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CHUTE FOR STORAGE BINS AND THE LIKE.
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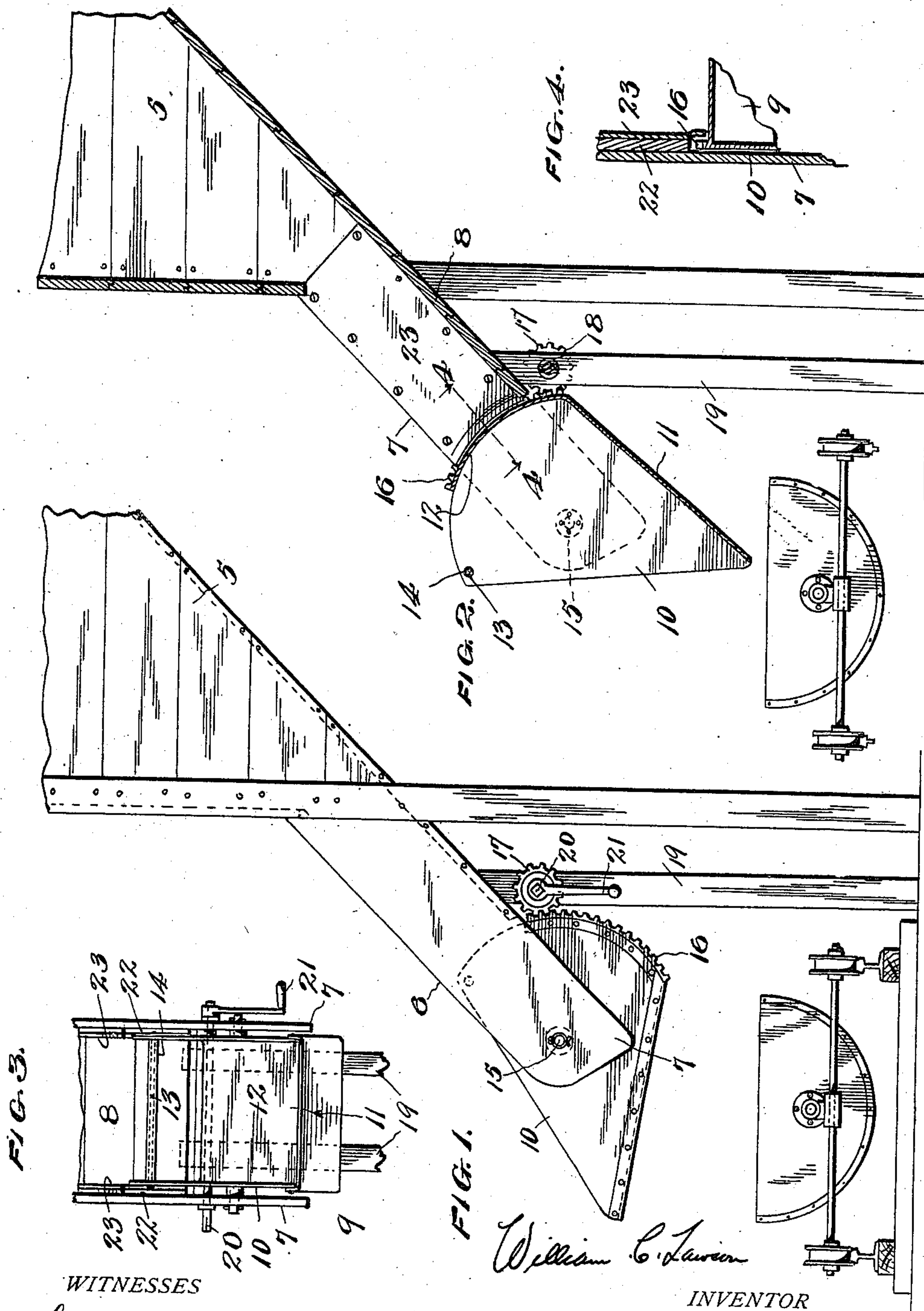


FIG. 3.

FIG. 1.

FIG. 4.

WITNESSES
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CHUTE FOR STORAGE-BINS AND THE LIKE.

984,574.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM C. LAWSON, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented new and useful Improvements in Chutes for Storage-Bins and the Like, of which the following is a specification.

In storage bins as ordinarily constructed, it is the common practice to employ sliding gates for controlling the discharge of the material from such bins, and these gates move downwardly in their closing action. It is therefore difficult in many cases to effect the closing of the gates, particularly when there is great pressure against the material being discharged or if said material is in lumps, as one of such lumps is apt to be caught beneath the gate and prohibit its downward movement.

One of the primary objects of the present invention is to provide an exceedingly simple structure, whereby the objectionable features of the ordinary discharge-controlling means is obviated, and the amount delivered can be controlled with the greatest accuracy.

One embodiment of the invention is disclosed in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the structure. Fig. 2 is a longitudinal sectional view therethrough. Fig. 3 is a front elevation. Fig. 4 is a detail view on an enlarged scale and on the line 4—4 of Fig. 2.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed, a storage bin or magazine 5 is employed, which may be of any desired or well known type, said storage bin having a lower delivery mouth or way 6 that is in the form of a trough having side walls 7, a bottom 8, and an open top. The said bottom terminates short of the lower ends of the side walls, and arranged between said projecting ends, is the oscillatory controlling chute, designated generally by the reference numeral 9. This chute comprises tapered side walls 10, a bottom 11 and a curved rear wall 12, which constitutes a gate, that moves across the discharge mouth or delivery way 6, as hereinafter explained. It will be observed that the gate wall 12 terminates short of the upper edges of the side walls 10, and the upper portions of said

side walls are connected by a tie rod 13, on which is located a spacing sleeve 14. Secured to the side walls above the bottom 11, and in advance of the rear wall 12, are outstanding gudgeons 15 that are journaled in the projecting ends of the side walls 7. These gudgeons are preferably disposed above and in advance of the center of gravity of the chute 9, so that said chute will ordinarily assume the position shown in Fig. 1 with the upper edge of the gate wall 12 at or below the line of the bottom 8.

To oscillate this chute, the same is provided at the ends of the rear gate wall 12 with curved racks 16, and meshing with said racks are pinions 17 that are carried by a shaft 18 journaled in suitable supports 19. The ends of this shaft are square, as shown at 20 to receive one or more handle cranks 21. In order to prevent the material engaging the racks, and either injuring the same or interfering with the proper operation of the mechanism, supplemental planks or plates 22 are secured to the inner sides of the wall 7, and terminate short of said racks, as illustrated in Fig. 4, and fastened to the inner faces of these planks or plates 22, are other plates or chutes 23, which extend to the rear wall gate 12, and thus house the said racks.

With this construction, it will be noted that when the chute is in the position shown in Fig. 1, the rear gate wall 12 will be lowered and the material from the storage bin or magazine 5 will enter said chute, but will be prohibited from passing out of the same, because of the position of the bottom 11. On the other hand, if this chute is turned by means of the handle cranks to the position shown in Fig. 2, the material therein will be dumped into a suitable receiver, and the rear gate wall 12 will move upwardly across the mouth or delivery way of the storage bin, thus prohibiting a further discharge of the material from said bin until the chute is moved back to its original position. It will be observed also that in the cutting off action, the gate wall 12 moves upwardly through the material, and no matter what the character of said material may be, or the amount of pressure against it, there will be nothing to prevent such movement.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, with-

out further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to without departing
 5 from the spirit or sacrificing any of the advantages of the invention.

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

10 1. In a structure of the character set forth, the combination with a magazine or storage bin having a discharge mouth, of an oscillatory chute having a rear gate wall that moves upwardly across the mouth when
 15 said chute moves to a downwardly inclined discharging position, operating means for the chute, including a member carried by the rear gate wall and moving upwardly into the mouth therewith, and means cover-
 20 ing said member when the same is within the mouth, said means directing the material into the chute.

2. In a structure of the character set forth, the combination with a storage bin
 25 having a discharge mouth, of a swinging chute having a rear gate wall that moves upwardly across the mouth when said chute moves to a downwardly inclined discharging position, a rack carried by the rear gate wall
 30 and movable upwardly into the mouth with said wall, actuating means for the chute, including a pinion engaging the rack, and a guard located within the mouth and covering the rack when the same is therein.

35 3. In a structure of the character set forth, the combination with a magazine or storage bin having a discharge mouth, of an oscillatory chute comprising a bottom, side walls and a rear wall or gate that moves
 40 upwardly across the mouth when said chute moves to a position with the bottom wall in downwardly inclined discharging position, pivot mountings for the chute connected to the side walls above the bottom and in ad-

vance of the rear gate wall, a rack mounted 45 on the rear end of the chute and disposed concentrically to the pivot axis thereof, and actuating means for the chute including a gear mounted exteriorly of the discharge mouth and engaging the rack. 50

4. In a structure of the character set forth, the combination with a magazine or storage bin having delivery means including side walls and a bottom, the bottom termi- 55 nating short of the lower ends of the side walls, of an oscillatory chute fitted between the said lower ends of the side walls and comprising a bottom, side walls and a rear curved gate wall that moves upwardly across the delivery means when the bottom 60 assumes a downward inclination, gudgeons fixed to the side wall of the chute, above the bottom thereof and in advance of the rear wall and engaging the side walls of the delivery means, said rear wall being curved 65 concentrically to the pivot axis of the chute, curved racks located at the ends of the rear gate wall and being curved concentrically to the axis of the chute, a crank shaft, and pinions mounted on the crank shaft and en- 70 gaging the racks.

5. In a structure of the character set forth, the combination with a swinging chute, pivoted in advance of its rear end and having curved racks on said rear end, of 75 actuating means for the chute including pinions engaging the racks, and housing plates extending across the inner sides of the racks and constituting means for directing the material into the chute, while pre- 80 venting the same engaging the racks.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM C. LAWSON.

Witnesses:

C. W. BISHOP,

S. M. CORNETT, Jr.