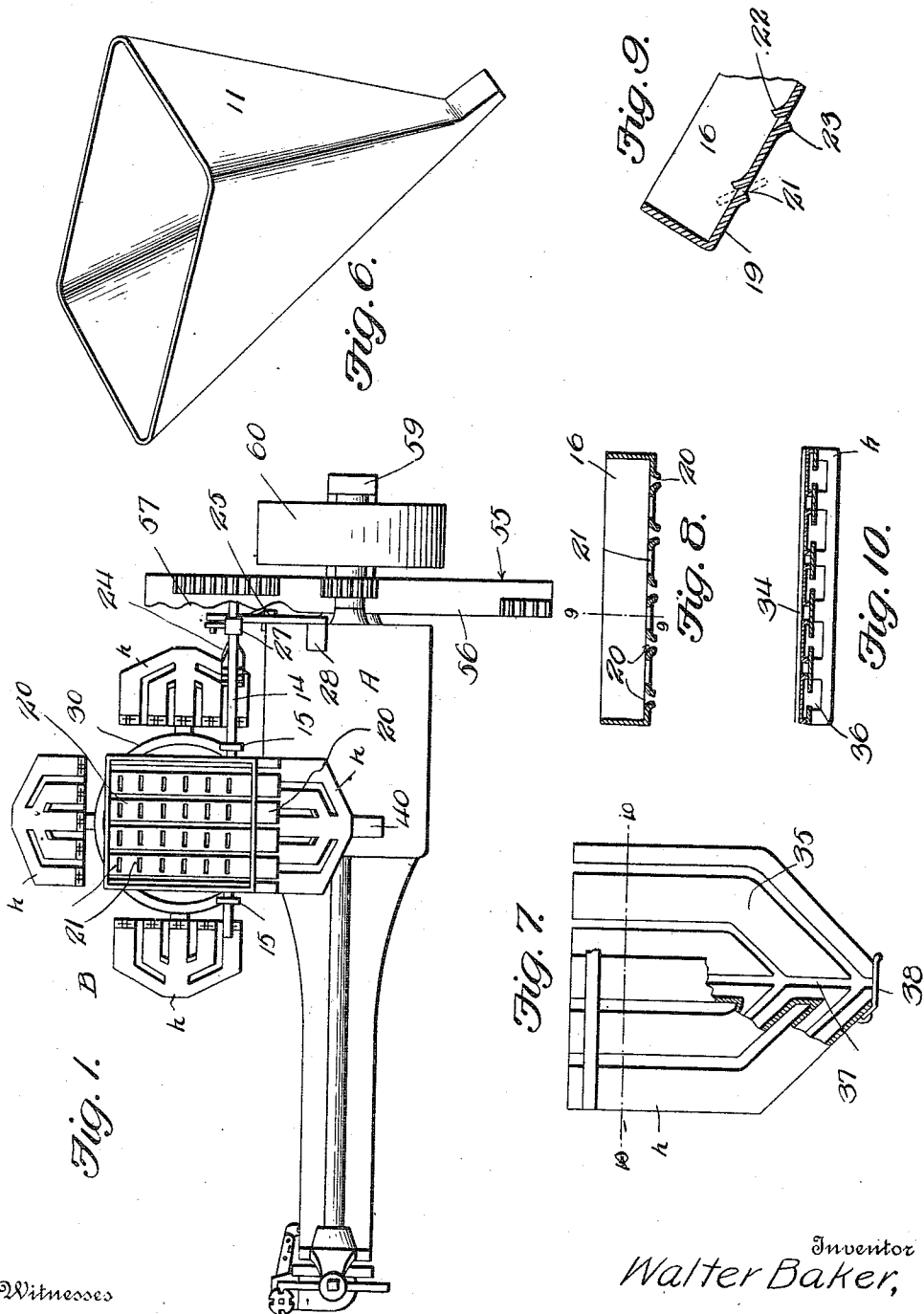


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RIVET AND BUR FEEDING MECHANISM FOR RIVETING MACHINES.
APPLICATION FILED JULY 8, 1910.

995,315.

Patented June 13, 1911.

3 SHEETS—SHEET 1.



Witnesses

C. C. Richardson

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By *Victor J. Evans*

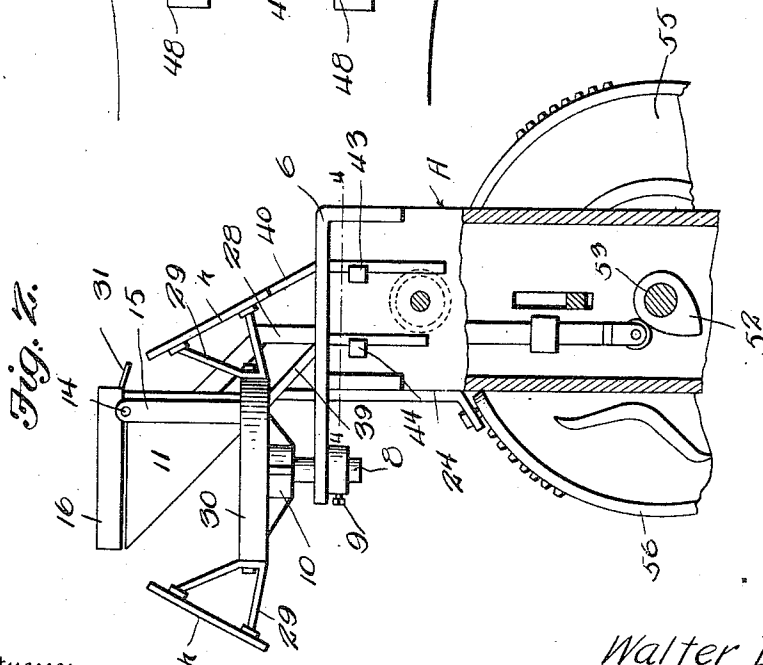
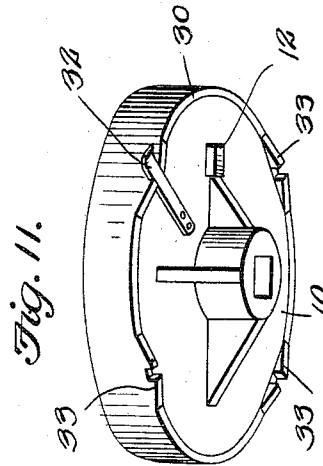
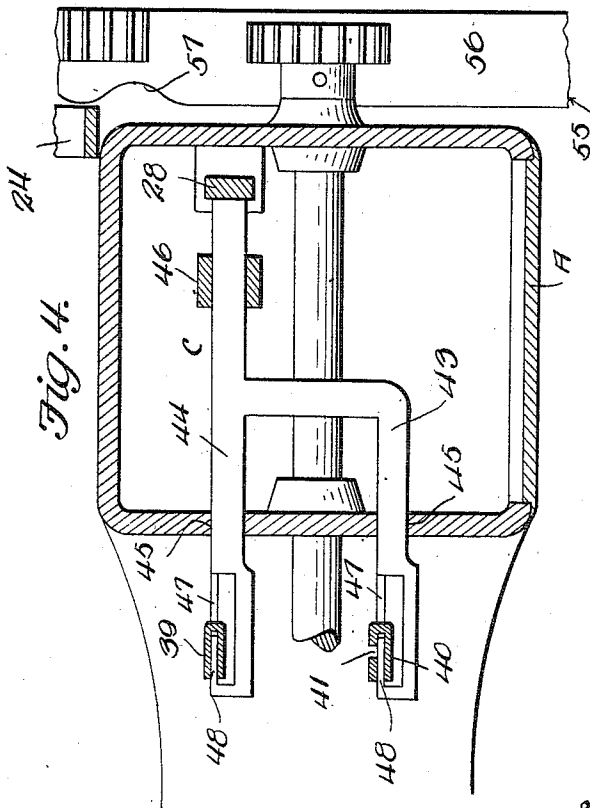
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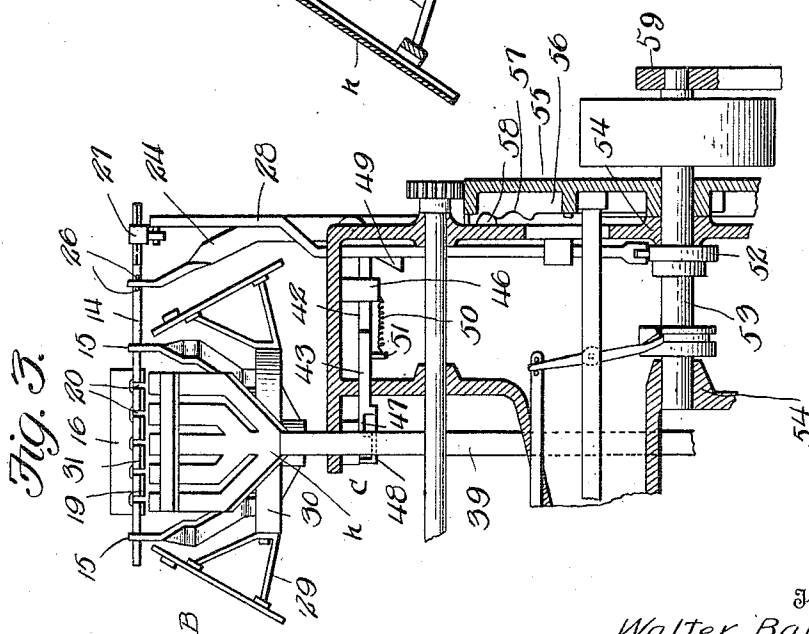
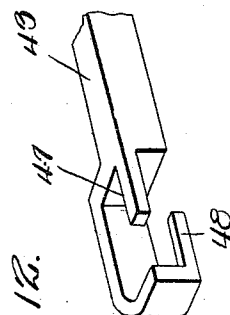
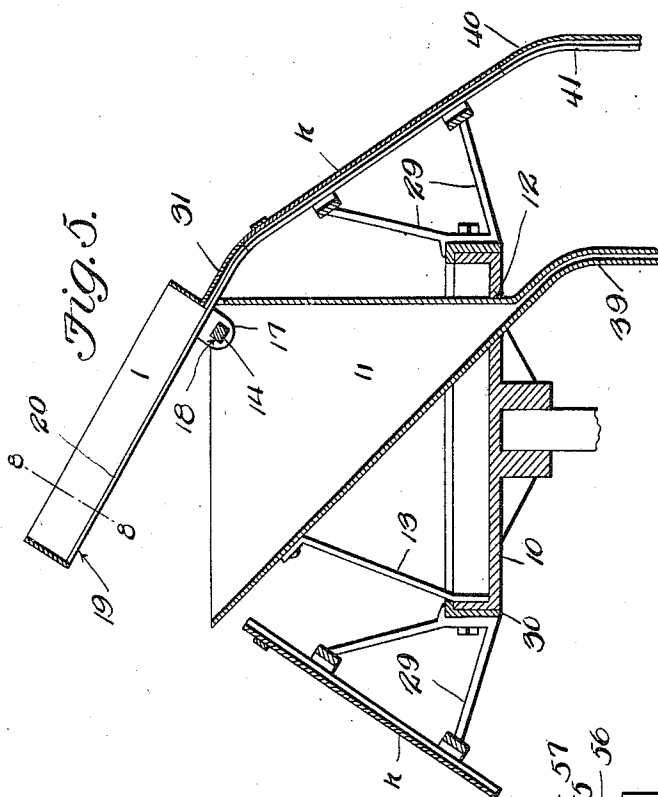
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3 SHEETS--SHEET 3.

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UNITED STATES PATENT OFFICE.

WALTER BAKER, OF WAPATO, WASHINGTON.

RIVET AND BUR FEEDING MECHANISM FOR RIVETING-MACHINES.

995,315.

Specification of Letters Patent. Patented June 13, 1911.

Original application filed July 7, 1908, Serial No. 442,313. Divided and this application filed July 8, 1910.

Serial No. 571,090.

To all whom it may concern:

Be it known that I, WALTER BAKER, a citizen of the United States, residing at Wapato, in the county of Yakima and State of Washington, have invented new and useful Improvements in Rivet and Bur Feeding Mechanism for Riveting-Machines, of which the following is a specification.

The subject-matter of this application is a division of my Letters Patent, No. 971,483, of September 27, 1910, and the present invention relates more particularly to feeding mechanisms for machines of this class.

The invention has for one of its objects to provide an extremely simple, practical and efficient means for supplying rivets and burs to the riveting mechanism of the machine.

Another object of the invention is the employment of a novel separating device whereby burs and rivets can be placed promiscuously into a hopper or receptacle and separated in regular order before passing to the feed chutes that conduct the rivets and burs to the rivet and bur-placing devices of the riveting machine.

A further object is the provision of operating means for the bur and rivet separating device, means for controlling the feed of the burs and rivets successively, and means for agitating the hopper or receptacle to assist in the separation of the burs and rivets preparatory to their passing to the chutes.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a plan view of the riveting machine with the bur and rivet feeding mechanism applied. Fig. 2 is a side view of the bur and rivet feeding mechanism. Fig. 3 is a front view thereof. Fig. 4 is an enlarged sectional view on line 4—4, Fig. 2. Fig. 5 is an enlarged vertical section of the bur and rivet separating mechanism. Fig. 6 is a perspective view of the bur-feeding chute, arranged at the top of the bur-feeding chute. Fig. 7 is a plan view with portions broken away of one of the rivet holders. Fig. 8 is a vertical section on line 8—8, Fig. 5. Fig.

9 is a sectional view on line 9—9, Fig. 8. Fig. 10 is a sectional view on line 10—10, Fig. 7. Fig. 11 is a bottom perspective view of the supporting disk for the rivet and bur separating mechanism. Fig. 12 is a perspective view of one of the devices to feed the burs and rivets one at a time.

Similar reference characters are employed to designate corresponding parts throughout the views.

As shown in Fig. 2, an arm 6 projects rearwardly from the upper extremity of the frame A, and extending vertically through the arm is mounted a stem 8 which is adjustably secured in place by a clamping screw 9, and on the upper end of the stem is fixed a disk 10 for supporting the parts of the rivet and bur-separating device B. Arranged over the disk is a funnel-shaped hopper 11 having its mouth portion projecting through an opening 12 in the disk, as shown in Fig. 5, and the hopper is held rigidly in position by a brace 13. Extending horizontally across the top of the hopper is a rock-shaft 14 mounted in arms 15 rising from the supporting disk 10. Arranged over the hopper 11 is a separator 16 in the form of a pan into which the rivets and burs are promiscuously dumped from the usual boxes in which they are put up for the trade, and depending from the front of the separator are lugs 17 having squared apertures 18 for receiving the shaft 14 which is of square cross-section. The shaft 14 is mounted in the arms 15 to have a longitudinal as well as a rocking movement so as to permit the separator to be vibrated to facilitate the separating of the burs from the rivets. The bottom 19 of the separator is provided with parallel slots 20, as clearly shown in Figs. 5 and 8, and the edges of the slots are bent downwardly so as to facilitate the entrance of the shanks of the rivets, and the portions of the bottom between the slots are provided with transversely-extending slots 21 that have their opposite edges bent inwardly and outwardly as indicated at 22 and 23, Fig. 9, so as to permit the burs to drop out of the separator when the latter is tilted, the burs passing freely out of the slots 21 as indicated by dotted lines in Fig. 9. The shaking movement of the separator is produced by a lever 24 fulcrumed at 25 on the frame A and having its upper end engaged

between pins 26 on the shaft 14. The separator is periodically tilted so as to permit the burs and rivets to discharge from the separator, this being accomplished by a crank arm 27 to which is hingedly connected a reciprocatory rod 28. As the hopper 11 is disposed under the separator, the burs will drop into the former and the rivets are delivered to a holder *h*. In the present instance, several holders *h* are employed which are preferably of different sizes so that they can be used for different-sized rivets and the holders are supported on brackets 29 secured to a ring 30 fitted around the disk to turn thereon so as to bring any desired holder in coöperative relation with the spouts 31 of the separator 16. The ring 30 is locked in position by a spring latch 32, Fig. 11, fixed on the bottom of the disk 10 and adapted to engage in one of the notches 33 formed in the bottom edge of the ring 30, thereby retaining the holder *h* in operative relation with the separator for receiving the rivets therefrom. Each holder consists of a plurality of parallel conduits 34 that run together at their lower ends into a common passage and each conduit has a slot 36 in its bottom that merge into a common discharge slot 37, the said slots being arranged to receive the shanks of the rivets, while the conduits 34 receive the heads of the rivets. The conduits 34 are disposed in alinement with the spouts 31 so that the rivets can flow freely from the separator to the holder *h*, and if desired, the holder may be provided with a valve 38, Fig. 7, for retaining the rivets in the holder. Leading from the funnel 11 and holder *h* are feed tubes or chutes 39 and 40 respectively, that have their lower ends curved and disposed horizontally over the work table, the chute 40 being provided with a longitudinal slot 41 for accommodating the shanks of the rivets.

The feed of the rivets and burs is controlled by a feeding device C, Figs. 1, 3 and 4. This device comprises a horizontally-movable element 42 disposed in the upper end of the frame and provided with arms 43 and 44 that slidably bear in openings 45 in the frame, which openings coöperate with a bearing 46 to slidably support the element 42. The arms 43 and 44 are each provided with fingers 47 that pass through openings 48 in the walls of the feed chutes, the fingers of each arm being vertically spaced one from the other a distance equal to the diameter of a bur or head or a rivet and being off-set horizontally one from the other so that by the reciprocation of the element 42, the fingers will co-act to permit one rivet and bur to feed at a time. The element 42 of the feeding device is actuated in one direction by a cam 49 on the reciprocatory rod 28 and returned by a spring 50 connected with the bearing 46 and with the lug 51 on the

said element. The rod 28 is actuated by a cam 52 arranged on the driving shaft 53 and mounted in bearings 54 of the frame 4, and the shaker lever 24 is operated by a master wheel 55 located on the crank shaft outside of the frame A, the wheel having a peripheral flange 56 that is provided with an undulatory portion 57 on which rides a roller 58 on the lower end of the lever 24, whereby the said lever is rocked. The outer end of the shaft 53 is supported by a bracket 59 on the frame A and between the bracket and wheel 55 is a driving pulley 60 that receives power from any suitable source.

The operation of the machine may be briefly described as follows. After the rivets and burs have been placed in the separating device, the machine is set into operation by applying power to the pulley 60 so that as the shaft 53 rotates, the wheel 55 will oscillate the lever 24 so as to impart a shaking movement to the separator 16, and during each revolution of the shaft, the cam 52 will raise the tilting rod 28 so as to cause the rivets to drop into the holder 39, the burs at the same time dropping into the hopper 11. In case one holder *h* is filled too rapidly, another holder can be brought into position to be filled by the separator. During the operation of the separating mechanism, the feeding device C is operated so that the burs and rivets can pass one by one down their respective cuts to the bur and rivet position devices of the machine.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim is:—

1. In a machine of the class described, the combination of independent chutes, with a separating mechanism for delivering corresponding parts of fastening devices to the individual chutes, said mechanism including a separator, means for agitating the separator, and means for periodically throwing the separator into discharging position.

2. In a machine of the class described, the combination of a plurality of feed chutes, with a separating mechanism for delivering corresponding parts of fastening devices to the separate chutes, said mechanism including a vessel having differently-arranged slots for receiving the separate parts of the fas-

tening devices, means for mounting the vessel so as to be agitated back and forth laterally and means for agitating the vessel.

3. In a machine of the class described, the combination of a plurality of feed chutes, with a separating mechanism for delivering corresponding parts of fastening devices to the separate chutes, said mechanism including a vessel having differently-arranged slots for receiving the separate parts of the fastening devices, means for agitating the vessel, and means for periodically tilting the vessel to discharging position.

4. In a machine of the class described, the combination of a work-holder, a device for feeding rivets or the like thereto, and a mechanism for supplying the rivets to the device, said mechanism comprising a vessel provided with a plurality of slots for receiving the shanks of the rivets, means for agitating the vessel by moving the same back and forth to enter the shanks in the slots, means for periodically tilting the vessel to discharge the rivets from the slots by gravity, a shaft disposed parallel with the direction of movement of the vessel and on which the latter tilts, and means for conducting the rivets from the vessel to the said feeding device.

5. In a machine of the class described, the combination of a chute for feeding rivets or the like, with a mechanism for supplying the rivets to the chute in regular order, said mechanism comprising means for arranging the rivets in a uniform manner, and a plurality of holders movable to or from a position between the said means and chute and each consisting of a plurality of conduits through which the rivets pass to a common conduit communicating with the said chute.

6. In a machine of the class described, the combination of a feed chute, a vessel for receiving rivets and the like and provided with means for arranging the rivets in like position, and a plurality of holders adjustable separately into coöperative relation with the said vessel and chute.

7. In a machine of the class described, the combination of a rivet-feeding device, a plurality of holders mounted to be brought into coöperative relation with the device, means for delivering the rivets to any holder, and a movable support for the holders.

8. In a machine of the class described, the combination of a fixed feed tube, a holder for rivets or the like movable into and out of coöperative relation to the feed tube and consisting of a plurality of inclined conduits communicating with the central conduit arranged to discharge into the tube, a vessel having a plurality of parallel slots for receiving the shanks of the rivets, means for agitating the vessel, spouts on the vessel for conducting the rivets from the slots of the latter to the said inclined conduits of the

holder, and means for tilting the vessel to bring the spouts periodically into register with the conduit of the holder.

9. In a machine of the class described, the combination of a vessel provided with slots, a hopper arranged under the vessel, a feed chute connected with the hopper, a rod mounted for rocking and longitudinal movement, means for securing the vessel to the rod, and means for actuating the rod.

10. In a machine of the class described, the combination of a feed chute, a hopper, on the upper end of the chute, a shaft extending across the hopper and mounted for rocking and longitudinal movement, a vessel for receiving burs or the like and normally resting on the hopper, means connecting the vessel with the shaft to move with the latter, and means for actuating the shaft.

11. In a machine of the class described, the combination of a feed chute for burs or the like, a feed chute for rivets or the like, a hopper at the upper end of the first chute, a separator disposed over the hopper and provided with a separate means for segregating the burs from the rivets, and mechanism for moving the separator to a position for discharging the burs to the hopper and the rivets to the second chute.

12. In a machine of the class described, the combination of a support, a hopper thereon, a holder for rivets or the like mounted on the support, and a normally horizontal separator disposed in coöperative relation with the hopper and holder, with mechanism for laterally agitating the separator and means for periodically tilting the separator to discharge the rivets therefrom.

13. In a machine of the class described, the combination of a support, a hopper mounted thereon, a plurality of holders for rivets or the like, a separator disposed in coöperative relation with the hopper and holders, means for adjustably mounting the holders on the support, and a locking device for maintaining any holder in position to receive rivets from the separator.

14. In a machine of the class described, the combination of separate feed chutes, a mechanism for separating burs from rivets and delivering them to the chutes, and a feed controlling device for feeding the burs and rivets one at a time in their respective chutes.

15. In a machine of the class described, the combination of separate feed chutes, a device for separating burs from rivets, means for moving the device to discharging position, and a feed controlling mechanism actuated by the said means for feeding the burs and rivets singly through the feed chutes.

16. In a machine of the class described, the combination of a feed chute, a device

for separating rivets and burs and arranging the rivets in a predetermined order preparatory to delivery to the chute, a feed chute arranged to receive the burs from the device, means for agitating the device, a rock shaft, a crank thereon, an element connected with the crank for rocking the shaft, and a feed controlling device actuated by the element for feeding the rivets successively through the chute.

17. In a machine of the class described, the combination of a chute through which articles feed by gravity, a reciprocatory feed controlling device for permitting one article to feed at a time through the chute, a reciprocating element disposed transversely to the path of movement of the device, a cam thereon for moving the said device in one direction, a spring for moving the device in the opposite direction, and a rivet and bur separating device agitated by the said element.

18. In a machine of the class described, the combination of a plurality of feed

chutes, a plurality of holders adjustable successively with respect to one of the chutes for delivering articles thereto, a feed controlling device comprising a pair of members arranged in each chute for permitting articles to feed singly through the chutes, and actuating means for the device.

19. In a machine of the class described, the combination of a hopper having means for separating rivets and burs, a plurality of chutes leading from the device for feeding the rivets and burs by gravity, a reciprocatory feed controlling device comprising a pair of arms each having spaced fingers arranged to move alternately across the chutes for permitting rivets and burs to be fed singly through their respective chutes, and means for reciprocating the device.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER BAKER.

Witnesses:

CHARLES H. BALLARD,

A. JAY ROHRER.

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