(No Model.)

J. WILSON.

BIN.

No. 455,082. Patented June 30, 1891.

Fig. 1.

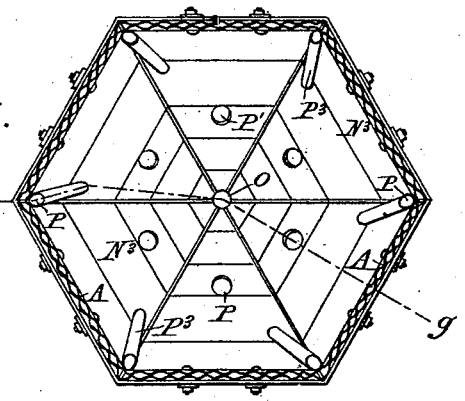


Fig. 2.

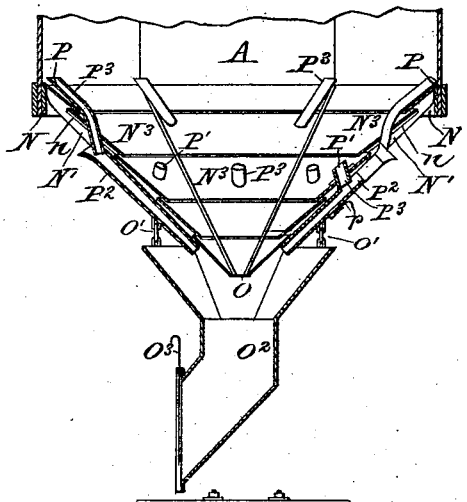
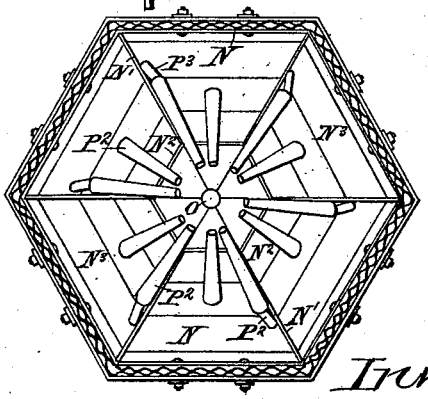


Fig. 3.



Witnesses:
C. B. Bull
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Inventor.
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Attys.

UNITED STATES PATENT OFFICE.

JAMES WILSON, OF LISCARD, ENGLAND.

BIN.

SPECIFICATION forming part of Letters Patent No. 455,082, dated June 30, 1891.

Application filed January 18, 1889. Serial No. 296,727. (No model.) Patented in England April 3, 1888, No. 5,074, and October 4, 1888, No. 14,269.

To all whom it may concern:

Be it known that I, JAMES WILSON, a subject of the Queen of Great Britain, residing at Liscard, in the county of Chester, in the Kingdom of England, have invented certain new and useful Improvements in Bins, (for which provisional protection has been granted in England, No. 5,074, dated April 3, 1888, and No. 14,269, dated October 4, 1888,) of which the following is a specification.

My invention relates to the construction of hopper-bottoms for bins; and it consists in a novel construction of the same, as hereinafter set forth and claimed.

In the drawings, Figure 1 is a top plan view of my improved hopper-bottom; Fig. 2, a sectional view of the same on the line *g g*, Fig. 1; and Fig. 3, a bottom plan view.

To each angle of a frame N, at the bottom of the bin, I attach a bearer N′. The bearers N′ point downward, converging toward the center of the bin, and are united at their lower ends by a frame N^2. On the sides of the bearers N′ grooves or ribs *n* are formed for the reception of louver boards or plates N^3, which are slid in from the outside or simply dropped upon the ribs from the inside. Spaces about an inch wide are left between the outside lower edge of one louver and the inside edge of the next below it, both edges lying in about the same horizontal plane. By means of this arrangement of louvers the produce can be thoroughly aerated from below, while unable to trickle out through the bottom. The louvers converge toward the center, leaving a central discharge O. The louvers N^3 are placed at such an angle as will insure the produce running freely over them when discharging the bin, thus preventing any residue remaining in the bottom of the bin. By making these louver-boards to slide loosely between the bearers N′ they may be readily removed from the outside, so as to afford easy access to the interior of the bin, when desired, or when a large increase of discharge is required, as in case of fire or other emergency. The principle of aerating the produce by means of louvers may be applied to the walls of bins as well as to their bottoms. If desired, the aeration of the produce may be assisted by any known exhaust or blower apparatus placed wherever most convenient.

Below the central discharge-orifice O, I suspend by chains O′ or fixed by other suitable means a discharge-hopper O^2, which is fitted with a main discharge valve or valves O^3. The produce runs out through the central orifice O and through discharge-pipes P^2 (hereinafter to be described) into the discharge-hopper O^2. The top edge of this hopper stands above the orifice O and the lower ends of the aforesaid discharge-pipes, so that when the valve O^3 is closed the produce rises in the hopper and shuts off the supply from the bin, but cannot overflow. As the circumference of the top of the discharge-hopper is larger than the circumference of the ring of pipes P^2, samples of the produce can be taken from it by the hand at all times. This hopper can be easily removed, or the produce may be allowed to run through the holes without pipes onto an endless band, screw, or other conveyer fitted underneath in a trough or otherwise.

Instead of providing one valve O^3 for discharging the produce, I sometimes use a four-way valve. A sack or receptacle for receiving the grain may be placed under each orifice, and by opening the valves O^3 the receptacles can all be filled at one time.

The bottom of the bin is provided with a number of discharge-orifices P P′, arranged, preferably, in two or more concentric circles, as shown in Fig. 1. The orifices P P′ may be formed in the louvers N^3 but they are preferably formed by the upper extremities of short pipes P^3, (hereinafter called "orifice-pipes.") These pipes pass through the louvers N^3, their lower ends being placed just above or projecting for a short distance into the mouths of discharge-pipes P^2. The discharge-pipes P^2 are arranged round the outside of the louver-hopper and converge at their lower ends toward the central orifice O, their mouths being of a greater area than the orifice-pipes P^3, in order to assist the aeration of the produce. (See Fig. 3.) The discharge-hopper O^2 thus receives all the converging streams of produce from the orifices P P′, as well as that from the central orifice O. Any or all of the discharge-pipes P^2 may be fitted with small valves *p*, through which samples may be obtained. When only

one central orifice is employed, as at present, it causes a separation of the heavy from the lighter particles, and as a result one part of the delivery of the produce is inferior or superior to another part and to the average quality of the produce in the bin. This is very unfair to the receiver of the inferior quality. By providing a number of orifices P P′, as above set forth, over the entire area of the bin the produce therein can be drawn off uniformly without fear of separating it into different qualities, as above described. The discharge-pipes P^2 also serve to mix the produce should its average quality in different parts of the bin be unequal.

I claim as my invention—

1. In a bin, a bottom hopper having a series of orifices for air pointing downward and inward, substantially as described.

2. In a louver hopper for the bottoms of bins, a series of louvers N^3 and bearers N′, provided with grooves or ribs pointing inward and downward, in which said louvers slide, the top of one groove being about level with or a trifle above the bottom of the other, with a clear space between the grooves, substantially as and for the purposes described.

3. A bottom hopper of a bin, formed of louvers that can be drawn out from the outside, whereby it can be easily got at for repair or an increased discharge obtained in case of necessity.

4. In combination with the bottom having the central discharge-orifice O, the chains O′, and discharge-hoppers O^2, having main discharge-valve O^3, substantially as described.

5. In combination with discharge-hopper O^2, a series of orifices O P P′, all over the bottom of the hopper, whereby the produce is drawn equally from all parts of the area of the bin and descends as a solid bulk, thus preventing any of the produce remaining in the bin.

6. In a bin, a bottom hopper having numerous pipes or conduits directed downward and inward all over the surface, open at their upper ends to the atmosphere, whereby ventilation is greatly facilitated and increased.

7. In combination with the main hopper and the pipes or vents O P P′ and central discharge-hopper O^2, a series of pipes P^2 P^3, converging downward to the hopper O^2, through the main hopper and open at both ends, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES WILSON.

Witnesses:
GEO. C. DYMOND,
H. P. SHOOBRIDGE.