Sept. 26, 1939. P. E. SAGE 2,174,138

POWDER-FEEDING DEVICE

Filed April 27, 1938

Fig. 1.

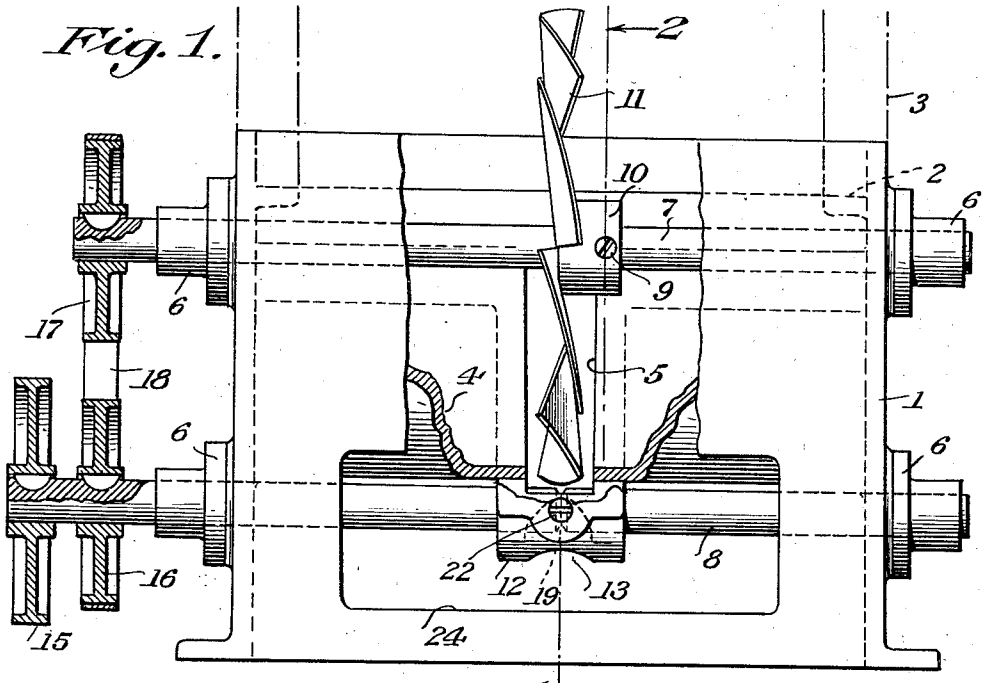


Fig. 2.

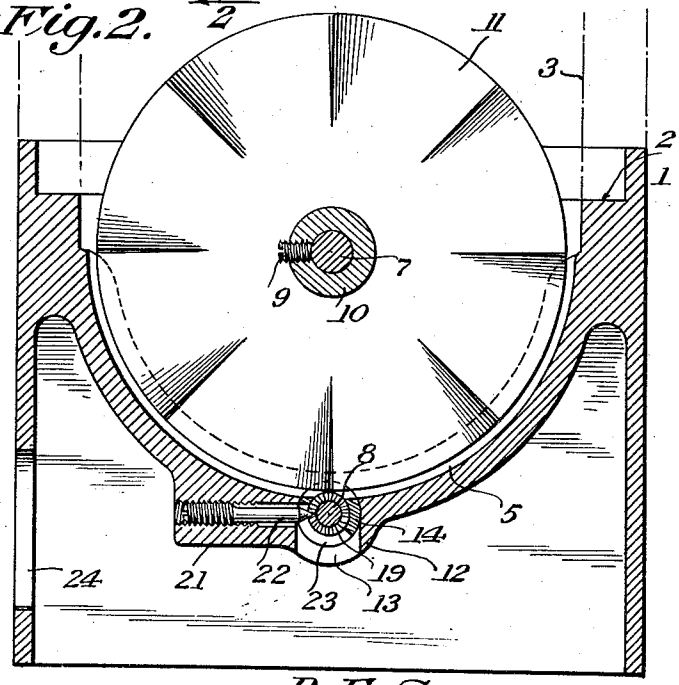


Fig. 3.

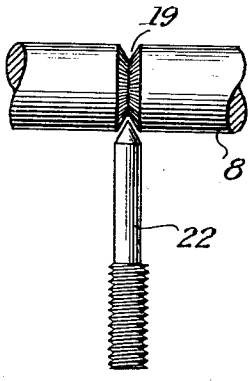
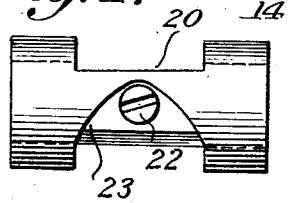


Fig. 4.



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POWDER-FEEDING DEVICE

Paul E. Sage, Lagrange, Ohio

Application April 27, 1938, Serial No. 204,699

1 Claim. (Cl. 221—125)

This invention relates to feeding devices, and its general object is to provide a device of that character which is primarily designed for use with flour mills, for continuously feeding a predetermined quantity of bleaching agent to the flour for commingling therewith during the grinding action thereof, and preferably as it passes between the final rolls of the mill, with the result the agent which is in powder form, will be evenly distributed throughout the flour to act upon the carotinoid pigment accordingly, thereby assuring uniform bleaching thereof.

A further object is to provide a feeding device that includes means whereby the quantity of the powder fed to the flour can be easily and expeditiously regulated and the device requires little or no attention after being adjusted for feeding the proper quantity of bleaching agent to the flour.

Another object is to provide a feeding device that can be readily installed for use with flour mills of all types, is simple in construction, inexpensive to manufacture, and extremely efficient in operation, use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a front elevation of the feeding device which forms the subject matter of the present invention with parts broken away and in section.

Figure 2 is a sectional view taken approximately on line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is an enlarged detail view illustrating the relation of the wiping or scraping pin and the powder receiving groove in the shaft.

Figure 4 is a front view of the bushing or sleeve and illustrates the relation of the feeding pin with respect thereto.

Referring to the drawing in detail, it will be noted that my feeding device includes a housing which is of substantially rectangular formation in the form as shown, and is made up of a lower or base section 1 having an internal shoulder 2 about the upper end thereof to provide a seat for the upper section 3, the latter being in the form of a hopper for receiving the bleaching agent, as will be apparent.

The bottom wall 4 of the device is preferably formed on or integral with the vertical walls of the base or lower section, adjacent to the upper end thereof and is rounded in semi-circular formation, as best shown in Figure 2. Extending throughout the width of the bottom wall and disposed centrally therein is a groove 5 that provides a trough for the agitator or feeding wheel to travel therein, and which will be presently described.

Bridging the side walls of the base section and journaled in suitable bearings are shafts 7 and 8 disposed one above the other in superposed relation, as shown, and the shaft 7 has fixed thereto by a set screw or the like 9, the hub 10 of the agitator or feeding wheel. The body of the wheel is preferably of disk formation, and made from sheet metal, the disk being slit radially with the slit portions twisted to provide blades 11 that travel in the trough provided by the groove 5.

Formed on the lower end of the bottom wall and centrally thereof is a projection 12 having an opening 13 therethrough which provides an outlet for the bleaching agent, as will be apparent upon inspection of Figure 2, and mounted in the opening is a sleeve or bushing 14 which surrounds the shaft 8, the latter acting as a drive shaft and having a pulley 15 secured to the projecting end thereof for the purpose of receiving a belt in connection with a suitable source of power. A pulley 16 is likewise secured to the drive shaft and a pulley 17 is secured to the agitator shaft, with a belt 18 trained about the pulleys 16 and 17 so that the agitator shaft is driven from the drive shaft.

That portion of the drive shaft within the sleeve or bushing 14 is provided with an annular cross sectional V-shaped groove 19 that is serrated or knurled throughout its area for the purpose of holding the bleaching agent, which is in the form of powder. The sleeve is provided with an inlet recess 20 in the upper portion thereof to register with the outlet opening and the annular groove 19 is disposed centrally of the recess through which likewise travels the outer edge portions of the blades 11 of the agitator, so that the blades will deposit powder within the groove and retain the same filled therewith. The projection 12 extends laterally as at 21 and the lateral portion is provided with a bore communicating at its inner end with the outlet opening 13 and the bore is threaded for a portion of its length from its outer end to threadedly receive a

pin 22 having a pointed inner end beveled to the same degree as the bevel of the walls of the groove 19, as clearly shown in Figure 3. The pointed or tapered inner end of the pin 22 is adjusted with respect to the groove 19, by threading the same in the bore, and for that purpose the outer end of the pin is kerfed to receive a screw driver or like tool, and the sleeve 14 is milled or provided with an outlet recess 23 through which the pin extends for disposal in the groove for wiping or removing the powder therefrom, as will be apparent upon inspection of Figure 2. The recess 23 extends about the sleeve 14 to register with the outlet opening 13, so that the powder after being wiped from the groove 19, will pass through the outlet opening to commingle with the flour.

While the device can be associated with a flour mill at any appropriate place thereon, I preferably mount the device so that the bleaching powder is introduced with the flour, as it passes between the final rolls of the mill, as such has been found to be very satisfactory, because of the fact that the powder and the flour are ground together which causes equal distribution of the powder throughout the flour, to act upon the carotinoid pigment accordingly.

It will be noted that the front wall of the lower or base section 1 is provided with an elongated opening 24, so that ready access may be had to the wiping pin 22 for adjusting the same, and the opening 24 may be closed by a suitable door, not shown. The upper section or hopper portion of the device may be provided with a glass covered window or sight opening, to ascertain when the housing needs refilling, and any suitable closure may be provided for the housing and associated with the upper end thereof in any appropriate manner.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:

A bleaching powder dispensing device for flour mills, comprising a housing provided with a downwardly rounded bottom wall having an outlet opening therein and being interiorly grooved to provide a trough, a projection formed on the exterior surface of the bottom wall with the outlet opening extending therethrough, a shaft rotatably mounted in the housing and provided with a cross sectional V-shaped serrated annular groove arranged in the outlet opening, a sleeve surrounding the shaft and fitting within the outlet opening, said sleeve having inlet and outlet recesses therein diametrically disposed with respect to the shaft groove for registration therewith and the outlet opening respectively, an agitator mounted for rotation in the housing and including blades for travel through the trough and the inlet recess for depositing powder from the housing into the shaft groove, means for simultaneously rotating the shaft and the agitator, a headless pin threaded in the projection for adjustment with respect to the shaft groove, and said pin having a pointed end shaped to follow the shape of the groove and extending therein for removing powder therefrom for passage of the powder through the outlet recess and outlet opening upon rotation of the shaft.

PAUL E. SAGE.