R. M. VAN NESS.

DISTRIBUTING SPOUT AND OVERFLOW RECEIVER.

APPLICATION FILED MAR. 10, 1914.

1,224,241.

Patented May 1, 1917.

2 SHEETS—SHEET 1.

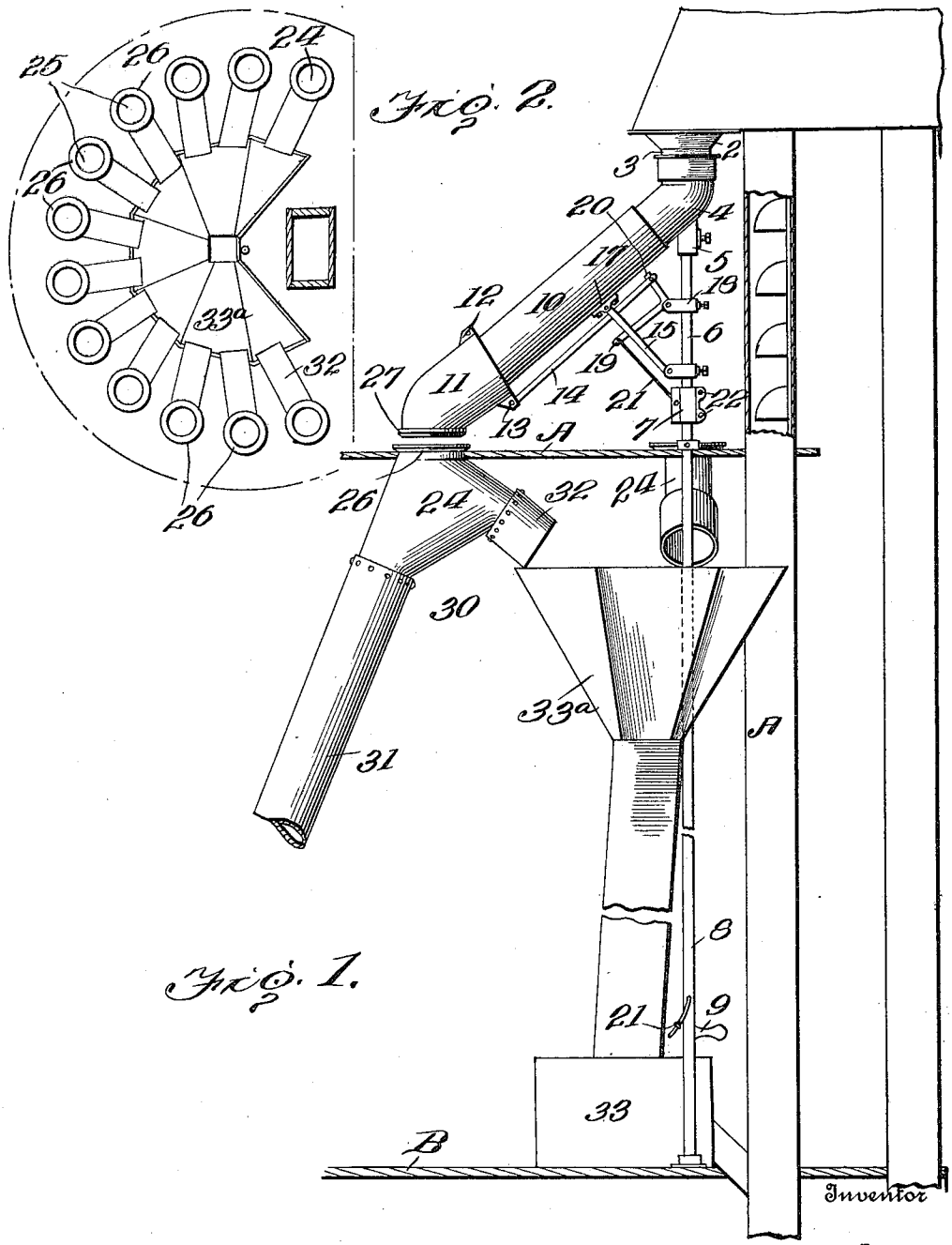


Fig. 1.

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Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

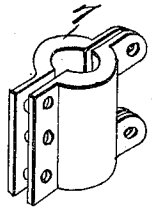
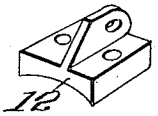


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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DISTRIBUTING-SPOUT AND OVERFLOW-RECEIVER.

1,224,241. Specification of Letters Patent. Patented May 1, 1917.

Application filed March 10, 1914. Serial No. 823,717.

To all whom it may concern:

Be it known that I, RALSTON M. VAN NESS, citizen of the United States, residing at Fairbury, in the county of Jefferson and State of Nebraska, have invented certain new and useful Improvements in Distributing-Spouts and Overflow-Receivers, of which the following is a specification.

My invention relates to elevators and particularly to that class of elevators in which a rotatable spout is used in conjunction with a plurality of bins, such spouts being used in connection with various types of elevators for the purpose of elevating grain, seeds, ground products, coal, ore and such other dry or liquid materials as can be handled with common elevator machinery.

The primary object of my invention is the provision of means for preventing the flooding or choking up of the elevator legging or boot after a bin has been completely filled, and in this connection to prevent spilling or scattering of the material being handled and to prevent mixing of the material.

Another object is to provide means whereby the receiving hopper connected to the spout may be allowed to lower as by the settling of a building within which the hopper is mounted without necessitating the readjustment of the distributing spout and without affecting the action of the spout.

A still further object is to provide a very simply made and simply operated, hingedly mounted distributing nozzle whereby the distributing spout can be readily connected with a receiving member and in this connection to provide means whereby the nozzle may be centered relative to the receiving member.

Still another object is to provide simple and easily operated means for swinging the spout and actuating the hinged nozzle thereof.

A most important object is to provide means whereby when a bin or a receiving spout is filled to overflowing, the excess material may be allowed to escape through an overflow receiver into another bin or spout designed to receive this overflow, the flow of material into this last named bin or other receptacle acting to warn the operator that the main or first bin is overflowing. This prevents the choking up of the elevator legging and also prevents spilling and scattering grain or mixing the grain or other material.

A further object is to provide an overflow receiver connected to a main bin or receptacle and to an auxiliary bin or receptacle, this receiver being so designed that the material will ordinarily flow directly through the receiver into the main receptacle, and when the main receptacle is filled, the grain will automatically flow laterally into the auxiliary receiver.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings wherein:

Figure 1 is an elevation of my improved distributing spout and the overflow receiver showing the floors upon which the device is mounted.

Fig. 2 is a diametrical plan view showing the relative position of the overflow receivers and the central hopper into which the overflow from these receivers is discharged.

Fig. 3 is a longitudinal vertical section of the receiving hopper, the distributing spout and the overflow receiver.

Fig. 4 is a detail view of the clamp for supporting the pulley over which the actuating cord passes.

Fig. 5 is a detail view of the bracket for supporting the nozzle casting upon the distributing spout.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to the drawings and more particularly to Fig. 3 which shows the details of my construction, 2 designates the receiving hopper which can be made of sheet metal or cast iron and of any suitable design. This hopper is intended to be fastened either to an elevator head or to any part of the building or spouting. The hopper has a downwardly extending annular lower portion 3 which has telescopic engagement with the upper end of the elbow 4. This elbow at its upper end is enlarged to receive the lower end of the hopper. The purpose of making the lower end of the hopper telescope or have a slip joint connection with the upper end of the elbow 4 is to permit the building or supports to settle without affecting the manipulation of the distributer and without in any way impeding the proper operation of the distributing spout and requiring that the distributing spout should be rearranged.

The elbow 4 is preferably made of cast iron and has an annular lug or socket 5 formed upon its bottom in line with the axial center of the hopper. This elbow is supported by means of a vertical length of gas pipe 6 whose upper end extends into the socket 5 and is held therein by means of a set screw or in any other suitable manner. The length of gas pipe 6 is connected by means of a clamp 7 to a lower section of gas pipe 8 and this lower section is provided with the laterally projecting handle 9 whereby the gas pipe and the distributing spout may be rotated.

The elbow 4 discharges into a sheet metal spout or pipe 10 which forms an extension from the elbow and extends downward and outward, and mounted upon the lower end of this spout 10 is a casting 11 which forms a discharge nozzle. This casting is circular in form, slightly contracted toward its lower or discharge end and at its upper end is pivotally connected to the pipe 10. For this purpose a bracket 12, shown in Fig. 5, is mounted upon the lower end of the sheet metal spout 10, this bracket having an upwardly projecting lug. The upper end of the casting 11 is formed with ears which embrace this lug and a pivot pin connects these ears to the lug. The under side of the casting 11 at its rear end is formed with ears 13 between which is received the lower end of a link 14. The spout 10 is supported upon the pipe 6 by means of a link 15 which at its lower end is connected to an adjustable collar 16 and which at its upper end is pivotally connected to the pipe 10 by means of the bearing bracket 17. The link 15 is formed by two parallel strips spaced from each other and the link 14 passes between and is guided by these strips.

Mounted upon the pipe 6 above the collar 16 is an adjustable collar 18 to which a bell crank lever 19 is pivoted, the upper arm of the bell crank lever being pivotally connected to the link 14 at 20 while the lower arm extends outward and downward, passes between the link strips 15 and has connected to its extremity an actuating wire or other flexible connection 21.

As illustrated, the clamp 7 previously referred to is made in two mating pieces held to each other and to the pipes 6 and 8 by means of bolts 22 passing through ears, and supported between the two sections of the clamp is a pulley 23 over which the flexible connection passes into the pipe section 8. It will now be seen that by rotating the pipe section 8 in any suitable manner as by means of the handle 9, the elbow 4, the spout section 10 and the nozzle 11 may be rotated to any radially adjusted position and that by oscillating the bell-crank lever 19 the nozzle 11 may be tilted either upward or downward.

As shown in Fig. 1 the pipe section 8 extends down through the floor A of the building and may extend down through one or more floors to the ground floor or work floor B. The operator on this floor through the wire 21 and through the handle 9 controls the adjustment of the spout.

The overflow receiver which is one of the principal elements of my invention is designated 24 and may be made of either cast iron or sheet metal. At its upper end the overflow receiver is formed with an opening 25 having an outwardly flared seat 26 surrounding it. It will be noted that the lower end of the nozzle 11 is formed with a bevel faced flange 27 which is adapted to fit against and conform to the seat 26. At its lower end the overflow receiver is formed with a main discharge opening 28 which has the same area as the opening 25 but which is located in offset relation thereto.

The receiver is laterally enlarged and formed with an overflow discharge opening 29. The wall of the opening 29 is connected to the wall of the opening 28 by means of the downwardly and laterally inclined web 30, the axes of the openings 28 and 29 being approximately at right angles to each other. The overflow receiver 24 is supported in any suitable manner and the discharge ends 28 and 29 thereof are adapted to be connected to spouts 31 and 32 leading to bins. The spout 31 leads to a main bin or to any suitable receptacle or spouting, while the spout 32 leads indirectly into an overflow receiving bin 33 (see Fig. 1) located on the ground floor or work floor. The grain or other substance is discharged from the nozzle 11 into the top or receiving end of the overflow receiver and is discharged through the discharge opening 28 either into a bin or into a spout that conducts the material to a bin. When the last named spout or bin becomes full and the grain or other material falls into the overflow receiver, this grain will travel through the opening 29 and therefore cannot fill up the spout 10 and thus fill the distributer or elevator leg with which the spout is intended to be connected. The overflow opening 29 of the receiver has connected to it a spout 32 which extends to a hopper 33^a. This hopper 33^a is connected by a spout to the overflow bin 33 which is in sight of the operator who controls the distributing spout and may vary in size but should be as large as possible. The spout carrying the overflow to this bin should be set directly over the bin and in such position that the operator can see the grain flowing through the spout into the bin. This overflow bin is of course provided with a gate to let the grain escape to the elevator boot A′ after the distributer has been changed to another bin. The overflow bin is thus emptied and left ready for the next emergency. If only one

overflow receiver is in use then, of course, the overflow spout therefrom could directly connect to the bin 33, but where there are a number of spouts or receivers in use it is more convenient to have them discharge into the small hopper 33ª. The grain passing through the spout leading from the hopper to the bin 33 is not only seen by the operator when overflowing but can also be heard in its fall as the bin 33 is located many feet below the hopper 33ª.

As soon as the operator discovers that the main bin is full and overflowing into the hopper 33ª, he closes the gate that is leading the grain to the elevator boot (this gate not being shown) and the grain that is in the boot passes out through the distributer and overflows into the bin 33. After the grain stops running, the operator knows that the spout 10 is empty and he is free to change the spout to another bin and resume his work.

It is to be noted that by thus taking care of the overflow from the main bin the clogging or choking of the machinery is prevented, thus preventing damage being done to the machinery by such clogging and also preventing the starting of a fire by the slipping of belts.

The overflow discharge 29 will carry and discharge the full capacity of the distributer and thus in case the operator fails to discover that the main bin or the spout is full, and that grain is passing through the overflow receiver, no damage will be done and the machinery will not be clogged or choked. The grain or other material will simply run into the bin 33 provided to receive the overflow. This feature I regard as one of the most important features of my invention and believe that it has many advantages over the ordinary form of signaling distributer, particularly in that the overflow receiver is in no way connected to the distributing spout and can be removed or replaced or any part or portion of it removed without the necessity of taking the whole system down or replacing it. Furthermore, inasmuch as the overflow receivers are cast separately from any other portions of the apparatus, more receivers can be added at any time that they are required and it is not necessary to add an entirely new equipment at a large expense. The overflow receivers can be set in the floor, as for instance the floor A, or hung in a distributing floor built for the purpose. They are easily installed and can be held in place by bolts and they are provided with holes at the discharge end whereby spouting may be attached.

It will, of course, be understood that a plurality of overflow receivers 24 are intended to be used, these receivers being arranged concentrically to the supporting pipe sections 6 and 8 so that the distributing spout may be turned from one receiver to the other.

The operation of the invention will be obvious. When it is desired to shift the distributing spout from one receiver to another, the flexible connection 21 is pulled which pulls down upon the long arm of the bell crank lever 19 and forces downward on the lower portion of the nozzle 11, thereby turning the nozzle upon its pivot so that the lower end of the nozzle will rise from its engagement with the seat 26. When this has been accomplished, the distributing spout is rotated by hand into position to engage the new bin by the operation of the handle 9 or in any other suitable manner. When properly in register with the opening of the new bin, the flexible connection 21 is released, whereupon the weight of the nozzle 11 will cause the free end thereof to drop upon the seat 26. Inasmuch as the seat 26 is beveled and the extremity of the nozzle is beveled, it will be seen that the beveled seat will act to center the nozzle accurately.

The main advantages of my construction are as follows. The distributing spout may be easily and positively actuated and can be operated either by means of an indicating handle mounted upon the pipe 8 or this pipe 8 may be operated by means of a wire rope or other connection extending to any desired point of operation. It will further be seen that the nozzle 11 is operated without the use of springs, that it is shifted in one direction by means of the flexible connection 21 and in the opposite direction by gravity. The hingedly connected nozzle 11 prevents leakage and the constant mixing of two kinds of grain or other material. The overflow receiver 24 is so designed that it will carry the full capacity of the distributer through the overflow end as well as through the discharge end and this no other distributer known to me will do. A further advantage resides in the fact that any number of receivers with their coacting bins may be added to the distributing system at relatively small additional expense thus avoiding the cost of putting in an additional complete distributing system when more bins are needed. The lever 19 may be readily adjusted by adjusting the clamp 18 to which the lever is pivoted and the brace 15 may also be readily adjusted by adjusting the clamp 16.

While I have only shown two sections of pipe 6 and 8 with a flexible connection extending out through the pipe 8 and an actuating arm 9 on the pipe 8, it will of course be understood that the pipe 8 may be longer or shorter, that the flexible connection might extend out from this pipe to any suitable point of operation, and that the spout might be turned by connections ex-

tending from the rotatable pipe section 8 to any suitable point of operation.

What I claim is:

1. The combination with a discharge spout, of a receiver below and into which the spout discharges, said receiver being provided in its upper end with an inlet opening forming a seat for and fitting around the entire circumference of the end of the spout and being further provided with a main discharge opening and an overflow opening, the latter opening being above the main discharge opening and at one side of the inlet opening and the wall of the receiver between the overflow and main discharge openings being inclined downwardly toward the main discharge opening to direct all matter falling thereon from the inlet opening into the main discharge opening.

2. The combination of a distributing floor, a discharge spout arranged above the distributing floor, and a receiver secured in said floor and provided with an inlet opening disposed in the plane of the floor and into which the spout discharges, said receiver being provided below the distributing floor with a main discharge opening and with an overflow opening spaced laterally from the main discharge opening and from the inlet opening.

3. The combination with a discharge spout, of a receiver below and into which said discharge spout discharges, said receiver having an inlet in its upper end and provided in its lower end with a main discharge opening and in one side with an overflow opening, said overflow opening being above the main discharge opening and entirely independent of the same and the inlet, the wall of the receiver between the overflow and the main discharge openings being inclined downwardly toward the last-named opening to direct all matter falling thereon into the same, and the axes of the inlet, the main discharge opening and the overflow opening being out of alinement and intersecting.

4. The combination with a discharge spout, of a receiver below said spout provided in its top with an inlet opening constituting a seat for the discharge spout and into which the spout discharges and provided with a positively defined main discharge opening in its lower end and with an overflow opening above the main discharge opening, the walls of the receiver at one side thereof and below the inlet opening being extended laterally and converging to the overflow opening, the lower wall of the receiver being inclined downwardly toward the main discharge opening to direct all matter falling thereon from the inlet opening into the main discharge opening, and said overflow opening and said main discharge opening being at opposite sides of the axis of the inlet opening.

5. In a distributing system, a hopper, an elbow extending therefrom and swiveled thereto, a tubular rotatable standard upon which the elbow is supported, a spout extending downward from the elbow, a nozzle hingedly mounted upon the lower end of the spout for oscillation in a vertical plane, means for manually rotating the standard, the elbow and the spout, a bell crank lever pivotally mounted upon the standard and disposed between the spout and the standard, a link connection below the spout between one arm of the bell crank lever and the nozzle, and a flexible connection extending from the other end of the bell crank lever into the tubular standard and down therethrough.

6. In a distributing system, a hopper, an elbow having swiveled engagement therewith, a tubular rotatable standard upon which the elbow is supported, a spout extending from the elbow, a nozzle hingedly mounted upon the lower end of the spout for oscillation in a vertical plane, a brace extending from the spout to the standard, said brace being formed with spaced members, a bell crank lever mounted upon the standard, a link passing between said spaced members and operatively connecting one arm of the bell crank lever to the free end of the nozzle, the other arm of said bell crank lever passing between said spaced members, and a flexible connection passing from the last named arm of the bell crank lever down through said standard.

7. The combination of a standard, a spout mounted on the standard, a nozzle pivotally mounted on the upper side of the spout and fitting around the end thereof, a brace pivoted at its lower end to the standard and at its upper end to the under side of the spout, and angle lever fulcrumed on the standard above the lower end of said brace, a link pivoted at its upper end to the upper end of the said angle lever and at its lower end to the nozzle, and an operating member attached to the lower end of the angle lever and supported by the standard.

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

RALSTON M. VAN NESS. [L. S.]

Witnesses:
J. O. EVANS,
LUTHER BONHAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."