E. E. NORQUIST.

PORTABLE GRAIN BIN.

APPLICATION FILED AUG. 12, 1908.

952,133. Patented Mar. 15, 1910.

Fig. 5.

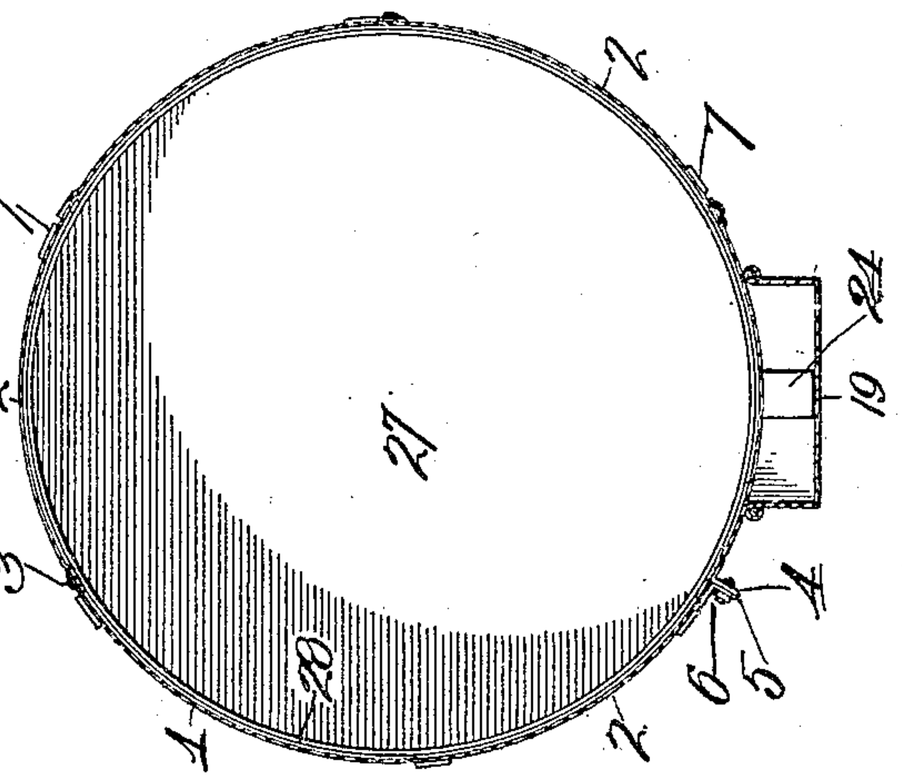


Fig. 2.

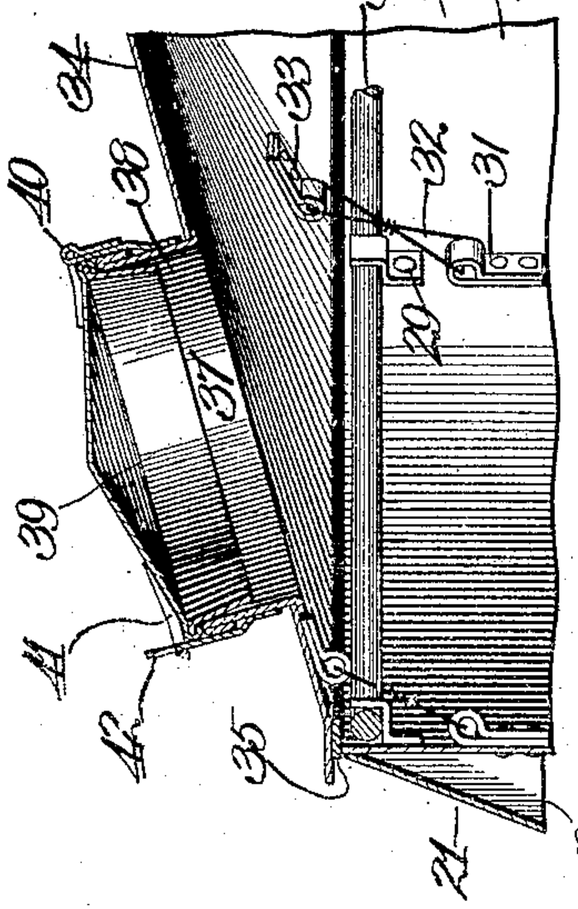


Fig. 3

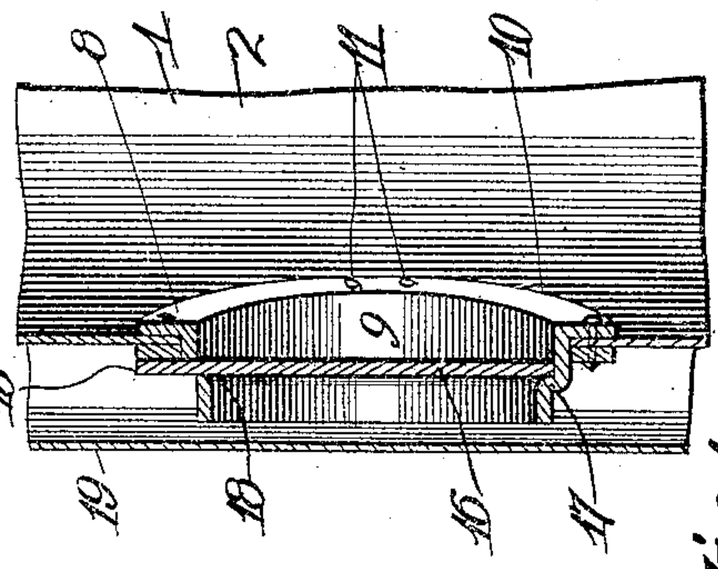


Fig. 4.

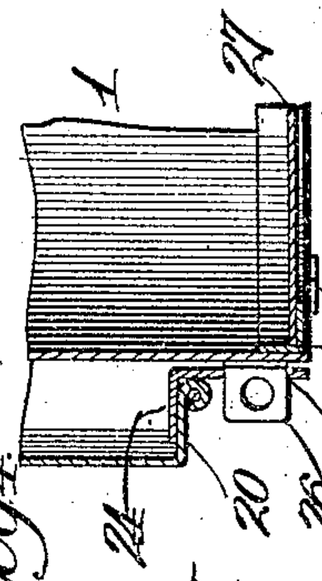
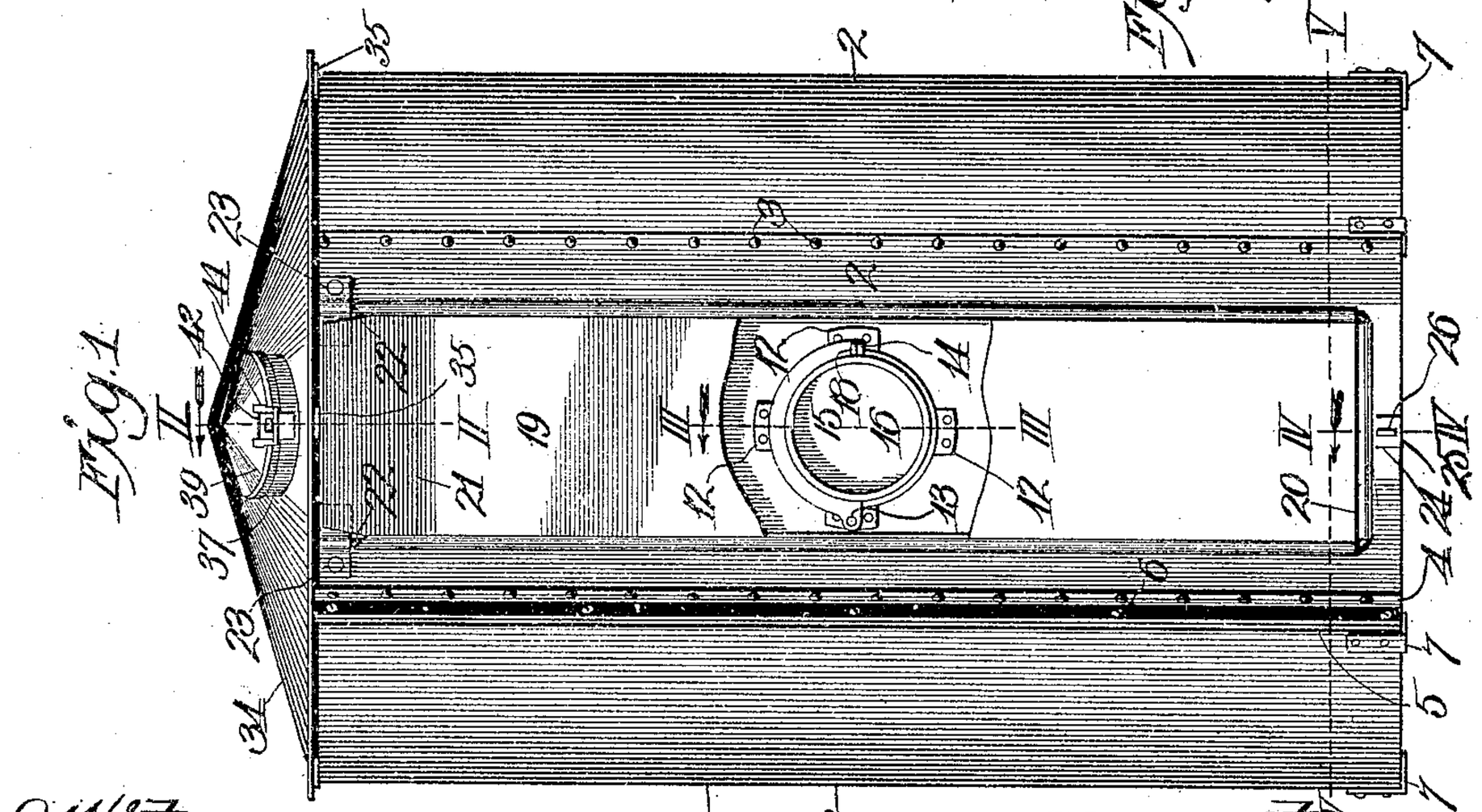


Fig. 1.



Witnesses

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# UNITED STATES PATENT OFFICE.

EMANUEL E. NORQUIST, OF KANSAS CITY, MISSOURI.

## PORTABLE GRAIN-BIN.

952,133. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed August 12, 1908. Serial No. 448,198.

*To all whom it may concern:*

Be it known that I, EMANUEL E. NORQUIST, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Portable Grain-Bins, of which the following is a specification.

This invention relates to portable grain bins, and my object is to produce a bin of this character of knock-down construction for convenience of shipment and which can be set up by unskilled labor at any desired point most convenient to the threshermen.

A further object is to produce a bin which can be conveniently charged and from which the grain may be removed easily and expeditiously and which is weather, vermin and fire proof, and to which an unauthorized person cannot obtain access without mutilation of the bin or the fastening devices for certain parts thereof.

With these general objects in view and others as hereinafter appear the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which,—

Figure 1, is a front view partly broken away, of a bin embodying my invention. Fig. 2, is an enlarged section on the line II—II of Fig. 1. Fig. 3, is an enlarged vertical section taken on the line III—III of Fig. 1. Fig. 4, is an enlarged vertical section taken on the line IV—IV of Fig. 1. Fig. 5, is a horizontal section taken on the line V—V of Fig. 1.

In the said drawing, 1 indicates a cylindrical bin of sheet metal for the reception of a considerable quantity of grain and adapted to be charged with such grain by a separator or with grain from a wagon or other conveyance. The body or cylindrical portion of the bin is by preference composed of a plurality of sheets or sections 2 lapped together at their longitudinal edges and riveted as at 3, the end sections being equipped with longitudinally arranged angle irons 4 and 5 to fit and be bolted together as at 6, and secured to the lower end of the body portion is a plurality of angle brackets 7 having their vertical arms riveted to the body of the bin and their horizontal arms projecting inwardly therefrom, it being noticed in this connection that by the use of a plurality of small brackets 7, the body of the bin may be rolled for convenience and cheapness of shipment, it being understood that the angle iron bars 4 and 5 do not interfere with the rolling of the body portion of the bin because they are arranged longitudinally and are of course not bolted or otherwise secured together until the bin is being set up in the harvest field or any other desired point. One of the sections of the body portion is preferably provided with a plurality of holes 8 in different vertical planes (only one of said holes appearing) and occupying each hole is a short tubular nipple 9 having a circular flange 10, fitting against the inner side of the body portion and riveted or otherwise secured thereto as at 11. The rivets 11 also secure stiffening plates 12 against the outer side or face of the body or cylindrical portion of the bin, one of said plates 12 having a pivot-pin 13 projecting outward. The other plate 12 at a point diametrically opposite the said pivot-pin has an outwardly-projecting ear 14. Pivoted on said pin is a substantially circular valve consisting of an upper portion 15 and a lower portion 16, the lower portion being adapted to fit snugly in the nipple behind an annular shoulder 17 thereof, formed by reducing the outer end of the nipple and adapted to brace the valve against outward pressure of the grain in the bin. The upper half of the nipple is provided with a slot 18, in which the valve stands when closed and through which it can be swung outward so as to expose or uncover the entire area of the nipple to permit grain to pass therethrough inwardly or outwardly of the bin or to permit of the insertion of a spout for charging the bin with grain or for discharging grain therefrom. At the free end of the upper portion 15 of the valve is an ear 18 to rest upon ear 14 in order that a padlock (not shown) may be employed to lock said gears together if desired. If preferred the valves can be rendered inaccessible by means of a cap 19 to fit over them, the cap being preferably of U-shape in cross section and having an inwardly-projecting lower end or bottom 20, and an upwardly and inwardly-extending upper end or top 21 and provided at opposite sides of the top portion 21 with a pair of cylindrical portions 22 to be slid under keepers 23 fastened to the body portion of the bin at its upper end, the bottom

20 of the cap being equipped with an angle bracket 24 to be fitted against the body portion of the bin at its lower end and provided with an opening 25 to fit over a perforated lug 26 projecting from the bin for engagement by a padlock not shown, whereby the cap is secured reliably in position. To remove the cap it is swung outwardly at its lower end after the padlock is removed and then slid downward and outward to withdraw its cylindrical portion 22 from under the keepers 23, being reversely manipulated to resecure it in position.

The bottom 27 of the bin is of circular form and reinforced by a circular angle bar 28. The bottom is slipped into the body portion by preference after the latter is erected and by gravity assumes a horizontal position with the reinforced bar resting upon the inwardly projecting arms of brackets 7.

To stiffen its upper end the body portion is equipped at such end internally with a series of step-brackets 29 upon which is supported a stiffening ring 30, and secured internally to the body portion at suitable points are looped straps 31 to be connected by wire cables 32 or equivalents with similar loops 33 secured to the under side of the preferably conical top 34 of the bin, said top being of greater diameter than the body portion of the bin to project outward thereof as eaves to prevent rain obtaining access thereto or to the space between the same and the cap 19, and to provide for ventilation, the top will be equipped with a plurality of plates 35 which will rest upon the upper end of the body-portion and hold the cap slightly spaced above said body-portion, as shown most clearly in Fig. 2.

The top is provided with a manhole 37 surrounded by a circular flange 38, and normally closed by the conical cap 39, hinged by preference, as at 40, to the flange 38 and provided with a hasp 41 to fit over a perforated ear 42 rigid with the flange 38 for engagement by a padlock or equivalent locking means, not shown.

Assuming that the bin has been erected with the exception of the top 34, it will be seen that the elevator of the separator may be arranged to discharge into the open upper end of the bin, the valves being of course closed. After the bin is filled, the top 34 is secured in place by a man who enters the bin through the manhole 37 and wires the looped straps together as shown in Fig. 2. He then leaves the bin by way of the manhole and fastens the cap thereof in place. If preferred the top 34 can be secured in place and the elevator be employed to discharge the grain into the bin through the manhole.

If the bin is to be charged from a wagon, the latter will preferably be backed up close to the bin and the valve below the plane of the body of the wagon opened. A spout may then be fitted in said opening and the grain be caused to run into said spout or it may be shoveled therein. When the level of the grain in the bin gets too high it will of course be necessary to shovel the grain directly through one of the higher openings or through a spout fitted therein.

When it is desired to charge a wagon from the bin, the wagon is backed up to the bin as before. A spout is then fitted under one of the nipples above the plane of the wagon body and the valve of said nipple is opened to permit the grain to flow into the wagon. When the level of the grain in the bin gets too low to effect the discharge as explained, a man enters the bin through the manhole and shovels the grain into the spout leading to the wagon, it being understood of course that the spout will engage an opening sufficiently high to cause the grain to fall into the wagon. The flow of the grain can be cut off at any time by operating the valve of the nipple, the valve cutting through the flowing grain, as will be readily understood.

From the above description it will be apparent that I have produced a grain bin possessing the features of advantage enumerated as desirable in the statement of invention and I wish it to be understood that I reserve the right to make all changes falling within the spirit and scope of the appended claims.

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

1. A sheet metal bin, comprising a body portion equipped at its ends with longitudinal stiffening bars bolted together, a bottom for the bin, step-shaped brackets within and secured to the bin near its upper end, a stiffening ring fitting in the bin and upon said brackets, and a top covering the bin and provided with a manhole opening, and a cap to close the same.

2. A cylindrical sheet metal bin, having an opening in its body portion, a nipple fitting in said opening and provided with a slot in its upper portion, a valve suitably pivoted to operate through said slot and provided with a depending portion and adapted to completely close the opening of the nipple, a bottom for the bin, a top for the bin, provided with a manhole and a flange surrounding the same, and a cap to cover said manhole, in combination with a guard for the valve and nipple, said cover being removably secured to the outer side of the bin.

3. A cylindrical sheet metal bin, having an opening in its body portion, a nipple fitting in said opening and provided with a slot in its upper portion, a valve suitably pivoted to operate through said slot and provided with a depending portion and adapt-

ed to completely close the opening of the nipple, a bottom for the bin, a top for the bin, provided with a manhole and a flange surrounding the same, and a cap to cover said manhole, in combination with a guard for the valve and nipple, said guard having cylindrical projections at its upper end, and a slotted angle bracket at its lower end, keepers secured to the upper end of the bin to slidingly receive the projections of said guard, and a perforated lug to project through the slotted bracket of the guard.

4. A sheet metal bin, comprising a cylindrical body having a removable bottom, a removable stiffening-ring for the upper part of the body, a removable top for the body, a valve-controlled nipple for the body, and a removable guard secured to the outer side of the bin and inclosing the valve-controlled nipple.

In testimony whereof I affix my signature, in the presence of two witnesses.

EMANUEL E. NORQUIST.

Witnesses:

H. C. RODGERS,

G. Y. THORPE.