Dec. 24, 1935. F. H. DELLAREE 2,025,273

PICK-UP DEVICE FOR FASTENERS

Filed May 27, 1935 3 Sheets-Sheet 1

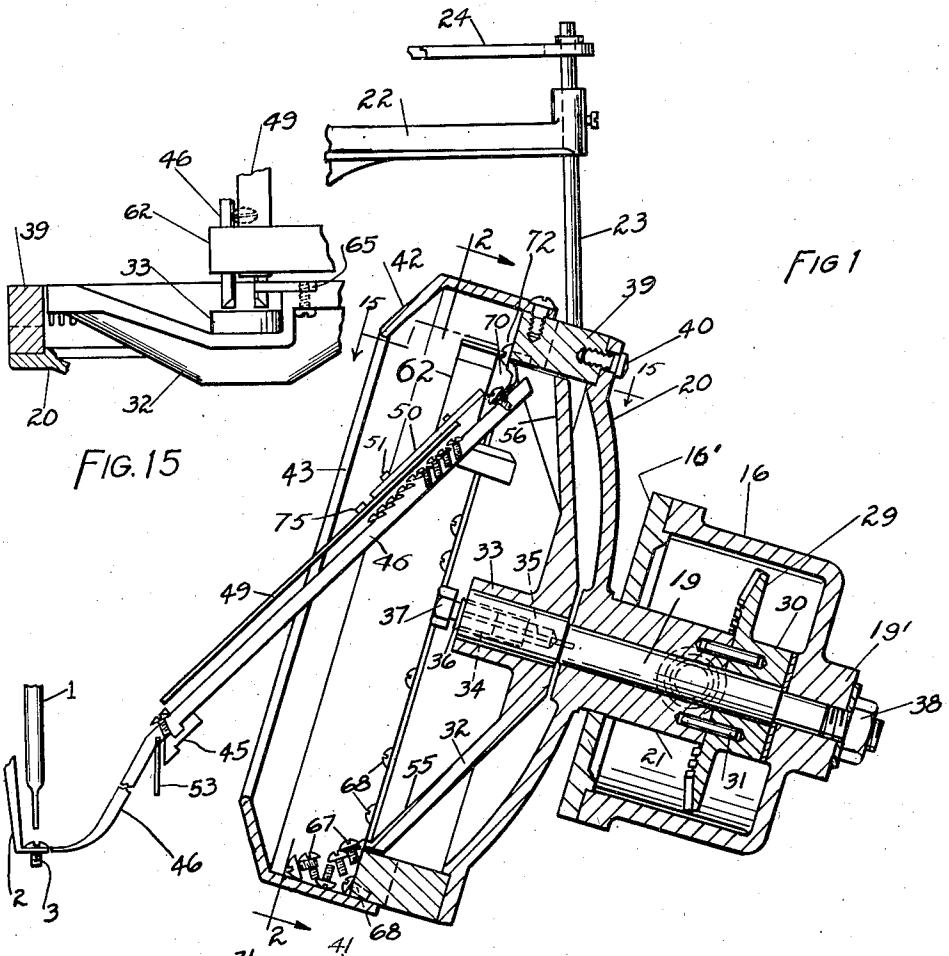


FIG. 15

FIG 1

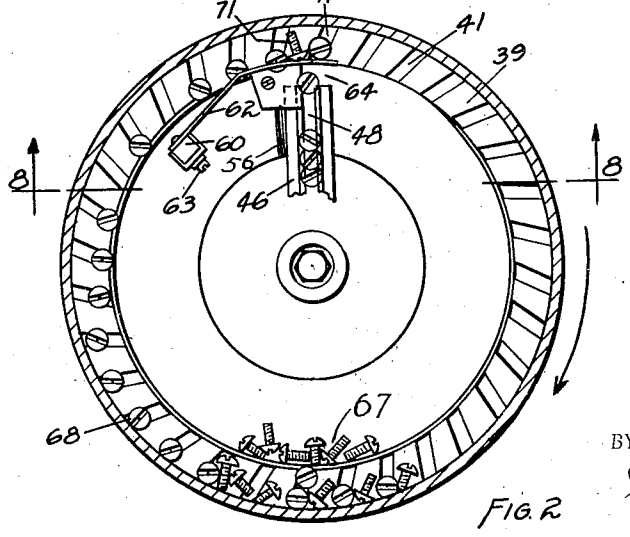


FIG. 2

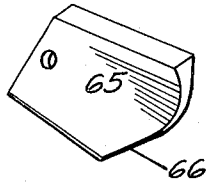


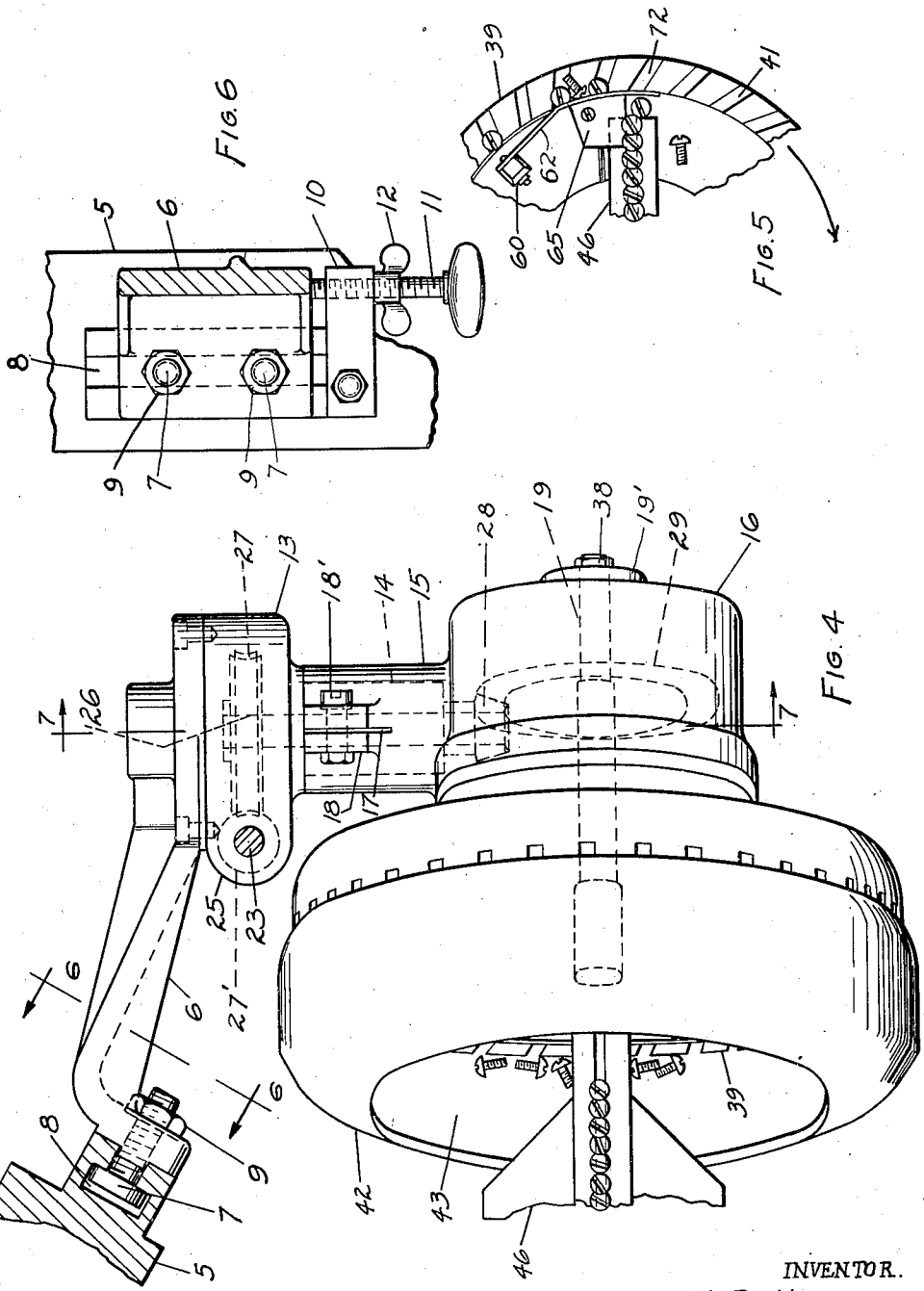
FIG. 3

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Dec. 24, 1935. F. H. DELLAREE 2,025,273

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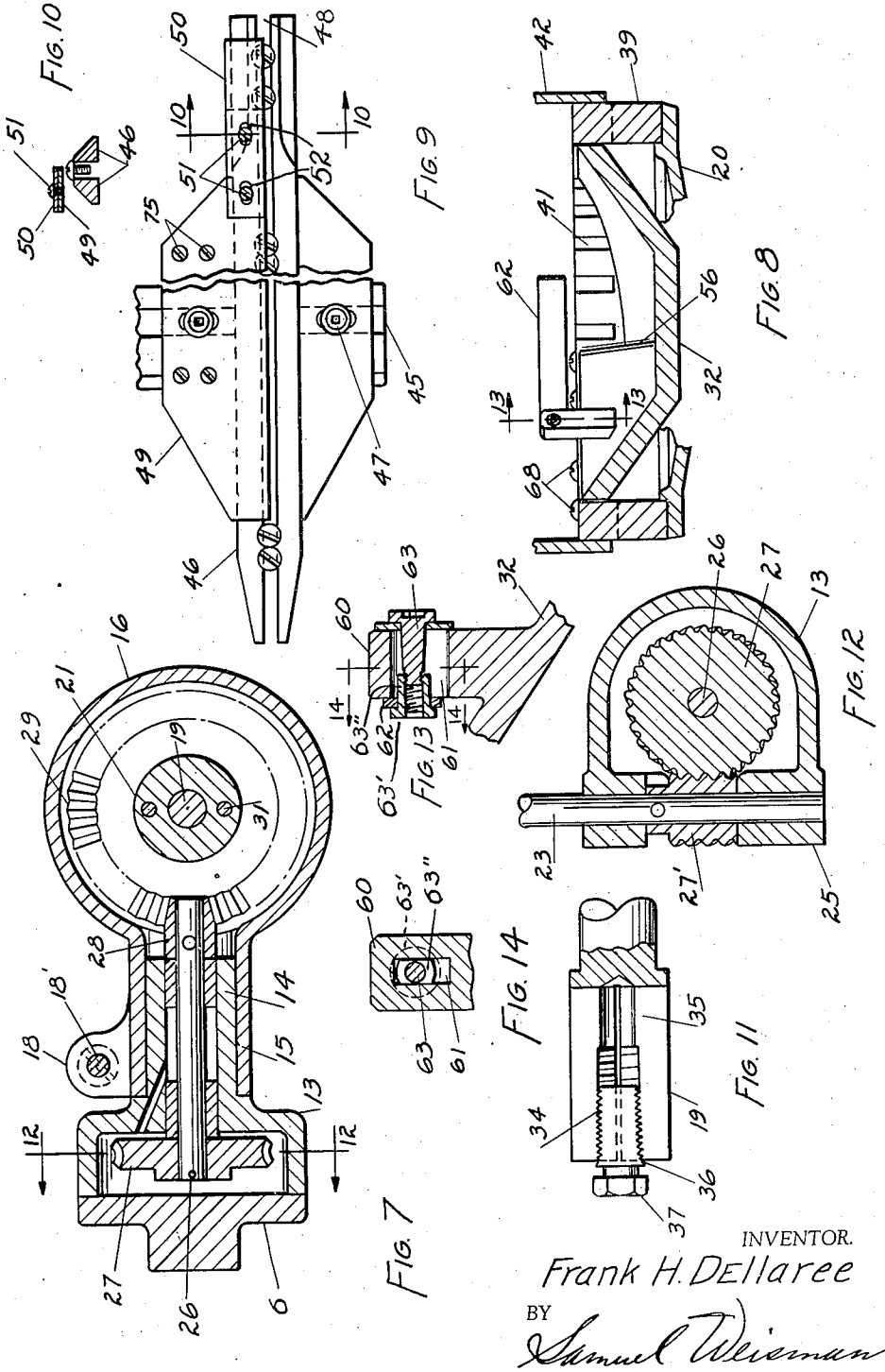
Filed May 27, 1935 3 Sheets-Sheet 2



Dec. 24, 1935. F. H. DELLAREE 2,025,273

PICK-UP DEVICE FOR FASTENERS

Filed May 27, 1935 3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,025,273

PICK-UP DEVICE FOR FASTENERS

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Application May 27, 1935, Serial No. 23,623

16 Claims. (Cl. 10—169)

The present invention pertains to a novel pick-up device for headed fasteners, such as screws, of the general character disclosed in certain patents previously issued to me and identified below. Although the invention is illustrated and described in connection with screws, it is also useful for picking up other headed fasteners and delivering them to a track.

The principal object of the invention is to effect certain improvements in the previously patented machine whereby the pick-up mechanism is more easily adjustable for various sizes of fasteners being handled and which is less likely to permit binding or jamming of fasteners in the mechanism.

In principle, the invention includes a slotted collector ring rotatable about a conical plate. A receptacle carried by the ring feeds the fasteners into the faces of the slots in the ring. A delivery track has its receiving end disposed beneath the top point of the inner circumference of the ring. The conical plate closes the inner ends of the slots except at the upper area, thereby enabling a properly seated fastener to pass from the top slot to the delivery track. A space is retained between the receiving end of the track and the collector ring to permit overflow of fasteners from the ring when the track is filled to capacity. One side of this space is bridged by a guide fixed to the non-rotating conical plate and constituting an extension of one side of the track. This member assists the fasteners in travelling from the collector ring to the track.

The track itself is adjustable in width for various diameters in a manner previously known in the art. The conical plate and collector ring are capable of universal adjustment to conform with the necessities introduced by the track adjustment. This characteristic of the invention, as well as other features, will appear more clearly as the description proceeds.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings in which

Figure 1 is a vertical section of the pick-up device;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a detail perspective view of the screw guide;

Figure 4 is a plan view;

Figure 5 is a detail plan view of the collector ring and track;

Figure 6 is a section on the line 6—6 of Figure 4;

Figure 7 is a section on the line 7—7 of Figure 4;

Figure 8 is a section on the line 8—8 of Figure 2;

Figure 9 is a detail plan view of the track and its support;

Figure 10 a section on the line 10—10 of Figure 9;

Figure 11 is a detail of the baffle plate securing means;

Figure 12 is a section on the line 12—12 of Figure 7;

Figure 13 is a section on the line 13—13 of Figure 8;

Figure 14 is a section on the line 14—14 of Figure 13, and

Figure 15 is a plan section on the line 15—15 of Figure 1.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

The pick-up mechanism disclosed herein is a substitute for that shown in my Patent No. 1,866,880 of July 12, 1932, and may be used in conjunction with the power operated screw driving spindle of the type shown in my Patent No. 1,813,697 of July 7, 1931, or No. 1,862,845 of June 14, 1932.

The screw-driving spindle, which is indicated by the numeral 1 in Figure 1, and the associated mechanism for operating the same, together with the fingers 2 for holding a screw 3 beneath the spindle 1, are carried by a vertical supporting frame work 4, as shown in the last two named patents, a portion of the supporting structure being shown in plan section in Figure 4 and vertical elevation in Figure 6 and there designated by the numeral 5. One end of an arm or bracket 6 carries headed bolts 7 received in a key track 8 on loosening the nuts 9 and is secured in the desired adjustment by tightening the nuts. To aid in adjusting the bracket 6 upward, a lug 10 is fastened to the column 5 and receives an inverted thumb screw 11 engaging the bottom of the member 6, as shown in Figure 6. Turning the screw in one direction raises the bracket 6 and the assembled mechanism carried directly or indirectly thereby. After the adjustment has been made, a wing nut 12 on the screw 11 is tightened against the bottom of the lug 10.

To the outer or free end of the bracket 6 is secured a worm gear housing 13 from which extends a boss 14 in the axial direction and is disposed on that side of the bracket 6 at which the driving spindle assembly is located. Over this

boss is slipped another boss 15 extending from a gear housing 16. The boss 15 has a lengthwise split 17 with a lug 18 at each side and a tightening bolt 18' passed through the lug. When the bolt 18' is loose, the boss 15 with its housing 16 can be adjusted around the axes of the bosses. Tightening the bolt secures the proper adjustment.

It will be seen in Figure 1 that the housing 16 is cylindrical and on an axis perpendicular to that of the bosses, the axis of the housing sloping upward in the direction toward the spindle assembly. In this axis is mounted a fixed shaft 19 having one end supported on a bearing 19' formed on the rear end wall of the housing 16. This shaft extends some distance beyond the forward end wall 16' of the housing 16 and carries an external disk 20 having a hub 21 rotatably mounted on the shaft 19 and extending into the housing 16.

The operation of the pick-up mechanism requires rotation of the disk 20, and the mechanism for effecting such rotation will now be described. An arm 22 extends from the fixed structure of the machine and serves as a bearing for a vertical shaft 23. This shaft is preferably belted at 24 to the driving mechanism of the spindle 1, and the motive power may be applied either to this mechanism or directly to the shaft 23. This shaft, as shown more clearly in Figure 4, enters a bearing 25 formed on the worm gear housing 13. A horizontal counter-shaft 26 has one end mounted near the free end of the bracket 6 and, after passing axially through the housing 13 and bosses 14, 15, has its other end just entering the housing 16. Within the housing 13, the shaft 26 carries a worm gear 27 meshing with a worm 27' carried by the shaft 23 within the bearing 25. Within the housing 16, the shaft 26 carries a miter pinion 28 meshing with a miter gear 29 having a hub 30 rotatable on the fixed shaft 19 as may be seen in Figure 1. Pins 31 extend from the hub 30 into the hub 21 and cause the disk 20 to rotate with the gear 29.

The disk 20 is slightly dished, and at the concave side thereof is mounted a baffle plate 32 by means of a hub 33 thereof fitted on the forward or upper end of shaft 19. This end of the shaft is tapped with a tapering thread, as indicated by the numeral 34 in Figure 11, and is further formed with a series of lengthwise slots 35 crossing the threads and rendering this end of the shaft expansible. The tapped hole receives a tapered screw 36 which can be engaged for turning at a head 37, whereby to expand the slotted end of the shaft against the hub 33 and thus secure the baffle plate 32 to the shaft 19, after an angular adjustment of the plate to be described below. The assembly on the shaft is drawn together by a nut 38 threaded on the other end of the shaft 19 and bearing against the outer end of the bearing 19'.

To the rim of the disk 20 is detachably fastened a collector ring 39 by means of screws 40. This ring is formed in its face with closely spaced slots 41 extending from the inner to the outer cylindrical surface of the ring and corresponding in depth to the length of the fastener being handled. As shown in Figures 2 and 5, these slots are not radial but incline, from the outer end to the inner end, oppositely to the direction of rotation.

Over the outer wall of the collector ring 39 is fitted and secured a hood 42 having a comparatively large central opening 43, so that it constitutes a groove receptacle or hopper, as clearly illustrated in Figures 1 and 2. The opening 43 permits replenishment of the supply of fasteners in the receptacle and also accommodates the screw delivery track as well as permits access to certain parts of the mechanism for assembly, adjustment and dismantling, as will be described in detail below.

A bracket 45 fixedly mounted just forward of the receptacle 42 supports a pair of track members 46 sloping from approximately the uppermost point of the inner circumference of the collector ring 39 downwardly to the screw supporting fingers 2. The members 46 are adjustable laterally on the bracket 45 and secured by any suitable means such as screws 47. By a means presently to be described, the fasteners are delivered to the slot 48 formed between the track members 46. Adjustment of the track members enables variation in the width of the slot 48 to accommodate various diameters of fastener shanks. The track sections are made adjustable for the purpose of maintaining the center line of slot 48 fixed relatively to the receiving and supporting fingers 2.

To one of the members 46 is attached a guard 49 overlapping the slot 48 and placed sufficiently above the upper surface of the member 46 to accommodate the heads of the fasteners rather snugly so that they will not crowd one over the other. An extension guard 50 is secured to the upper end of the member 49 by means of screws 51 received in slots 52, so that the member 50 is adjustable lengthwise of the track. This adjustment is provided in order to compensate for a variation in the position of the collector ring 39, as will presently appear. The track is intercepted by an escapement mechanism 53 for governing the delivery of fasteners from the upper part of the track to the fingers 2. This mechanism may be of any suitable construction and operated from the main operating pedal or lever (not shown) as described, for example, in my Patent No. 1,813,697.

The base angles of the inner surface 55 of the conical baffle plate 32 is for the most part uniform and is such as to cover the inner ends of the slots 41. However, this surface has an abrupt depth 56 on a radial line, as shown in Figure 1, changing the angle of the inner conical surface. From the bottom of the step, where the base angle is smallest, it increases gradually to the angle of the main surface 55. The step and the deformed surface from the bottom of the step to the point where the maximum base angle is reached, are of such extent as to uncover the inner ends of slots 41 along approximately ten degrees of the collector ring circumference, as shown in Figure 8, for a purpose to be described in detail below.

A lug 60 projects outward from the conical surface 55 near the periphery thereof at a distance of about 45 degrees from the track in the counter-rotational direction. This member has a slot 61 formed lengthwise therein or parallel to the axis of the conical surface. A baffle strip 62 of spring metal is held to the lug 60 by means of a bolt 63 and headed nut 63' in the slot 61, whereby the member 62 may be adjustably secured at a desired distance from the face of the collector ring 39. The nut has a rectangular body 63'' fitted in the strip 62 and in the slot so that there is no relative turning of these parts. The member 62 crosses a few of the slots, 41 near the upper end of the track 46, including that slot which is directly over the upper end of the track. In this connection it is to be recalled that the collector

ring rotates while the baffle plate 22 and baffle 62 remain stationary. It will also be seen in Figures 2 and 5 that the upper ends of the rail 46 are spaced from the immediately adjacent area of the collector ring as indicated by the numeral 64.

A small piece of metal 65 is inserted and fastened in the conical surface 55 near the periphery thereof and at the approach side of the slot 48, that is, the side at which the collector ring approaches the slot in its rotation. The member 65 has a curved and bevelled free lower end 66 bridging the gap between the collector ring and the rail 46 at the approach side of the slot 48. The end 66 rests upon the upper end of the last named rail 46, as illustrated in Figure 1, in such a manner that a screw may be guided along the same from one of the slots 41 to the track slot 48 as will presently be described in detail.

This completes the structural description of the machine.

Operation

The fasteners 67 which are to be delivered eventually to the driver 1 are merely thrown into the receptacle 42 through the opening 43, obviously assuming the position shown in Figures 1 and 2 where they lie against the face of the collector ring 39 at the lower portion thereof. The rotation of the ring 39 causes a tumbling action of the fasteners whereby they assume various positions. A percentage of them are thrown endwise into the slots, with the heads remaining outward, as indicated by the numeral 68 in Figures 1 and 2. The slots 41 are too narrow to admit the heads, deep enough to receive the shanks lengthwise, and are obviously wide enough to receive the shank diameter. For different sizes of fasteners, different rings are provided, each meeting the aforementioned requirements with respect to any size of fastener. As previously indicated, the collector ring is detachable at its screws 40. It is to be noted that the fasteners enter the slots 41 at the face and not the end thereof, inasmuch as the inner ends are covered by the baffle plate 32 with the exception of a few such ends at the step 56 as already stated and shown in Figure 8.

The slots 41 are not radial but incline from the inner periphery to the outer periphery of the collector ring in the direction of rotation. This is a more favorable position for receiving fasteners in proper alignment, having been determined by experiment. The center of mass of the body of fasteners is dragged by the rotation of the ring beyond the bottom dead center of receptacle 42, and there is a tendency for the individual fastener to be dragged head first in the direction of rotation. It would seem, therefore, that the shanks assume a position nearly parallel to the slots 41 in the region beyond the dead center where the entrance of fasteners into the slots is to be expected, with the result that a larger percentage of fasteners become properly seated in the slot. The slope of the face of the collector ring tends to hold the fasteners in the slots after they have once properly entered.

The fasteners that are caught in the slots are carried upward by the rotation of the disk, particularly those that are properly seated in the slots in the manner of the fasteners 68. The heads of the latter pass freely in the space 70 (Fig. 1) between the guard 62 and the face of the collector ring, since the guard is adjusted for precisely this purpose. Consequently any fasteners that may be carried upward in the slots in a cocked position, such as fastener 71, cannot pass the space 70 and are carried past the entering end of the track slot 48, after which they merely drop back into the baffle plate 32 and receptacle 42. If a group of fasteners becomes wedged between the guard 62 and the receptacle 42 the guard 62 will yield because of its resilient nature rather than bind or jam the machine.

When a loaded slot reaches the discharging position indicated by the numeral 72, it is inclined to the track as viewed in Figure 2 and the upper or trailing wall of the slot exerts a downward pushing force on the fastener, thereby adding to the force of gravity. The ejected fastener is caught by its head on the angular end 66 of the guide 65 and thereby delivered to the track 46.

The high edge of the step 56 is spaced counterrotationwise from the approach side of track slot 48 to accommodate one rail 46 and allow clearance for irregularities on the wall of the step. The purposes of the step are, first, to open the inner ends of some of the slots to permit the properly seated fasteners to drop to the track, and second, to accommodate the length of the fasteners in dropping. The spacing 64 between the upper end of the track and the inner periphery of the collector ring is to permit overflow of properly seated fasteners, without binding, in the event that the track is filled to capacity, as shown in Figure 5. Consequently this distance is adjusted to approximately the diameter of the fastener head. The fastener falling from the top discharge slot 72 has one side of its head resting on the guide 65, 66 as shown in Figure 1, and this means of support, although unbalanced, is sufficient to enable the fastener to travel across the gap between the slot 72 and the track slot 48. The length of the guiding portion 66 is not great, or at least is such that the fastener does not drop off in the interval required to travel this length. The probability of a fastener jumping the gap and falling in proper position in the slot 48 is much greater than if the guide were not present.

Adjustment

It has already been stated that the length of the gap 64, radially of the collector ring, is approximately equal to the fastener head diameter. This dimension must, therefore, be changed for various sizes of fastener heads. Moreover, this distance is altered by the lateral adjustment of the rail 46 for different fastener diameters. After the track adjustment has been made, the guide 65, 66 is lined up with the proper edge of the track slot 48 by loosening the split shaft end at screw 36, turning the plate 32 with the guide the proper amount, and tightening the assembly at the screw 36. Next, the length of the gap 64 is set by turning the whole pick-up assembly about the axis of the shaft 26 on loosening the bolt 18'. If this tilting movement is rearward, it lifts the guide 65, 66 out of contact with the track. If it is forward, it is obstructed by the contact of the guide with the track. The required vertical adjustment between the guide and the track is obtained at the thumb screw 11 in the manner already described.

It has been found in practice that top heavy fasteners, in falling into the track and in sliding down to the guard 49, are likely to tip over and sometimes obstruct the track. This difficulty is overcome by means of the extension 50 which prevents tipping over when the head has once passed under the extension. Likewise, adjustment of the extension is made at the screws

51 and slots 52 to enable the head to pass beneath the upper end of the extension after setting the pick-up assembly in the manner described. The height of the guard assembly above the top of the track must be fixed according to the thickness of the head, and this adjustment is made at the screw 75.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention, as indicated by the appended claims.

What I claim is:

1. In a pick-up device for shanked fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, for receiving the shanks of fasteners, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end spaced beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said ring being adjustable in its distance from the receiving end of said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring.

2. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled.

3. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a guard crossing the faces of some of said slots near the approach side of said track and spaced from the face of said ring a distance approximating the thickness of a fastener head.

4. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled, and a guard crossing the faces of some of said slots near the approach side of said track and spaced from the face of said ring a distance approximating the thickness of a fastener head.

5. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled, said track being adjustable in width, said ring and member being universally adjustable relatively to the receiving end of said track.

6. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled, said track being adjustable in width, said ring and member being adjustable vertically and horizontally to and from the receiving end of said track, and said member being adjustable on the rotary axis of said ring.

7. In a pick-up device for shanked fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, for receiving the shanks of fasteners, said ring being

positioned with its face upward in a sloping plane, a delivery track having its receiving end spaced beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, said cavity communicating with the unobstructed slots and with the space above the receiving end of said track to receive overflow fasteners, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring.

8. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, said cavity being deepened along a radial wall on the approach side of the track slot to accommodate the length of a fastener in passing from a ring slot to said track.

9. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring, and adapted to deliver fasteners into said slots through the face of said ring, said cavity being deepened along a radial wall on the approach side of the track slot to accommodate the length of a fastener in passing from a ring slot to said track, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled.

10. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, said cavity being deepened along a radial wall on the approach side of the track slot to accommodate the length of a fastener in passing from a ring slot to said track, and a guard crossing the faces of some of said slots near the approach side of said track and spaced from the face of said ring a distance approximating the thickness of a fastener head.

11. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring, and adapted to deliver fasteners into said slots through the face of said ring, said cavity being deepened along a radial wall on the approach side of the track slot to accommodate the length of a fastener in passing from a ring slot to said track, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled, and a guard crossing the faces of some of said slots near the approach side of said track and spaced from the face of said ring a distance approximating the thickness of a fastener head.

12. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, said cavity being deepened along a radial wall on the approach side of the track slot to accommodate the length of a fastener in passing from a ring slot to said track, said track being adjustable in width, said ring and member being universally adjustable relatively to the receiving end of said track.

13. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward in a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed member within said ring and having a substantially conical cavity facing said track, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring, and adapted to deliver fasteners into said slots through the face of said ring, said cavity being deepened along a radial wall on the approach side of said track slot to accommodate the length of a fastener in passing from a ring slot to said track, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the ap-

proach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled, and a guard crossing the faces of some of said slots near the approach side of said track and spaced from the face of said ring a distance approximating the thickness of a fastener head, said track being adjustable in width, said ring and member being universally adjustable relatively to the receiving end of said track.

14. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a fastener guide carried by said member and forming a continuation of one of the rails of said track to the inner circumference of said ring, on the approach side of said track, the other rail of said track being spaced from said circumference to permit a fastener to pass through the space and fall into said receptacle when the track is filled, said track being adjustable in width, said ring and member being universally adjustable relatively to the receiving end of said track, and a guard on said track adapted to overlap the heads of fasteners in said track, said guard being adjustable lengthwise at the receiving end of said track.

15. In a pick-up device for fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, said ring being positioned with its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, and a guard crossing the faces of some of said slots near the approach side of said track and spaced from the face of said ring a distance approximating the thickness of a fastener head, said guard being resilient to permit a forced movement towards the center of said ring.

16. In a pick-up device for shanked fasteners, a rotary collecting ring having slots in its face and opening into its inner circumference, for receiving the shanks of fasteners, said ring being positioned with its face upward into a sloping plane, a delivery track having its receiving end positioned beneath the inner end of one of said slots above the horizontal diameter of said ring, a normally fixed plate-like member within said ring, and around which said ring is adapted to rotate, said member obstructing the inner ends of said slots with the exception of a few near the receiving end of said track, and a receptacle at the face of said ring and adapted to deliver fasteners into said slots through the face of said ring, said slots being inclined to the radius of said ring, from the inner to the outer circumference and in the direction of rotation.

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