

March 22, 1932.

R. G. LE TOURNEAU
DISCHARGE GATE FOR BINS

1,850,589

Filed Oct. 23, 1928

Fig. 1

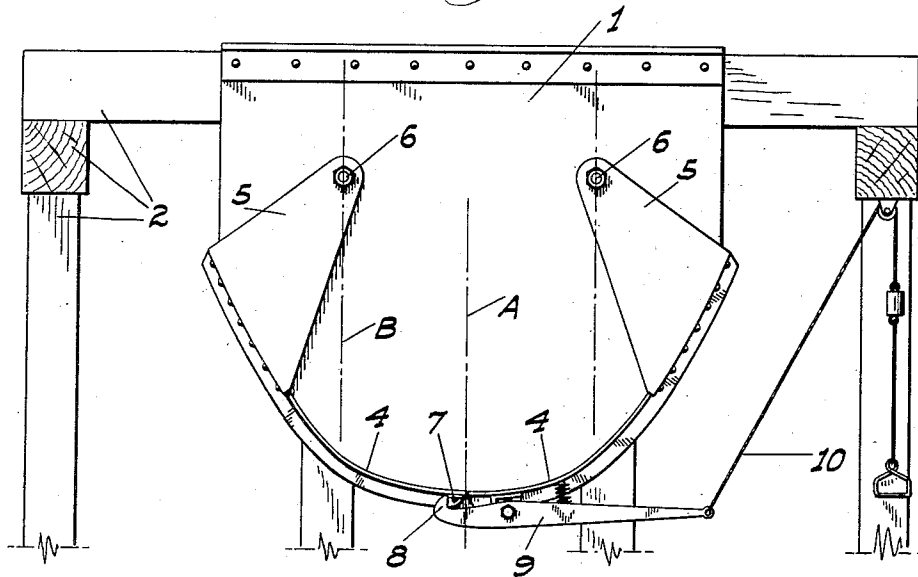
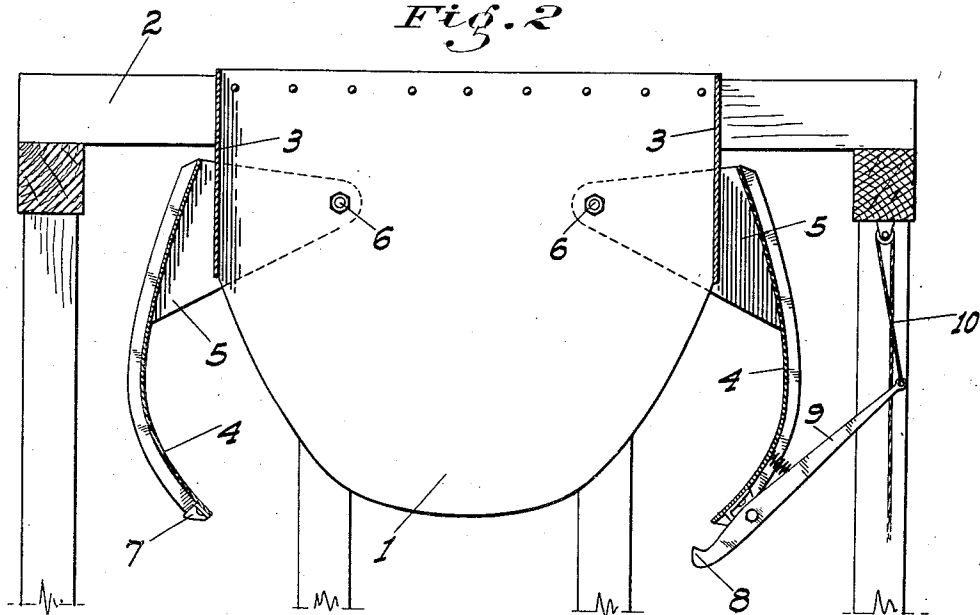


Fig. 2



INVENTOR

R. G. Le Tourneau

BY

Benny L. Webster
ATTORNEY

UNITED STATES PATENT OFFICE

ROBERT G. LE TOURNEAU, OF STOCKTON, CALIFORNIA

DISCHARGE GATE FOR BINS

Application filed October 23, 1928. Serial No. 314,372.

This invention relates to bins of large size in which bulk material is deposited for temporary storage and of that character having a bottom discharge opening.

5 The principal object of my invention is to provide a discharge gate structure for such a bin so mounted in connection with the bin that the gates will automatically close of themselves when relieved of any load, avoiding the need of manually or mechanically moving them from an open to a closed position, and this is done without the use of counterweights, springs or other attachments.

15 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.

20 These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

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

Fig. 1 is an end elevation of a bin showing the discharge gates mounted thereon and in their closed position.

Fig. 2 is a transverse section of the bin and catch showing the latter wide open.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes the end walls of the bin supported so that they will be a certain distance from the ground by a framework 2. 35 The fixed side plates 3 of the bin only extend from the top down a relatively short distance, the remaining portion of the bin below the side plates being closed in by the discharge gates 4 which extend between the end plates from the lower edges of the side plates to a meeting point at the center of width of the bin at the bottom.

5 The gates are each pivoted to the end plates by means of a pair of rigid bracket plates 5 secured thereto at the ends and extending against the outer faces of the end plates, and being connected thereto by pivot bolts 6. 10 These bolts and the brackets are so disposed relative to the vertical plate A of the lower

end edges of the gates when closed, that the greatest weight of each gate unit is disposed outwardly of a vertical line B drawn through the corresponding bolts, or on the side of said line furthest from the central plane A.

55 As a result the gates when not prevented from so doing by material in the bin bearing down thereon always move to a fully closed position of themselves owing to this relative distribution of the weight as above described.

60 To then maintain the gates in a closed position against the resistance of a load in the bin, it is only necessary to provide a simple form of catch means therebetween for preventing separation of the meeting edges of the gates. Such means may be in the form of a lug 7 on one gate at its lower under edge, positioned to be engaged by a catch 8 formed on one end of a lever or arm 9 pivoted intermediate its ends on the other gate. The outer 70 end of this arm may be raised so as to withdraw the catch from the lug when it is desired to have the gates open, by suitable means such as a pull-rope 10 extending first upwardly from the outer end of the arm to a 75 point of convenience to the operator.

When it is desired to dump the load of the bin therefore it is only necessary for the operator to manipulate the rope once to disengage the latch means and permit the gates to open; the weight of the load pressing down on the gates then causing the same to spread apart. The operator need pay no more attention to the gates, since when the load is all discharged the gates will close and latch themselves automatically, on account of the particular mounting thereof as previously set forth. Should the catch means fail to then be properly engaged the gates will still hold themselves closed and the manipulation of the catch arm by the operator to cause the same to function is but the work of a second.

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

90 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 claims.

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

10 1. In a bin having a bottom opening, a gate to close said opening, and pivot means between the gate and bin arranged so that a load in the bin bearing against the gate will tend to open the latter, and so that the gate, when relieved of its load, will move to a closed position by the force of gravity.

15 2. In a bin having a continuous opening across the bottom, oppositely movable gates for said opening to normally close the same, and separate pivot means between the gates and bin disposed above the gates and spaced outwardly relative to the vertical plane of the meeting line of the gates a distance sufficient to cause said gates to tend to be opened by a weight of a load in the bin, while causing the gates to close of themselves when relieved of the load.

25 In testimony whereof I affix my signature.
ROBERT G. LE TOURNEAU.

30

35

40

45

50

55

60