

E. W. DUSTON.
 MACHINE FOR FEEDING HEADED BLANKS.
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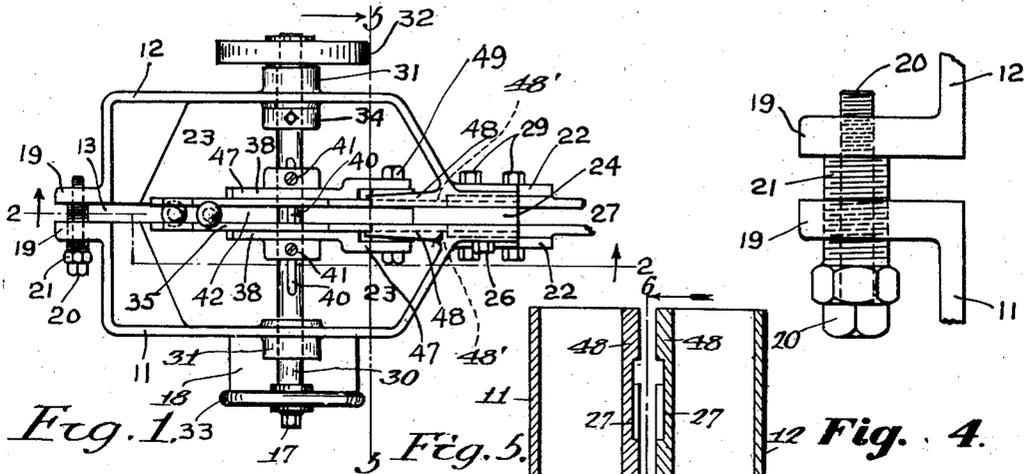


Fig. 1.

Fig. 5.

Fig. 4.

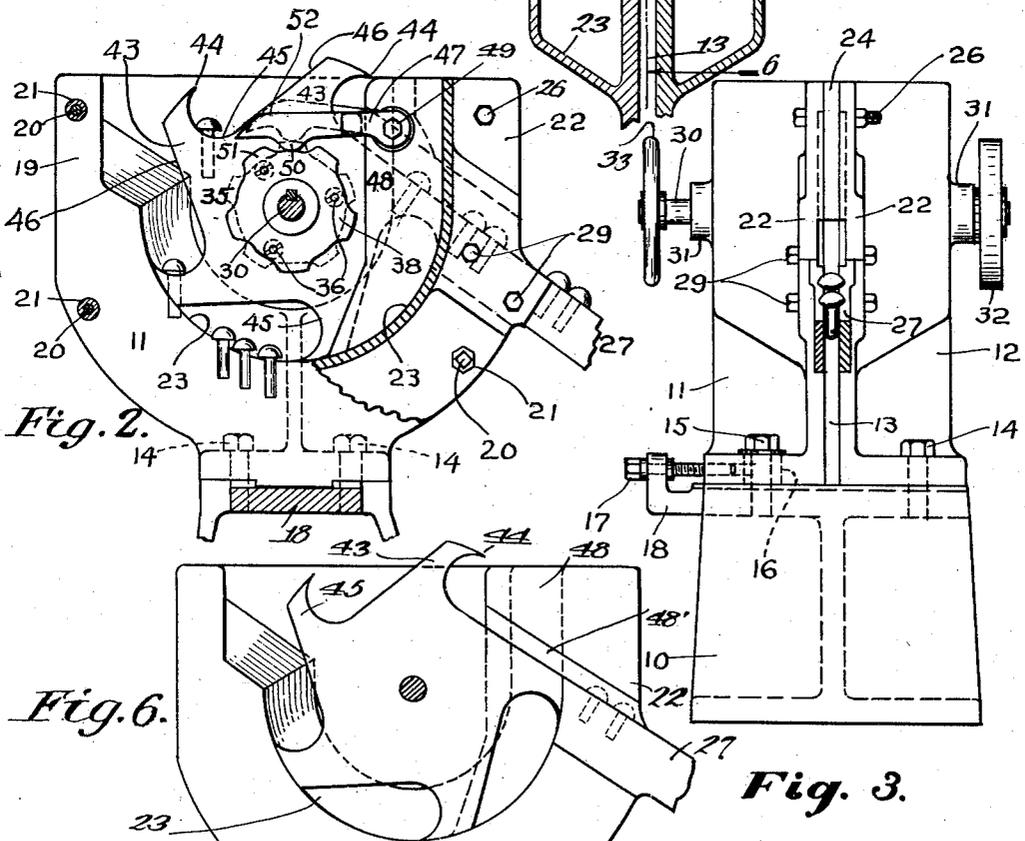


Fig. 2.

Fig. 3.

Fig. 6.

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MACHINE FOR FEEDING HEADED BLANKS.

1,026,083.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST W. DUSTON, a citizen of the United States, residing at Waterbury, county of New Haven, State of Connecticut, have invented an Improvement in Machines for Feeding Headed Blanks, of which the following is a specification.

This invention has for its object to provide a simple and inexpensive machine for feeding all sizes and styles of headed blanks, as for example screw blanks, which may be attached to any machine for performing an operation on the blanks, as, for example, to a slotting machine.

With this end in view I have devised the novel hopper feeding machine which I will now describe, referring to the accompanying drawing forming a part of this specification and using reference characters to indicate the several parts.

Figure 1 is a plan view of my novel feeding machine complete; Fig. 2 an elevation partly broken away to illustrate the construction and operation of the machine, the section line being indicated by 2—2 in Fig. 1; Fig. 3 an elevation as seen from the right in Fig. 2; and Fig. 4 is a detail view illustrating means for adjusting and locking the rear ends of the hopper members. Fig. 5 is a transverse section on line 5—5, Fig. 1, looking in the direction of the arrow. Fig. 6 is a longitudinal sectional view along the median line of the hopper.

The important features of the invention are that the hopper and the feed wheel each comprise two separated members, one of which is adjustable toward and from the other to adapt the machine to feed blanks having shanks of different diameters. The length of the blanks and the shape and size of their heads is wholly immaterial so far as the present invention is concerned, relatively long or short blanks and blanks having relatively large or small or flat or round heads being fed with equal facility.

10 denotes the base and 11 and 12 the hopper members, the bottoms of which incline toward the center, as at 23. The special shape or configuration of the hopper members is immaterial so far as the present invention is concerned, the essential feature being that the contiguous faces of the two members lie parallel with each other leaving a slot 13 between them which receives the shanks of the blanks freely but will not re-

ceive their heads. Hopper member 12 is rigidly secured to the base by screws 14 which pass through the bed plate of the member. Hopper member 11 is adjustably secured to the base by screws 15 which pass through slots 16 in the bed plate of the member. When screws 15 are loosened, hopper member 11 may be moved toward or from its companion member by means of an adjusting screw 17 which is held against longitudinal movement in a bracket 18 projecting from the base and engages the bed plate of the member (see Fig. 3). The rear ends of the hopper members are provided with outwardly extending flanges 19 and said members are adjustably secured together by means of screws 20 whose shanks are partly unthreaded and pass longitudinally through screws 21. Screws 21 are tapped through one of the members only and abut against the inner face of the flange of the other member, the threaded portion of screws 20 being tapped into the flange 19, against which the ends of screws 21 abut. The forward ends of the hopper members are provided with inwardly extending flanges 48 and with outwardly extending flanges 22 between which is placed a spacing plate 24 which corresponds in thickness with the width required for slot 13 for the special size of blanks that are to be operated upon. By size I mean the diameter of the shanks of the blanks. Slight variations in the size of the blanks require no change in the adjustment of the hopper and feed wheel, presently to be described, but should the change be made from relatively large to relatively small blanks, or vice versa, hopper member 11 would be adjusted toward or from member 12 in the manner described and a spacing plate would be placed between flanges 22 which would determine the width of slot 13 after the adjustment.

26 denotes bolts which extend through flanges 22 and the spacing plate by which said parts are locked together.

27 denotes an inclined chute which comprises simply two corresponding plates. These plates are rigidly secured to flanges 22 as by bolts 29 so that the adjustment of hopper member 11 effects a corresponding adjustment of the chute; that is, the chute is simply a continuation of slot 13 and is at all times of uniform width with said slot so that the blanks will pass freely

into the chute, as will be more fully explained.

30 denotes a shaft which extends through the casing and is journaled in hubs 31 upon members 11 and 12. The shaft is provided at one end with a belt pulley 32 through which power is applied and at the other end with a hand wheel 33 for manipulating the shaft by hand whenever required. The shaft is made long enough to provide for ample adjustment of hopper member 11 and is retained against endwise movement by a collar 34 which is locked to the shaft by a set screw and bears against the hub of hopper member 12.

35 denotes the feed wheel as a whole. This feed wheel comprises two independent disks which are rigidly secured, as by screws 36, to collars 38 which are themselves adjustably secured to the shaft by a spline and groove connection, indicated by 40, and set screws 41 engaging the spline. In practice, the inner faces of the disks are adjusted in alinement with the contiguous faces of the hopper members leaving a slot 42 between the disks of the feed wheel which corresponds with slot 13 between the hopper members and the plates of the chute. The disks are provided with a plurality of corresponding teeth 43, five in the present instance. These teeth are provided with forwardly projecting points 44 which are adapted to straddle the shanks of the blank and to pass under the heads on opposite sides of the shanks. In front of the points are depressions 45, the walls of said depressions running out in straight walls on the backs of the next forward teeth, as at 46. These walls carry the blanks by their heads. The teeth of wheel 35 pass between the flanges 48, which latter serve as a guard for said wheel.

It will be noted that the bottoms of the hopper members incline toward slot 13 as at 23. The headed blanks are poured loosely into the hopper and as the heads of the blanks cannot pass into slot 13 the shanks of the blanks naturally drop into said slot. Rotation of the feed wheel acts to agitate the blanks and to cause the lower ones to assume a vertical position with the heads upward and the shanks in the slot. The heads of the blanks are caught by the points of the teeth and as each tooth moves upward the blanks caught thereby slide along in slot 42, the shanks of the blanks lying in the slot and the heads resting upon and sliding along the depressions 45 and then along the straight walls 46 until in the forward movement of the wheel said walls swing downward when the blanks will slide from the feed wheel into the chute still remaining in the upright position with the heads of the blanks resting on the top walls of the chute and their shanks depending in

the slot in the chute, which, as already stated, is continuous with slot 13 in the hopper and slot 42 in the feed wheel. In this connection it will be noted that the flanges 48 are cut away as indicated at 48' for the passage of the heads of the blanks, said cut away portions being in alinement with chute 27.

In order to prevent the possibility of blanks getting crosswise of the feed wheel, that is with their shanks lying horizontally and the heads edgewise in slot 42 or upon one side of the wheel, I provide a kicker 47 preferably upon each side of the feed wheel. These kickers are simply levers pivoted as at 49 to inwardly extending flanges 48 upon the hopper members. Each kicker is provided on its under side with a lug 50, said lugs engaging the periphery of one of the collars 38. The peripheries of these collars are provided with bosses 51 by which the kickers are alternately raised and allowed to drop as the feed wheel rotates. In practice, the bosses on the collars are placed in alternate arrangement, as shown in Fig. 2, so that the kickers are caused to rise and fall alternately. As the operative faces of the backs of the kickers, indicated by 52, rise higher than the corresponding portions of walls 46, it follows that should blanks get crosswise of the feed wheel, which rarely happens, they will be knocked off by the kickers and caused to drop down into the hopper, while blanks caught by the heads with their shanks in slot 42 will slide around in the depressions of the teeth and out on walls 46, and when said walls drop below the horizontal line will pass from the backs of the teeth into the chute, down which they will slide, as indicated in Fig. 2. Inwardly extending flanges 48 are shaped to receive the teeth of the feed wheel disks and to partly overlie the outer faces of the disks and thus form a guard to prevent the blanks from collecting at the center of the hopper and in front of the teeth of the feed wheel in their downward movement, thus rendering it practically impossible for the blanks to jam in the hopper and stop the feed wheel as the teeth do not come in contact with the blanks until they are about to move upward.

Having thus described my invention I claim:

1. A blank feeding machine of the character described comprising a hopper having a slot adapted to receive the shanks but not the heads of blanks and a feed wheel having teeth and a slot corresponding with the slot in the hopper, said teeth having forwardly extending points adapted to pass under the heads of the blanks on opposite sides of their shanks and walls along which the heads of the blanks slide and from which they pass with the heads upward when said walls swing downward.

2. A blank feeding machine of the character described comprising hopper members with a slot between them adapted to receive the shanks but not the heads of blanks and
 5 a feed wheel comprising disks with a corresponding slot between them and having teeth with forwardly extending points and walls along which the heads of the blanks slide and from which they pass when said
 10 walls swing downward.

3. A blank feeding machine of the character described comprising hopper members having their contiguous faces parallel, means for adjusting one of said members toward or
 15 from the other, a feed wheel consisting of two independent disks each having forwardly extending points to pick up blanks and carrying walls for the heads of the blanks and means for adjusting said disks
 20 toward or from each other.

4. A blank feeding machine of the character described comprising hopper members having their contiguous faces parallel, means for adjusting one of said members
 25 toward or from the other leaving a slot between them adapted to receive the shanks but not the heads of blanks, a feed wheel consisting of two independent disks each provided with teeth having forwardly extending points and carrying walls, for the
 30 purpose set forth, a shaft journaled in the hopper members by which said disks are carried and means for adjusting the disks on the shaft leaving a slot between them corresponding with the slot between the hopper
 35 members.

5. A blank feeding machine of the character described comprising a hopper consisting of two corresponding members, means for adjusting one of said members to form
 40 a slot between them adapted to receive the shanks but not the heads of blanks, a shaft journaled in said members, a feed wheel carried by said shaft and consisting of two disks having corresponding teeth with forwardly extending points and carrying walls for the heads of blanks, means for adjusting the disks on the shaft to form a slot
 45 between them corresponding with the slot between the hopper members and an inclined chute comprising plates secured to the hopper members and having a slot into which the blanks pass from the carrying walls of the feed wheel.
 50

6. A blank feeding machine of the character described comprising a hopper having a central slot, a feed wheel having a corresponding slot and collars provided with raised bosses and pivoted kickers engaging
 60 the collars by which blanks lying crosswise of the feed wheel are displaced.

7. A blank feeding machine of the character described comprising a hopper consisting of two members one of which is adjustable, a shaft journaled in said members,

a feed wheel consisting of corresponding disks with teeth having forwardly projecting points and carrying walls, for the purpose set forth, collars to which the disks are secured and which are provided with bosses
 70 and are adjustable on the shaft and kickers pivoted to the hopper members and having lugs engaging said bosses, substantially as described, for the purpose specified.

8. A blank feeding machine of the character described comprising a hopper consisting of two members one of which is adjustable, a shaft journaled in said members, a feed wheel consisting of corresponding disks
 75 with teeth having forwardly projecting points and carrying walls, for the purpose set forth, collars to which the disks are secured and which are provided with bosses, a spline and groove connection between the collars and shaft, set screws in the collars
 80 engaging the spline and kickers pivoted to the hopper members and having lugs engaging the bosses on the collars.
 85

9. A hopper for headed blanks comprising two members having parallel contiguous faces and bottoms inclining toward the center, flanges on the rear and front ends of said members, a screw in one of the rear
 90 flanges abutting against the other flange and partly unthreaded screw passing longitudinally through the first mentioned screw and engaging the flange against which the other screw abuts, and a spacing plate between the front flanges to determine the width of the
 95 slot between the members.
 100

10. In a feeding machine for headed blanks, a feed wheel comprising disks provided with forwardly extending teeth and carrying walls for the heads of blanks and means for adjusting said disks toward and
 105 from each other to form a slot to receive the shanks but not the heads of blanks.

11. In a machine of the character described, the combination with a two-member hopper, said members having parallel contiguous faces and bottoms inclining toward
 110 the center, means for adjusting one of said members so as to leave a slot between them and a shaft journaled in said members, of a feed wheel comprising disks adjustable on said shaft leaving a corresponding slot between them, each disk having teeth with forwardly extending points and carrying walls for the heads of blanks.
 115

12. In a machine of the character described, the combination with a two-member hopper, said members having parallel contiguous faces and bottoms inclining toward
 120 the center, means for adjusting one of said members so as to leave a slot between them and a shaft journaled in said members, of a feed wheel comprising disks adjustable on said shaft leaving a corresponding slot between them, each disk having teeth with forwardly extending points and carrying walls
 125 for the heads of blanks.
 130

walls for the heads of blanks, and an inclined chute adjustable with the hopper members into which the blanks pass with the heads upright from the carrying walls of the feed wheel.

13. A blank feeding machine of the character described comprising a hopper having a central slot and inwardly extending flanges on opposite sides thereof and a feed wheel having a corresponding slot, said flanges partly receiving the feed wheel and serving as a guard therefor, substantially as described, for the purpose specified.

14. In a machine of the character described, the combination with a feed wheel comprising separated disks having forwardly extending teeth, of a hopper comprising separated members having inwardly extending flanges which partly receive the feed wheel and serve as a guard therefor, and a discharge chute, said flanges having cut away portions in alinement with said chute.

15. In a machine of the character described, the combination with a feed wheel comprising separated disks having for-

wardly extending teeth and collars having raised bosses, of a hopper comprising separated members having inwardly extending flanges which partly receive the feed wheel and kickers pivoted to the flanges and engaging the collars.

16. In a machine of the character described, the combination with a feed wheel comprising separated disks and a hopper comprising separated members, of means for adjusting said disks and said members toward and from each other leaving corresponding slots between them.

17. In a machine of the character described, the combination with a feed wheel having a circumferential slot and teeth for picking up blanks by the heads with the shanks lying in the slot, of a hopper having a corresponding slot to receive the shanks but not the heads of blanks.

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

ERNEST W. DUSTON.

Witnesses:

LANCASTER P. CLARK,
WALTER B. DAVIS.