

A. N. EATON.

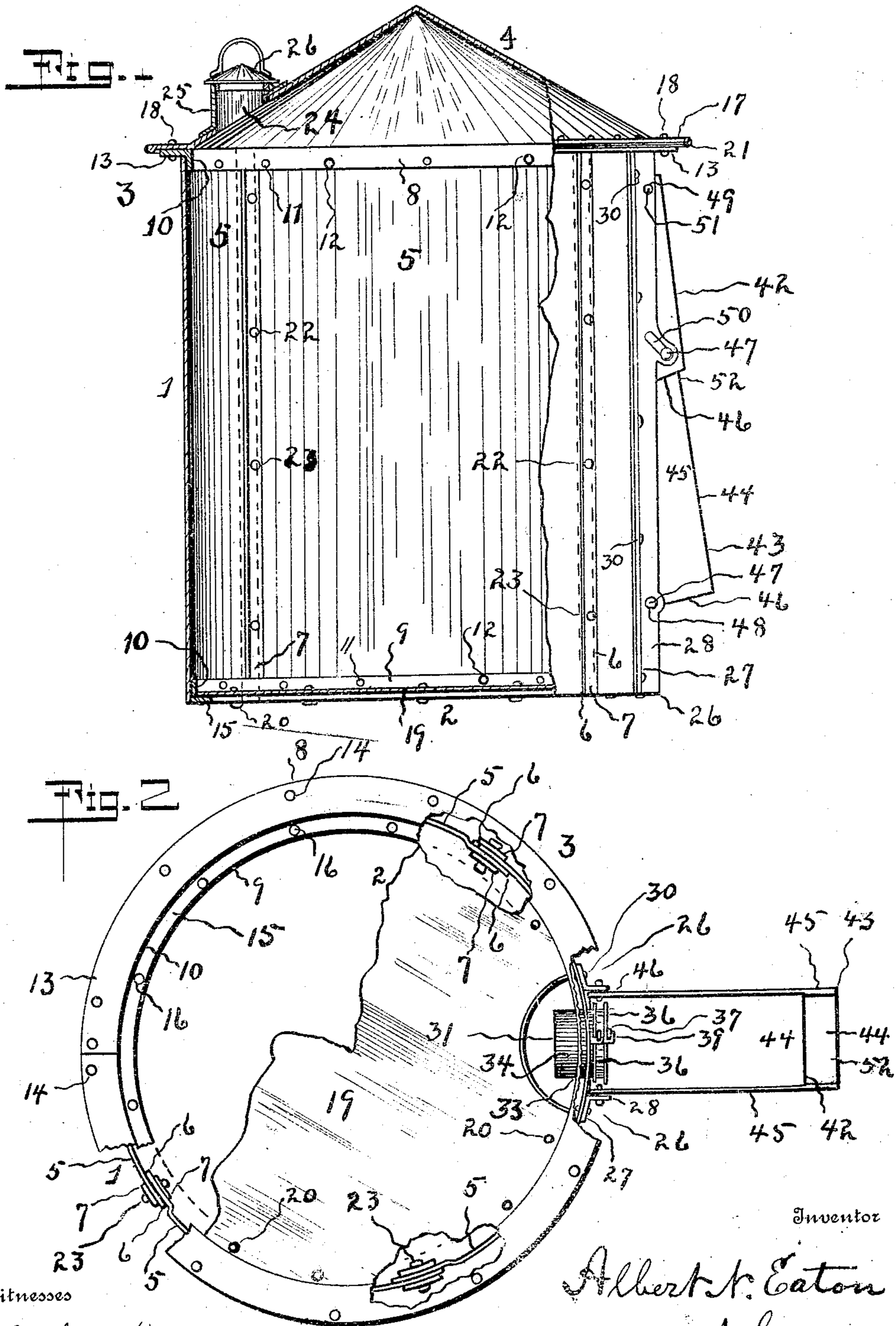
GRAIN BIN.

APPLICATION FILED JAN. 27, 1909.

935,096.

Patented Sept. 28, 1909.

2 SHEETS—SHEET 1.



Witnesses

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H. C. Compton

By

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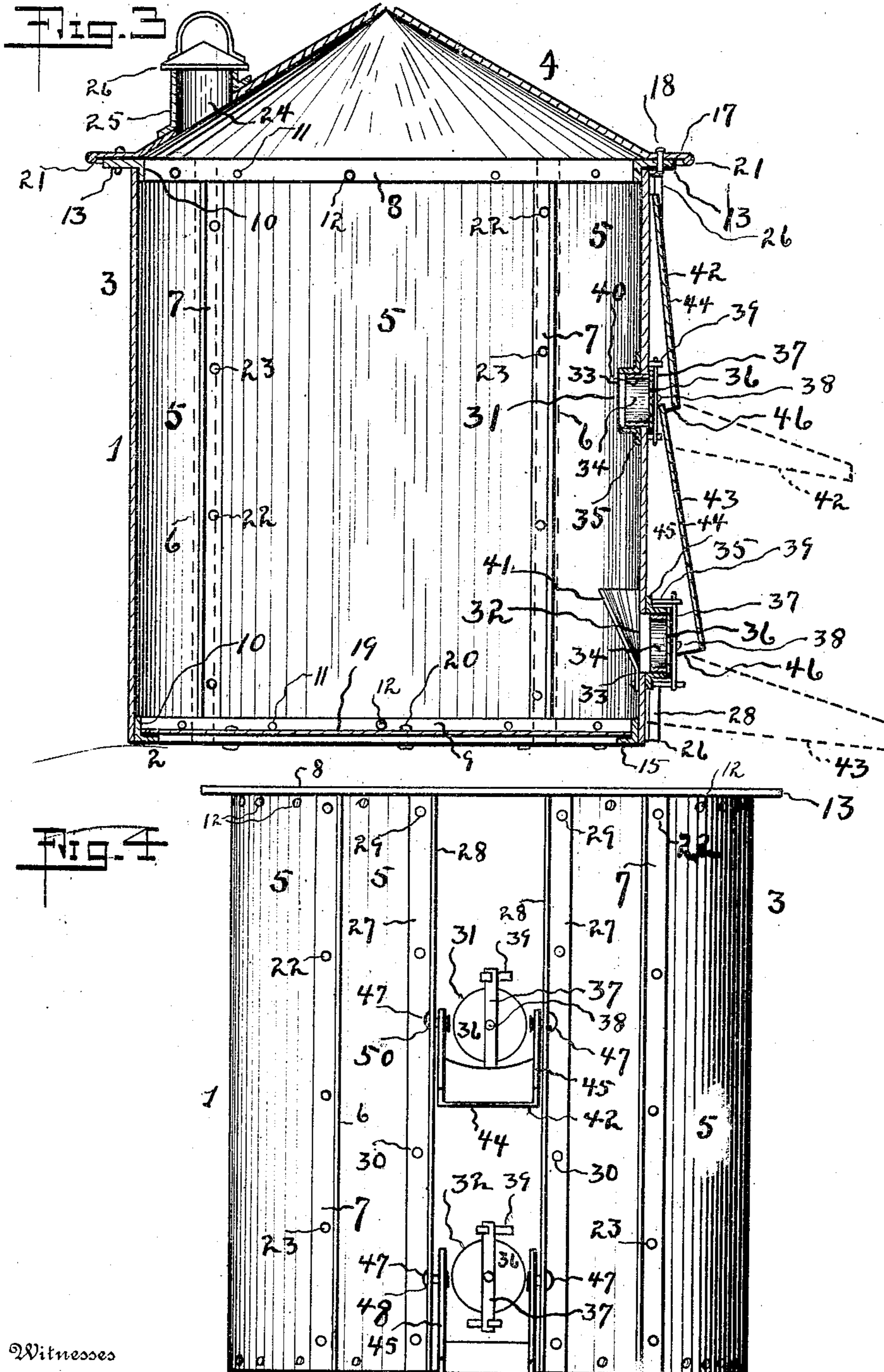
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Inventor

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UNITED STATES PATENT OFFICE.

ALBERT N. EATON, OF OMAHA, NEBRASKA.

GRAIN-BIN.

935,096.

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To all whom it may concern:

Be it known that I, ALBERT N. EATON, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Grain-Bins, of which the following is a specification.

This invention relates to improvements in portable grain bins, and has for its object the provision of a bin of this class which may be economically constructed of metallic sheets for housing the grain, and which will be convenient in use for filling and for removal of grain.

The invention has reference to certain novel features whereby material and labor may be economized to reduce the cost of construction, and includes the employment of convenient foldable chutes in connection with exit ports, with closing and securing means therefor, located at different altitudes upon the wall of the tank.

With these and other objects in view the invention presents a novel combination and arrangement of parts, as described herein, pointed out in the appended claims, and as illustrated by the accompanying drawing, wherein,—

Figure 1 is a vertical side view of a grain tank, partly in section, constructed in accordance with my invention. Fig. 2 is a plan view of the tank body shown in Fig. 4, parts being broken away. Fig. 3 is a view of the tank in longitudinal section, broken lines showing the position of the chutes when lowered. Fig. 4 is a front view of the tank, the roof or cover being removed.

For a more particular description, Figs. 1 and 2 show a cylindrical casing 1 with a circular bottom 2 secured transversely thereon to form a container or grain bin 3, casing 1 having a conical roof or cover 4 secured thereon. The bin may have any suitable dimensions, and since it is often used in the grain fields, it is constructed in a manner, as will be explained, so that its contents may be protected from the weather. Casing 1 may be readily formed by using a plurality of metal sheets 5 curved transversely with their adjacent longitudinal edges 6 disposed to overlap, and secured by longitudinal reinforcing strips 7 adjacently seated near said outer and inner edges.

I provide the upper and lower angle irons or supports indicated, respectively, at 8 and 9; they are bent circularly, their vertical

flanges 10 being seated upon the inner side of the casing and provided at intervals with apertures 11, and rivets 12 may have seatings in apertures 11 and may be driven through the sheets at the ends of the casing for securing said casing upon these vertical flanges. The horizontal flange 13 of support 8 has apertures 14 formed at intervals therein and extends outwardly of the casing; and the horizontal flange 15 of support 9 extends inwardly of the casing and is provided with apertures 16.

The conical roof 4 has a peripheral flange 17 which is seated upon the horizontal flange 13 of support 8, and by means of rivets 18 driven through this peripheral flange and seated in apertures 14, the roof may be secured upon the casing.

The bottom is formed by use of a circular metallic plate 19 having a diameter less than that of the casing, and is seated upon the horizontal flange 15 of support 9, and, by means of rivets 20 driven through plate 19 and seated in apertures 16, it may be secured to provide the bottom 2.

As thus described the construction is simple and is accompanied with slight comparative expense to provide a bottom plate elevated above the lower terminal of the casing, and by said casing housed from the weather.

Peripheral flange 17 extends outwardly of the horizontal flange 13 of support 8, and is down-turned at its terminal to form the annular bead or ridge 21, these features being for the purpose of causing rain or moisture to be conveyed and deposited outwardly of the casing and outwardly of any part of flange 13.

The vertical, metallic reinforcing bars or strips 7 are apertured at intervals, as indicated at 22, and by use of rivets 23, seated in these apertures and driven through and near the edges of sheets 5, these sheets are securely held together to adequately resist the outward strain occasioned by the grain, and to form the complete casing 1.

At 24 is indicated a receiving port or man-hole disposed intermediate the peripheral flange and apex of the roof, preferably having a circular, vertical wall 25 secured upon the roof, preferably by soldering it thereon, and provided with a removable cover 26.

For the purpose of providing exit ports which may have convenient closing means protected from the weather, and for providing means for conveying the grain after it

is thrown from the ports, said means to also operate as housing-plates to protect the port-openings, certain devices found to be of advantage, will now be explained.

5 Exteriorly upon casing 1 are disposed adjacent, vertical bracket-bars or a pair of angle irons 26, of a length, substantially, equal to that of the casing, and each having a flange 27 disposed parallel with the sur-
10 face of the casing, transversely considered, in directions opposed to each other, and flanges 28 thereof projecting outwardly of the casing and disposed parallel, for convenient supports for the pivotal mounting,
15 therebetween, of the conveying chutes hereafter described.

Flanges 28 are provided with apertures 48 near their bottoms, with apertures 49 near their upper ends, and intermediate these
20 lower and upper apertures they are provided with downwardly and outwardly inclined slots 50, for uses presently explained.

Flanges 27 are provided with apertures 29 formed at longitudinal intervals therein,
25 and, by means of rivets 30 driven through the vertical wall of the casing and seated in apertures 29, the bracket-bars may be secured to the casing.

Bracket-bars 26 are disposed a sufficient
30 distance apart to provide ports or openings therebetween, these being formed in the casing at different altitudes and of any desired number required for conveniently unloading the grain. While the openings thus formed
35 tend to weaken the casing, the bracket-bars operate to reinforce the wall adjacent these openings, so that the strength of the casing is not impaired. Intermediate the top and
40 at different altitudes thereon, are provided ports 31 and 32, for passage ways of grain. They are provided by forming circular openings 33 in the casing, and employing collars 34 having transverse flanges 35 disposed
45 flush with openings 33 and secured, preferably, by soldering to provide holding-walls for the caps or covers 36, removably seated thereon.

Covers 36 are formed as flat disks having
50 a two-end latch-bar 37 pivotally mounted as indicated at 38 at their middle, their ends adapted to engage catches 39 supported by and extending outwardly from the casing, disks 36 having rims or flanges 40 for seat-
55 ings within the transverse flanges 35 of collars 34; and as described the disks may be operatively mounted and secured to effectually close the ports by manually turning the latch to engage the catches, and for removal
60 of grain, covers 36 or either of them may be readily removed.

Apron or partition 41 is provided and secured interiorly of the casing adjacent the
65 lower port 32, and an operator, when inside the bin may shovel or throw the grain out-

ward through ports 31 and 32, and when the grain is nearly emptied, apron 41 is convenient for lodgment thereon of grain or sweepings thrown thereon, and is used for this purpose.

70 Chutes 42 and 43 are provided for conveying the grain outwardly from the respective ports 31 and 32 when unloading the bin, and are constructed of suitable lengths for this purpose. They are prefer- 75 ably formed with flat bottoms 44 having upset or transverse sides 45 formed longitudinally convergent from their bases 46 to their free ends. The chutes are mounted adjacent ports 31 and 32 and between flanges 80 28 of bracket-bars 26, this mounting being pivotal by means of rivets 47 secured in the wider ends of sides 45. The rivets 47 of chute 43 are seated in apertures 48 of flanges 28, whereby this chute may have swinging 85 movements of substantially 90 degrees downward from the vertical wall of the casing. Rivets 47 of chute 42 are seated in inclined slots 50, and thereby this chute may have swinging movements similar to the move- 90 ments of chute 43.

In operation, when unloading the bin, one of the chutes is used, being first swung downward to convey grain thereon, when
thrown out of the port; and in this opera- 95 tion, the disk or cover of the port, of course, is first removed in the manner already described.

It is important to preserve the contents of the bin from rain or moisture and chutes 42 100 and 43 operate for this purpose since they effectually protect the ports when swung upward to a closed position.

The chutes as described are adapted to have downward swinging movements to dis- 105 pose their free ends at a somewhat lower altitude than the respective ports, at the sides of which they are mounted, and at this time are sustained in this position by a contact of their bases upon the surface of the 110 casing; they may have upward swinging movements to be folded or held by convenient means hereafter mentioned.

The upper chute may be held in a closed position after it has been swung upward, by 115 means of locking pins 51 passing within apertures 49; and at this time its free end will be disposed inwardly of flange 17 of roof or cover 4, and its base 46 will project outwardly of the disk; also its sides will be 120 disposed outwardly of the sides of the disk and port which it overhangs.

When the chutes are folded, the lower chute is held in a closed position since its free end 52 is confined upon the inner side 125 of the base of chute 42; the base of this chute, at this time projects outwardly of its adjacent disk and overhangs the port, in all respects similar to the base of the upper chute; and it will be seen that rain falling 130

upon the upper chute would be conveyed to the outer surface of chute 43 and would be carried away from both of the ports, and thereby the chutes operate to protect the passage ways or openings, which otherwise would be exposed to the weather.

When desiring to use the lower chute, its upper end may be released by elevating the upper chute, rivets 47 of said upper chute at this time sliding upwardly and inwardly while engaged within inclined slots 50 of the parallel bracket-bars.

While I have shown an integral sheet 19 to provide a bottom plate I do not limit myself to such integral construction. The number of sheets required for constructing the wall of the casing will vary according to the diameter or size desired; and it is apparent that the number of ports and chutes may be increased without departing from the scope of the invention.

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

1. In combination, a bin of the class described, comprising a vertically disposed, cylindrical casing provided with adjacently disposed, upright bracket-bars, and with openings formed therein intermediate the bracket-bars; circular angle irons, each having a flange disposed vertically upon the casing and circumscribing one of said openings; closure plates each having a transverse flange, said closure plates adapted to have seatings to cover the openings of the casing, said transverse flanges registering with the horizontal flanges of said circular angle irons; longitudinal conveying upper and lower chutes having their bases pivotally mounted upon said bracket-bars adjacent said openings and adapted to have upward swinging movements to dispose their upper ends adjacent said casing between said bracket-bars, the base of an upper chute overhanging the terminal of a lower chute.

2. In combination, a bin of the class described, comprising a vertically disposed, cylindrical casing provided with adjacently disposed, upright bracket-bars, and with openings formed therein intermediate the bracket-bars; longitudinal conveying upper and lower chutes having their bases pivotally mounted upon said bracket-bars adjacent said openings and adapted to have upward swinging movements to dispose their

upper ends adjacent said casing between said bracket-bars, the base of an upper chute overhanging the terminal of a lower chute.

3. A portable grain bin, comprising a vertically disposed, cylindrical casing provided with upright, parallel, slotted bracket-bars and having an upper passage way and a lower passage way formed therein between said bracket-bars; a longitudinal chute pivotally mounted in the slots of said bracket-bars adjacent said upper passage way; a longitudinal chute pivotally mounted upon said bracket-bars adjacent said lower passage way; said chutes adapted to have upwardly swinging movements to dispose their upper ends adjacent said casing, the upper end of the lower chute being disposed inwardly of the base of the upper chute; the upper chute adapted to have a longitudinal movement upon its pivotal mounting while the terminal of the lower chute moves inwardly of the base of said upper chute.

4. A grain bin, comprising, in combination with an upright casing having exit ports disposed in vertical alinement, longitudinal conveying upper and lower chutes having their bases pivotally mounted adjacent the exit ports and adapted to swing upwardly therefrom to dispose their upper terminals adjacent said casing, the base of an upper chute being disposed inclosingly upon the terminal of a lower chute.

5. In combination, a grain bin of the class described, comprising an upright, cylindrical casing provided with a conical roof with a peripheral flange and having exit ports disposed in vertical alinement; closure plates having holding-flanges seated in said exit ports; longitudinal upper and lower chutes having their bases mounted adjacent the exit ports; said chutes adapted to have upward swinging movements to dispose their upper ends upon the wall of the casing, the free end of the upper chute being disposed inwardly of the peripheral flange of said roof, the upper terminal of a lower chute being disposed inwardly of the base of an upper chute.

In testimony whereof I have affixed my signature in presence of two witnesses.

ALBERT N. EATON.

Witnesses:

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