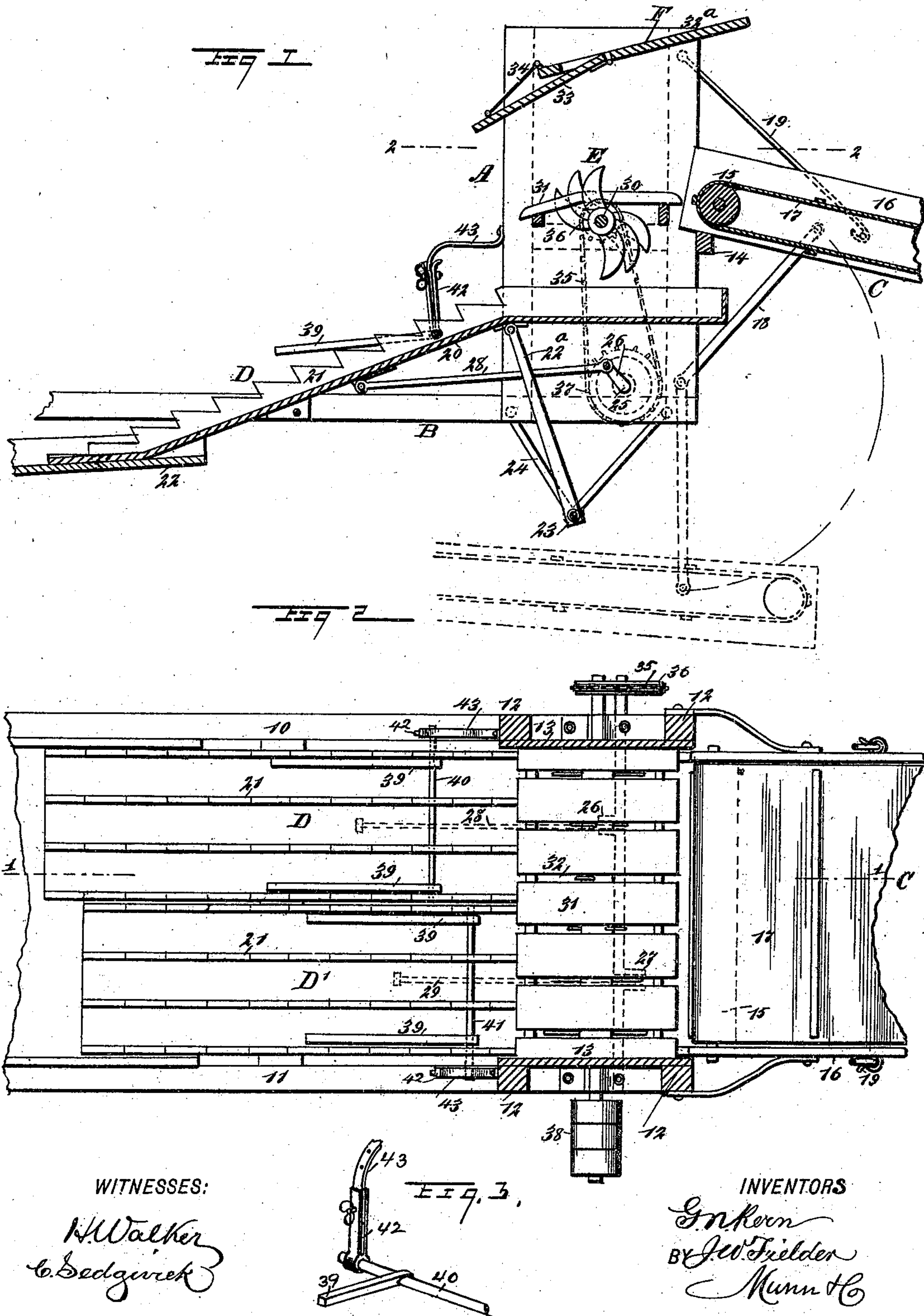


(No Model.)

G. N. KERN & J. W. FIELDER.
BAND CUTTING AND FEEDING ATTACHMENT FOR THRASHING MACHINES.

No. 504,220.

Patented Aug. 29, 1893.



WITNESSES:

H. Walker
C. Sedgwick

INVENTORS

G. N. Kern
J. W. Fielder
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE N. KERN AND JAMES W. FIELDER, OF MASON CITY, ILLINOIS.

BAND-CUTTING AND FEEDING ATTACHMENT FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 504,220, dated August 29, 1893.

Application filed January 13, 1893. Serial No. 458,227. (No model.)

To all whom it may concern:

Be it known that we, GEORGE N. KERN and JAMES W. FIELDER, of Mason City, in the county of Mason and State of Illinois, have
5 invented a new and Improved Band-Cutting and Feeding Attachment for Thrashing-Machines, of which the following is a full, clear, and exact description.

Our invention relates to a band-cutting
10 and self feeding attachment to thrashing machines, and it has for its object to provide a device in which the feed will be mechanically produced, and wherein the feed will closely approximate in effect that given by hand.

15 Another object of the invention is to provide a quick and positive feed, and in connection with the feed lifting fingers, which will elevate, loosen or scatter the bundles as they are fed to the thrashing machine.

20 It is another object of the invention to provide in connection with the feed a carrier, the feed having movement beneath the delivery end of the carrier, and to arrange over the feed device and in front of the delivery end
25 of the carrier, knives so located and constructed that they will sever the ties on bundles of grain and cause the cut bundles to be delivered to the feeding device.

Another object of the invention is to construct a band-cutting and feeding attachment
30 to thrashing machines, which will be exceedingly simple, durable and economic in its construction, and which may remain permanently attached to the thrasher, it being disposed of
35 in such manner as not to be in the way.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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

45 Figure 1 is a vertical section taken practically through the center of the attachment the carrier being shown in its folded position by dotted lines; and Fig. 2 is a partial horizontal section and partial plan view of the attachment, the section being taken on the line 2—2
50 of Fig. 1. Fig. 3 is a detailed view of clamping arm 42 and strap 43.

In carrying out the invention the frame consists of a body section A and a supporting section B. The supporting section ordinarily
51 consists of two sills 10 and 11, placed parallel and a predetermined distance apart, the sills being adapted for attachment to the cylinder arms of the thrasher, and are rigidly attached thereto. The body section of the frame com-
60 prises preferably four uprights 12, as shown in Fig. 2, two of the uprights being projected from each of the beams 10 and 11, at the outer ends thereof. Each pair of uprights serves to support
65 sidings 13, and the sidings are preferably connected at their outer edges at a point near their centers, by a cross beam 14, said beam being adapted as the upper support for a carrier C. The carrier may be of any suitable
70 or approved construction, and usually consists of an upper and a lower drum 15, the upper one only being shown, the drums being journaled in side pieces 16; and the drums are adapted to carry an endless apron or conveyer belt 17. The carrier is pivotally
75 attached to the lower portion of the body of the frame by means of links 18, one of the links being pivoted to the outer face of each side of the body and to the side pieces 16 of the carrier near the upper end of the latter,
80 the links being so placed in fact that when the carrier is not in use it may be carried downward beneath the supporting section B of the frame. The carrier is further supported
85 when in its operative position by the hooks 19 (see Fig. 1) said hooks being pivoted at their upper ends to the body of the frame and at their lower ends detachably connected with the sides of the carrier. Therefore by
90 disengaging the hooks 19 from the carrier it may be swung, as before stated, beneath the section B of the frame; the links 18 supporting its outer end and its inner or free end being connected with the beams 10, 11 by hooks
95 not shown in the drawings.

The feeding device comprises preferably
100 two boards or pans D and D'. These boards or pans, as they are preferably made from sheet metal, are arranged side by side, and are adapted to move in parallel lines. In construction, each of the boards or pans consists of a bottom or body section 20. This bottom or body section at its upper end is horizontal and is likewise horizontal at its lower end, but

between these two points the bottom inclines, the top being higher than the bottom; and the bottom section is preferably provided with four partitions or flanges 21, extending
 5 longitudinally thereof, two of the flanges or partitions being at the side margins and the other two intermediate of said margins, and preferably the spaces between the flanges or partitions are equal. That portion of the
 10 flanges or partitions located upon the upper horizontal portion of the feed boards or pans is preferably made with a straight or uninterrupted upper edge; while the portions of the flanges or partitions extending along the in-
 15 clined section of the body and along the lower horizontal portion are stepped at their upper edges, having what may be termed a fish back appearance, the upper edges being scaled or toothed, as is best shown in Fig. 1.
 20 The lower ends of the feed boards or pans are supported upon a false feed board 22, the said board being attached to the separator; and preferably the upper portions of the feed boards or pans are supported by arms 22^a,
 25 said arms being pivotally attached to the bottoms of the pans or boards, ordinarily at the junction of the inclined portions with the upper horizontal portions, as shown in Fig. 1. Two of these arms 22^a, are provided for each
 30 feed board or pan, the lower ends of the arms being boxed, or otherwise pivotally mounted upon the fixed shaft 23, extending transversely beneath the body of the frame, the ends of the shaft being secured in hangers 24, projected
 35 downward from the said frame body.

The feed boards or pans are adapted to have vibratory movement, and they move alternately. This is accomplished by journaling in the lower portion of the body section of the
 40 frame a link shaft 25, the said shaft being provided with two crank arms 26 and 27, oppositely disposed, as shown in dotted lines, Fig. 2; and each crank arm of the crank shaft is connected by a link with one of the feed
 45 boards or pans, the connection being effected upon the lower face thereof, preferably about midway between the inclined sections, as is shown in both Figs. 1 and 2. These links are designated in the drawings as 28 and 29.

50 A cutter shaft 30, is journaled in the sides of the body frame above the upper or horizontal section of the feed boards or pans; and it may be here remarked that the upper portions of the feed boards extend beneath the
 55 delivery end of the carrier.

Above the cutter shaft a table 31, is located, extending from side to side of the body; and this table is given an inclination in direction of its side edges from the center down-
 60 ward in direction of the feed boards over which the table is located, and upward practically to a connection with the carrier, as shown in Fig. 1. The table is supported horizontally in any suitable or approved manner, and is
 65 provided with a series of openings 32, transversely made therein, as shown in Fig. 2; and through these openings knives E, extend, the

knives being secured upon the cutter shaft. The knives are preferably made somewhat S-shaped, being secured to the shaft at their
 70 centers by means of set screws or equivalent fastening devices; and the knives may be either alternately or spirally arranged, as in practice may be found most desirable. Any
 75 desired number of knives may be used; ordinarily, however, six knives are sufficient, which six, as the knives are double, will provide twelve cutting blades.

Above the table 31, a regulating board F, is located, which board is in two sections, the
 80 body section 32^a, being secured to the sides of the body frame in an inclined position, the inclination being downwardly in direction of the feed boards or pans; and the adjustable
 85 section 33 of the regulating board is hinged or otherwise equivalently attached to the body section, and may be given any desired downward slant or upward inclination, being
 90 held in position by hooks 34, or their equivalents, as shown in Fig. 1. This board is adapted to give a downward course to the grain or bundles after leaving the knives. The knives cut upon their upward movement,
 95 so that they sever the bands of the bundles presented to them from the bottom upward, and thus do not break the grain or injure the bundles unnecessarily.

The cutter shaft is preferably driven by means of a chain belt 35, which is passed
 100 over a pulley 36, located upon one end of the cutter shaft and over a pulley 37, attached to one end of the crank shaft 25. The driving pulleys 38, are located upon the cutter shaft, and these pulleys connect with the driving
 105 pulley of the thrasher, and likewise serve, when properly belted, to revolve the apron of the carrier.

In order that during the vibratory movement of the feed boards or pans the grain as
 110 carried down the stepped portions of the feed boards shall be lifted upward, lightened, as it were, the separating, lifting fingers 39, are provided to accomplish such a result. These lifting fingers may correspond in number to the compartments upon the feed boards, but
 115 in the drawings but two fingers are shown upon each board, and they are located in the outer compartments. The fingers of each feed board or pan operate independently; that is to say, each set of fingers is attached
 120 to an independent shaft, the fingers 39 of the feed board D, being secured to a shaft 40, journaled in the flanges or partitions of that board, while the fingers of the feed board D', are secured to a second shaft 41, journaled in
 125 like manner in that board. The outer ends of the shafts are provided with upwardly extending clamping crank arms 42 between the upper ends of which are adjustably clamped
 130 one end of flexible straps 43 which are secured at their opposite ends to the uprights 12 at their outer edges, as is best shown in Fig. 2. Thus it will be observed that when the feed pans or boards are given vibratory move-

ment, or are longitudinally reciprocated, the fingers will move upward and downward and will lift or sift the grain carried by the board, the height to which the fingers will rise being controlled by the distance that the flexible straps 43, are carried in the clamping crank arms. Thus in the operation the bundles of grain are carried upward into the body of the frame by the carrier C, and delivered upon the cutting table 31, at which point the bands are cut, and the loose bundle then moves from the cutting table and drops upon the vibrating feed boards, and by said boards the loose straw is not only agitated but is carried downward step by step and delivered in good condition to the thrasher. As the feed boards or pans extend beneath the delivery end of the carrier C, any material spilled from the carrier will be received by the feed boards, so that there is really no waste.

It is evident from the foregoing description, and from reference to the drawings, that the feed boards or pans move in horizontal planes.

Since the feed boards or pans are alternately reciprocated, and as each feed board is provided with a series of fingers adjustable thereon, the grain is presented to the cylinder of the thrasher in fine shape, and the nearest possible action to that of hand feeding is obtained.

The attachment can be made to any separator, and in manipulating the bundles the grain is not scattered.

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

1. The combination with the frame having a transverse end bar 14, the cutting table and cutters, of the bundle carrier resting at its inner end on said bar, the links 18 pivoted at their lower inner ends to the frame below bar 14 and at their upper outer ends to the sides of the carrier to permit it to be swung down-

wardly under the frame, hooks 19 detachably connecting the sides of the carrier with the frame above the bar 14 and securing it against accidental displacement, substantially as set forth.

2. The combination with the slotted table 31 and the shaft thereunder provided with a series of blades extending up through the slots, of the carrier delivering upon the said table, the longitudinally reciprocating feed boards or pans D D' having upper horizontal portions extending beneath the said cutting mechanism, the hangers 24 below the pans, a transverse shaft mounted in the hangers, arms 22^a pivoted at their upper ends to the pans and at their lower ends to the said shaft, the crank shaft 25 and the pitman 28 connecting said shaft with the under sides of the pan, substantially as set forth.

3. The combination with the frame, the slotted feed table and the series of rotary knives extending up through said slots, the inclined board F over the said table and having the adjustable hinged section 33, of the bundle carrier delivering to the table and the reciprocating feed boards or pans D D', having upper horizontal portions extending beneath said cutting mechanism, substantially as set forth.

4. The combination with the frame and the longitudinally reciprocating feed board or pan, of the rock shaft crossing the pan, provided within the pan with a finger and having on its outer end a clamping crank arm 42 and a flexible strap 43 secured at one end to the frame and at its other end clamped adjustably by said clamping arm to cause the shaft to rock and raise the finger in the forward throw of the feed board or pan, substantially as set forth.

GEORGE N. KERN.

JAMES W. FIELDER.

Witnesses:

CHARLES I. CATES,
FRANK MELTON.