

(No Model.)

2 Sheets—Sheet 1.

W. S. VAN WECHEL & D. L. WYNIA.
BAND CUTTER AND FEEDER.

No. 519,211.

Patented May 1, 1894.

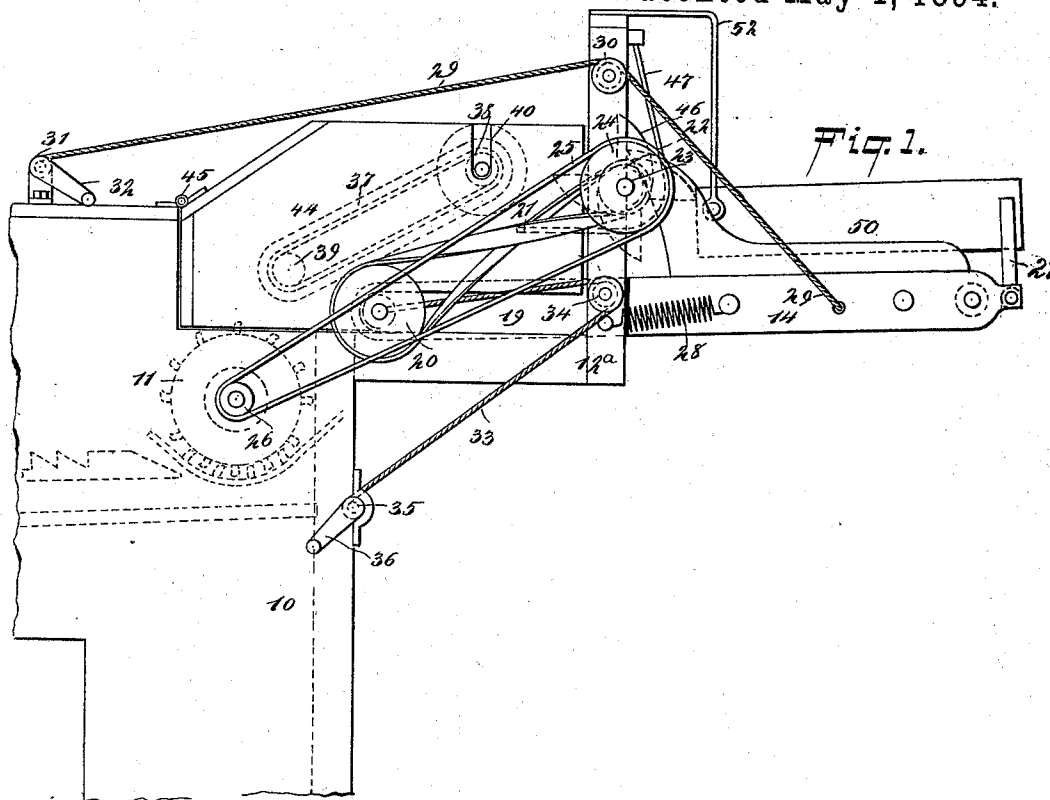
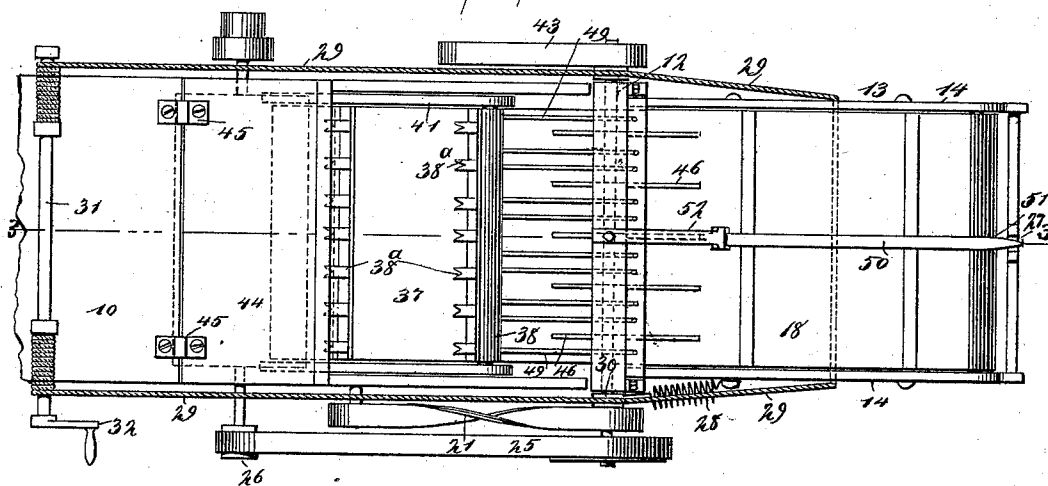


Fig. 2.



WITNESSES:

William Goebel.
C. Sedgwick

INVENTORS

W. S. Van Wechel
BY D. L. Wynia
Kinn & Co.
ATTORNEYS.

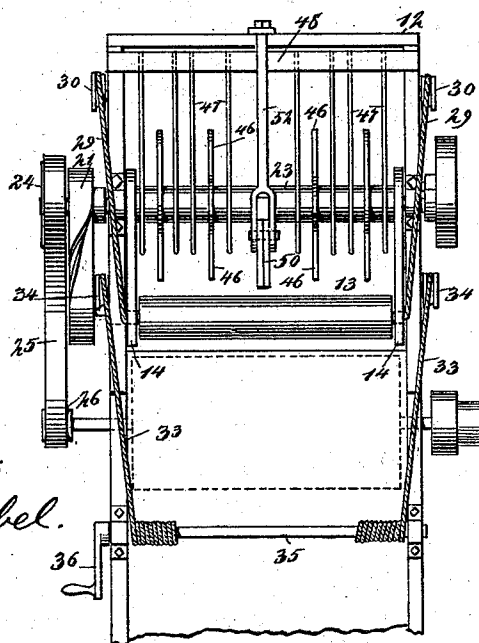
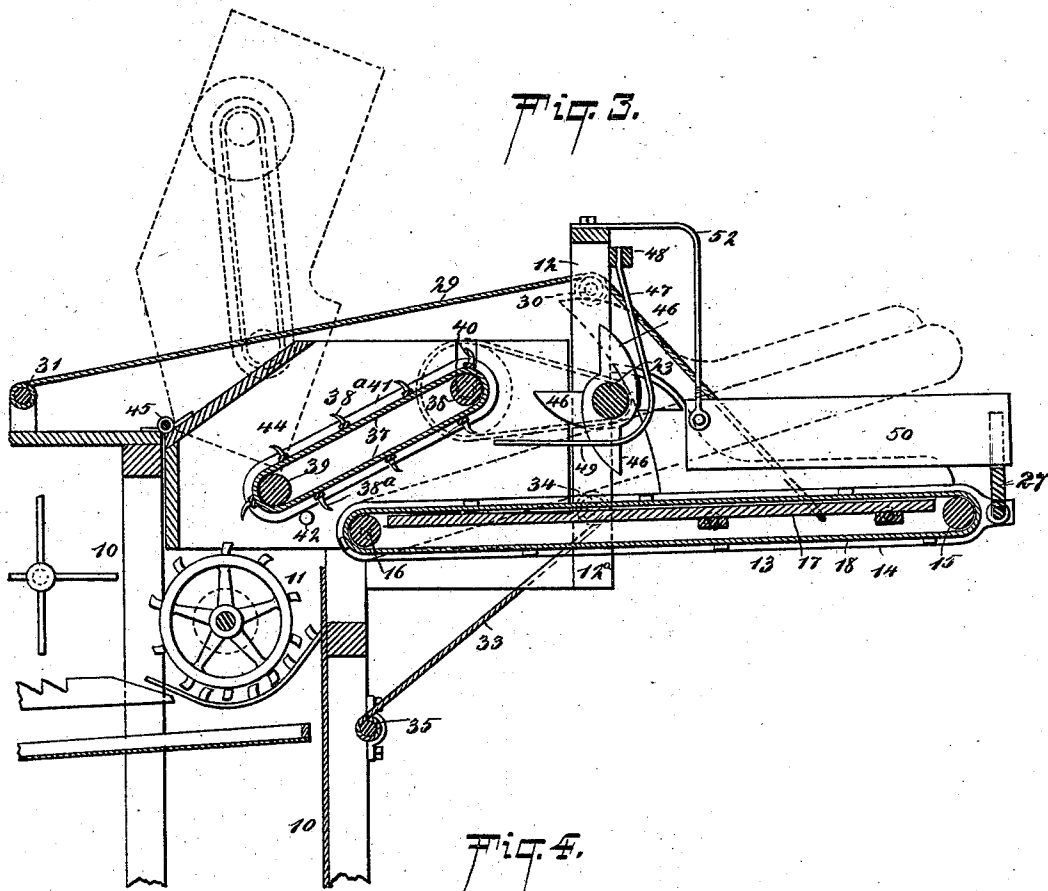
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UNITED STATES PATENT OFFICE.

WILLIAM SEBINE VAN WECHEL AND DENNES LOUIS WYNIA, OF ORANGE CITY, IOWA.

BAND-CUTTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 519,211, dated May 1, 1894.

Application filed May 1, 1893. Serial No. 472,549. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM SEBINE VAN WECHEL and DENNES LOUIS WYNIA, both of Orange City, in the county of Sioux and State of Iowa, have invented a new and Improved Band-Cutter and Feeder, of which the following is a full, clear, and exact description.

Our invention relates to improvements in band cutters and feeders, such as are used in connection with thrashing machines to cut the bands of grain and to feed the grain to the beating cylinder.

The object of our invention is to produce a very simple and inexpensive feeding and band cutting mechanism which may be connected with any ordinary thrashing machine, which is adapted to feed bundles to the cylinder, to thoroughly cut the bands of the bundles, to separate the bundles so that the unthrashed grain is fed in a perfectly even manner to the cylinder, to provide means for guiding the bundles, to the end that they may come, in a proper manner, in contact with the band cutters, to provide means for adjusting the machine to feed different sizes of bundles, and in general to produce a machine of the kind described, which will do the work required of it in a very effective manner and will not easily get out of repair.

To these ends our invention consists of certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improved band cutter and feeder, showing it applied to a thrashing machine. Fig. 2 is a plan view of the same. Fig. 3 is a horizontal section on the line 3—3 in Fig. 2; and Fig. 4 is a front end view of the apparatus.

The thrashing machine 10 is of the usual kind, having the customary beating cylinder 11 and secured to the thrashing machine near the cylinder, is the usual separator frame 12^a which generally carries the feed boards and tables, but these are removed when our improvements are applied to the machine.

Bolted to the outer end of the separator frame 12^a are upwardly-extending castings 12 which form a frame to support the cutters, cutter guards, and certain pulleys as hereinafter described. Extending through the frame 12 is a carrier 13, and this carrier is mounted in a vertically swinging frame 14 and upon rollers 15 and 16, these being arranged in the usual way at the ends of the carrier. The carrier has the usual center board 17, and consists of an endless belt 18 with the usual cross slats, this running over the rollers 15 and 16. The roller 16 is arranged at the inner end of the carrier, is adapted to slide horizontally in a slot 19 at the lower end of the hood above the frame 12^a, and this arrangement enables the carrier to be moved in and out and facilitates also its vertically swinging motion. The inner roller 16 has at one end a driving pulley 20 which connects by means of a belt 21 with a pulley 22 on the cutter shaft 23, this extending transversely across the frame 12 and above the carrier 13, the shaft being provided with suitable band cutters, as will be hereinafter described. The shaft 23 is also provided with a pulley 24 which is driven by a belt 25 connecting with a pulley 26 on the cylinder shaft, and this shaft may be turned in any usual way.

The outer end of the carrier frame 14 is provided with a suitable support 27 which is pivoted thereto and is adapted to be turned up to support the guide bar 50 as hereinafter described. The carrier 13 is held normally in the machine and with the roller 16 at the inner end of the slot 19, by a spiral spring 28, which is secured to the carrier and to the frame 12. The carrier may be raised when necessary by means of a cable 29 which extends through the frame 14 and upward over guide pulleys 30 on the frame 12, the ends of the cable being secured to a crank shaft or windlass 31 which is journaled in supports on the top of the thrashing machine or in a convenient place, and the shaft has a crank or handle 32 at one end by which it may be turned.

The carrier is drawn out by means of a cable 33 which is secured to the inner end of the carrier and extends outward over guide

pulleys 34 on the frame 12 and then downward to a windlass or shaft 35, which is journaled in suitable supports beneath the frame 12, and is provided with a crank 36 by which it may be turned. It will be observed that the winding of the cable 29 upon the shaft 31 shortens the cable and lifts the outer end of the carrier 13 and that the winding of the cable 33 on the shaft 35 forces the carrier outward, so that by properly manipulating the two shafts the carrier may be held at any necessary pitch.

Behind the cutter shaft and above the inner end of the main carrier 13 is a second carrier or feed apron 37, which is placed at an angle to the main carrier and extends inward and downward beyond the inner end of the main carrier. The feed apron 37 is carried by rollers 38 and 39 and is provided on its face with projecting hooks 38^a which incline toward the outer end of the feed apron. The shaft of the upper roller 38 is held in slots 40 in the hood, which supports the feed apron and which will be described presently, and both the rollers are journaled in a swinging frame 41, the lower end of which rests upon a stud 42, see Fig. 3, which prevents the frame and feed apron from dropping too low. The apron and frame may, however, swing freely upward and in this way the apron adapts itself to the varying bulk of the bundles, which are fed into the machine, and it is thus prevented from choking and is still able to accomplish its work, as described below. The shaft of roller 38, carrying the upper end of the feed apron, is provided with a pulley which is driven by a belt connecting with a pulley on the shaft 23. When the parts are in operation the proximate surfaces of the feed apron and carrier travel in the same direction, but the feed apron is arranged to travel slower than the carrier.

The feed apron is supported in a swinging hood 44 which closes the rear portion of the machine, and which swings over the cylinder 11, this hood being hinged at its rear end, as shown at 45, to the frame of the thrashing machine. It will be seen then that the hood and the feed apron may be swung upward, as shown by dotted lines in Fig. 3, thus entirely exposing the cylinder 11, so that it may be easily reached if necessary, and by swinging up the carrier 13, in the manner previously described, the lower portion of the cylinder may be easily reached.

The cutter shaft 23 is provided with revoluble band cutters, of substantially the usual kind, these comprising oppositely projecting blades 46 which turn a little above the carrier 13 and which pass through the bundles and sever the bands. Adjacent to the cutters are the guards 47 which hang from a cross bar 48 above the cutters, and these at their lower ends are curved beneath the shaft 23 and between the cutters 46, their lower portions 49 extending rearwardly substantially parallel with the carrier 13, as shown clearly

in Fig. 3. The guards prevent the straw from winding around the cutter shaft and choking the cutters.

Above the carrier 13 and near its free end, is a guide bar 50 which extends longitudinally and the outer end of which comes into close contact with the carrier. This bar is pivoted on a supporting bracket arm 52 which is fastened to the top of the frame 12, and consequently the guide bar may swing when the carrier is raised. The outer end of the guide bar terminates in an edge 51, as shown in Fig. 2, and is supported in the end of the upturned support 27. This guide bar acts to separate the bundles which are delivered to the carrier so that they may be supplied evenly to the band cutters.

The operation of the machine is as follows: The bundles are pitched upon the carrier 13 and are carried into the machine, the bands being cut by the revolving cutter blades 46 and the grain is delivered from the inner end of the carrier upon the cylinder 11. As the grain in the cut bundles strikes the feed apron 37 the said apron is raised, and as the feed apron travels slower than the carrier, the hooks 38^a on the apron hold back the upper portions of the bundles of grain and allow the lower portion of the bundle to travel first into the cylinder. Each bundle is thus separated and a continuous and even sheet of unthrashed grain is delivered to the beater. If the bundles are very large, the lower end of the feed apron swings upward under the increased pressure and the apron therefore adjusts itself to such bundles, while if the bundles are relatively small, the apron drops down and continues to separate them as specified. For large bundles, the outer end of the carrier 13 is dropped into a relatively low position, thus making a comparatively large space between the carrier 13 and the cutters and permitting the bundles to feed freely, while if the bundles are smaller, the outer end of the carrier is raised so as to bring its carrying surface nearer the cutters.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination with a thrashing machine having the usual cylinder, of a sliding and vertically adjustable carrier arranged to deliver to the cylinder, a spring for holding the carrier normally in position in the machine, means substantially as described for moving the said carrier outwardly and swinging it vertically, and a feed apron held to move opposite the inner end of the carrier and provided with hooks which point in a direction opposite its line of travel, as and for the purpose set forth.

2. The combination with a thrashing machine having the usual cylinder and provided with a sliding and vertically swinging carrier adapted to deliver to the cylinder, and a feed apron arranged above said carrier, of a hood held above the inner end of the carrier and

above the cylinder and carrying said feed apron, said hood having a longitudinal slot at its lower edge to admit of the horizontal movement of the carrier and having a hinged connection at its rear end to the frame of the thrasher, whereby the hood and feed apron may be swung upward when necessary and the cylinder exposed, substantially as shown and described.

3. The combination in a band cutter and feeder, with the revoluble band cutters, of the carrier arranged to move beneath the cutters, the bracket arm fastened to the frame above the cutters, the guide bar pivoted to said bracket arm in front of the cutters and extending longitudinally above the carrier apron, the supporting arm pivoted to the outer end of the carrier frame and adapted to be turned upward to support the free end of the guide bar when in position over the carrier, substantially as shown and described.

4. The combination, with the thrashing machine having the usual cylinder, of the spring-repressed carrier arranged to deliver to the cylinder and adapted to move outward and also swing vertically, and a crank and cable mechanism for moving the carrier, substantially as described.

5. The combination, with the supporting frame, of the carrier arranged to slide and swing therein, crank shafts arranged above and below the horizontal plane of said carrier, and cable connections between the carrier and the crank shafts, whereby the carrier may be swung vertically and moved longitudinally, substantially as described.

WILLIAM SEBINE VAN WECHEL.
DENNES LOUIS WYNIA.

Witnesses:

JACOB LOS,
A. J. KUYPER.