Jan. 11, 1955 W. J. SANEHOLTZ 2,699,280

CHUTE DISCHARGE DEVICE FOR GRAIN BINS

Filed Oct. 13, 1953

FIG. 1.

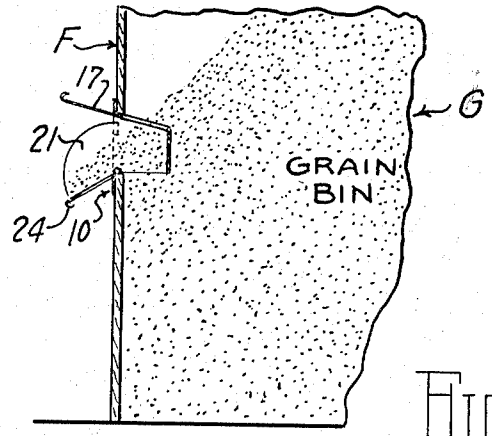


FIG. 4.

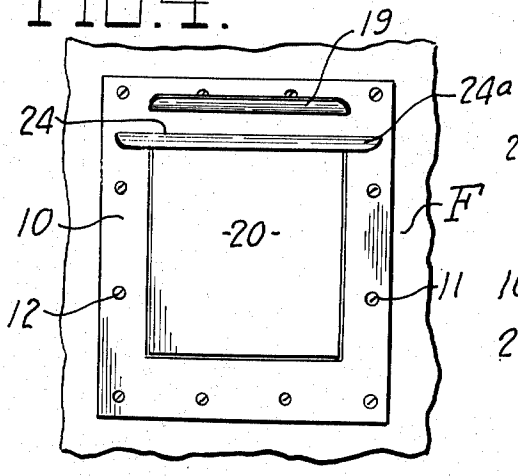
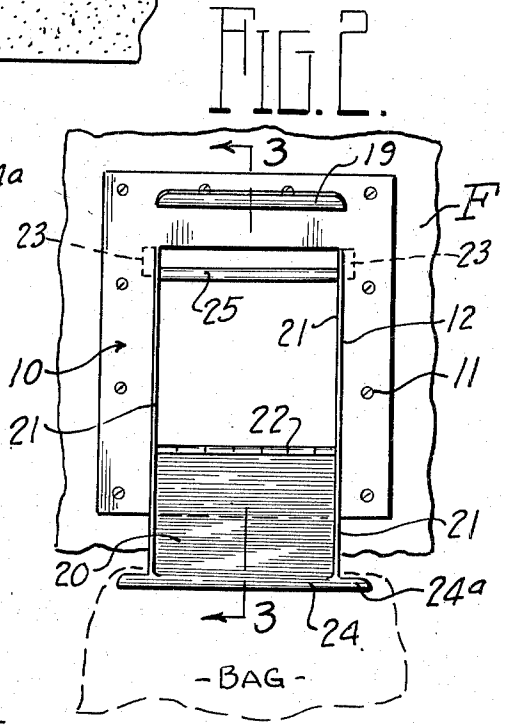


FIG. C.



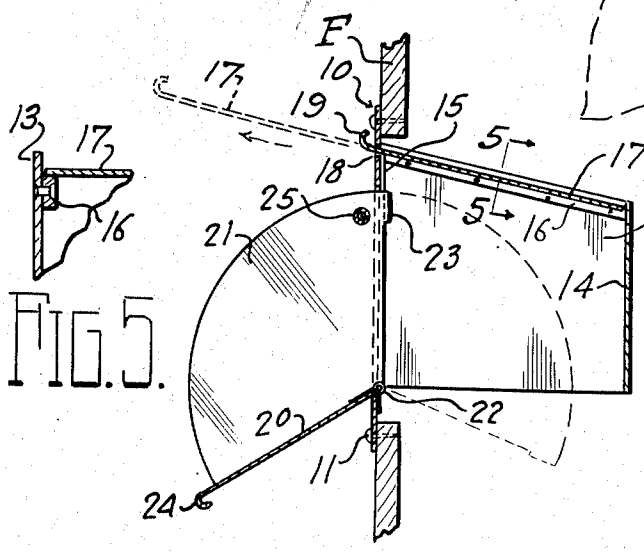


FIG. 5.

FIG. 3.

INVENTOR.
Wilber J. Saneholtz
BY Malcolm W. Pearce
attorney

United States Patent Office 2,699,280 Patented Jan. 11, 1955

2,699,280

CHUTE DISCHARGE DEVICE FOR GRAIN BINS

Wilber J. Saneholtz, Napoleon, Ohio

Application October 13, 1953, Serial No. 385,771

1 Claim. (Cl. 226—58)

This invention relates to discharge chute devices particularly adapted for grain bins and an object is to produce a new and improved device of this character which can be applied as a unit to a grain bin and which when in inoperative position is disposed substantially flush with the outer wall of the grain bin but which can be readily moved to operative position to enable the contents or a substantial portion of the bin to be emptied, provision being made for receiving bags into which the grain or the like flows, the structure further being designed to discharge the major portion of the bin before it is necessary to shovel out the remainder or that portion disposed between the chute and the bottom of the bin.

Other objects and advantages of the invention will hereinafter appear and for purposes of illustration but not of limitation an embodiment of the invention is shown on the accompanying drawing in which

Figure 1 is a somewhat diagrammatic view in vertical sectional elevation showing a grain bin with a chute discharge device mounted in the front wall thereof to enable a substantial portion of the contents of the bin to be discharged;

Figure 2 is a fragmentary front elevation of the discharge chute unit showing the chute in its opposite or open position and indicating a bag in position to be filled;

Figure 3 is a longitudinal sectional view substantially on the line 3—3 of Figure 2;

Figure 4 is a view similar to Figure 1 but showing the chute device in its closed position; and

Figure 5 is a fragmentary sectional view along the line 5—5 of Figure 3.

The illustrated embodiment of the invention comprises a grain bin, having a vertically disposed front wall. Disposed in the front wall a desired distance above the floor line suitable for convenient handling is a rectangular opening. A discharge chute unit, hereinafter to be described is mounted in an opening O to enable the contents of the grain bin above this position to be conveniently emptied.

As shown the discharge chute unit comprises a rectangular sheet metal face plate **10**, which has a rectangular opening **12**. Secured to the rear face of the plate **10** is a substantially U shaped sheet metal wall having a pair of laterally spaced parallel side walls **13**, only one of which is shown, and a rear wall **14**. On the front edge of each of the side walls **13** is an inturned flange which abuts against the rear face of the face plate **10** and in this instance is welded thereto. Thus the U-shaped wall structure is open at the top and the bottom but the edge of the top inclines downwardly and rearwardly from the face plate as best shown on Figure 3, whereas the bottom edge of the side walls **13** is at substantially right angles to the face plate **10**.

Adjacent the upper edge of each of the side walls **13** is a guide strip **16** which may be spot welded in place and this provides a supporting guide for an imperforate plate **17**, which, as indicated on Figure 3 inclines downwardly and rearwardly, similar to the top edges of the side walls **13**. The plate **17** which constitutes a gate valve is slidable through an opening **18** in the face plate **10** above the rectangular opening **12** and that portion of the plate **17** which projects outside of the face plate in this instance is curled upwardly and inwardly to provide a handle which can be grasped for sliding the gate valve to and from its closed position.

It will be understood that when the gate valve **17** is slid outwardly as indicated by the broken lines on Figure

3, grain can enter the space therebelow and pass out through the opening **12** to the chute which will hereinafter be described. Thus by manipulation of the valve plate **17**, the discharge of grain is controlled in a simple manner.

The chute structure has a bottom imperforate sheet metal wall **20** from which rise at the side edges integral side walls **21** which are parallel with each other, the outer edges of which are in an arc determined by the swinging movement of the chute as will hereinafter appear. The inner end or lower end of the wall **20** is connected to the lower edge of the rectangular opening **12** of the face plate **10** by a hinge **22**, thereby enabling the chute to rock about a horizontal axis and to swing to a downwardly inclined position particularly as indicated in Figure 3. It will be observed that the bottom wall **20** projects outwardly slightly beyond the side walls **21** in order to abut against the face plate **10** when the chute is in its closed or inoperative position. The outer end of the bottom wall **20** terminates in an inwardly curled portion **24** providing a handle. This inwardly curled portion has lateral extensions **24*a*** which provide a bag support as indicated in Figure 2 when the chute is in its operative position. Thus the portion of the bag mouth can be hooked over the laterally extended portions **24*a*** in order to receive the grain from the bin G.

At the inner end of each of the side walls **21** is an outwardly bent flange portion **23** which provides a stop to engage the adjacent inturned flange **15** of the respective side wall **13**. This enables the chute to be swung outwardly to its operative position and supported in such position. In order to reinforce the side walls **21** a transverse rod **25** connects the two side walls **21** of the chute device adjacent the inner edges thereof and adjacent the top of the sidewalls.

From the above description it will be manifest that I have produced an exceedingly simple and inexpensive chute device which is particularly well adapted for grain bins. It can be installed with a minimum amount of time and effort and when in place can be used effectively to discharge the major portion of the grain from the bin. By inclining the upper edges of the side walls **13** it will be apparent that a greater volume of grain can be discharged before it is necessary for the workmen to climb into the bin and shovel the balance therefrom. The side walls **13** and rear wall **14** make it necessary for the grain from the bin to be concentrated within that enclosure, as will be readily understood. Of course in use the gate valve **17** is retracted to admit as much grain as is desired into the chute device. The latter is designed to receive and conveniently support a portion of the mouth of the bag and after one bag is filled of course the gate valve **17** may be closed until the next bag is brought into position. When completed, of course, the chute device may be swung upwardly to its closed position and in which position no portion of the entire device projects into the room and therefore cannot be damaged by machines as in the case heretofore experienced of devices projecting out into the room.

It will be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claim.

What I claim is:

A discharge chute unit for grain bins or the like comprising a face plate of sheet metal adapted to be applied to the front wall of a grain bin, the grain bin having an opening and the face plate having an opening in registry with the bin opening, a wall structure having a one piece U-shaped sheet metal part constituting a rear and side walls. inturned flanges on the free edges of the side walls welded to the rear side of the face plate, the upper edges of the side walls inclining downwardly and rearwardly, supporting means adjacent said inclined edge portions, a gate plate slidable on said supporting means, an aperture in said face plate above the opening therein through which projects the front end portion of said gate plate, a chute device pivoted adjacent the lower edge portion of the face plate opening, said chute device comprising a one piece U-shaped sheet metal wall member, lateral stop flanges on the upper portion of the side walls of said U member engageable with said inturned flanges to limit

the outward swinging movement of the chute device, the bottom wall of the U member extending beyond the side walls to abut against the upper portion of the face plate, said extending portion being curled to provide a hand hold, lateral extensions upon opposite sides of said curled extruding portion to provide a bag mouth supporting means.

References Cited in the file of this patent

UNITED STATES PATENTS

164,122	Alvord	June 8, 1875
618,160	Barker	Jan. 24, 1899
634,243	Leslie	Oct. 3, 1899
760,772	Anderson	May 24, 1904
802,970	Coracristi	Oct. 31, 1905