C. F. HALDEMAN.

ENSILAGE CUTTER.

APPLICATION FILED DEC. 4, 1913.

1,129,349. **Patented Feb. 23, 1915.**

2 SHEETS—SHEET 1.

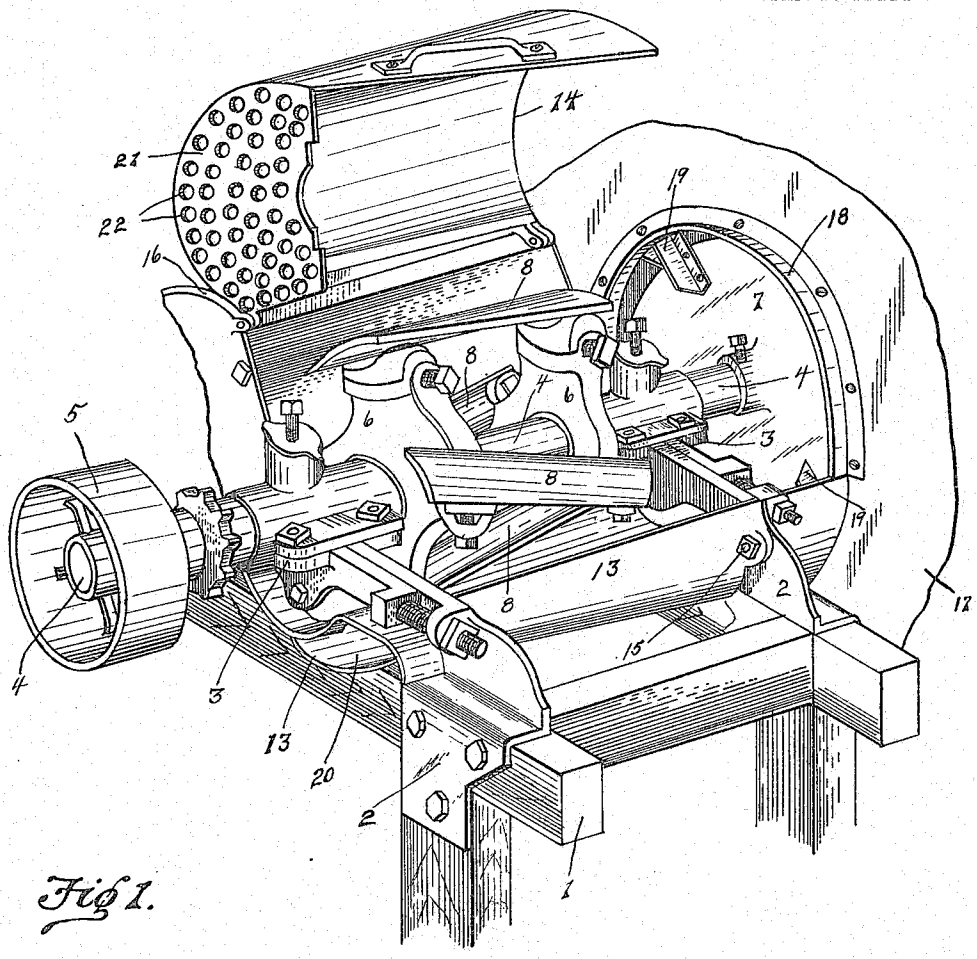


Fig 1.

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2 SHEETS—SHEET 2.

Fig 2.

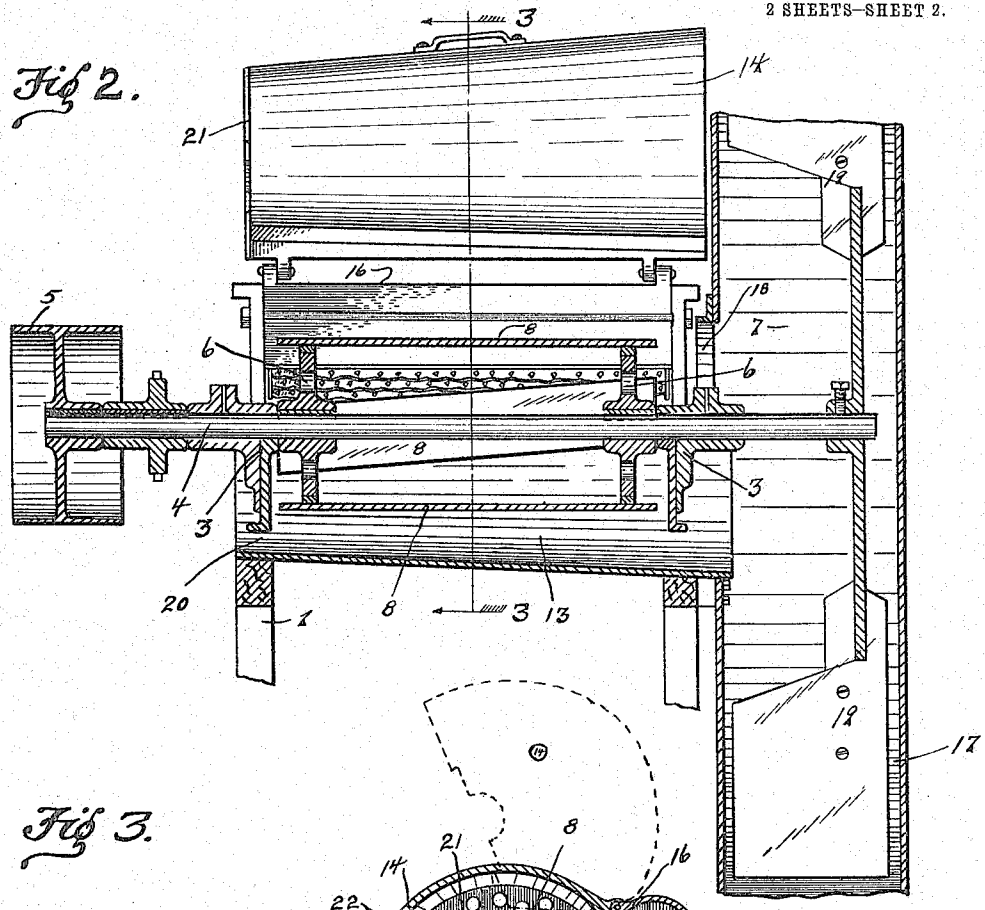
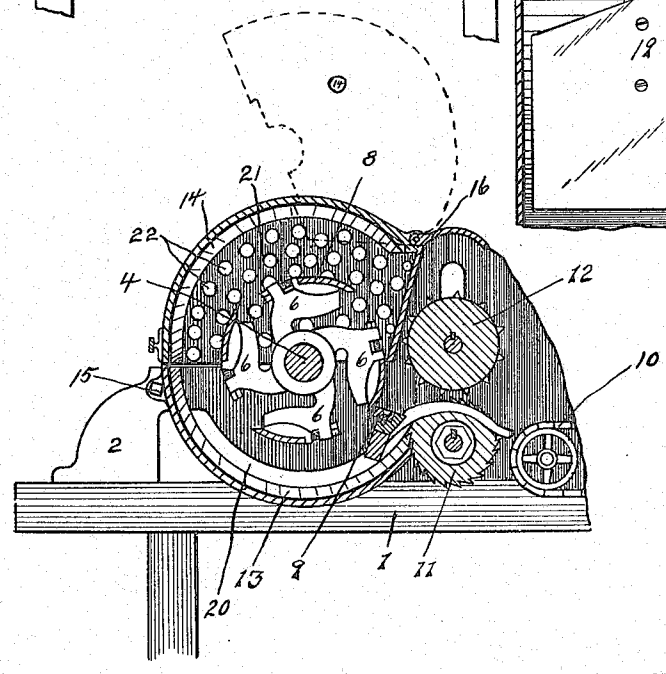


Fig 3.



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UNITED STATES PATENT OFFICE.

CHARLES F. HALDEMAN, OF SALEM, OHIO, ASSIGNOR TO THE SILVER MANUFACTURING COMPANY, OF SALEM, OHIO, A CORPORATION OF OHIO.

ENSILAGE-CUTTER.

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Application filed December 4, 1913. Serial No. 804,577.

To all whom it may concern:

Be it known that I, CHARLES F. HALDEMAN, a citizen of the United States, residing at Salem, in the county of Columbiana and State of Ohio, have invented a new and useful Improvement in Ensilage-Cutters, of which the following is a specification.

My invention relates to improvements in ensilage cutters, in which the material is conveyed to the silo direct from the machine.

The objects of my invention are, first, to provide for the proper removing from the cutter the cut material or ensilage without intermediate mechanism located between the cutting machine and the blower or blast producing device, whereby the cut material or ensilage is conveyed to the silo; second, to so construct the casing of the cutting machine that the suction of the blower or fan will be utilized in removing the cut material from the cutting machine casing and the blast of the fan utilized in conveying the material to the silo. These objects, together with other objects, readily apparent to those skilled in the art, I attain by the construction illustrated in the accompanying drawings, although my invention may be embodied in a variety of other mechanical forms, the construction illustrated being chosen by way of example.

In the accompanying drawings: Figure 1 is a perspective view of the cutter, its casing and a portion of the fan or blower chamber, the top or hinged portion of the casing being shown in its open position. Fig. 2 is a longitudinal vertical section, showing the different parts properly arranged with reference to each other, with the upper section of the casing in its open position. Fig. 3 is a section taken on line 3—3 looking in the direction indicated by the arrows, the hinged top or cover being shown in dotted lines in its opened position.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

In the accompanying drawing, 1 represents the frame which is constructed in the usual manner, reference being had to properly attaching my improvements. The frame, within itself forms no specific part of the present invention, except that a frame such as commonly used in fodder cutters of the rotary cutting head type must necessarily be present or some equivalent structure. To the frame 1 are connected in any convenient and well known manner the shaft bearing brackets 2, which shaft bearing brackets are provided with suitable boxes or bearings 3 in which the power shaft 4 is journaled.

The specific construction and arrangement of the shaft bearing brackets and the power shaft boxes does not differ largely from corresponding parts commonly used in fodder cutters. Upon the power shaft 4 are located the driving wheel or pulley 5, the knife carrying spiders or brackets 6 and the fan or blower wheel 7, said parts all being properly mounted upon the power shaft 4, and in such a manner that they will rotate with the power shaft; in other words all of the above parts being securely mounted upon the power shaft. The specific construction of the spider 6, the cutting knives 8 and the cutter bar 9 does not have to do with the present invention, except that they should be so constructed and arranged that the various parts which do pertain to the present invention can be used in connection therewith. The material designed to be cut is fed to the cutter head by means of an endless conveyer 10 or its equivalent, the lower and upper feed rolls 11 and 12, said parts being arranged in the usual manner common to feed or ensilage cutters and hence no detailed description is deemed necessary. The cutter head proper which is made up of the spiders 6, the knives 8 and the means for holding the knives in fixed adjustment is incased in a cylindrical casing preferably formed in two semi-circular sections hinged together. For the purpose hereinafter described, the semi-circular sections 13 and 14 are so formed that when the hinged section is brought into its closed position a tapered or frustum shaped casing will be produced. The semi-circular section 13 is held in fixed position in any convenient and well known manner preferably by bolts such as 15, and the upper section 14 hinged to the top plate or bar 16, said upper section being so located and arranged that when it is brought into a closed position the upper and lower sections will be substantially concentric with the cutter head proper. At one end of the casing made up of the sections 13 and 14 is located the blower casing 17, which blower casing is constructed

in the usual manner and of the usual form and in which casing is located the blower proper, which blower consists of the wheel 7, to which wheel the fan blades 19 are attached. The wheel 7 is formed of sufficient weight to provide a suitable balance wheel by which a sufficient momentum is produced to prevent any sudden stopping or jerking of the cutter head proper and the fan proper. It will be understood that the fan casing is of the usual construction and is provided with the usual discharge or elevating spout, but as such construction is well known and understood, the same is not illustrated.

In use the material designed to be cut and conveyed to a silo is fed to the cutter proper in the usual manner, the cut material in the first instance is contained within the casing of the cutter head made up of fixed and hinged casing sections. The large end of the cutter head casing is located directly opposite the eye or opening of the fan casing, which is the air intake opening of the fan or blast chamber.

It will be understood that the fan blades are to be so arranged that a suction from or through the cutter head casing will be produced, the air being drawn into the fan chamber and expelled or blown out through an ordinary control or elevator pipe. For the purpose of producing a strong current of air through the cutter head casing and toward the fan or blower casing, the intake opening 20 is provided, through which opening the air is free to enter and move toward and into the fan chamber.

For the purpose of allowing air to enter the top or upper part of the chamber within which the cutter head is located the end plate 21 of the hinged section 14 is provided with a series of perforations 22, through which perforations air is free to pass. By locating the cutter head casing directly opposite the eye or opening of the fan casing a strong current of air will pass through the cutter head chamber and by the rapid rotation of the fan, a sufficient force is brought about to move the ensilage or cut material toward and into the fan chamber, from which fan chamber the cut material or ensilage is conveyed to any place desired, by reason of the rapidly rotating fan.

In order to allow the material to move without danger of choking or clogging the cutter head casing is preferably formed tapered, the larger end being located against the side of the fan casing, said cutter head casing being substantially of the same size and shape, as the eye or opening of the fan chamber. It is well understood that the cutter heads of machines of the class to which this pertains are formed of some length and the material is spread upon the feed apron and in order to allow proper clearance the size of the cutter head chamber should be increased in order to prevent the material which is farthest away from the eye or opening of the fan chamber from crowding against the material nearer to the eye or opening of the fan chamber. By this arrangement the material is free to move and without obstruction from the extreme or outer end of the casing through said casing and into the fan chamber. By locating the fan chamber and the cutter head chamber as above described the suction of the fan is direct, and no device or devices intermediate the cutter head casing and the fan casing are required, the material being withdrawn from the cutter head casing by the direct action of the fan.

For the purpose of holding the upper section 14 when in a closed position the flange 18 is provided, which flange is secured in any convenient and well known manner to the side of the fan or blower casing.

The power shaft 4 is extended into the fan chamber and the bearing for said shaft near the fan is located between the fan proper and the cutter head by which arrangement the shaft is prevented from springing at the cutting point or in other words two bearings are provided for the power shaft, both bearings located close to the cutting head. It will also be understood that by locating the bearing as above described that the power shaft does not need to be disturbed in any way when it is necessary to remove the fan casing, thereby providing means for removing the fan casing and fan and enabling me to ship the device in a knock down condition, thereby reducing the bulk of the machine.

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

1. In a device of the character described, the combination of a cutter head mounted upon a shaft, a casing adapted to inclose said cutter head, a fan chamber and a fan located within said chamber and upon the cutter head shaft, said cutter head casing being tapered, the larger portion being located adjacent the fan casing.

2. In a device of the character described, the combination of a cutter head mounted upon a shaft, a fan casing, a fan located within the casing and mounted upon the cutter head shaft, a cutter head casing adapted to inclose said cutter head and the air intake end of said casing provided with air passages, said cutter head casing being tapered from the fan casing toward the air intake end thereof.

3. In a device of the character described, the combination of a cutting mechanism consisting of a cutter head and a cutter bar, said cutter head mounted upon a shaft, a casing adapted to inclose said cutter head, said casing being of frustum shape, the outer re-

duced extremity of said casing being provided with a perforated wall, a fan chamber provided with an opening, the opening in said fan chamber communicating with the larger extremity of said frustum shaped casing, a fan located within said fan chamber, said fan mounted upon the cutter head shaft.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

CHARLES F. HALDEMAN.

Witnesses:
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H. A. VAN SYOC.

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