Sept. 28, 1926. 1,601,442

A. R. HAVENER

HOPPER FOR FASTENERS

Filed April 22, 1926

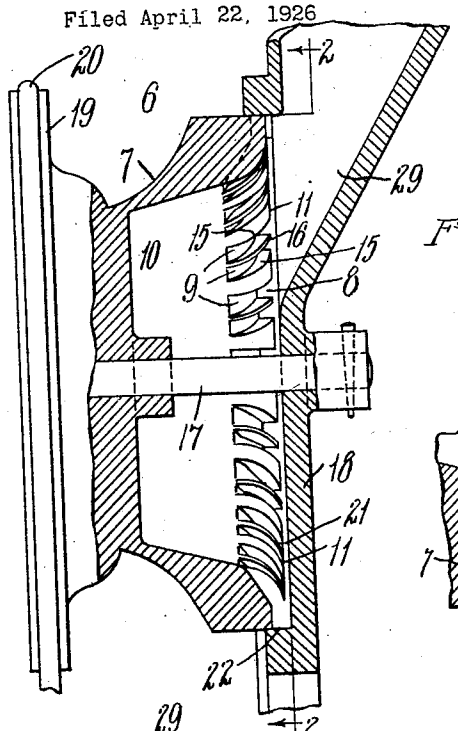


Fig. 1.

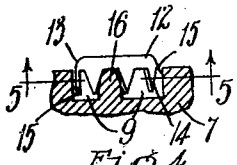


Fig. 4.

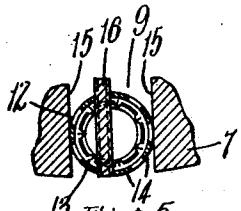


Fig. 5.

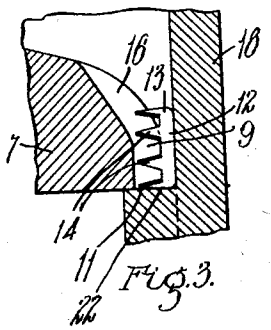


Fig. 3.

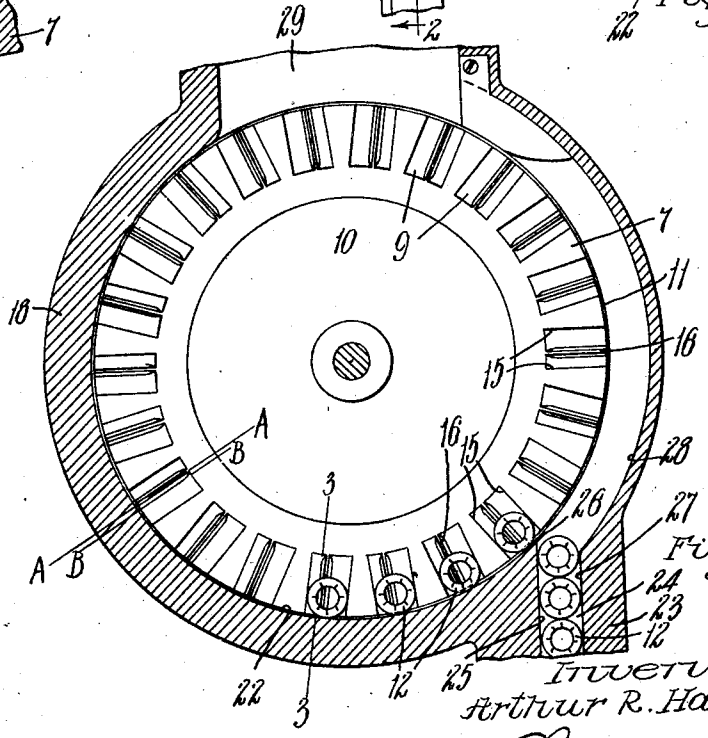


Fig. 2.

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Patented Sept. 28, 1926. 1,601,442

UNITED STATES PATENT OFFICE.

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HOPPER FOR FASTENERS.

Application filed April 22, 1926. Serial No. 103,924.

This invention relates to an improved hopper for separating fasteners and feeding them one by one down a race-way to be set in sheet material by a fastener setting machine.

The hopper of this invention is particularly adapted to be used with fasteners having an annular head with a plurality of prongs thereon, and especially fasteners having an odd number of prongs.

The invention consists in a hopper of the character set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings:

Figure 1 is a sectional elevation partly broken away illustrating my improved hopper.

Fig. 2 is a sectional elevation taken on the line 2—2, Figure 1.

Fig. 3 is an enlarged sectional elevation taken on the line 3—3, Fig. 2.

Fig. 4 is a side elevation of one of the fasteners positioned on a portion of the rotary member of the hopper.

Fig. 5 is a detail sectional plan taken on the line 5—5 of Fig. 4 and viewed in the direction of the arrow thereon.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 6 is the hopper. 7 is a hollow rotary member forming a portion of said hopper, which is open at one end 8 and is provided with passages 9 leading from the interior 10 of the rotary member to the periphery 11 thereof. Each of these passages is adapted to receive one fastener 12.

The fastener 12 consists of an annular head 13 provided with a plurality of prongs 14. The opposite sides 15 of each passage 9 are parallel to each other and to a partition 16, the partition being radial with relation to the center of the rotary member 7. The longitudinal median plane A—A of each of said partitions being positioned parallel to and at one side of the longitudinal median plane B—B of its respective passage 9. The object of positioning the median plane A—A at one side of the median plane B—B is so that fasteners having an odd number of prongs, seven for example, may be fed through the passages 9 as illustrated particularly in Fig. 5, wherein the partition 16 is shown positioned between two pairs of adjacent prongs 14. It is evident that if the partition 16 were located centrally between the two sides 15 of the passage 9 that a fastener with prongs of the number and size and in the relative positions illustrated in Fig. 5 could not feed through the passage 9.

The rotary member 7 of the hopper is rotatably mounted upon a stud 17 which is fastened to a cover 18 and the member 7 is rotated by means of a pulley 19 formed thereon and by a belt 20. The cover 18 extends across the open end of the rotary member 7 and is spaced apart therefrom at 21 a distance approximately equal to the thickness of the annular heads 13 of the fasteners 12, and said cover is provided with a recessed portion 22 into which the open end of the rotary member projects.

The cover 18 embodies a raceway 23 which is provided with a passage way 24 for said fasteners. One wall 25 of said passageway terminates at a point 26 adjacent the periphery of the rotary member, and the other wall 27 extends at its upper end in a curve 28 concentric with the rotary member, spaced apart therefrom, and in the general direction of rotation of said rotary member.

The raceway 23 of the recessed portion 22 projects beneath the outer edge of the rotary member 7 and is adapted to support the fasteners as they are carried around to the raceway 23 by the rotary member 7. The passageway 24 terminates at its intersection with the wall 25 of the raceway and at the other end thereof it merges into a chute 29 through which the fasteners are introduced into the interior 10 of the rotary member 7.

The general operation of the hopper is as follows:—The fasteners are introduced into the interior 10 of the rotary member 7 through the chute 29. The rotary member 7 is rotated by means of the pulley 19 and belt 20 and as the fasteners are tumbled about in the interior of the rotary member 7, due to the rotation thereof, they slide into the pasages 9 and down those passages, which are located upon the lower side of the rotary member, until they rest against the wall 23. They are then pushed along this wall until they arrive at the passageway 24 in the raceway 23, whereupon they pass

out of the passages 9 and into the passageway 24, down which they slide to the driving instrumentalities of a fastener setting machine.

I claim:

1. A hopper for feeding fasteners each having a head and an odd number of prongs having, in combination, a hollow rotary member open at one end and provided with passages leading from the interior to the periphery thereof, each of which is adapted to receive the prongs of one of said fasteners, a partition in each of said passages, its longitudinal median plane being positioned at one side of the longitudinal median plane of the passage, a cover extending across said rotary member, spaced apart therefrom and embodying a raceway provided with a passageway for said fasteners, one wall of which terminates at a point adjacent the periphery of said rotary member and the other wall of which is spaced apart therefrom and extends along outside said rotary member in the direction of rotation thereof, and a guide located beneath said rotary member and adapted to support said fasteners as they are carried to the raceway by said rotary member.

2. A hopper for feeding fasteners each having a head and an odd number of prongs having, in combination, a hollow rotary member open at one end and provided with passages leading from the interior to the periphery thereof, each of which is adapted to receive the prongs of one of said fasteners, a radial partition in each of said passages, its longitudinal median plane being positioned at one side of the longitudinal median plane of the passage, the opposide sides of each passage being parallel to its respective partition, a cover extending across said rotary member, spaced apart therefrom and embodying a raceway provided with a passageway for said fasteners, one wall of which terminates at a point adjacent the periphery of said rotary member and the other wall of which is spaced apart therefrom and extends along outside said rotary member in the direction of rotation thereof, and a guide located beneath said rotary member and adapted to support said fasteners as they are carried to the raceway by said rotary member.

3. A hopper for feeding fasteners each having a head and an odd number of prongs having, in combination, a hollow rotary member open at one end and provided with passages leading from the interior to the periphery thereof, each of which is adapted to receive the prongs of one of said fasteners, a partition in each of said passages, its longitudinal median plane being positioned at one side of the longitudinal median plane of the passage, and a cover extending across said rotary member, spaced apart therefrom and provided with a recessed portion into which the open end of said rotary member projects and embodying a raceway for said fasteners, one wall of which terminates at a point adjacent the periphery of said rotary member, the other wall of which, at its upper end, intersects the lower end of a portion of the wall of said cover which extends along outside said rotary member in the direction of rotation thereof and is spaced apart therefrom a distance not less than the diameter of the head of one of said fasteners, the remainder of the wall of said recess intersecting at its lower end the first-named wall of said raceway and constituting a support and guide for said fasteners as they are carried to the raceway by said rotary member.

4. A hopper for fasteners each having a head and a plurality of prongs having, in combination, a hollow rotary member open at one end and provided with passages leading from the interior to the periphery thereof, each of which is adapted to receive the prongs of one of said fasteners, a partition in each of said passages extending longitudinally thereof, a cover extending across said rotary member, spaced apart therefrom and embodying a raceway provided with a passageway for said fasteners, one wall of which terminates at a point adjacent the periphery of said rotary member, and the other wall of which is spaced apart thereof and extends along outside said rotary member in the direction of rotation thereof, and a guide located beneath said rotary member and adapted to support said fasteners as they are carried to the raceway by the rotary member.

In testimony whereof I have hereunto set my hand.

ARTHUR R. HAVENER.