J. G. VOGEL.

ENSILAGE DISTRIBUTER.

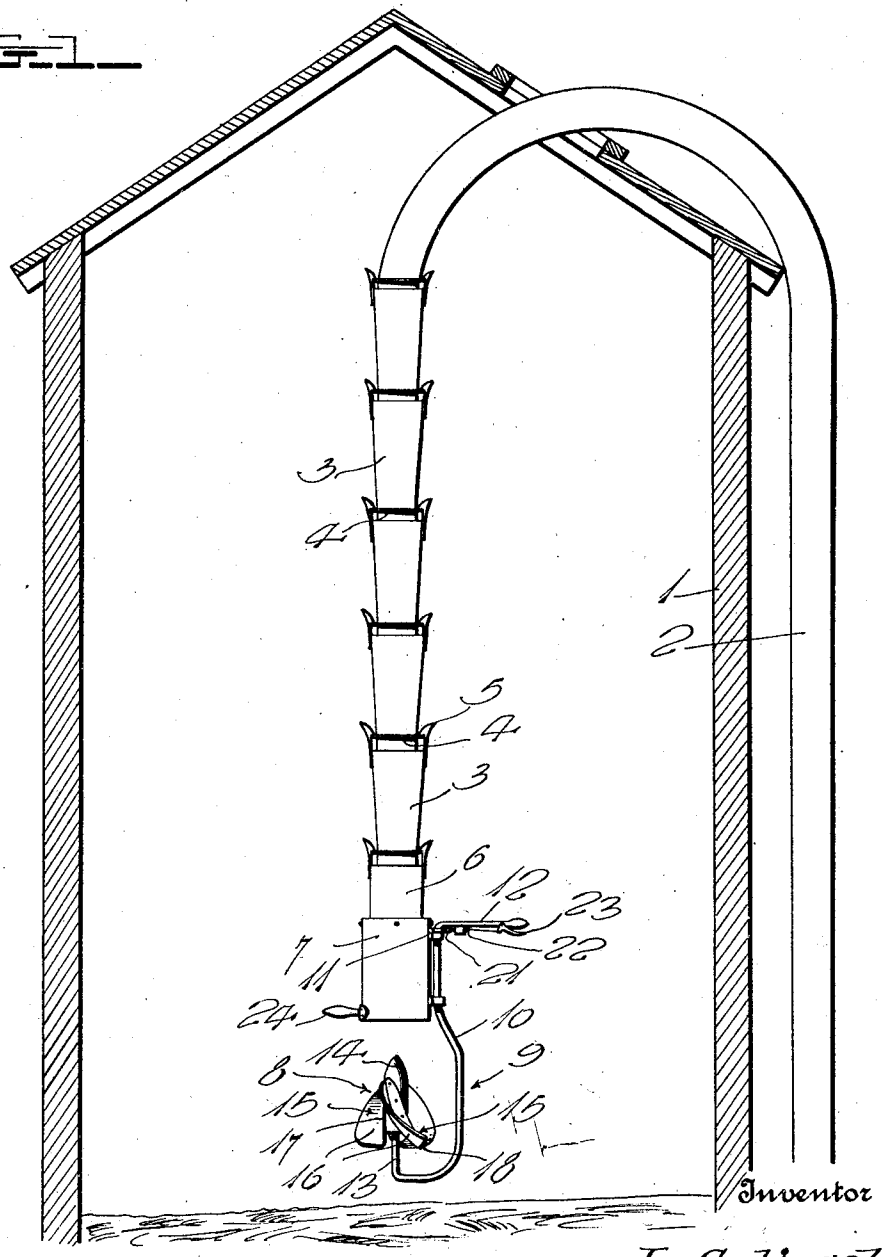
APPLICATION FILED MAR. 25, 1920.

1,389,402.

Patented Aug. 30, 1921.

2 SHEETS—SHEET 1.

FIG. 1.



Witness

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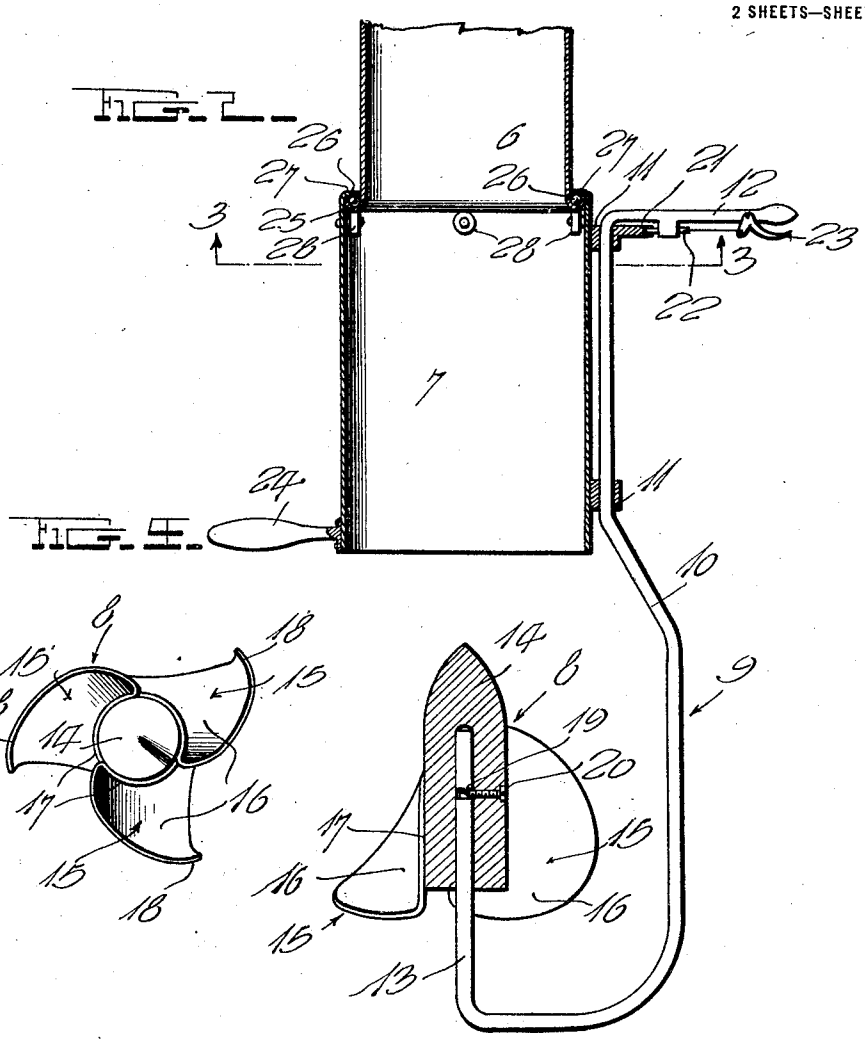

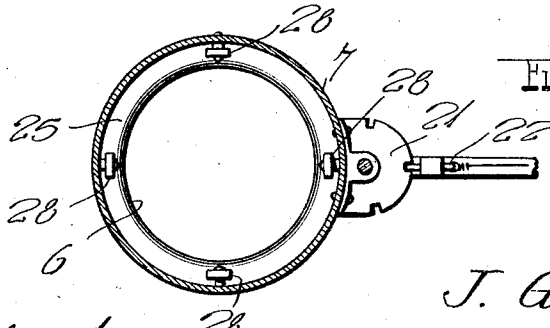

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UNITED STATES PATENT OFFICE.

JOHN G. VOGEL, OF HAMPTON, IOWA.

ENSILAGE-DISTRIBUTER.

1,389,402. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed March 25, 1920. Serial No. 368,554.

To all whom it may concern:

Be it known that I, JOHN G. VOGEL, a citizen of the United States, residing at Hampton, in the county of Franklin and State of Iowa, have invented certain new and useful Improvements in Ensilage-Distributers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved ensilage distributer.

The object of the invention is to improve upon and simplify the construction of such devices. To this end I provide one which is automatic in operation, the distributer being carried by the usual flexible discharge pipe and being disposed in alinement with the mouth thereof so that the air under pressure and ensilage issuing from the pipe will strike and rotate it. This is the sole means for placing the device in operation, which does away with the usual mechanical means employed, thus not only simplifies the device but reduces the cost of manufacture.

Another object of the invention is to provide a device of the above-mentioned character which is of such construction that it may be readily moved to either an effective or an ineffective position.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevation of a device constructed in accordance with my invention, showing the same applied to the flexible discharge pipe, which is shown depending into a silo.

Fig. 2 is an enlarged sectional view, partly in elevation, of my distributer, showing the construction and arrangement of the parts more clearly.

Fig. 3 is a view taken on the line 3—3 of Fig. 2, looking in the direction of the arrows.

Fig. 4 is a top plan view of the distributer removed from the carrying bracket.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 1 designates a silo or other air-tight structure in which ensilage is stored. Extending down into the silo is a discharge pipe 2 which is to be connected at its opposite end with a cutting machine (not shown). As is usual, the portion of the pipe which extends into the silo is made up of a plurality of sections 3, each of which carries a flange 4 at its lower end and catches 5 at its other end which co-act with the adjacent flange. This construction permits the sections to be detached as the silo is filled, and it also forms a flexible pipe. Inasmuch as this is the usual way of making these pipes, it is not desired to limit the invention to the construction shown. The only feature desired is a flexible pipe made up of detachable sections for the purpose above set forth, also to enable the person in the silo to move the discharge end of the pipe to various positions in the silo so that he may distribute the material in the usual way. It might well be stated here, that the operator as a rule takes hold of a handle with which the pipe is provided, and walks from place to place in the silo so as to evenly spread or distribute the ensilage about. My idea is to enable a more even distribution to be made and at the same time break up all clods and lumps of the fodder as it issues from the pipe, the operation being entirely automatic, that is, the operation of my device.

My device is in the form of an attachment. It includes a pair of sleeves 6 and 7 which have swivel connection with one another. Sleeve 6 carries catches like those on the tubular pipe sections 3, so that it may have detachable connection with the lowermost section 3. This construction permits the attachment to be disconnected so that one of the sections 3 may be removed from time to time as the silo fills up. Disposed beneath and normally vertically alined with the approximate center of the pipe is a distributer, designated as a whole by the numeral 8. The latter is rotatably mounted on a portion of a movable bracket 9 preferably in the form of a shaft 10. This shaft is rotatable in bearings 11 carried by and disposed on one side of the sleeve 7, and one end thereof is bent laterally in a horizontal direction to form a handle 12, while the opposite end is directed in a horizontal direction and then vertically to form what I shall term a spindle 13. It is upon this spindle that the distributer is removably mounted.

The distributer is made up of a substantially pointed cylindrical hub or head 14 which carries a plurality of helically disposed blades 15 which are specially constructed to accomplish the desired automatic operation. There are three blades shown and each one is made from a substantially triangular piece of metal 16 which has one edge bent laterally to form an attaching flange 17. The free end or corner is then bent laterally as at 18, thus forming a channel, into which the ensilage is deposited. By constructing the blades in this manner, they will rotate the hub 14 when the air and ensilage strike them. I stated above that the distributer is removably mounted. To this end I form a circumferential groove 19 near the end of the spindle 13 for the set screw 20, which extends through the hub 14 into it. This construction permits free rotation of the hub and also enables me to remove it when so desired.

It is one of the objects of the invention to so mount and construct the attachment that it may be placed in either effective or ineffective position. In carrying out this feature I provide a segmental rack 21, which may be cast with one of the bearings 11. Coöperative with this rack and arranged on the handle 12 is a spring-pressed latch 22, operated by the lever 23. With this construction the shaft 10 may be rotated to, and held in an effective position. To move and flex the pipe, I provide a handle 24.

In forming the swivel joint between the sleeves 6 and 7 I bend the lower end of sleeve upwardly and outwardly to form a race-way 25 for the ball-bearings 26. Sleeve 7 which has a lateral flange 27, rests on and is held against the balls 26 by the roller bearings 28.

In operating the device, the person in the silo takes hold of the handle 24 and walks around in a circular manner, throwing the ensilage close to the wall or in the center as he may desire. Due to the swivel connection of the sleeves 6 and 7 he may always have the handle 24 in a convenient position. Without this joint he could not operate the device very easy because when making his trip around he would be backed up against the wall at some places in order to distribute the material close enough to the wall. With the swivel joint he can remain in the center of the silo and rotate the sleeve 7 so the pipe will always be in front of him. This joint also enables the operator to rotate the sleeve 7 so as to bring the handle 12 before him for throwing the distributing mechanism out of alinement, in which position it is ineffective. As the ensilage and current of air from the cutter issue from the pipe they strike the channel-shaped blades 15 and automatically rotate them. In so doing the ensilage is thrown out against the walls of the silo or in the center as the operator wants it. All clods will be effectively broken up when they strike the distributer, thus the fodder will be separated and prevented from becoming molded as it otherwise does. When the silo becomes filled up enough so as to interfere with the operation, the attachment may be detached and raised higher by simply removing one of the pipe sections 3.

My distributer attachment will add greatly to the effectiveness of ensilage distribution and will be found very desirable and useful in every way. It is automatic in operation, consequently, needs no attention. It is removable, and the parts are disconnectible. Not only that, it may be moved into and out of operation very easily, and above all, it is extremely simple in construction and is inexpensive to manufacture.

From the foregoing description taken in conjunction with the accompanying drawings, it is believed that persons skilled in the art to which this invention relates will be able to obtain a clear understanding of the same. For this reason, further description is deemed unnecessary.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred form of the same, and that various minor changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In an apparatus of the class described, the combination with a silo, of a flexible ensilage discharge pipe depending into the silo, and a rotatably mounted distributer suspended below and in alinement with the mouth of the pipe so that the ensilage and air current issuing from the pipe will strike and rotate it, this being the sole means of imparting rotary movement to the distributer.

2. An apparatus of the class described comprising a discharge pipe, a sleeve rotatably mounted on the lower end of the pipe, a handle for moving the pipe and also serving to rotate the sleeve, a shaft rotatably mounted on one side of the sleeve, said shaft including a handle and a vertical part constituting a spindle which may be swung into and out of alinement with the center of the pipe, a distributer rotatably and removably mounted on the spindle, and means to retain the shaft in a set position.

3. An apparatus of the class described comprising a discharge pipe for disposition in a silo, a vertical spindle carried by and in alinement with the approximate center of the pipe, a circumferential groove adjacent the free end of the spindle, a hub on the spindle, a screw carried by the hub and

projecting into the groove to hold the hub in position and permit rotation thereof, and plurality of distributing blades carried by the hub.

4. An apparatus of the class described comprising a discharge pipe, a vertical spindle carried by said pipe, being movable into and out of alinement with the approximate center of the pipe, means coöperating therewith to hold it in either of said positions, and a distributer rotatable on the spindle.

5. An apparatus of the class described comprising an ensilage discharge pipe, a bracket carried at the lower end of the pipe, including a vertical spindle which is alined with the approximate center of the pipe, and a distributer rotatably mounted on the spindle; said distributer including a cylindrical pointed hub having a hole therein which extends partially therethrough, the pointed end being arranged adjacent the lower end of the pipe, and a plurality of helically disposed blades secured on the hub, each blade being formed from a substantially triangular plate which has one of its longitudinal edges bent laterally to provide an attaching flange which is curved to conform to the contour of the hub, the adjoining portion of the transverse and other longitudinal edge being also bent laterally to form a channel for the ensilage.

6. The combination with a silo and a flexible, sectional ensilage discharge pipe, of a sleeve having swivel connection with the lower end of the pipe, a handle for rotating the sleeve and also for flexing the pipe, bearings fixed on one side of the sleeve, a shaft journaled in the bearings, said shaft having one of its ends bent laterally to form a handle, the opposite end being first bent in a lateral direction and then in a vertical direction so as to form a spindle, a distributer rotatable on the spindle, a segmental rack carried by one of the bearings, and rack-engaging means carried by the shaft-handle.

In testimony whereof I have hereunto set my hand.

JOHN G. VOGEL.