C. B. COX, Jr.

SELF FEEDER FOR FLOCK CUTTERS.

APPLICATION FILED JULY 18, 1919.

1,327,612. Patented Jan. 13, 1920.

Fig. 1.

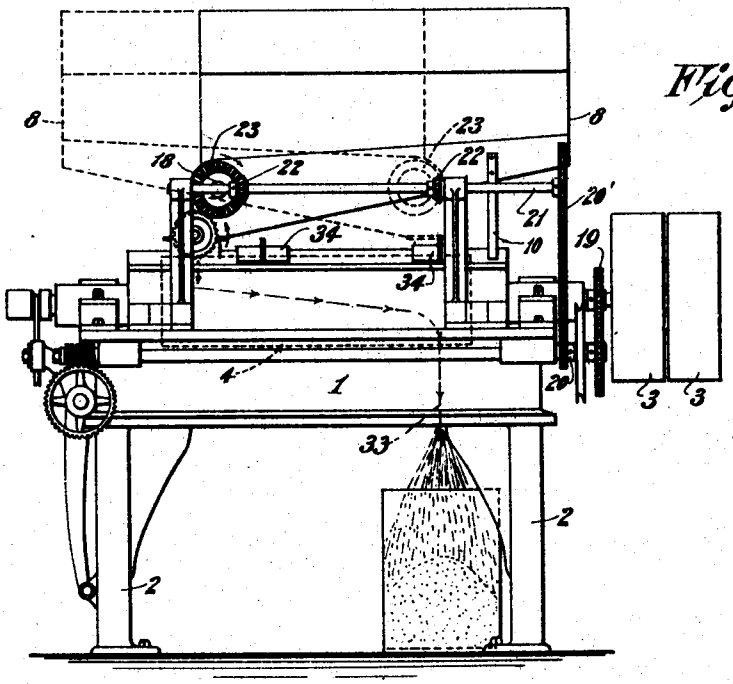


Fig. 2.

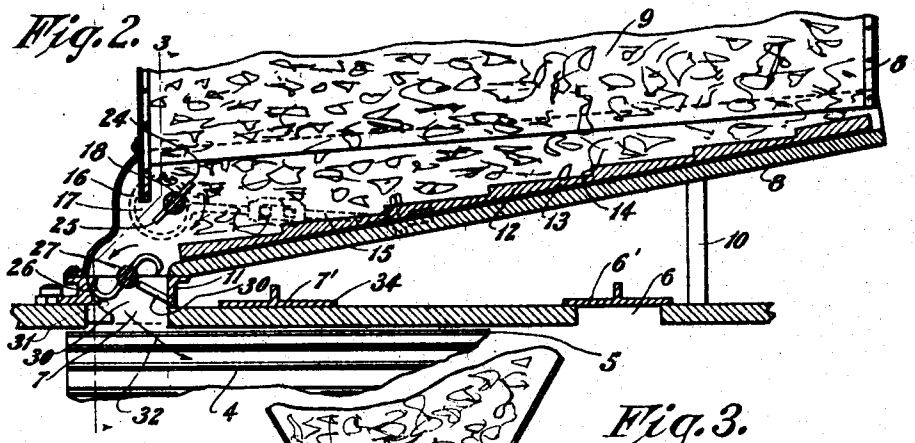
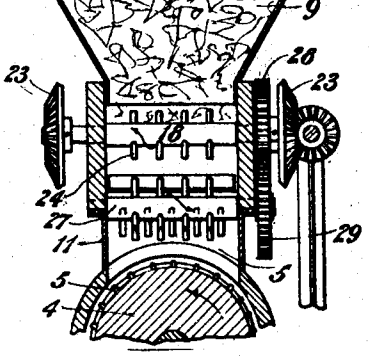


Fig. 3.



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SELF-FEEDER FOR FLOCK-CUTTERS.

1,327,612. Specification of Letters Patent. **Patented Jan. 13, 1920.**

Application filed July 18, 1919. Serial No. 311,764.

To all whom it may concern:

Be it known that I, CHARLES BURTIS COX, JR., a citizen of the United States of America, residing at Stafford Springs, in the county of Tolland and State of Connecticut, have invented certain new and useful Improvements in Self-Feeders for Flock-Cutters, of which the following is a specification.

This invention relates to improvements in feeders for a flock cutter machine, which is for the purpose of reducing small pieces of cloth, either cotton or woolen, into a very finely divided condition, in fact the material so reduced by the machine is in nearly a powdered or dust-like condition.

Broadly considered, the improvement is a device for automatically feeding the rags into the cutter-machine and particularly the improvement is so designed and constructed that the material is delivered with considerable force from the hopper containing the material to be reduced to the cutter machine in a direction that extends substantially lengthwise of the cutting or reducing cylinder, whereby the finished product is discharged from the opposite end of the machine. The details of the operation and construction of the improvement will be fully set forth in the following description, reference being had to the accompanying drawings in which:

Figure 1 is a side elevational view of the complete machine with improvement attached thereto, and showing, in dotted lines, the reversible feature of the attachment.

Fig. 2 is a detail vertical sectional view showing the interior construction of my improvement and particularly the rag discharging devices at the delivery end of the rag receiving hopper.

Fig. 3 is a transverse sectional view in a plane on the broken line 3—3 of Fig. 2 and showing a portion of the reducing cylinder, the revolving devices for feeding the material into the delivery passageway and for imparting a definite direction and velocity to the material as it enters the interior of the machine where the reducing cylinder is located.

Referring now to the drawings in detail: 1 designates the usual bed portion of the machine proper and 2 the supporting legs. Power is applied to the pulleys 3 which are preferably driven in opposite directions, depending upon which end of the machine is used to supply the material thereto. The interior of the cutter machine proper is of well-known construction and is provided with a rapidly revolving cylinder 4 having reducing bars 5 attached to the cylinder 4. It should be stated that entrance to the reducing chamber 5 is formed at either end of the machine as shown by the openings 6 and 7, which are closed by sliding covers 6′ and 7′. The present improvement, which includes a hopper construction, is located above the reducing chamber 5 and over one of the openings 6 and 7. As shown in Fig. 2, the hopper 8 which contains the rags, indicated at 9, to be reduced, is located over the opening 7′. This hopper is supported on and attached to the machine in any suitable manner on the end portion of the machine as by the supports 10 and the flange 11. This flange is so designed that it may be attached over the other entrance opening 6. Located within and on the bottom of the hopper 8 is a reciprocating member 12 which slides back and forth on the inclined bottom board 8. This member is formed with the inclined surfaces 13 and the vertical shoulders 14. It is operated by means of the link connection 15, the outer end of which is formed into a strap 16 that passes around the eccentric 17, that is secured to the revolving shaft 18. The shaft 18 is operated from the driving pulleys 3 through the connections indicated by the numerals 19, 20, 20′, 21, pinions 22, and beveled gear 23, which is secured to the shaft 18. Carried by the shaft 18 are the pins 24, clearly shown in Figs. 2 and 3. It will be noticed that the shaft 18 is located in the throat or passageway 25 of the hopper and serves the purpose of separating and feeding the rags therethrough; the reciprocating member 12 meanwhile automatically moving the material to be reduced into this passageway. After they pass through the passageway 25, the material is caught by the curved pins 26 that are

mounted on the revolving shaft 27. The curvature is opposite to the direction of rotation of the shaft 27. The shaft 27 is driven in opposite directions to and from the shaft 18 by means of the spur gears 28 and 29. Coöperating with the curved pins 26 are the pins 30, which are set in an inclined position. The purpose of curving the pins or arms 26 is for automatically clearing the passageway below the shaft 27 as otherwise the material might become clogged by being wedged between the pins 26 and 30. It should be particularly noticed that the passageway 30 below the shaft 27 is formed with a curved surface 31, whereby as the material leaves this last passageway it is thrown or forcibly driven into the chamber 5 in a direction substantially that indicated by the arrow 32, thus striking the revolving cylinder 4 in a direction corresponding in general with the axis of this cylinder, the purpose of which is to forcibly throw the material into the macerating chamber 5 and substantially along the length of the revolving cylinder since the reduced material is delivered from the machine at the opposite end, that is to say, from the right hand end of the machine as shown by the dotted lines 33. As shown in Fig. 2, the opening 6 is closed while the opening 7 is open.

What I claim is:

1. In a machine of the kind described, the combination of an attachment including a hopper for receiving the material as rags, to be reduced to a finely divided condition, a reciprocating mechanism located in the bottom portion of the hopper for moving the material to the delivery or passageway end thereof, a revolving cylinder in the delivery passageway and having pins for forcing the material through the passageway and at the same time separating the material, a second revolving cylinder below said first mentioned cylinder and having pins that are curved in a direction opposite to their direction of rotation, said delivery passageway having a curved surface for the purpose of directing the discharged material into the reducing chamber and in a direction corresponding with the axis of the reducing cylinder, as described.

2. An attachment for a flock cutter machine, comprising, in combination, an inclosing casing or hopper, said casing having an inclined bottom board, a feeding device therein having vertical faces, means for operating said device, a throat or discharge passageway from the hopper coinciding with the entrance to the reducing chamber of the machine, said passageway having a curved wall for the purpose of directing the material to be reduced against the revolving cylinder and at an acute angle to the axis of the cylinder and a revolving mechanism in the throat or delivery passageway for imparting a driving force to the material.

3. An attachment for a flock cutter comprising a casing or hopper to receive the material to be reduced and having a delivery passageway, said passageway being formed with a curved wall, a rotating member in the passageway, and provided with pins, that are curved oppositely to the direction of rotation, fixed pins coöperating with the curved pins for preventing the material which is to be reduced from collecting on the curved pins and for causing the material to be discharged forcibly into the machine.

4. In a flock-cutter machine for reducing rags, either cotton or woolen, to a finely divided state, the combination, of a revolving cylinder, a casing therefor, a hopper to receive the material to be reduced, said hopper having a delivery passageway with a curved wall and over the entrance to the casing, curved pins in the passageway, means for revolving the pins in close relation to the curved wall for imparting forcible movement to the rags, as they enter the reducing casing, and in a direction when they enter the machine that is substantially the same as the axis of the reducing cylinders.

5. A hopper attachment for a flock cutter machine, said hopper having a delivery passageway with a curved surface, two revolving shafts in the passageway, each of the shafts having pins, the pins on the shaft nearest the delivery end being curved, and operating in proximity to the curved surfaces.

6. An attachment for a flock cutter machine, comprising a hopper for receiving the material to be reduced and having an inclined floor, of a reciprocating feeder member on the floor, said member having vertical faces for engaging and moving the material through the hopper, the hopper having a delivery passageway, a shaft therein, pins on the shaft for breaking up and forcing the material through the passageway, said shaft being directly connected to the reciprocating member, of a second shaft in the passage-way, curved pins thereon, that portion of the passage-way in which the second shaft is located being curved for directing the flow of the rags into the machine, and the curved passage-way being so formed that the discharged material is delivered in a direction that is substantially in a direction that is opposite to its direction through the hopper toward the passageway.

7. In a flock cutting machine for reducing rags to a finely divided condition, the combination, of a hopper for receiving the rags, means for feeding the rags from the hopper to the machine proper comprising, a

reciprocating member with vertical faces to engage the rags, a discharge opening with a curved surface for determining the direction of delivery to the machine, revolving shaft in the discharge opening provided with curved fingers, the curvature being opposite to the direction of rotation for the purpose of automatically cleaning the fingers and other fingers in the opening and between which the curved fingers revolve, whereby the direction of delivery of the rags and curved fingers will be kept clean, as described.

CHARLES B. COX, JR.