E. NORDSTROM.

ARTICLE FEEDING HOPPER.

APPLICATION FILED NOV. 1, 1916.

1,276,562.

Patented Aug. 20, 1918.

2 SHEETS—SHEET 1.

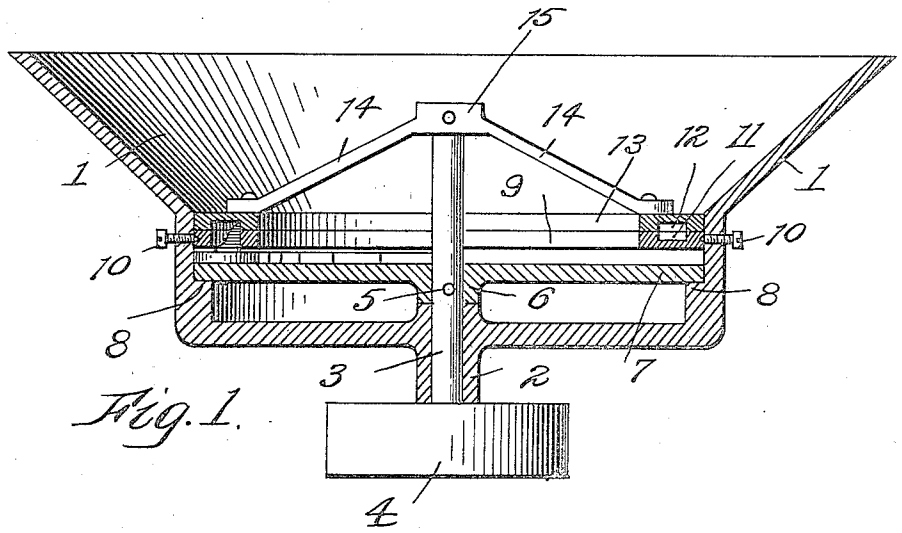
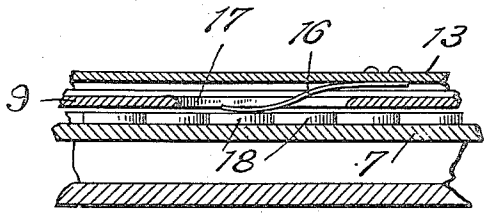


Fig. 1.

Fig. 2.



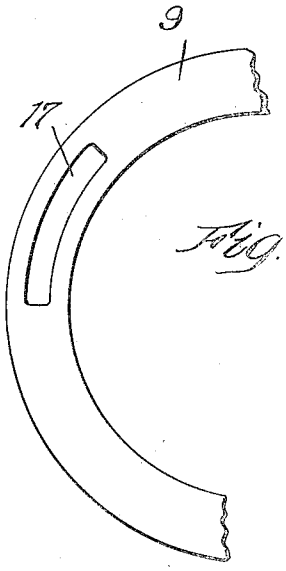


Fig. 3.

Inventor

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2 SHEETS—SHEET 2.

Fig. 4.

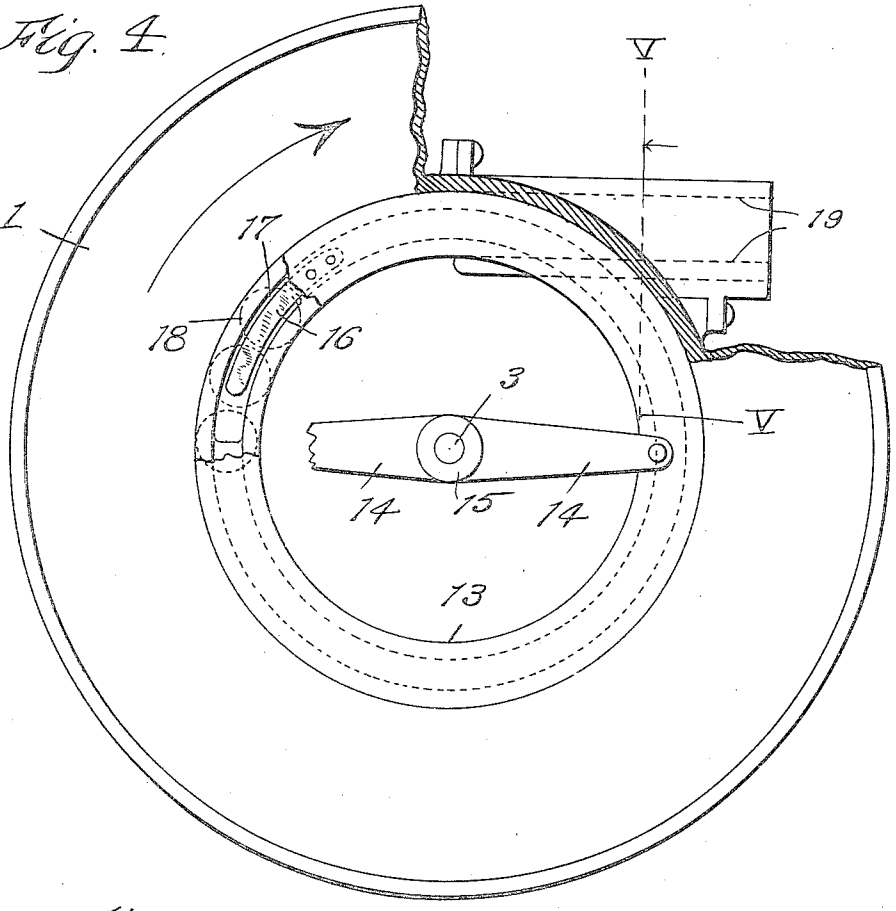
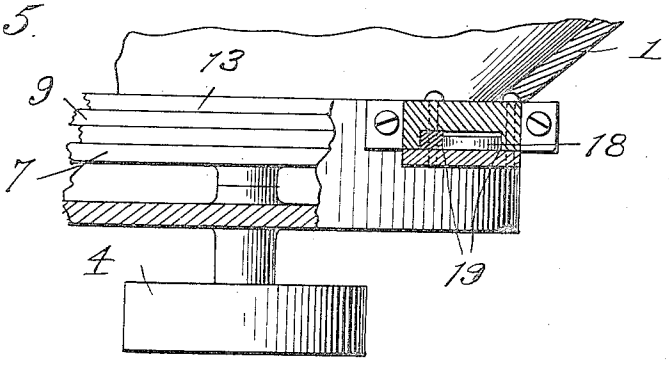


Fig. 5.



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UNITED STATES PATENT OFFICE.

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ARTICLE-FEEDING HOPPER.

1,276,562. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed November 1, 1916. Serial No. 128,912.

To all whom it may concern:

Be it known that I, ELOF NORDSTROM, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Article-Feeding Hoppers, of which the following is a specification.

This invention relates to article-feeding hoppers and has for its primary object to provide improved means for arranging articles to be fed and for feeding said articles in a simple and efficient manner. Particular objects of inventions will appear in the specification and be pointed out in the appended claims, reference being had to the accompanying drawings which exemplify my invention, and in which,

Figure 1 is a vertical section of an article-feeding hopper constructed in accordance with the principles of the present invention, parts being shown in elevation;

Fig. 2 is a fragmentary detail section on an enlarged scale;

Fig. 3 is a fragmentary bottom plan view of the guide or guard ring.

Fig. 4 is a top plan view of the hopper, parts being broken away and parts shown in section;

Fig. 5 is a fragmentary section on the line V—V, Fig. 4.

In the embodiment of my invention shown on the drawings, the hopper 1 is provided with a central bearing 2, within which is journaled a shaft 3 having keyed thereto a pulley 4, by means of which said shaft 3 may be driven. A pin 5 serves to key the shaft 3 to the hub portion 6 of a rotary plate 7, which constitutes the bottom of the article-containing chamber in the hopper. The peripheral edge of the rotary plate 7 slides on an annular shoulder 8. Spaced from the bottom plate 7 is a fixed plate or annulus 9 which, in the present embodiment, is maintained in position by set screws 10. The fixed ring or plate 9 is provided with an annular groove 11 which corresponds with an annular groove 12, in the rotary plate or annulus 13 which is connected by a yoke comprising arms 14 and a hub 15 to the rotary shaft 3. It will be seen therefore that the plate or annulus 13 preferably rotates at the same number of rotations as the bottom plate 7. As shown best in Fig. 2, the rotary annulus or plate 13 has a yieldable finger 16 secured thereto within the groove 12, said finger 16 being adapted to slide in the annular groove 11. Fixed ring or plate 9 is furthermore provided with a slot 17 which opens through the plate 9 in the bottom wall of the groove 11. As the shaft 3 rotates therefore, yieldable finger 16 slides over the bottom wall of the groove 11 until it reaches the slot 17 when it drops through on to the upper surface of one or more of the articles 18 which have been peripherally arranged on the bottom plate 7 in the manner to be presently explained. By an inspection of Fig. 4, it will be seen that the slot 17 is arranged adjacent to a discharge outlet or passage 19 which projects from the hopper tangentially to the path of the articles on the rotary plate 7. Briefly explained, the operation of the hopper feeding mechanism is as follows:

Shaft 3 is rotated at sufficient speed to throw the articles 18 outwardly by centrifugal force. The fixed ring or plate 9 being arranged at suitable distance above the rotary bottom plate 7 to permit only one thickness of articles to pass therethrough, said articles become arranged about the periphery of the rotary plate 7 in passing in the direction of the arrow shown in Fig. 4. From the foregoing description, it will be seen that the yieldable finger 16 is held away from the articles 18 during the greater portion of its angular movement. Upon reaching the slot 17, however, the rotary movement of the ring or plate 13 cooperates with the action of rotary plate 7 in forcing the disks into the discharge outlet of the passage 19.

What I claim is:—

1. In a machine of the character described, a hopper provided with a bottom rotary plate and a discharge outlet into which articles are fed from said bottom plate, a rotary member spaced from said bottom plate, and means suitably mounted on said rotary member to move into and out of feeding engagement with the articles on said bottom plate.

2. In a machine of the character described, a hopper provided with a bottom rotary plate and a discharge passage leading therefrom, a rotary member spaced from

said bottom plate, means yieldable on said member for engaging the articles to be fed, and means for holding said yieldable means away from said articles during portions of the rotary movement of said rotary member.

3. In a machine of the character described, a hopper provided with a bottom plate and a discharge passage leading therefrom, a rotary plate arranged above said bottom plate, a yieldable finger carried by said rotary plate and adapted to engage articles resting on said bottom plate, and a fixed plate interposed between said bottom plate and said rotary plate in the path of said yieldable finger, said interposed plate being provided with a slot corresponding to a portion of the travel of said yieldable finger.

4. In a machine of the character described, spaced rotary plates, one of said plates being provided with means adapted to yieldably engage articles on the other of said plates, and means interposed between said plates and adapted to hold said yieldable means out of engagement with said articles during part of the rotary travel of said plates.

5. In a machine of the character described, spaced rotary plates, one of said plates being adapted to carry articles to be fed, a yieldable member mounted on the other plate and adapted to engage said articles, and means normally holding said yieldable member out of engagement with said articles, said holding means being adapted to release said yieldable member during a portion of its travel.

6. In a machine of the character described, a hopper for articles to be fed, said hopper being provided with a discharge outlet, a rotary plate for carrying articles, a yieldable finger suitably mounted to travel above said rotary plate, said finger being adapted to move into and out of feeding engagement with articles on said rotary plate, and means for controlling the movement of said yieldable finger into and out of contact with said articles.

7. In a machine of the character described, a hopper for articles to be fed, said hopper being provided with a discharge outlet, a rotary plate for carrying articles, a yieldable finger suitably mounted to travel above said rotary plate, said finger being adapted to move into and out of feeding engagement with articles on said rotary plate, and means for controlling the movement of said yieldable finger into and out of contact with said articles, said controlling means comprising a plate spaced from said rotary plate and in suitable position to intercept said yieldable finger during the greater portion of the travel of said yieldable finger.

8. In a machine of the character described, a hopper for articles to be fed, said hopper being provided with a discharge outlet, a rotary plate for carrying articles, a yieldable finger suitably mounted to travel above said rotary plate, said finger being adapted to move into and out of feeding engagement with articles on said rotary plate, and a plate interposed between said yieldable finger and rotary plate to normally hold said finger out of engagement with said articles, said interposed plate being provided with a slot arranged in the path of said yieldable finger.

9. In a machine of the character described, a hopper for articles to be fed, said hopper being provided with a discharge outlet, a rotary plate for carrying articles, a yieldable finger suitably mounted to travel above said rotary plate, said finger being adapted to move into and out of feeding engagement with articles on said rotary plate, and a plate interposed between said yieldable finger and rotary plate to normally hold said finger out of engagement with said articles, said interposed plate being provided with a slot arranged in the path of said yieldable finger, and adjacent to said discharge outlet.

10. In a machine of the character described, a hopper having a depressed rotary bottom plate adapted to carry articles to be fed, a rotary annulus above said rotary bottom plate, a fixed annulus or plate arranged below said rotary annulus and spaced from said rotary bottom plate to accommodate said articles, said fixed annulus being provided with an arcuate slot, and a resilient finger carried by said rotary annulus and adapted to slide over said fixed annulus and to engage said articles through said arcuate slot.

11. In a machine of the character described, a hopper provided with a depressed rotary bottom plate and a discharge outlet to which articles are fed from said plate, a fixed plate arranged above and spaced from said rotary bottom plate to accommodate said articles, said fixed plate being provided with a groove and a slot in the bottom wall of said groove, a rotary plate arranged above said fixed plate and having a groove corresponding to the groove in said fixed plate, and a yieldable member mounted on the upper rotary plate and in the registering grooves of said fixed plate and upper rotary plate, said yieldable member being adapted to periodically drop into engagement with said articles through said slot in the fixed plate.

12. In a machine of the character described, a hopper provided with a depressed rotary bottom plate and a discharge outlet to which articles are fed from said plate, a fixed plate arranged above and spaced from said rotary bottom plate to accommodate said articles, said fixed plate being provided with a groove and a slot in the bottom wall of

said groove, a rotary plate arranged above said fixed plate and having a groove corresponding to the groove in said fixed plate, and a yieldable member mounted on the upper rotary plate and in the registering grooves of said fixed plate and upper rotary plate, said yieldable member being adapted to periodically drop into engagement with said articles through said slot in the fixed plate, said slot in the fixed plate being arranged adjacent to the discharge outlet of said hopper.

ELOF NORDSTROM.