweep the eyelets out of the hopper into the raceway, and to impart the necessary motion to said brush for this purpose I employ a pinion 82 tight on the lower end of the spindle 81, a gear 83 loose on a stud 84 set in the bottom of the floor 24, an operating plate 85 loose on the hub 96 of said gear and having a slot 97 therein for a ball 98, and a connecting-rod 86 having one end pivoted at 87 to a projecting part of said plate and the other end loosely connected with a bolt 88 which rises from a lug 89 on the side of the support 2 opposite that where the lugs 31 are located. The bottom of the slot 97 is covered and

the gear 83 and plate 85 are held on the stud 84 by means of a washer 99 secured on said stud against the hub 96 by a nut 100. The slot 97 opens on the side of the hub 96, or in other words said hub forms one side, so to speak, of said slot, and the front end of the slot is narrower than the rear end, consequently the ball 98 acts as a clutch to carry the gear 83 with the plate 85 when the latter is rotated backward, as shown in Fig. 6, but is free and inactive in the wide end of said slot when said plate is rotated forward. The gear 83 meshes with the pinion 82, hence it is obvious that the brush 80 is intermittently rotated by the raceway as it is reciprocated, through the medium of said meshing members and the connecting-rod, because said raceway carries all of these parts excepting the front end of said connecting-rod which is pivoted to the support 2 at 88, and when the raceway moves forward the plate 85 pivoted to the rod as it is at 87 is caused to make a partial revolution rearwardly and to carry with it the gear 83, since the parts are now locked together by the ball 98, thus rotating the pinion 82 with the brush in the opposite direction, and when the raceway moves backward said plate is caused to make a partial revolution forwardly without said gear, since said ball releases said parts at this time and so permits the plate to act without the gear, said pinion and brush remaining idle with the gear. In this way and by this means the brush is intermittently rotated in one direction from the reciprocating raceway, with the result that eventually all eyelets in the hopper are presented to a slot or opening 90 in one side at the bottom of said hopper, which communicates with the raceway, and are thrust through such opening into said raceway. This last result is made possible by reason of the fact that the guiding rail 25 joins the hopper at or adjacent to the lower end of the opening 90, while the guiding rail 26 curves around the front of said opening, the arrangement being such that the upper portion of the raceway includes this opening.

A selector 91 is attached to the hopper 27 over the opening 90 therein to insure the presentation of the eyelets to the raceway in the proper position, that is, with their heads down on the floor 24 and their barrels projecting at right-angles to said floor. The base of this selector is provided with a plurality of notches 92 each of a size and shape to admit of the passage of a single eyelet when resting on its head, barrel up, on the floor 24. The selector 91 has two lugs 93 by means of which and two screws 94 said selector is fastened against the outside of the hopper. If the machine is to handle larger or smaller eyelets, a selector having larger or smaller notches 92 is used, the screws 94,

for which two holes 95 are tapped into the hopper (see Fig. 2), affording ready means for making the change.

Each time the raceway travels forward the brush 80 is caused to make a partial revolution and consequently to agitate the eyelets in the hopper and force those that are in proper position adjacent to the selector 91 out through the latter into said raceway, and it is by this means that the raceway is kept constantly supplied with eyelets. The intermittent action of the brush eventually, by its wiping action on the eyelets in the hopper, causes every eyelet to be presented head down to the selector and then to be expelled from said hopper.

More or less change in the construction and arrangement of some or all of the parts which comprise my invention may be made without departing from the nature of said invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an eyeletting machine, of a movable raceway comprising a floor and two guiding rails spaced apart and from said floor, the latter having a recess in its front end for the passage of a set, adjustable eyelet-supporting members attached to the raceway and extending beneath said recess, such members being separated at their forward terminals to permit the set to pass between them, and a resilient stop for eyelets in said raceway, such stop consisting of a flexible member which is attached at one end to the raceway and extends at the other terminal over the discharge end of the raceway to hold back the eyelets under normal conditions, but being adapted to yield when the raceway is retracted to release the lowest eyelet and leave it on said set.

2. The combination, in an eyeletting machine, of a movable raceway comprising a floor and two guiding rails spaced apart and from said floor, the latter having a recess in its front end for the passage of a set, eyelet-supporting members pivotally attached to the raceway and extending beneath said recess, such members being separated at their forward terminals to permit the set to enter between them, and means of adjustment for said supporting members whereby the amount of their separation can be increased and decreased.

3. The combination, in an eyeletting machine, with a reciprocating raceway, a hopper carried by said raceway, a spindle mounted in said raceway and hopper, an agitator brush in the hopper on such spindle, a pinion on such spindle below the raceway, a gear mounted in mesh with said pinion below the raceway, an actuating member for said gear loosely mounted relative to the latter, a clutch member between said actuating member and gear, the arrangement be-

ing such that said clutch member friction-
ally engages both actuating member and
gear and locks them together, when said
actuating member is moved in one direction,
5 and releases such part, when said actuating
member is moved in the opposite direction,
leaving said gear stationary, and means to
cause said actuating member to oscillate as

the raceway reciprocates, an intermittent ro-
tary motion in one direction being thus im- 10
parted to said brush from the reciprocating
motion of the raceway.

JOHN J. DOIDGE.

Witnesses:

EUGENE A. CLARK,
ALICE H. AKESON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."

It is hereby certified that the assignee in Letters Patent No. 1,012,999, granted December 26, 1911, upon the application of John J. Doidge, of South Framingham, Massachusetts, for an improvement in "Feeding Devices," was erroneously described and specified as "R. H. Long Machinery Company," whereas said assignee should have been described and specified as *The R. H. Long Machinery Company*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 13th day of February, A. D., 1912.

[SEAL]

C. C. BILLINGS,

Acting Commissioner of Patents.