

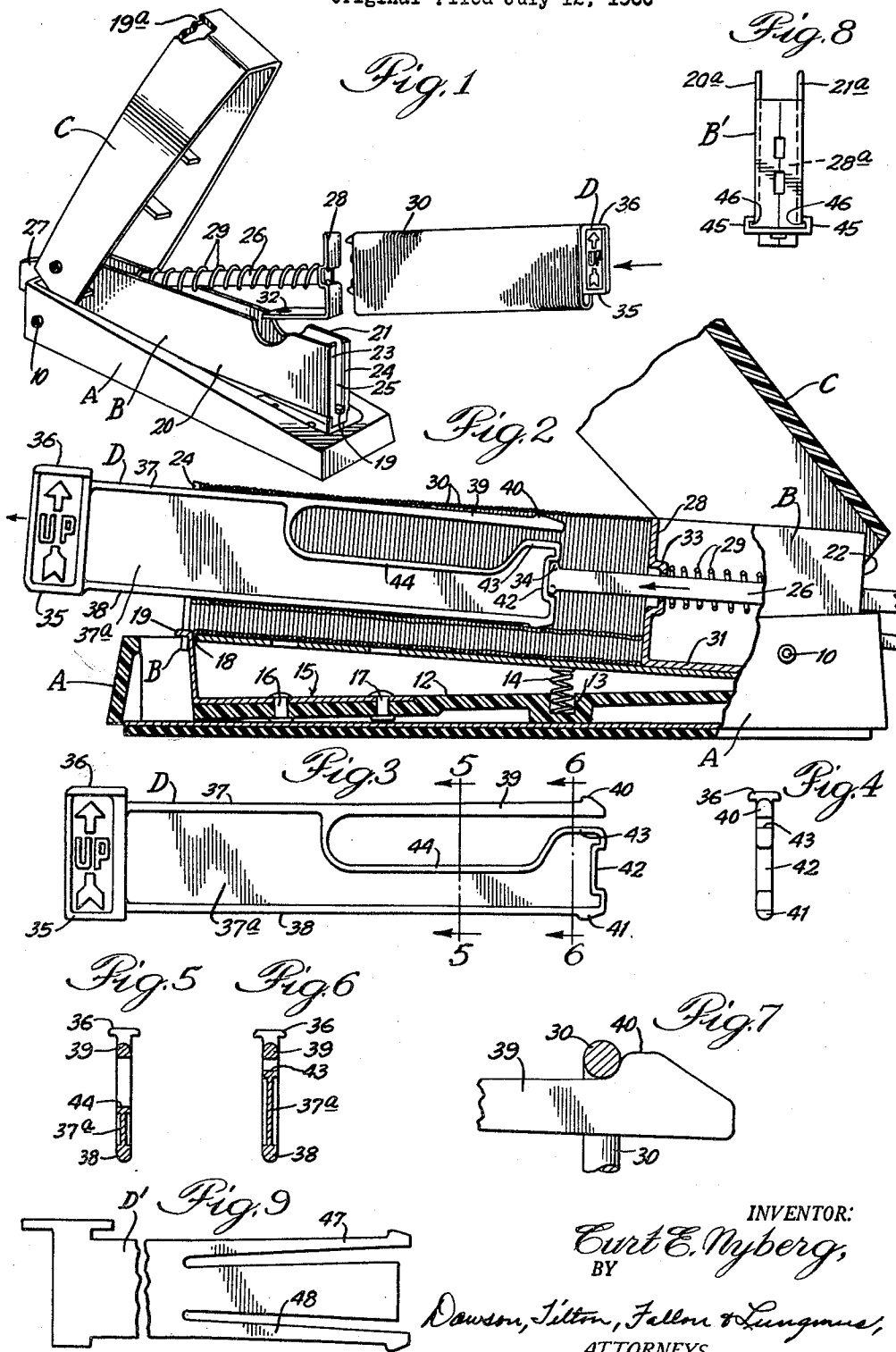
Feb. 23, 1965

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3,170,596

CLIP DISPENSER AND CARTRIDGE LOADER

Original Filed July 12, 1960



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CLIP DISPENSER AND CARTRIDGE LOADER

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Continuation of application Ser. No. 42,430, July 12, 1960. This application Jan. 3, 1963, Ser. No. 250,979
13 Claims. (Cl. 221-188)

This invention relates to a clip dispenser and cartridge loader. The invention is particularly useful in the rapid and accurate loading of a dispenser for paper clips and to mechanism for ejecting the loader cartridge and for dispensing the clips separately thereafter through successive manipulations of the dispenser.

The present application is a continuation of my co-pending application, Serial No. 42,430, filed July 12, 1960, now abandoned which in turn is a continuation-in-part of application Serial No. 852,373, filed November 12, 1959, and now abandoned.

In the dispensing of paper clips, and the like, it is not only important to provide means by which the clips can be ejected for grasping through easy manipulations of the dispenser, but it is also important that the clips carried by the cartridge be supplied to the dispenser and stripped from the cartridge in a quick and accurate manner. Paper clips, because of their elongated shape, may be easily misaligned, and means for accurately holding a large number of clips in alignment must be provided while at the same time permitting the cartridge holder to be ejected without destroying the alignment of the clips within the dispenser.

An object of the present invention is to provide, in combination with a dispenser and stripper bars therein, a clip holder which supports a large number of clips in aligned position and which, when placed within the dispenser, may be ejected, leaving the clips in position for individual ejection. Another object is to provide a clip holder for moving clips in aligned position into the magazine of a dispenser while at the same time effecting the rapid ejection of the holder from the magazine. A still further object is to provide a new cartridge holder carrying paper clips in aligned position which may be ejected to leave the clips within the magazine of the dispenser while at the same time being insertable within the dispenser to pick up any misaligned clips for realignment. Yet another object is to provide an improved dispenser having a minimum of parts which is effective in feeding clips separately from the dispenser as needed through a simple vertical reciprocation of the dispenser magazine. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown, in an illustrative embodiment, by the accompany drawing, in which—

FIGURE 1 is a perspective view of a dispenser and clip holder; FIG. 2, a broken, part-longitudinal sectional view; FIG. 3, a side view in elevation of the clip holder or cartridge; FIG. 4, an end view in elevation; FIG. 5, a sectional view, the section being taken as indicated at line 5-5 of FIG. 3; FIG. 6, a sectional view, the section being taken as indicated at line 6-6 of FIG. 3; FIG. 7, a broken, enlarged, detail view of the clip holder in engagement with a paper clip; FIG. 8, an end view showing a modified form of structure; and FIG. 9; a broken top plan view of a modified form of clip holder.

In the illustration given, A designates a base member, B a magazine member pivotally mounted on said base member, C a top member pivotally mounted upon said magazine member, and D a fastener holder.

The base member A may be formed of any suitable material. In the illustration given, the base member is formed of plastic and it provides a channel within which the magazine member may move vertically. A pivot

extends through the rear portion of the base member A and magazine member B to pivotally support the magazine member upon the base. Base member A is provided with an inclined upper wall portion 12 recessed at 13 to receive a compression spring 14 which normally urges the magazine member B upwardly. An ejector member 15 has a horizontal portion secured by rivets 16 and 17 to the wall 12 of base A. The upper end of the ejector member 15 extends through an opening 18 in the bottom wall of the magazine member B and the ejector is then turned forwardly to form a latch head 19 as shown more clearly in FIG. 2. The ejector thus serves a dual purpose, namely, latching the member B against upward movement and also engaging the foremost fastener and elevating it when the magazine member B is depressed to eject the fastener through opening 19a in the top member C.

The magazine member B, as shown best in FIGS. 1 and 2, has channel sides 20 and 21 connected at their rear with an apertured rear wall 22. At its front, the magazine member B is provided with stripper bars 23 and 24. The stripper bars are formed by turning the ends of the side walls 20 and 21 inwardly, and they provide between them an escape passage 25 through which the support for a cartridge of clips may be ejected during the loading of the magazine B, as will be later described.

The magazine B is apertured to receive an ejector rod 26 having a handle 27. The rod extends through a pusher block or follower 28 which is urged forwardly by a coiled spring 29 against the paper fasteners 30. The follower is provided with a rearwardly-extending portion 31 and may be apertured at 32 to receive a suitable latch (not shown). If desired, the follower may have interlocking connections with the sides for causing the follower to travel straight and in alignment with the sides of the magazine. The follower is provided centrally with a rearwardly depressed portion 33 apertured to receive the rod 26, and the head 34 of the rod is adapted to engage the follower within the recess so that the rod may be employed to retract the follower 28, when this is desired.

The fastener holder or magazine D may be formed of any suitable material. In the specific illustration given, it is formed of resin plastic and it has a handle portion 35 provided at the top with a horizontal flange 36 and with the support beam members 37 and 38. The member 37 merges with a resilient finger 39 having at its end a rounded catch 40. The member 38 is provided with a slightly depending heel 41 and with a recessed portion 42 adapted to receive the head 34 of ejector rod 26. Above the recess 42 is a stop portion 43 which is connected by the intermediate member 44 to the beam 37. A thin web 37a extends between the ribs or beams 37 and 38 and between the ribs 44 and 38, as shown more clearly in FIGS. 5 and 6.

Operation

In operation, the member D may be filled with fasteners 30 by inserting the fasteners over the end provided with the flexible finger 39. In actual practice, the fastener-forming machine may be utilized for feeding the fasteners as formed over the fingers 39 and onto the magazine D. With the magazine member D filled with fasteners as shown in FIG. 2, and with the follower 28 retracted, the member D can be inserted within the magazine to the position shown in FIG. 2 and the holder D may then be ejected by pressing the rod 26 forwardly, in this operation the spring finger 39 yielding while at the same time being ejected without disturbing the alignment of the fasteners 30. In face, it is found that the

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ejecting of the member D with the yielding finger 39 engaging the fasteners, there is an aligning action of the fasteners so that they are left in accurate alignment as the member D is withdrawn. In the foregoing operation, the rod 26 operates independently, serving to push or eject the member D after the fasteners are placed within the magazine and also serving, upon retraction, to engage the follower or pusher member 28 and retract it to any desired position.

In the ejection operation, the rod 26 fits within the recess 42 so that the pressure is centered within the holder D for accurate removal thereof. As the member D is ejected, the stripper bars 23 and 24 engage and retain the fasteners 30 as they are urged forwardly by the pusher member 28. The width of the members 37 and 38 is such as to substantially fill the space on the inside of the fasteners so that free movement is avoided and the fasteners are firmly held in the loading operation. The stop member 43 limits the downward movement of the resilient finger 39 so as to avoid breakage, while at the same time permitting sufficient inward movement of the member 39 to allow the member D to be ejected.

In the illustration set out in FIG. 8, the side walls 20a and 21a of the magazine B are provided near their bottom with U-shaped lateral extensions 45 for receiving the laterally-extending legs 46 of the follower 28a. The legs of the follower engaging said side recesses prevent up-and-down motion of the follower and cause the follower to travel straight in alignment with the magazine chamber B.

Sometimes in the operation of the dispenser it is found that a fastener becomes misaligned, and because of such misalignment the dispenser does not properly function. It is found that the misalignment can be corrected instantly by pressing the member D inwardly through the stripper bars 23 and 24 so that the fasteners are reengaged by the member D and the action of the resilient leg 39 serves to realign the fasteners. Not only does the plastic clip holder prevent misalignment when it is feeding the clips into the magazine chamber and while the cartridge or clip support is being ejected, but also the clip holder, with its resilient leg, is effective in picking up the clips in case of a jam to bring about quick realignment of the clips within the magazine channel.

In the modification shown in FIG. 9, the holder D¹ is provided with two resilient legs or fingers 47 and 48.

While in the foregoing specification I have set forth specific structures in considerable detail for the purpose of illustrating the invention, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. In a dispensing device for dispensing elongated paper clips, a base member, a magazine member pivotally mounted upon said base member, spring means urging said magazine member upwardly, said magazine member having an open front end equipped with stripper bars which extend inwardly in spaced-apart relation and an ejector carried by said base member and having a vertical portion extending along the forward end of said magazine member for ejecting clips when the magazine member is depressed, a follower pusher member slidably mounted in said magazine and provided with a slot, spring members urging said pusher member forwardly, a clip holder containing clips extending through the space between said stripper bars and supporting clips within said magazine with the clips in longitudinal alignment with said stripper bars, said clips being wider than the space between said stripper bars, and a rod extending through the slot of said follower pusher member and having a head wider than said slot adapted, when pressed forwardly, to engage said clip holder to eject the same and also, when drawn rearwardly to engage said follower to retract the same.

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2. The structure of claim 1 in which said clip holder is provided with a resilient finger equipped at its rear free end with a catch.

3. In a dispensing device for dispensing elongated paper clips, a base member, a magazine member pivotally mounted upon said base member and having a channel open at its top and having also an open front end equipped with stripper bars which extend inwardly in spaced-apart relation, an ejector carried by said base member and extending through an opening in the forward end of said magazine behind said stripper bars, and having a vertical portion movable through said opening to eject a paper clip when the magazine member is depressed, a follower pusher member slidably mounted in said magazine, and provided with a slot, spring means urging said pusher member forwardly, a clip holder carrying clips extending between said stripper bars and supporting within said magazine channel a plurality of aligned clips, said clips being wider than the space between said stripper bars, said holder having a yieldable top finger engaging said clips, and a rod slidably mounted in said magazine channel and extending through the slot of said pusher follower, said rod having a head wider than said slot and engageable with said clip holder to eject the same when pressed in one direction and also engageable with said pusher follower to retract the same when moved in the opposite direction.

4. The structure of claim 3 in which said rod may be moved independently of said clip holder and said follower for selectively engaging said clip holder and follower.

5. The structure of claim 3 in which a top member is mounted upon said magazine member and is provided with an opening for receiving a paper clip when the same is moved upwardly by said ejector upon depressing said top member and magazine member.

6. The structure of claim 3 in which said clip holder substantially fills the inner space of the clips and the space between said stripper bars.

7. A dispensing device for dispensing elongated paper clips and for use with a clip holder extending through and having paper clips thereon, said device including: a base; a magazine pivotally mounted on the base, said magazine having an open side and an open end, said magazine including stripper bars which extend toward each other in spaced apart relation at said open end, the space between the bars being sufficient to receive the holder with the clips abutting the bars, whereby the holder with the clips thereon may be inserted into the magazine through the open side and drawn out through the space leaving the clips in the magazine, a follower movably received in the magazine, and resilient means urging the follower towards said bars, spring means urging said one end of the magazine upwardly away from the base, said magazine having a slot in the bottom just inwardly from the inner sides of the bars and an opening in the top above the slot, and a vertical projection mounted on the base and positioned to enter the bottom slot, contact the end clip and push it upwardly through the top opening when said one end of the magazine is pivoted downwardly.

8. In a paper clip dispenser for use with paper clips having a central opening of greater length than width and with portions of the clip surrounding the opening and mounted on a holder extending through said openings in the clips, said dispenser being of the type having a magazine with a stop adjacent one end thereof and a side opening, a follower resiliently urged toward said one end to sequentially move the paper clips to said stop and an ejector movable through the magazine transversely thereto and adjacent said stop to move the clip abutting the stop out of the magazine, the improvement comprising: said stop having a passageway therethrough defining an opening in said end, said end opening intersecting said side opening, said stop at said passageway being positioned to contact at least part of said portions of the clip abutting said stop, whereby when said magazine is empty and with

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said follower retracted away from said stop, said holder and clips thereon may be inserted into said magazine through said open side and the holder may thereafter be moved out through said passageway to strip the clips from said holder and leave said clips in alignment within the magazine.

9. A paper clip holder for use in loading the magazine of a dispenser having a pair of stripper bars spaced apart a given distance less than the width of the clips receivable in said magazine, said holder comprising a flat elongated member of a thickness less than said distance of a width only slightly less than the length of an opening provided by each of the clips to be loaded therein, and of a length sufficient to receive a number of clips thereon, a handle on one end of the holder, said holder including a relatively rigid longitudinally-extending beam portion and at least one flexible finger extending along said beam portion and having a free end normally spaced from said beam portion, said finger defining at least a portion of one of the two sides defining said width of the holder, and a catch extending outwardly at the free end of the finger.

10. An apparatus for loading the magazine of a paper clip dispenser of the type wherein the magazine has a cross-sectional height greater than its width and a pair of stops at one end defining a narrow slot therebetween, said apparatus comprising in combination: a plurality of paper clips formed of wire, said clips being oval with a width less than the magazine width and greater than the slot width, said clip defining a central opening of greater length than width, said clips being positioned in juxtaposition with the openings in alignment, and a holder extending through the openings, said holder having a handle at one end, a relatively rigid support beam member extending from the handle to the other end of the holder, at least one flexible finger extending along said beam member and having a free end normally spaced from said beam member at said other end of said holder, and catch means adjacent the other end of the holder, said beam member and said finger each having a thickness less than the width of the slot and the width of the openings and having outer longitudinal edges spaced apart a distance less than the length of the openings.

11. An apparatus for loading the magazine of a paper clip dispenser of the type wherein the magazine has a cross-sectional height greater than the width and a pair of stops at one end defining a narrow slot therebetween, said apparatus comprising in combination: a plurality of paper clips formed of wire, said clips being oval with a width less than the magazine width and greater than the slot width, said clips defining a central opening of greater length than width, said clips being positioned in juxtaposition with the openings in alignment, and a holder extending through the openings, said holder having a handle at one end, a relatively rigid support beam member extending from the handle to the other end of the holder, at least one flexible finger extending along said beam mem-

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ber and having a free end normally spaced from said beam member at said other end of said holder, and catch means adjacent the other end of the holder, said beam member and said finger each having a thickness less than the width of the slot and the width of the openings and having outer longitudinal edges spaced apart a distance less than the length of the openings, said holder defining an abutment adjacent the other end thereof and centrally located between said edges.

12. In combination with a clip dispenser, a magazine having a channel open at the top and having stripper bars extending inwardly in spaced relation from each other at the forward end of the magazine, a pusher follower within said channel equipped with means for retaining the follower against vertical movement, said follower being provided with a transverse slot, spring means urging said follower forwardly to grip aligned clips between it and said stripper bars, a clip holder insertable between said stripper bars and provided with a resilient finger having a catch at its rear end adapted to engage the ends of aligned paper clips, said spaced stripper bars retaining said clips against removal from the magazine when said clip holder is withdrawn between said bars, and a rod extending through said follower slot and having a head wider than said slot engageable with said clip holder for ejecting said clip holder and for retracting said follower.

13. A paper clip holder for use in loading the magazine of a dispenser having a pair of stripper bars spaced apart a given distance less than the width of the clips receivable in said magazine, said holder comprising a flat elongated member of a thickness less than said distance, of a width only slightly less than the length of an opening provided by each of the clips to be loaded thereon, and of a length sufficient to receive a number of clips thereon, a handle on one end of the holder, said holder including a relatively rigid longitudinally-extending beam portion and two flexible fingers extending along said beam portion and having free ends normally spaced from said portion, the distance between the outer longitudinal edges of said fingers adjacent the free ends thereof being greater than the length of the openings in the clips, and a catch extending outwardly at the free end of each flexible finger.

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