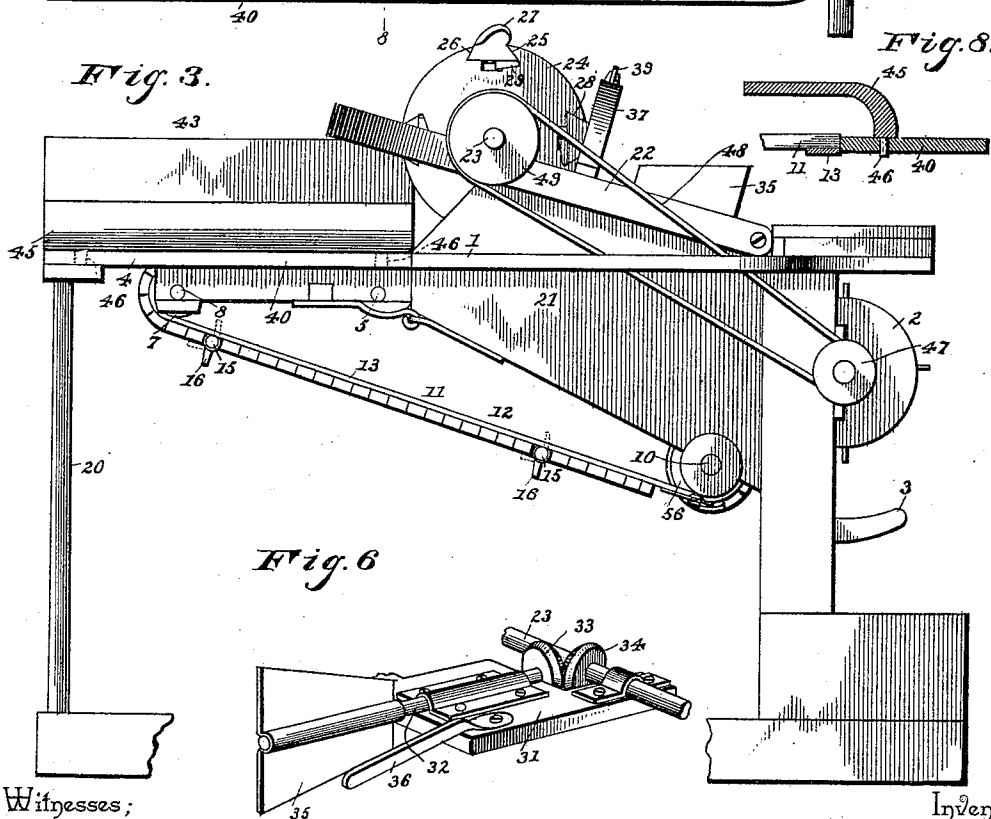
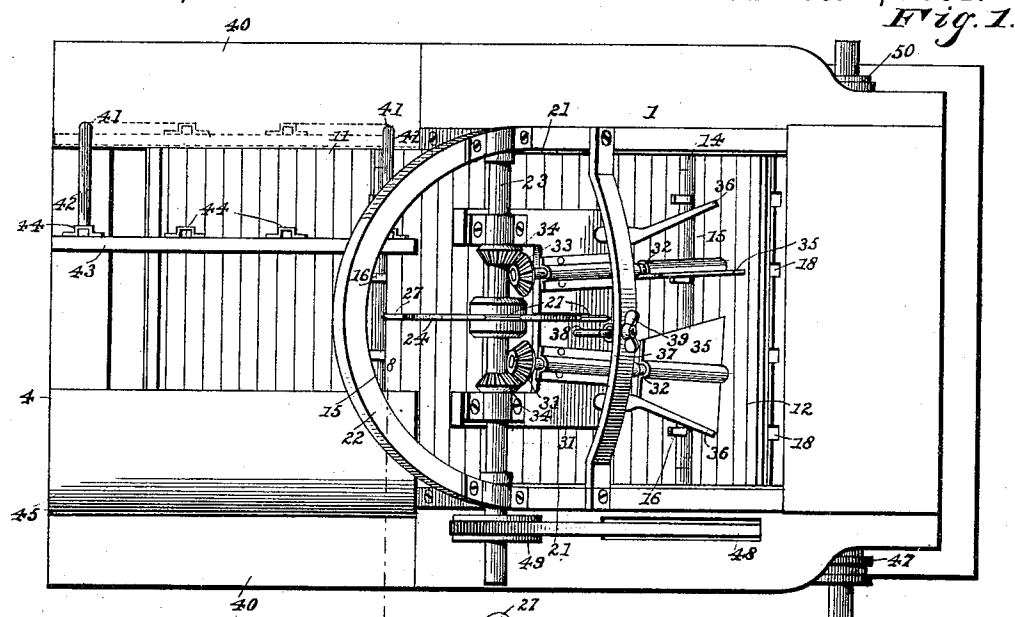


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FEEDER AND BAND CUTTER FOR THRASHING MACHINES.

No. 464,062.

Patented Dec. 1, 1891.



Witnesses;

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Wm. Bagger

By *his* Attorneys,

C. A. Snow & Co.

Inventor

Orlando Cleaveland

(No Model.)

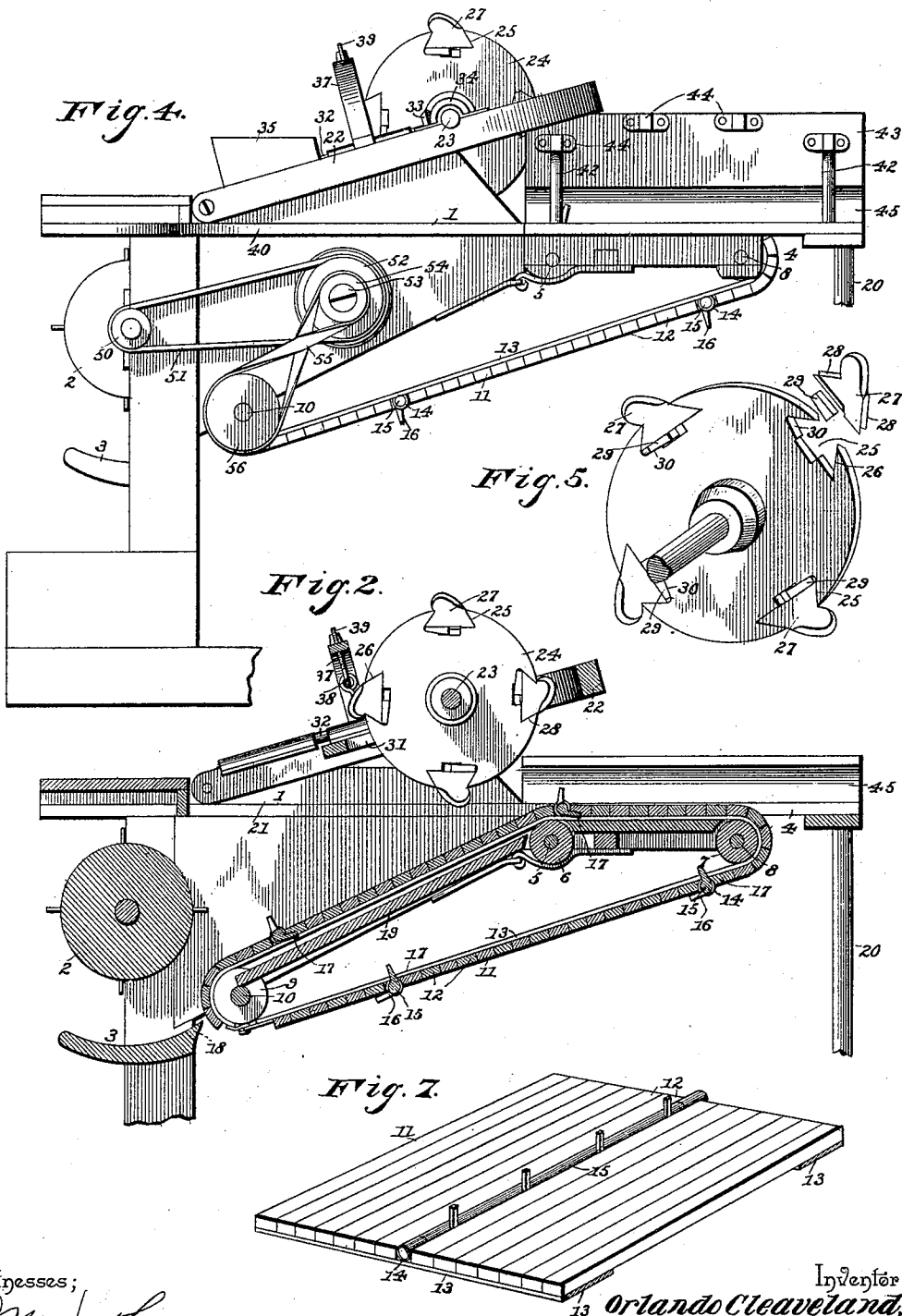
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ORLANDO CLEAVELAND, OF MIDDLESEX, NEW YORK.

FEEDER AND BAND-CUTTER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 464,062, dated December 1, 1891.

Application filed January 24, 1891. Serial No. 378,953. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO CLEAVELAND, a citizen of the United States, residing at Middlesex, in the county of Yates and State of New York, have invented a new and useful Feeder and Band-Cutter for Thrashing-Machines, of which the following is a specification.

This invention relates to feeders and band-cutters for thrashing-machines; and it has for its object to provide a device of this class which shall be simple in construction and efficient in operation and which may be used with equal advantage for feeding loose grain when desired.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a plan view of my improved band-cutter and feeder, showing the same arranged in position for operation. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is a side elevation. Fig. 4 is a side elevation taken from the opposite side of the machine. Fig. 5 is a perspective detail view of the band-cutter, showing one of the cutting-teeth detached from the band-cutting disk and the means for securing the same. Fig. 6 is a perspective detail view of the spreading mechanism. Fig. 7 is a perspective detail view of a portion of the endless carrier constituting the feeder. Fig. 8 is a sectional detail view taken on the line 8 8 in Fig. 1.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the feed-board of a thrashing-machine to which my invention has been applied for operation, showing the adjustable gage-board swung out over the carrier and in dotted lines as swung back at the edge of the same. 2 designates the cylinder, and 3 the concave, all of which are constructed and arranged in the usual well-known manner.

4 designates a frame which is hinged to the front end of the feed-chute by means of a shaft 5, carrying a roller 6. A roller 7 is mounted upon a shaft 8 at the free outer or

front end of the frame 4. A roller 9 is also mounted upon a shaft 10 near the lower end of the feed board or chute.

11 designates an endless carrier, which is composed of belts or bands mounted upon the rollers 6, 7, and 9 and connected by slats 12. At suitable intervals the said belts, which are designated by 13, are provided with bearings 14 for transverse shafts 15, provided with radially-extending teeth or prongs 16, extending outwardly from the slats 12 and having laterally-extending flanges 17 at right angles to the said teeth or prongs. The front edge of the concave 3 is provided with recesses 18 for the passage of the former, so that there is no space left between the carrier and the concave, and the teeth deliver the grain immediately to the thrashing mechanism.

When the endless carrier is in operation, the flanges 17, bearing against the bottom board 19 of the frame 4 and the feed-board 1, will cause the prongs 16 to project upwardly or outwardly at right angles to the upper surface of the endless carrier. As the prongs 16 pass in contact with the concave they will be folded down against the adjacent slat 12 and be again raised to operative position by the action of the flange 17 when the latter passes over the roller 7.

The hinged frame 4 may be sustained in operative position by means of suitable legs or props 20. When not in use, the said hinged frame may be folded down under the feed board or chute 1, and the endless carrier may likewise be folded and suitably secured for transportation.

The sides of the feed-chute of the thrashing-machine are provided with flanges 21, to which are hinged the side pieces of a frame or yoke 22, which is provided near its free end with bearings for a transverse shaft 23. The latter carries the band-cutter, which is composed of a disk 24, securely mounted upon said shaft and provided at its periphery with a series of dovetailed or wedge-shaped recesses 25, the side walls of which are V-shaped, as shown at 26. In the said recesses are mounted the insertible and detachable cutters 27, the sides of which have V-shaped recesses 28 to engage the V-shaped

edges of the side walls of the recesses 25. The cutters are mounted securely in the latter by means of wedges 29, driven under their lower edges in recesses 30, provided for the reception of said wedges. It will be observed that by this construction the individual teeth or cutters may be readily detached for the purpose of sharpening or repairing the same or in order to substitute new ones when necessary.

Pivotally mounted upon the shaft 23 is a frame 31, which is provided with bearings for a pair of shafts 32, which are arranged at an angle to the shaft 23 and one on each side of the band-cutting disk. The inner ends of the shafts 32 are provided with beveled pinions 33, meshing with similar pinions 34 upon the shaft 23, from which motion is thus transmitted to the shafts 32. The latter are provided upon the ends which project beyond the pivoted frame 31 with wings or beaters 35, which extend radially from the said shafts. The said wings or beaters are wider at their outer than at their inner ends, so that in operation they will tend to spread the material passing under them and at the same time to throw it in a forward direction, thus tending to check the passage of the grain at the sides of the endless carrier.

Suitably secured to the pivoted frame 31 are knives or cutters 36, adapted to engage the outer edges of the revolving beaters, thus cutting off any portion of the straw which may adhere to the latter and preventing the straw from winding thereon and interfering with the successful operation of the machine.

The side pieces of the frame 22 are connected by an arched cross-piece or brace 37 in which is mounted an adjusting-screw 38, the lower end of which is suitably connected with the pivoted frame 31, and the upper end of which has a thumb-nut 39, which may be readily manipulated so as to raise or lower the free end of the frame 31, as may be desired, and thus accommodate the machine to the size of the bundle of grain.

The frame 4, which is hinged at the front end of the feed-chute, is provided with laterally-extending flanges 40, each of which is provided with bearings 41 for a pair of vertical crank-arms 42. Said crank-shafts, however, are only used at one side of the machine for the purpose of supporting the gage-board 43, which latter is provided with several suitably-arranged staples 44 to engage the upper ends of the crank-arms, thus enabling the said gage-board to be adjusted near the center or near the edge of the endless carrier, as may be desired, by simply adjusting the crank-arms upon which it is mounted. The said crank-arms may be readily exchanged from one side of the machine to the other, thus enabling the machine to be fed on either side.

45 designates a curved feed-board adapted

to extend over the edge of the endless carrier. Said feed-board is provided with downwardly-extending pins or dowels 46, adapted to engage the bearings 41 in the flange opposite to the one which temporarily supports the crank-arms carrying the gage-board 43. This feed-board serves to guide the grain onto the endless carrier directly in the path of the rotary cutter.

The shaft of the cylinder is provided with a pulley 47, connected by a band 48 with a pulley 49 upon the shaft 23, to which motion is thus transmitted. The opposite end of the cylinder-shaft has a pulley 50, connected by a band 51 with a large pulley 52, mounted upon a stub-axle 53 on one side of the feed-chute. The pulley 52 has attached to it a smaller pulley 54, which is connected by a twisted band 55 with a pulley 56 upon the shaft 10, the rollers 9 of which support the lower end of the endless carrier, to which motion is thus transmitted. It will be seen that the pulleys 53 54 simply perform the office of a cone-pulley for the purpose of increasing the speed and transmitting motion from the cylinder-shaft to the endless carrier.

The operation and advantages of my invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. When grain in bundles is to be fed, the gage-board is adjusted near the longitudinal center of the endless carrier, so that the bundles which are fed over the curved feed-board shall be guided direct under the rotary cutter. The latter serves to sever the band, and the endless carrier, carrying the grain toward the cylinder, brings it under the revolving spreaders or beaters, which act to spread or throw the grain toward the sides of the carrier, and at the same time to check the feed of the grain at the sides, causing the grain to be fed most rapidly and efficiently at the center, which is an important object to be attained in this class of devices, which always aim to imitate the feeding by hand as nearly as may be done. The knives or cutters 36, serving to chop off any straw which may adhere to the beaters, prevent the latter from being obstructed. The pivoted frame in which the revolving beaters are mounted may be readily adjusted to slow or rapid feeding, as may be desired. When loose grain is to be fed, the hinged frame carrying the band-cutter and the revolving beaters may be swung in an upward direction, so as to be out of the way, and the gage-board is then preferably adjusted nearer the edge of the endless carrier, so that the grain which is deposited upon the latter shall be distributed over the entire surface. It is obvious that the gage-board and the curved guide-board may be readily exchanged from one side of the machine to the other, thus enabling the machine to be fed from either side.

I have in the foregoing described what I consider to be the preferred construction of my invention. At times, however, it may be found desirable to depart from this construction in its minor details, and I therefore reserve the right to any such changes and modifications as may be resorted to without departing from the spirit of my invention.

The peculiar shape of the spreaders serves to spread the bundle sidewise and hold back a portion of the same, while the under portion of the bundle passes through the cylinder, thereby spreading the bundle lengthwise and sidewise.

Having thus described my invention, what I claim is—

1. In a machine of the class described, the combination of the concave provided with recesses in its front edge, the feed-chute, the frame hinged to the latter by means of a shaft carrying a guide-roller, the rollers mounted upon shafts at the outer end of said hinged frame and at the lower end of the feed-chute, and the endless carrier mounted upon said rollers and having transverse shafts provided with outwardly-extending prongs adapted to engage with recesses and with flanges extending at an angle to said prongs, the latter being normally extended outward from the endless carrier, while the flanges are folded under the slats adjacent to and in front of said rock-shaft, substantially as and for the purpose set forth.

2. In a machine of the class described, the combination of the feed-chute and the hinged frame having bottom boards, the guide-roller upon the shaft, connecting said hinged frame with the feed-chute, the rollers mounted upon shafts at the lower end of the latter and at the outer end of the hinged frame, the concave provided with recesses in its front edge, and the endless carrier having transverse rock-shafts provided with outwardly-extending prongs and with laterally-extending flanges, all arranged and operating substantially as set forth.

3. In a machine of the class described, the combination of the endless carrier, a hinged frame having a transverse shaft carrying a disk provided with teeth or band-cutters, and a frame mounted pivotally upon said cutter-shaft and carrying the revoluble beaters or spreaders, substantially as and for the purpose set forth.

4. In a machine of the class described, the combination, with the endless carrier, of the hinged frame having longitudinally-arranged revoluble shafts having beaters or spreaders, and suitable operating mechanism, substantially as and for the purpose herein set forth.

5. In a machine of the class described, the combination, with the endless carrier, of the pivoted frame mounted upon a shaft journaled transversely in a frame hinged to the feed-chute, the longitudinal shafts mounted in said pivoted frame and carrying the beat-

ers or spreaders, and suitable operating mechanism, substantially as set forth.

6. In a machine of the class described, the combination, with the revoluble beaters or spreaders, of the knives or cutters arranged adjacent to the edges of said spreaders to prevent straw from winding upon the latter, and the band-cutting knife mounted upon a transverse shaft at right angles to the spreader-shafts and connected with the latter by miter-gearing, substantially as and for the purpose set forth.

7. In a machine of the class described, the pivoted frame having shafts carrying the approximately triangular-shaped feeders or spreaders, in combination with knives or cutters attached to said frame and adapted to engage the edges of the said spreaders, substantially as and for the purpose set forth.

8. In a machine of the class described, the combination of the endless carrier, the feed-chute, the frame hinged to the same and having a transverse shaft carrying the band-cutter, a frame mounted pivotally upon said shaft and having revoluble shafts carrying the beaters or spreaders and geared to the shaft carrying the band-cutter, and an adjusting-screw mounted in a cross-piece upon the hinged frame and suitably connected with the said pivoted frame, substantially as and for the purpose set forth.

9. In a machine of the class described, the combination of the endless carrier, removable crank-arms journaled at the edge of said endless carrier, and a gage-board having a series of staples arranged in an outer and inner pair, by means of which said board may be mounted removably and adjustably upon the upper ends of said crank-shafts and may be swung out over the center of the carrier by the ends of said arms engaging the outer pair of the staples or swung in and located at the edge of the carrier by the said arms engaging the inner pair of staples, substantially as set forth.

10. In a machine of the class described, the combination, with the endless carrier and the side flange having a series of bearings, of the curved feed-board projecting over one edge of said carrier and in the direction of the longitudinal center of the latter and provided along its bottom edge with a series of downwardly-extending pins or dowels that are adapted to engage said bearings and detachably connect the feed-board with said flange, substantially as and for the purpose set forth.

11. In a machine of the class described, the combination of the feed-chute, the frame hinged to the latter, the endless carrier, a hinged frame carrying a transverse shaft provided with a band-cutting disk, a frame mounted pivotally and adjustably upon said transverse shaft and having longitudinally-arranged shafts carrying the beaters or spreaders, the knives or cutters attached to said pivoted frame and adapted to engage the

edges of said spreaders, the adjustable crank-shafts mounted near the edge of the endless carrier, the gage-board having a series of staples adapted to be mounted adjustably upon
5 said crank-shafts, and the curved feed-board or guide-board mounted detachably at the opposite edge of the endless carrier, substantially as and for the purpose herein set forth-

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

ORLANDO CLEAVELAND.

Witnesses:

MYER COHEN,
J. H. SIGGERS.