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FEEDING DEVICE FOR NONFREE-FLOWING MATERIALS IN
BULK WITH ADJUSTABLE FLOW CONTROL PLATE AND
ELONGATED HANDLE THEREFOR
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Fig. 1

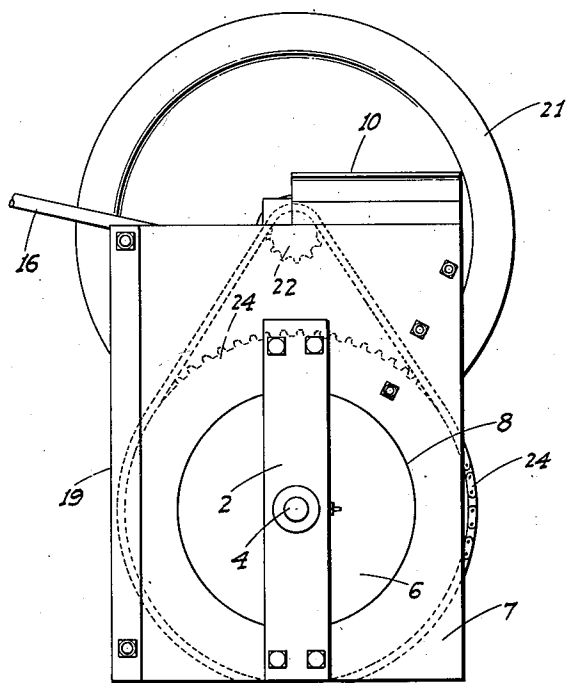


Fig. 3

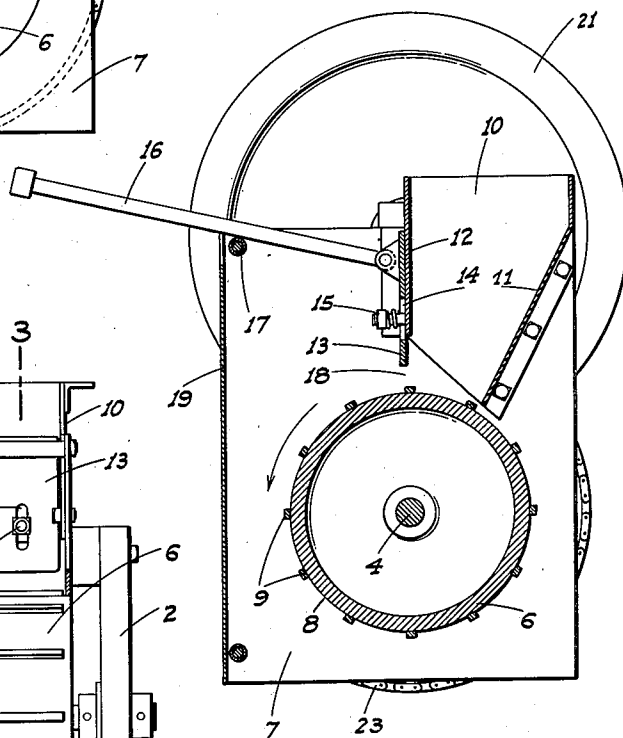
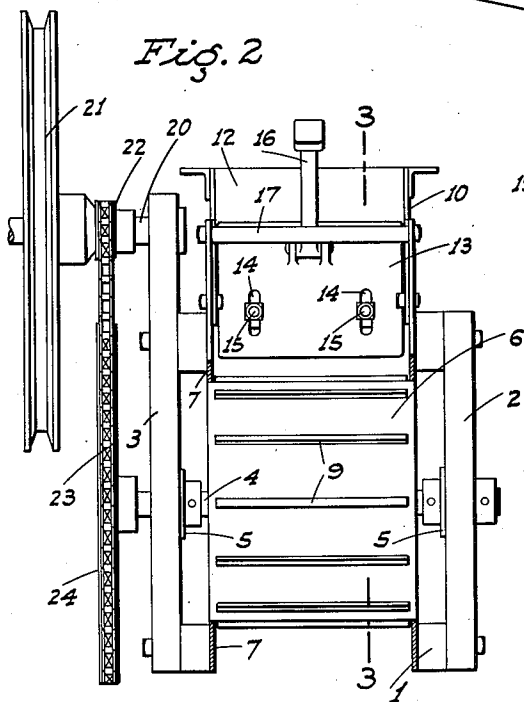


Fig. 2



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FEEDING DEVICE FOR NONFREE-FLOWING
MATERIALS IN BULK WITH ADJUSTABLE
FLOW CONTROL PLATE AND ELONGATED
HANDLE THEREFOR

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1 Claim. (Cl. 222-314)

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The present invention relates in general to an improved bulk material feeding device.

In particular this invention is directed to, and it is an object to provide, a power driven material feeding device especially designed to accomplish regulated feeding of non-free-flowing materials, such as raisins.

For example, in the raisin packing industry the raisins are fed to an automatic weighing machine, and it is essential that such feeding be accomplished at a substantially constant and regulated rate; it being for this purpose that the present device is particularly intended.

Another object of the present invention is to provide a material feeding device, of novel construction, arranged so that the rate of delivery can be readily adjusted, as operating conditions may require.

A further object of the invention is to provide a material feeding device which includes, between spaced parallel side plates, a feeding drum having a plurality of transversely extending, circumferentially spaced feeding cleats thereon; the cleats terminating short of the ends of the drum, and said ends projecting with a close running fit into matching openings in corresponding side plates, whereby accidental and undesirable feeding of material beyond the ends of the drum is wholly prevented.

A further object of the invention is to produce a simple and inexpensive device, and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the feeding device.

Figure 2 is a front end view of the feeding device with the front plate removed.

Figure 3 is a cross section on line 3-3 of Fig. 2.

Referring now more particularly to the characters of reference on the drawings, the device comprises a frame, indicated generally at 1, which includes a pair of transversely spaced, vertical posts 2 and 3 between which a horizontal shaft 4 extends; said shaft being journaled in connection with said posts by bearing units 5. A feeding cylinder or drum 6 is fixed on the shaft 4; the axial extent of said drum being such that it terminates short of the posts 2 and 3.

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A pair of transversely spaced, vertical side plates 7 are mounted in connection with the frame 1 inwardly of the posts 2 and 3 and upstand at corresponding ends of said drums 6. The plates 7 are each formed with a circular opening 8 into which the adjacent end portion of the drum 6 projects with a close running fit. The purpose of this arrangement assures against accidental and undesirable end feeding of material from the drum 6.

Between the side plates the drum is fitted with a plurality of transversely extending, circumferentially spaced feeding cleats 9; said cleats terminating at their ends closely adjacent but short of said plates.

A hopper, indicated generally at 10, is mounted between the side plates 7 above the cleated drum 6, and includes a sloping back wall 11 disposed substantially radially of the drum 6, with the lower edge of said back wall disposed closely adjacent the path of the cleats 9 at a point some distance ahead of the vertical center line of the drum. The hopper 10 also includes a front wall unit 12 provided with a vertically adjustable flow-control plate 13. The front wall unit 12, including the vertically adjustable flow control plate 13, is disposed on substantially the vertical center line of the drum 6.

The flow control plate 13 is slotted at transversely spaced points, as at 14, and is adjustably attached to the front wall unit 12 by means of spring and bolt unit 15. Vertical adjustment of the flow control plate 13 is accomplished by means of a forwardly projecting elongated handle 16 pivotally mounted to said plate 13 for relative vertical swinging movement; said handle engaging intermediate the ends over a cross rod 17 which serves as a fulcrum. When the plate 13 is to be lifted the outer end of handle 16 is grasped by the operator and pulled downward against the rod 17. When the plate 13 is to be moved downward the operator holds the outer end of the handle 16 in one hand and taps or pushes on the inner end thereof to make the adjustment of such plate 13. The cross rod is secured to and extends between the side plates 7 at the upper and forward corners thereof. It will be seen that by manipulation of the handle 16, the flow control plate 13 may be readily vertically adjusted to vary the delivery rate of material fed from the hopper 10 through the feeding slot 18 formed between the lower edge of plate 13 and the cleated drum 6. The side plates 7 are connected at the front edge by means of a front plate 19, and the cleated drum 6 is driven with the top portion turning toward said

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plate, as indicated by the arrow in Fig. 3. The drive for the drum 6 comprises the following:

At the upper end of the post 3, it supports a countershaft 20 on which is mounted an enlarged pulley 21 and a drive sprocket 22. The sprocket 22 drives the shaft 4 through the medium of an endless chain 23 which extends about an enlarged sprocket wheel 24 on said shaft 4. The pulley 21 is driven by a V-belt (not shown) from any suitable power source, as for example an electric motor.

In operation of the above described feeding device, the material to be fed, such as raisins, is discharged into the hopper 10 from an endless conveyor or the like (not shown), with the cleated drum 6 rotating in the direction of the arrow in Fig. 1. The material is fed at a substantially constant and regulated rate from the hopper 10 through the feeding slot 18 and is thence discharged downwardly between said drum and the front plate 19. As so discharged from the feeding device the material drops into a further mechanism; for example, an automatic material weighing machine.

By reason of the particular assembly of the hopper and cleated feeding drum, as hereinbefore described, non-free flowing materials, such as raisins, can be effectively fed at a controlled rate, which is a very distinct advantage.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

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Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent are desired:

A feeding device comprising a frame, spaced side plates and a connected front plate rigid with the frame, a driven horizontal-axis material feeding drum journaled on the frame and extending between the side plates and spaced back from the front plate, a hopper mounted above the drum in material supplying relation thereto and including a front wall unit having a vertically adjustable flow control plate whose bottom edge terminates short of the drum whereby to form a material feeding slot, an elongated handle hinged on the front face of the control plate and extending thence forwardly over the front plate to a termination some distance in front of the same, and a fulcrum member adjacent the top of the front plate on which the handle rests intermediate its end.

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