No. 702,344.

J. CROSBY.

CORN HUSKER AND FODDER SHREDDER.

(Application filed July 19, 1901.)

2 Sheets—Sheet 2.

Witnesses

by Jesse Crosby, Inventor

Attorneys

THE NOBIS PETERS CO., ROCKVILLE, MARYLAND, D.C.
To all whom it may concern:

Be it known that I, JESSE CROSBY, a citizen of the United States, residing at Madelia, in the county of Watonwan and State of Minnesota, have invented a new and useful Corn-Husker and Fodder-Shredder, of which the following is a specification.

My invention is an improved corn-husking and fodder-shredding machine; and it consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

This invention is an improvement on the corn-husker and fodder-shredder for which Letters Patent of the United States No. 667,133 were granted to me February 9, 1901.

One of the objects of my invention is to provide improved means for transmitting power from the lower snipping-roll to the upper snipping-roll while admitting of the vertical movement of said upper snipping-roll.

A further object of my invention is to effect improvements in the construction of the bearings of the snipping-rolls.

A further object of my invention is to provide means for strengthening the central portions of the snipping-rolls where they are subjected to the greatest stress.

A further object of my invention is to provide improved means for conveying the ear-corn from the machine, whereby it may be delivered into a wagon at one side of the machine.

A further object of my invention is to combine with the snipping, shredding, and husking mechanisms a fan which creates an exhaust-blast through the machine-casing and discharges into a pneumatic stacker or conveying tube, whereby the shredded fodder may be delivered from the machine directly to a stack or fodder-shed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a corn-husking and shredding machine constructed in accordance with my invention.

Fig. 2 is a detail transverse sectional view of the same, showing the snipping-rolls, their connecting-gears, and supporting-bearings.

Fig. 3 is a detail view, partly in section, showing the gears to communicate power from the lower snipping-roll to the upper snipping-roll and showing the connected bearings of said snipping-rolls.

Fig. 4 is a sectional view taken on a plane indicated by the line 4-4 of Fig. 2, showing the exhaust fan or blower and its connections.

Fig. 5 is a detail elevation of the connecting-gears of the snipping-rolls, partly in section, on a plane indicated by the line 5-5 of Fig. 2.

In a suitable portion of the casing 1, which may be either of the form here shown or of any other suitable construction, is located the shredding-cylinder 2, which acts with the concave 3 to shred corn-fodder. The feed-opening through which the corn-fodder is fed to the shredding mechanism is indicated at 4. In the sides of the casing 1 at points between the shredding mechanism and the feed-opening 4 are vertical guide-slots 5. The lower snipping-roll 6 has its shaft 7 journaled in bearings 8 at the ends of a cross-bar or yoke 9, which cross-bar or yoke is secured to the sides of the casing and is disposed under the snipping-roll 6. On the said yoke or bar 9, at the center thereof, is a box 10, which bears against the lower side of the lower snipping-roll, at the center thereof, the said box and the said yoke-bar 9 forming a truss which sustains the central portion of the lower snipping-roll and strengthens the same at the point where it is subjected to the greatest stress. I also provide an oil-cup 11 to supply lubricant to the said box 10 where it bears fractionally against the central portion of said snipping-roll 6. At one end of the shaft of the lower snipping-roll is a spur-wheel 12, which is engaged by a spur-wheel 13 on a power-shaft 14, the latter having a pulley 15, which is connected by a belt 16 (indicated in dotted lines in Fig. 1) with a pulley 17 (also indicated in dotted lines in the said figure) on the shredding-cylinder shaft. Hence power is communicated from the said cylinder-shaft to the said lower snipping-roll. I provide a link 18, which connects the lower snipping-roll shaft to the shaft 14, and while adapting the upper snipping-roll to play vertically keeps the gear 19 in engagement with the gear 15. A snipping-roll 20 is disposed above the lower snipping-roll 6 and is carried by a supporting yoke-bar 21, which is similar to yoke-bar 9, hereinbefore described, and bearings 22, which are similar...
to the bearings. Said yoke-bar 21 has a box 23, which bears on the central portion of the upper snapping-roll and is kept lubricated by an oil-cup 24. Rods 25 connect the bars 21 and extend through openings therein and through openings in the bearings 9 and 22. On the lower portions of the said rods, which project below the bar 9, are springs 26, the tension of which is regulated by adjusting-nuts 27, screwed on the said rods 25. Said rods and said springs, as will be understood, serve to keep the upper and lower snapping-rolls normally in engagement with each other, while admitting of their moving apart as the stalks of corn pass between them. The upper snapping-roll has a spur-wheel 28 on one end of its shaft, which is engaged by a spur-wheel 29 on a shaft 30. Said spur-wheel 29 is engaged by the spur-wheel 13.

It will be understood from the foregoing and by reference to Fig. 5 of the drawings that both the upper and lower snapping-rolls are positively driven under all conditions and that the upper roll is adapted to move vertically toward and from the lower roll while the cornstalks are passing between the same to the shredding mechanism, the snapping-rolls serving to feed the shredding mechanism and to snap the ears of corn from the stalks. In practice one or each of the snapping-rolls may be provided with the flyer-wheel 19.

A series of husking-rolls 31, which are preferably of the construction described in the Letters Patent hereinbefore mentioned, are disposed below the snapping-rolls on the front side thereof and in an inclined position, and the said husking-rolls may be driven by any suitable means, preferably by the means described in the said Letters Patent. Above the upper portion of the husking-rolls and below the snapping-rolls is a grate 32, on which the ears of corn drop as they are snapped from the stalks. The said grate serves to dispose the ears of corn in such manner that they are dropped therefrom onto the husking-rolls in a position parallel with the axes of the said husking-rolls.

A longitudinally-vibratory pan 33 is disposed in the casing 1, suspended by links 34, and the front portion of the said pan is under the said husking-rolls. In the rear portion of the pan are openings 35, through which grains of corn which may become detached from the ears drop onto a deflector 36, which discharges onto a transversely-disposed inclined conveyor-trough 37. A pan 38, disposed below said pan 33, is suspended, as by links 39, and the front end thereof extends in advance of the front end of the pan 33. The ears discharged from the lower end of the husking-rolls 31 drop onto the front portion of the lower pan 38, a deflector 40 being provided to secure this result. The pans 33, 38 may be operated by any suitable means.

For the purposes of this specification I show a power-shaft 41, having cranks 42, 43, which extend in opposite directions and are connected, respectively, to the pan 33 and pan 38 by pitme 44, 46. The lower pan 38 discharges the ear-corn onto a transversely-disposed inclined conveyor-trough 46, which runs through an opening in one side of the casing 1 and discharges into the lower portion of the trunk of an elevator, (indicated at 47.) The said elevator is adapted to discharge the ear-corn into a wagon, which may be driven alongside of the machine.

In rear of the pans 33, 38 is a fan or blower 48, which exhausts through the casing 1 and discharges a blast from its drum 49 into the lower portion of a stacker or conveyor tube 50, through which the shredded fodder is pneumatically carried to a stack or to a suitable receptacle. The blast of air created by the fan through the casing 1 is also effective in carrying away dirt and other impurities from the husked corn, and hence the same is cleaned by the said blast. The blast fan 48 may be driven by any suitable means. For the purposes of this specification the same is shown as being geared to a shaft 50, having a pulley 51, which is driven by a belt 52 from a pulley on the cylinder-shaft. The stacker-tube 50 is mounted on the casing 1 at the upper end of the fan-drum 49 for axial movement and is provided with a sprocket-ring 53, which is driven by an endless sprocket-chain 54 and a sprocket-wheel 54, which latter has a hand-crank 55, by which it may be turned. Hence the stacker-tube may be turned in any desired direction. The stacker-tube is here shown as provided with a flexible elbow 50° and with a cord 56, operated by a winch 57 on the sprocket-ring 53, by means of which the discharge end of the stacker-tube may be raised or lowered, as may be desired.

Having thus described my invention, I claim—

1. In a machine of the class described, the combination of a shredding mechanism, snapping-rolls which feed the same, husking-rolls, a feed-pan onto which the shredded stalks are dropped, a feed-pan 38 onto which the ear-corn is dropped from said husking-rolls, a feed-pan 38 onto which the ear-corn is dropped from said husking-rolls, a stacker-tube and a blower to exhaust through the casing of the machine over said feed-pan and discharge a blast through the said stacker-tube, whereby the shredded fodder is pneumatically discharged from the machine and the shelled and husked corn is cleaned, substantially as described.

2. In a machine of the class described, the combination of a shredding mechanism, snapping-rolls which feed the same, husking-rolls below said snapping-rolls, feed-pan onto which the shredded stalks are dropped from said husking-rolls, said feed-pan having openings to discharge said stalks, a feed-pan 38.
below the first-mentioned feed-pan and onto which ear-corn is dropped from said husking-rolls, and a pneumatic stacker for the shredded fodder, said pneumatic stacker including a drum having an intake opposite the discharge ends of said pans, and a fan in said drum, to create an exhaust-current over said feed-pans and thereby clean said grain and ear-corn, and carry off the tailings from said feed-pans, together with the shredded fodder, through said stacker, substantially as described.

3. The combination of a pair of snapping-rolls, means to rotate one of said rolls, gears on said rolls at one end thereof, a pair of intermeshed gears 13, 29, meshed respectively with the gears on said snapping-rolls, a link connecting the axles of said gears 13, 29, together, links connecting the said axles respectively to the axles of said snapping-rolls, supports, forming bearings for the latter, rods connecting said supports at the ends of said rolls, said rods being free to play laterally in said supports, and springs on said rods to press said snapping-rolls together, said rods having means to adjust them longitudinally and thereby vary the tension of said springs, substantially as described.

4. The combination of a snapping-roll, bearings at the ends thereof, a yoke-bar connecting said bearings, and an element at the center of said yoke-bar bearing frictionally on the center of said snapping-roll, said element and said yoke-bar forming a truss to sustain the central portion of said snapping-roll, substantially as described.

5. The combination of a snapping-roll, bearings at the ends thereof, a yoke-bar connecting said bearings and an element at the center of said yoke-bar bearing frictionally on the center of said snapping-rolls, said element and said yoke-bar forming a truss to sustain the central portion of said snapping-roll, and means to lubricate said element, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JESSE CROSBY.

Witnesses:
EDWARD C. FARMER,
ELIZABETH M. PRICE.