Feb. 7, 1928.

1,658,734

L. D. NELSON

BAG FILLING MACHINE

Original Filed May 12, 1926 2 Sheets-Sheet 1

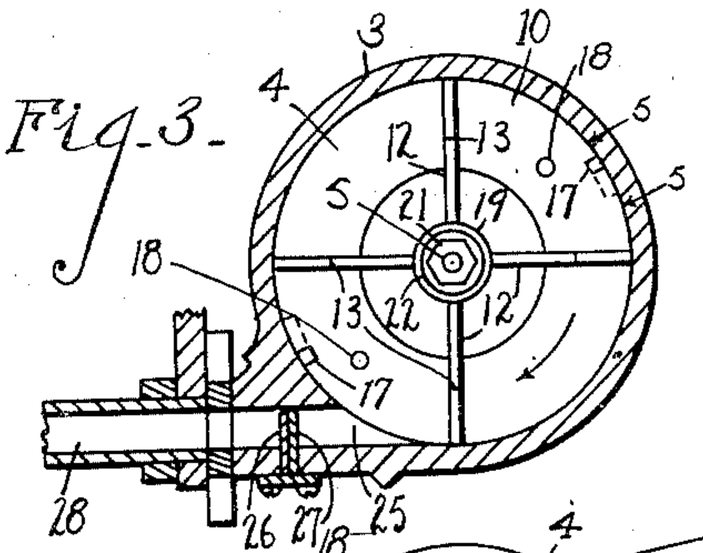

Fig. 3.

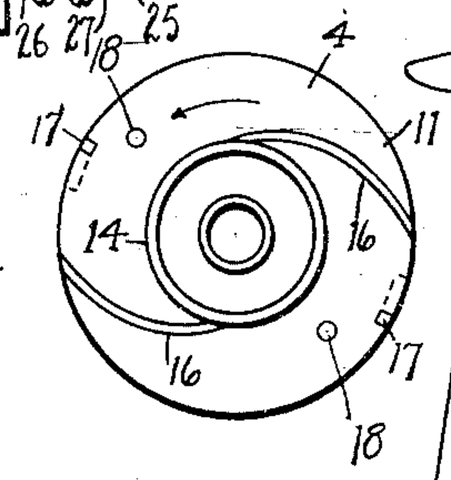

Fig. 4.

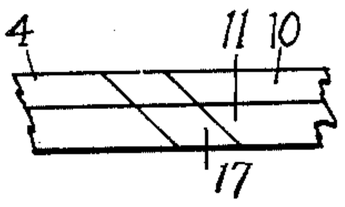

Fig. 5.

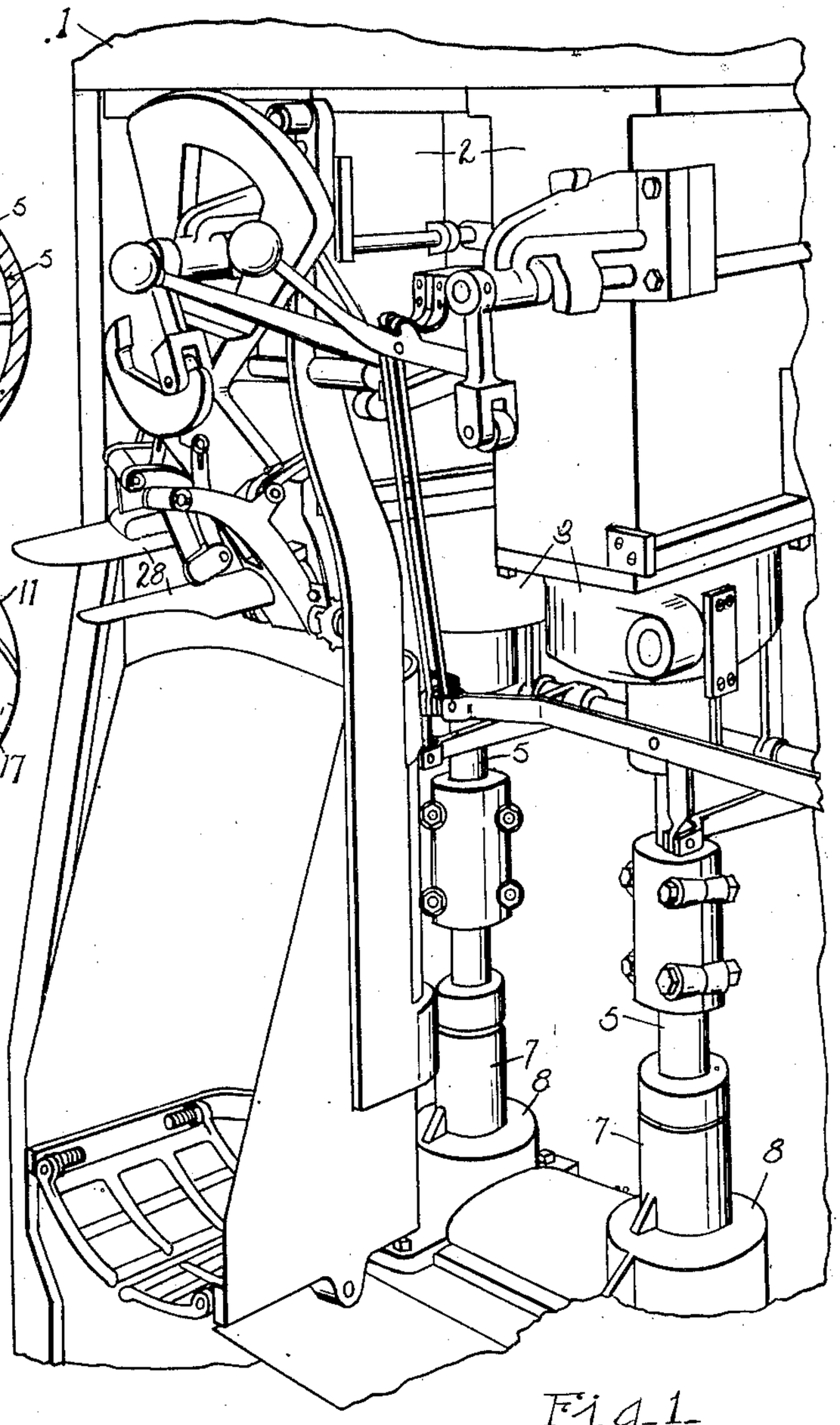

Fig. 1.

INVENTOR
Lewis D. Nelson

BY Chappell & Earl
ATTORNEYS

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L. D. NELSON

BAG FILLING MACHINE

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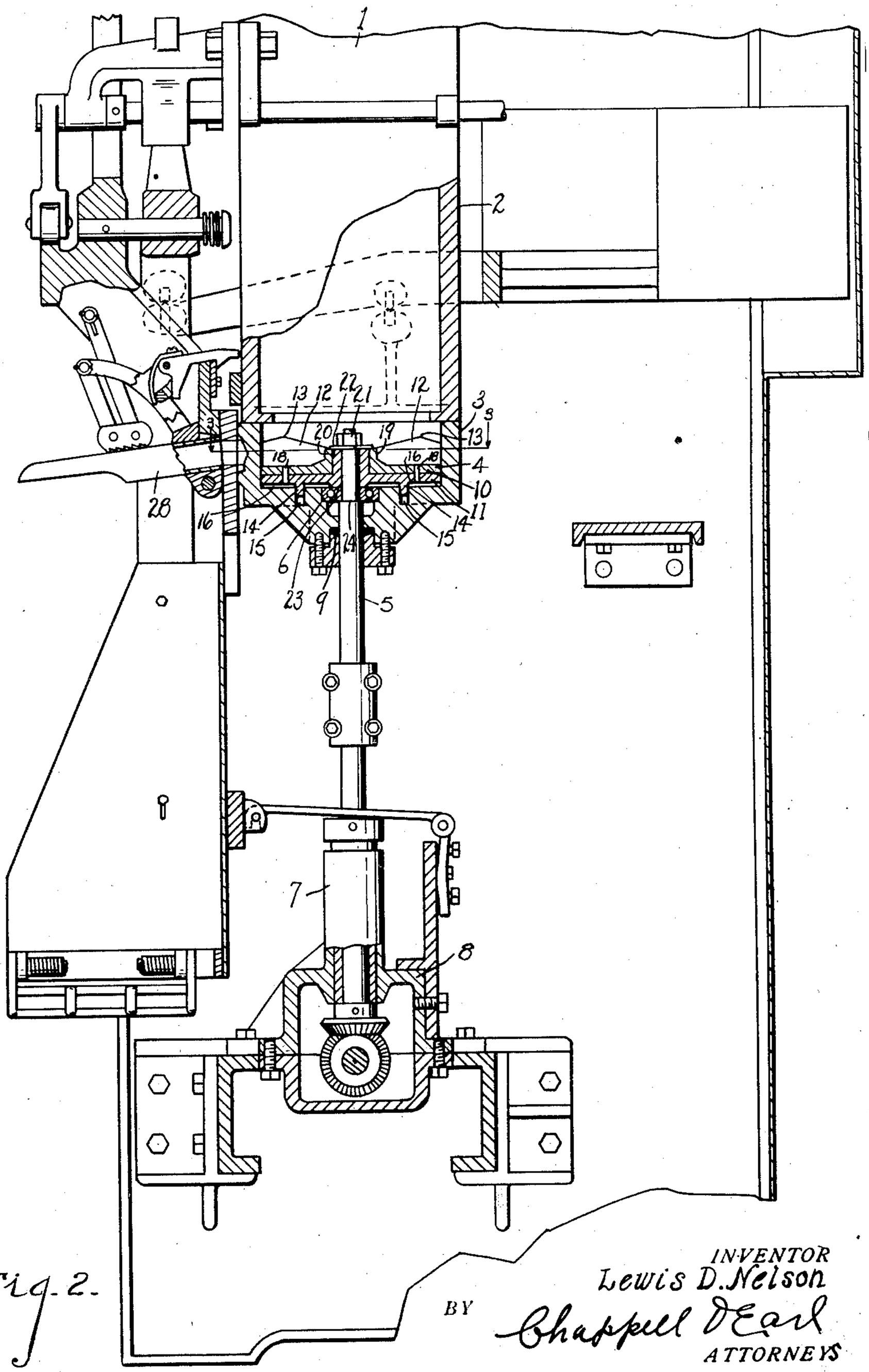

Fig. 2.

INVENTOR
Lewis D. Nelson
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ATTORNEYS

Patented Feb. 7, 1928. 1,658,734

UNITED STATES PATENT OFFICE.

LEWIS D. NELSON, OF COLDWATER, MICHIGAN, ASSIGNOR TO BATES VALVE BAG CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

BAG-FILLING MACHINE.

Original application filed May 12, 1926, Serial No. 108,504. Divided and this application filed April 18, 1927. Serial No. 184,628.

My improvements are especially designed for the handling of cement, lime, flour and other heavy materials, the embodiment illustrated being especially designed for the handling of cement and this application being a division of my application for Letters Patent filed May 12, 1926, Serial No. 108,504.

The main object of this invention is to provide in a machine of the class described an improved feed means which is not likely to become clogged in use and which is of large capacity.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this application, in which:

Fig. 1 is a fragmentary front perspective view of a structure embodying the features of my invention.

Fig. 2 is a fragmentary view partly in vertical section showing details of the feed means and its relation to other parts.

Fig. 3 is a detail horizontal section through the ejector on a line corresponding to line 3—3 of Fig. 2.

Fig. 4 is an inverted view of the rotor.

Fig. 5 is a fragmentary edge view of the rotor on line 5—5 of Fig. 4.

In the accompanying drawing I have illustrated only such parts of my improved filling machine as are more directly associated with the feed mechanism, the general structure being illustrated and described and claims being made thereto in my above mentioned application for Letters Patent.

The hopper 1 is arranged so that the material is fed therefrom by gravity. The structure illustrated is a multiple machine, the hopper having two discharge necks 2, one for each unit. At the bottom of the neck 2 is an ejector cylinder 3 open at the top to the hopper. Within this cylinder is a rotor designated generally by the numeral 4, the rotor being disposed horizontally in the bottom of the cylinder.

This rotor is mounted on a vertical shaft 5 supported in a bearing designated generally by the numeral 6 in the bottom of the cylinder and by the bearing 7 on the gear box 8. A packing gland 9 is provided for the shaft 5.

The rotor in the embodiment illustrated is made up of two plate-like members 10 and 11 which, however, are secured together so that they rotate as a unit with the shaft. The top rotor member 10 is provided with radial blades 12, the upper edges of which are preferably inclined in both directions with the high points 13 at the outside of the longitudinal centers of the blades; that is, these high points are nearer the outer end of the blades than to their inner ends.

The bottom member 11 is provided with an annular rib 14 on its under side which projects into the annular groove 15 in the bottom of the cylinder, this serving as a bearing protecting means. At the outside of this protecting rib 14 the bottom plate of the rotor is provided with rib-like clearing blades 16 which are tangentially disposed relative to the rib 14 to sweep any material which may pass around the edges of the rotor outwardly.

The rotor has inclined clearance grooves 17 in its periphery, these being inclined rearwardly relative to the direction of rotation so that the material carried outwardly by the clearance blades 16 is carried upwardly through the clearance grooves above the rotor and it is found that the bearings are very effectively protected by this means.

The rotor members 10 and 11 are secured together by the pins 18. The rotor member 10 has a hub-like portion 19 embracing the hub portion 20 of the member 11. A nut 21 on the upper end of the shaft clamps the members together. A retaining disk 22 is arranged under the nut to overlap the hub 19.

The rotor rests upon the portion 23 of the bearing 6 which is clamped between the rotor and the shoulder 24 on the shaft 5. With this arrangement the parts are simple in structure and easily assembled. Separate parts may be removed as occasion requires.

The discharge 25 of the cylinder is arranged tangentially and is controlled by a pair of slide valves 26 and 27. The means for operating these valves are not illustrated as they form no part of this invention and are fully described in my above mentioned application.

The filler spout 28 is operatively associ-

ated with the passage 25 and is in turn controlled by a weighing mechanism which is also fully described in my said application, of which this is a division, and is therefore not further described herein.

While my improved feed means are especially designed by me for use in connection with the mechanism shown in my said application for Letters Patent, the same will be found desirable and readily adapted for use in other relations. I have not attempted to illustrate and describe such adaptations as I believe this disclosure will enable those skilled in the art to embody or adapt the same as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a structure of the class described, the combination of a horizontally disposed ejector cylinder open at the top and having a peripheral discharge, a bearing at the bottom of said cylinder, said cylinder having an annular groove therein concentric with said bearing, a rotor disposed horizontally at the bottom of said cylinder bottom and comprising a bottom plate having an annular rib on its under side coacting with said groove and rearwardly curved clearance blades at the outside of said rib, and a top plate provided with radially disposed blades, said plates having peripheral rearwardly inclined clearance passages therein.

2. In a structure of the class described, the combination of a horizontally disposed ejector cylinder open at the top and having a peripheral discharge, a bearing at the bottom of said cylinder, said cylinder having an annular groove therein concentric with said bearing, a rotor disposed horizontally at the bottom of said cylinder and comprising a bottom plate having an annular rib on its under side coacting with said groove and rearwardly curved clearance blades at the outside of said rib, and a top plate provided with radially disposed blades.

3. In a structure of the class described, the combination of a horizontally disposed ejector cylinder open at the top and having a peripheral discharge, a rotor disposed horizontally at the bottom of said cylinder and comprising a bottom plate having clearance blades on its under side, and a top plate provided with radially disposed blades, said plates having a rearwardly inclined clearance passage therein.

4. In a structure of the class described, the combination of a horizontally disposed ejector cylinder open at the top and having a peripheral discharge, a rotor disposed horizontally at the bottom of said cylinder and comprising a bottom plate having clearance blades on its under side, and a top plate provided with radially disposed blades.

5. In a structure of the class described, the combination of a hopper, an ejector cylinder disposed below said hopper and open thereto, an ejector rotor disposed horizontally within said cylinder and provided with radially disposed blades on the upper side thereof and clearance blades on the under side thereof, said rotor having a clearance passage at the periphery thereof, and a shaft for said rotor disposed through the bottom of said cylinder and provided with a bearing, the bottom of the cylinder having an annular groove concentric with the shaft, said rotor having an annular guard member on its under side rotating in said groove.

6. In a structure of the class described, the combination of a hopper, an ejector cylinder disposed below said hopper and open thereto, and an ejector rotor disposed horizontally within said cylinder and provided with radially disposed blades on the upper side thereof and clearance blades on the under side thereof, said rotor having a clearance passage at the periphery thereof.

7. In a structure of the class described, the combination of a hopper, an ejector cylinder disposed below said hopper and open thereto, a rotor disposed horizontally within said cylinder, said rotor being provided with radially disposed blades on its upper face, said cylinder having a discharge port in the plane of said blades, and a clearance blade on the under side of said rotor, said rotor having a clearance passage therethrough.

8. In a structure of the class described, the combination of a hopper, an ejector cylinder disposed below said hopper and open thereto, a rotor disposed horizontally within said cylinder, said rotor being provided with radially disposed blades on its upper face, said cylinder having a discharge port in the plane of said blades, and a clearance blade on the under side of said rotor.

9. In a structure of the class described, the combination of a hopper, an ejector cylinder disposed below said hopper and open thereto, a rotor disposed horizontally within said cylinder, said rotor being provided with radially disposed blades on its upper face, said cylinder having a discharge port in the plane of said blades, said rotor having a clearance passage therein.

In witness whereof I have hereunto set my hand.

LEWIS. D. NELSON.