No. 649,985. Patented May 22, 1900.

J. F. HALL.

FEED CUTTER.

(Application filed Aug. 28, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

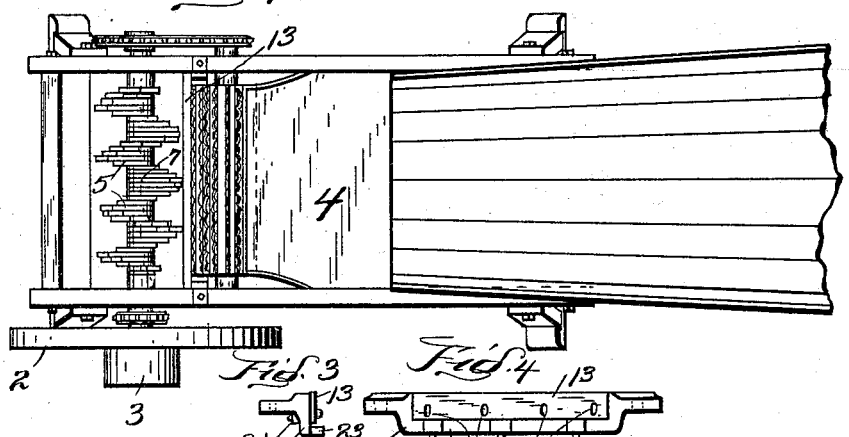


Fig. 3

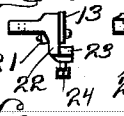


Fig. 4

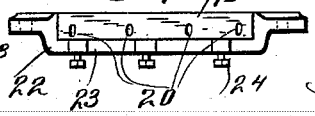


Fig. 2

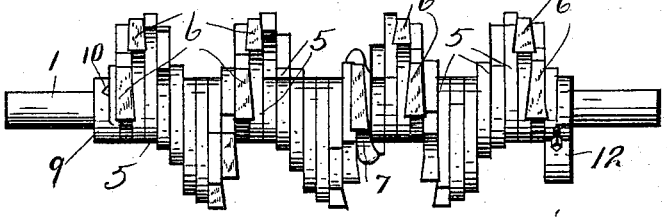


Fig. 5

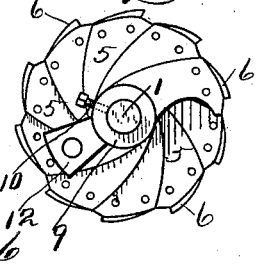


Fig. 12

Fig. 6

Fig. 13

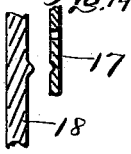


Fig. 14

Fig. 11

Fig. 9

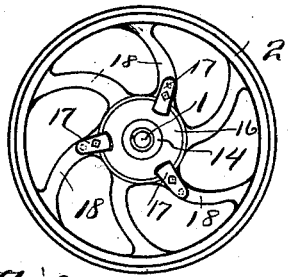


Fig. 8

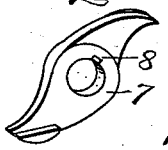


Fig. 7

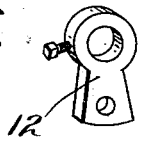
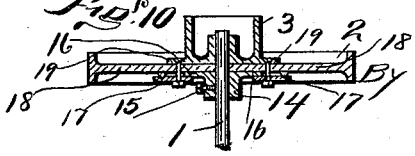


Fig. 10



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No. 649,985. Patented May 22, 1900.

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Fig. 15.

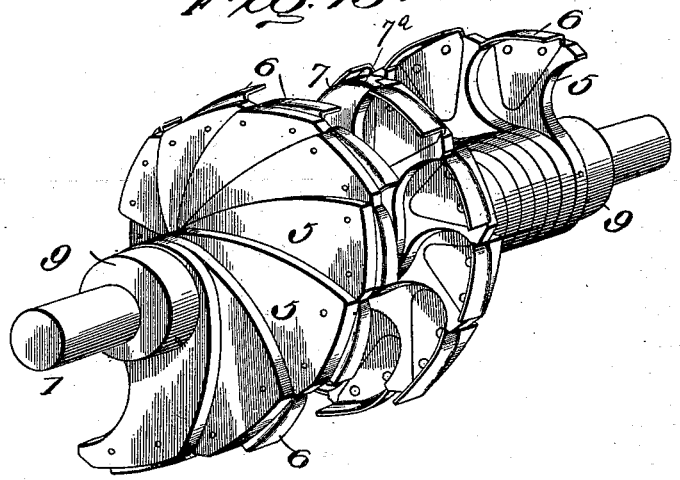


Fig. 16.

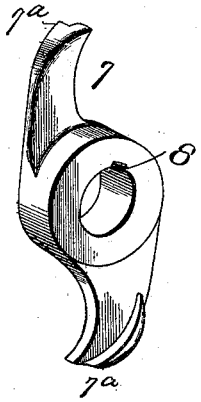


Fig. 17.

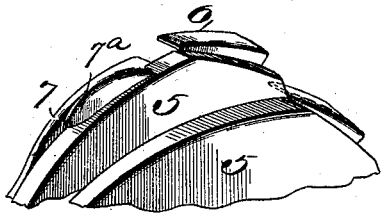
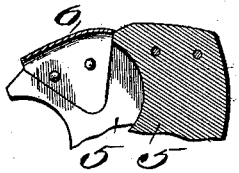


Fig. 18.



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UNITED STATES PATENT OFFICE.

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FEED-CUTTER.

SPECIFICATION forming part of Letters Patent No. 649,985, dated May 22, 1900.

Application filed August 28, 1899. Serial No. 728,714. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. HALL, a citizen of the United States, residing at Massillon, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Fodder or Feed Cutters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a top view of the cutter, showing the different parts properly connected together. Fig. 2 is a detached view of the cylinder or cutter head. Fig. 3 is an end view of the cutter-bar. Fig. 4 is a side view of the cutter-bar. Fig. 5 is an end view of the cylinder or cutter head. Fig. 6 is a view showing a portion of the cutter-head or cylinder shaft. Fig. 7 is a detached view of the counterweight. Fig. 8 is a detached view of the driving-arm. Fig. 9 is a side elevation of the balance-wheel, showing its different parts properly connected. Fig. 10 is a sectional view of the balance-wheel and belt or power wheel. Fig. 11 is a detached view of one of the knife-arms. Fig. 12 is a detached view of one of the knives. Fig. 13 is a sectional view showing a portion of one of the balance-wheel arms or spokes. Fig. 14 is a sectional view of one of the clamping-plates. Fig. 15 is a detached perspective view showing the cutter-head shaft and illustrating the position of the arms and cutting-blades with reference to each other. Fig. 16 is a perspective view of the center driving-arm. Fig. 17 shows two knife-arms and cutting-knives placed in proper relative position, also showing a portion of the center driving-arm placed in proper relative position. Fig. 18 is a view showing portions of two knife-arms and a cutting-knife properly connected.

The present invention has relation to fodder or feed cutters; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claim.

Similar numbers of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the cutter-head or cylinder shaft, which is properly journaled in suitable boxes and is provided with the balance-wheel 2 and the power-wheel 3, said parts being connected together and to the shaft, as hereinafter described.

The object and purpose of the present invention is to provide a cutter-head or cylinder having oppositely-curved convolutions, or, in other words, the knife-arms are so arranged upon the shaft 1 that they will have a tendency to cut toward the transverse center of the frame or fodder-box 4, or, in other words, to bring the material being cut toward the transverse center of the cutter-head or cylinder and away from the sides of the fodder-box. This object is brought about by my peculiar manner of arranging and attaching the knife-arms 5 and the knife 6 upon the shaft 1.

Upon the shaft 1 and at a point at the middle of the cutter-head or shaft 1 is attached the driving arm or bar 7, which driving arm or bar is securely connected to the shaft in any convenient and well-known manner, but preferably by a slot and key, the slot being shown in the shaft 1, and also a slot 8 formed in the driving arm or bar 7.

In assembling the different parts of the cylinder the retaining-collar 9 is set upon and connected to the shaft 1, preferably by means of set-screw 10, after which the different knife-arms 5, together with their knives 11, are placed side by side upon the shaft 1, said arms being located spirally upon the shaft, as illustrated in Fig. 2. After one-half of the cutter-head or cylinder has been thus assembled the driving arm or plate 7 is properly placed in position and secured to the shaft 1. The right-hand end of the cutting-head or cylinder is assembled in substantially the same manner, except that the knife-arms 5, together with their knives 6, are arranged to form an oppositely-curved spiral from the center outward. After the right-hand portion of the cutter-head or cylinder has been properly assembled the counterweight 12 is properly connected and attached to the shaft 1, by which arrangement all of the knife-arms, together with their knives, are properly connected together and to the shaft, it being understood that the first knife-arm is to be in contact with the center driving-arm and that each

following knife-arm is to rest or back against the next adjacent knife-arm.

In the above description, in which reference is had to the right and left hand portions of the cutter-head or cylinder proper, Fig. 2 is the one used for description.

It will be understood that as the cutter-head revolves the end knives 6 will pass the cutter-bar 13 in advance of one just back of said end knife, and inasmuch as the knives cut toward the center of the cylinder the material being cut will have a tendency to be drawn from the ends of the cylinder. The center knives 6 are so arranged that they will cut and let go at the same time the end knives cut and let go, by which arrangement a continuous cutting is maintained during the entire revolution of the cutter-head or cylinder, and at the same time the shear will be from the ends of the cylinder.

For the purpose of preventing injury to the cutter-head or cylinder in case any hard or foreign substance should come in contact with the knives upon the cutter-head or cylinder the balance-wheel 2 is frictionally held in position upon the shaft 1. The hub 14 is securely attached to the shaft 1 by means of the set-screw 15 or its equivalent, which hub is provided with the flange 16, and upon which flange the friction-plates 17 rest, said friction-plates being connected to the arms 18 of the balance-wheel 2 and to the flange 19 of the power-wheel 3, so that in case the cylinder or cutting head proper is brought to a dead stop the power-wheel 3, together with the balance-wheel, can continue to rotate independent of the cylinder or cutter head, by which arrangement the danger of breakage to the cylinder-head proper is greatly reduced.

For the purpose of adjusting the bar 13 to or from the cutting-knives 6 said bar is provided with the elongated slots 20, through which slots are passed the bolts 21, said bolts being connected to the supporting cross-bar 22, said cross-bar being securely connected to the frame of the machine proper. For the purpose of adjusting the bar 13 the cross-bar 22 is provided with the lateral flange 23, through which lateral flange the screws or bolts 24 are passed. When the bar 13 has been brought to the proper adjustment, the bolts 21 are tightened.

It will be understood that by my peculiar arrangement the material being cut will not be forced to one end of the cylinder or cutting head by reason of the oppositely-curved spirals, thereby preventing the greater part of the work being performed by one end of the cylinder or cutter head.

The object and purpose of the center driving arm or bar 7 is to provide a means for rotating the knife-arms, together with their knives, with the rotation of the shaft, said center driving-bar being securely connected to the shaft 1. The driving-bar 7, which is securely connected to the shaft, drives the knife-arms mounted upon the shaft by reason of all of the knives being interlocked one with the other and each succeeding knife-arm being driven by the one directly in front. For the purpose of providing a means for driving the knife-arms located next to the center driving-arm the ends of said center driving-arm are provided with flanges 7^a, said flanges being located upon opposite sides of the driving-arm 7.

The counterweight 12 is securely connected to the shaft 1 and is so adjusted that it will counterbalance the action of the cutting-knives.

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

In a fodder-cutter of the class described, the combination of a rotating shaft, a center driving-arm fixed upon and rotating with the shaft, and provided with flanges located upon opposite sides of the driving-arm, knife-arms located upon the shaft, and the backs of the knife-arms adjacent to the center arm resting against the edges of the flanges, said knife-arms provided with knives and the knife-arms rotatably connected or backed against each other and located in oppositely-curved spirals upon opposite sides of the center driving-arm, substantially as specified.

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

JOHN F. HALL.

Witnesses:
J. A. JEFFERS,
F. W. BOND.