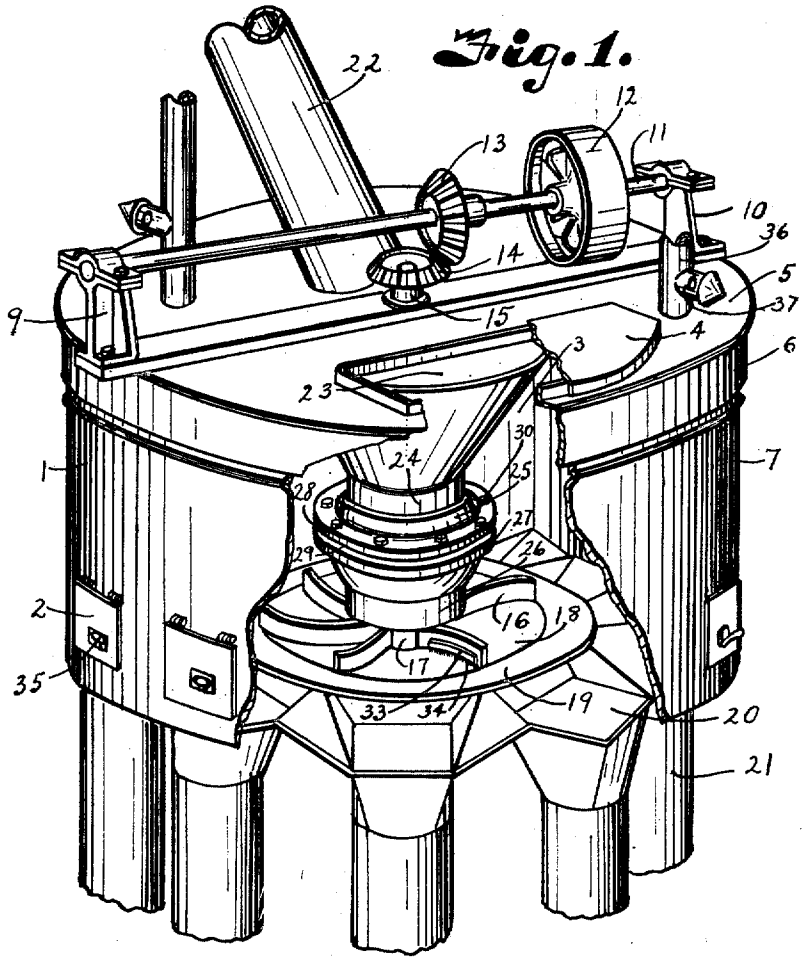
June 24, 1952 J. F. LAFFOON 2,601,534

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Fig. 1.



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Fig. 2.

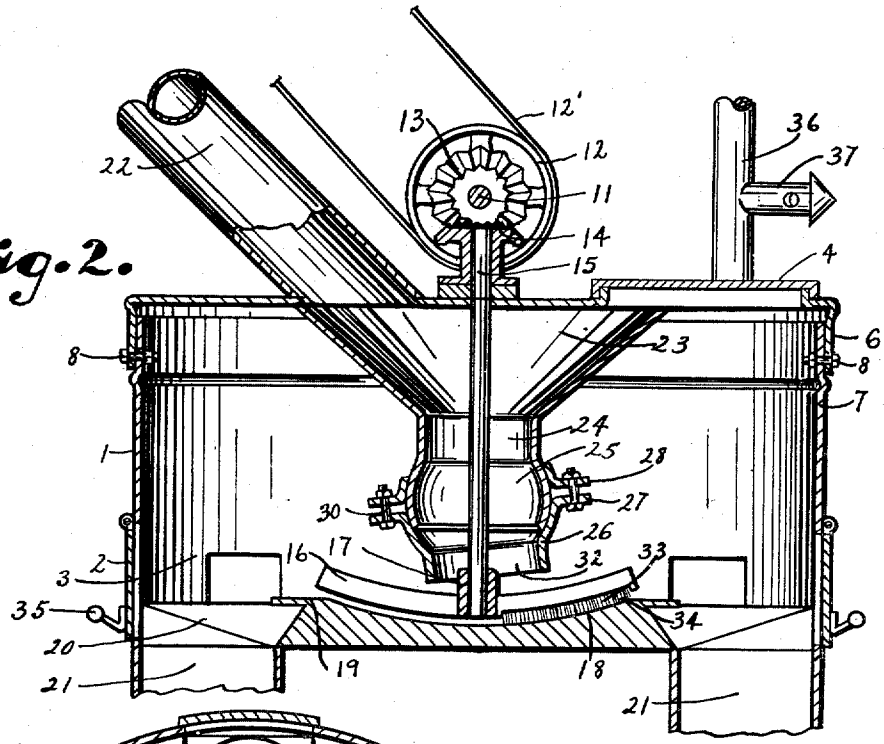
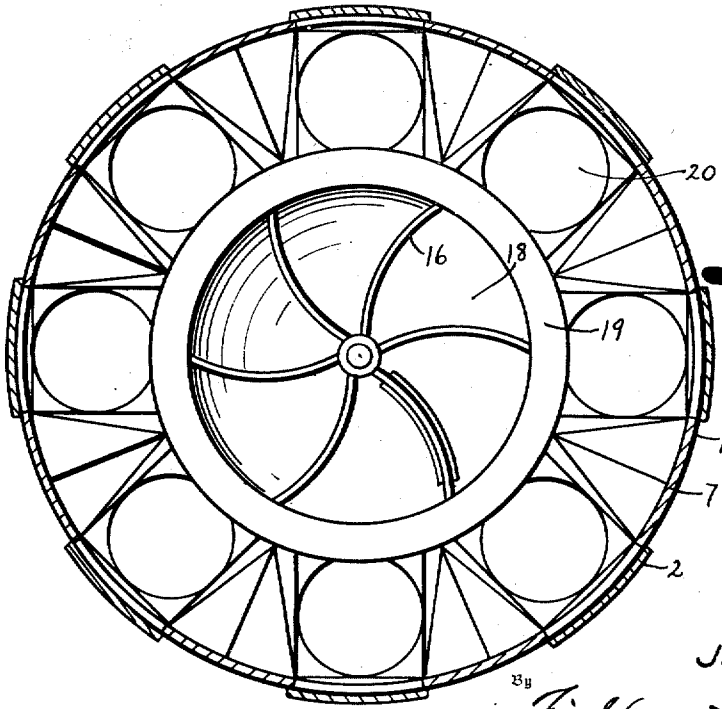


Fig. 3.



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UNITED STATES PATENT OFFICE

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James F. Laffoon, Kansas City, Mo.

Application April 15, 1948, Serial No. 21,269

1 Claim. (Cl. 222—330)

1

This invention relates to a device for distributing finely divided materials in uniform ratios to a plurality of receiving devices and is an improvement over my Patent No. 1,348,885 of August 10, 1920.

The invention is particularly adapted for use in distributing flour or flour stock from a suitable source of supply to devices adapted to receive it.

With devices heretofore in use, there has been considerable difficulty encountered in the work required for installing and aligning the structure in a flour mill because of the necessity for providing openings for the ducts leading from the bottom of the distributor to various portions of the mill and the difficulty in aligning the drive shaft on the distributor with other power transmission equipment in the mill. In the manufacture of flour, it is desirable to obtain a grade or quality free from dirt or other foreign matter and of a uniform character. By proper distribution of the stock to the various machines used in the operation, uniformity of grade or quality can be insured. It is, therefore, desirable to have the stock going to the bolting machines in a constant quantity flow, uniform in proportion to the capacity of the different sections of the mill.

In milling machines of this character, there are usually a plurality of sections and it is necessary that the stock going to the bolter and various sections be divided so that it will be delivered to the bolter in as many uniform streams as there are sections.

The principal objects of the present invention are to provide a table surrounded by a plurality of receiving devices; to provide a housing for the table including a hopper and having a cover which is adjustable over the housing so as to properly align the feeding spout to the hopper within the housing and with the receiving devices; to provide means whereby material deposited upon the table will be equally distributed about the perimeter thereof; to distribute the proper proportion of the materials to the receiving section; to provide means for correct and uniform flow of the stock to the sections; to provide a discharge chute or spout from the hopper to the table, adjustable with respect to location of such table on the receiving devices; to provide a spider for distributing the stock to the respective receiving devices in uniform amounts; to provide means on the spider for moving of dirt and other foreign matter from the table before it reaches the receiving devices and to provide a device of this character simple, economical to manufacture and efficient in operation.

2

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a device constructed in accordance with my invention, parts being broken away to show the interior construction thereof.

Fig. 2 is a vertical longitudinal sectional view through the invention, shown in Fig. 1.

Fig. 3 is a transverse section taken on a line 3—3, Fig. 2.

Referring more in detail to the drawing:

1 designates a casing or housing, in the wall of which is a plurality of doors 2. The casing 1 is provided with a manhole or opening 3 adapted to be normally closed by a cover 4.

5 designates a cover for the housing having a depending flange 6 adapted to fit over the upper edges of the side wall 7 of the casing 1 and the cover will turn or rotate on the casing for a purpose later shown. The cover is secured to the casing by bolts or the like 8 (Fig. 2) and by utilizing a plurality of openings for the bolts in the side wall 7 and flanges 6 of the cover so the cover may be adjusted in any position on the housing. Mounted on the cover 5 by brackets 9 and 10 is a shaft 11, the shaft carrying a pully 12 by means of which the shaft may be driven through a belt 12'. A beveled gear 13 is mounted on the shaft 11 meshing with a similar gear 14 on the vertical shaft 15 which extends through the top of the casing 1 and which carries a plurality of transversely and upwardly curved arms 16, disposed about the hub 17 on the shaft 15 whereby a spider is formed. The lower edges of the arm 16 are substantially parallel with the upper surface of a concave table 18 which is provided with a laterally projecting flange 19 extending around its entire perimeter and which is adapted to overlap the opening 20 of the material receiving devices or chutes 21 arranged in circular series about the perimeter of the table 18.

22 is a discharge chute leading from an elevator (not shown) into the chamber formed by the casing 1 so that finely divided material such as flour stock may be conveyed from the elevator to the hopper 23 within the casing 1.

The lower end of the hopper 23 is provided with a duct 24 leading to a spherical outlet 25, adapted to mount a directional discharge member 26. The discharge member 26 is preferably made in

two pieces having laterally turned flanges **27** and **28** having a plurality of openings **29** for clamping the pieces together by bolts or the like **30** to hold the same on the spherical portion **31** formed by the outlet **24** from the hoppers **23**. The spherical discharge member **26** may thus be adjusted with respect to the spider and table as it is desirable that the material be deposited approximately in the center of the table so as to get equal discharge entirely around the table.

It will thus be seen that the spherical discharge member will provide for movement of it and direct the open end **32** in any direction desired with respect to the spider to insure proper distribution and compensate for rebounding of the material as it passes through the discharge end of the hopper. Usually, more desirable results are secured if the spout is swung to one side so that material will be deposited concentrically with relation to the spider and table and thereby be evenly distributed from the perimeter of the table. Adjustment of the spherical discharge spout may be effected through the opening **3** in the top.

One of the curved arms **16** is preferably provided with a brush **33** having bristles **34** extending slightly below the lower edge of the curved arm to thus sweep the platform **18** to remove dirt or heavy material and foreign matter from the platform so that it may be removed from the material to prevent it from going to the receiving devices **21**.

The doors **2** are provided with weights **35** to normally close the openings in the receiving devices so that should the receiving devices become clogged and the pressure of the accumulating material exerting force against the weight will permit accumulated material to flow through the openings covered by the doors. Ordinarily, should the accumulated material reach the line of repose, it will be swept off the flange **19** by the ends of the spider arms.

36 designates an aspirator pipe leading from the casing and **37** an inlet port whereby outside atmosphere may enter the aspirator pipe when the temperature within the casing becomes too strong.

In assembling a structure constructed as described, the receiving devices are usually stationary in the building structure, the casing **1** is then placed thereover and the cover adjusted on the casing by rotating the same with respect to the casing to align the discharge chute **22** with the hopper **23** and the gearing carried by the cover

to align with the gearing in the building structure to operate the device. The spherical discharge spout may then be adjusted with respect to the spider to properly proportion the flour or other material discharged therefrom so that it will be evenly distributed to the receiving devices **21**.

It will be obvious from the foregoing that I have provided an improved proportional distributor in which the top or cover may be adjusted to accommodate the drive gearing and discharge chute from the elevator to the hopper in the casing with respect to the receiving devices and a spherical discharge chute from the hopper properly proportioning the material with respect to the spider as well as a brush on the spider for movement of dirt, rocks and other foreign material from the plate so that it will not be discharged to the receiving devices.

What I claim and desire to secure by Letters Patent is:

A distributor for finely divided material comprising, a circular table having a concave upper surface, a hopper above the table, a spout depending from the hopper and concentric with the table, a nozzle swivelled on the spout above the table and adapted to be adjusted eccentrically thereof to direct and substantially equally distribute said material onto the table, a spider rotatable above the table, said spider having radial blades extending over the table with the lower edges of said blades substantially uniformly spaced from the upper surface of said table for evenly discharging the material to the periphery thereof, material receiving devices about the periphery of the table and having inlet openings below the same, and a bristled brush on one of the spider blades and substantially coextensive therewith, the bristles of said brush engaging the upper surface of the table for sweeping same and effecting movement of heavy foreign objects in the material to the center of the concave surface.

JAMES F. LAFFOON.

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