

(No Model.)

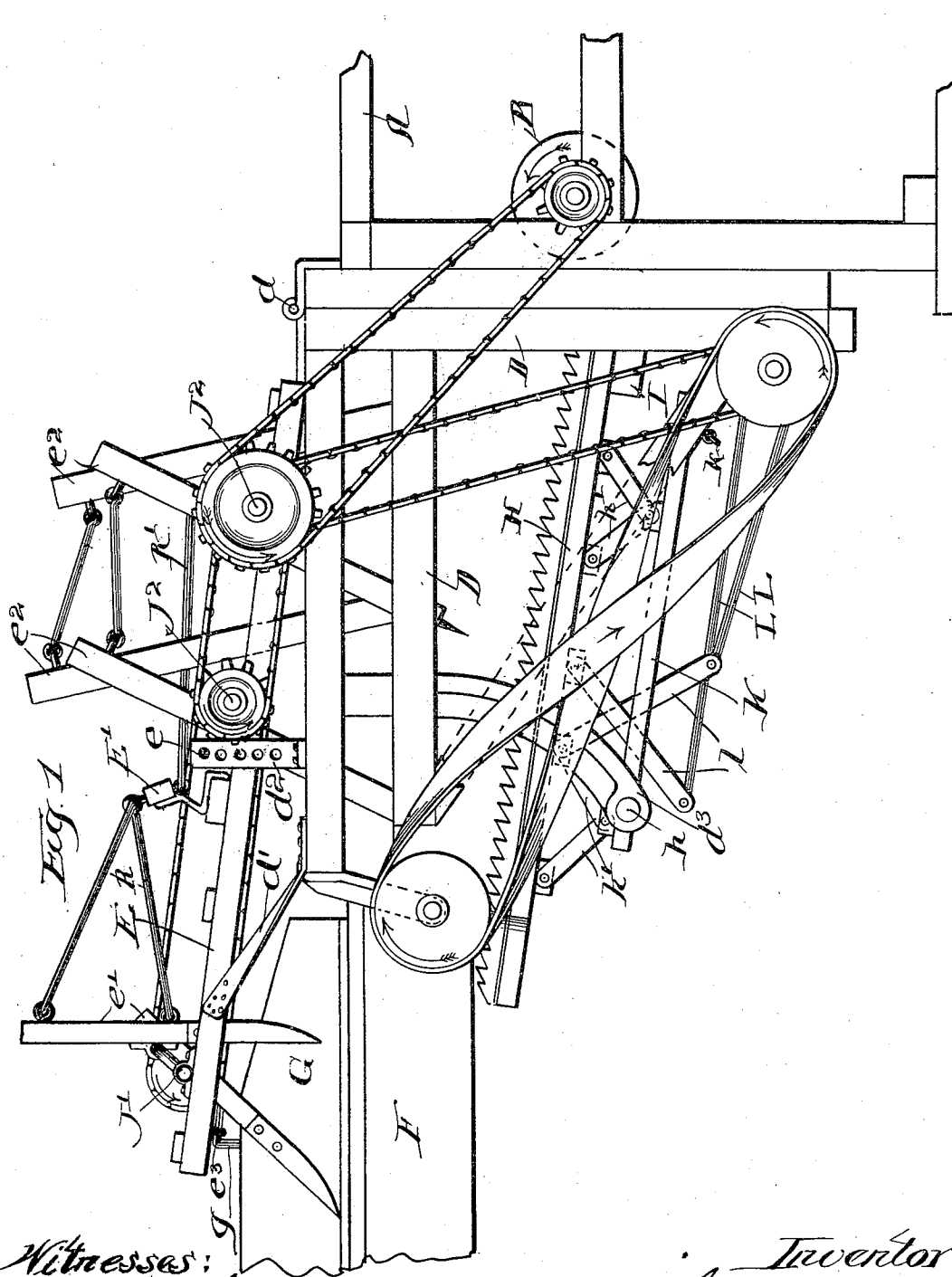
5 Sheets—Sheet 1.

L. & W. QUINTUS.

BAND CUTTING AND FEEDING ATTACHMENT FOR THRASHING MACHINES.

No. 507,163.

Patented Oct. 24, 1893.



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(No Model.)

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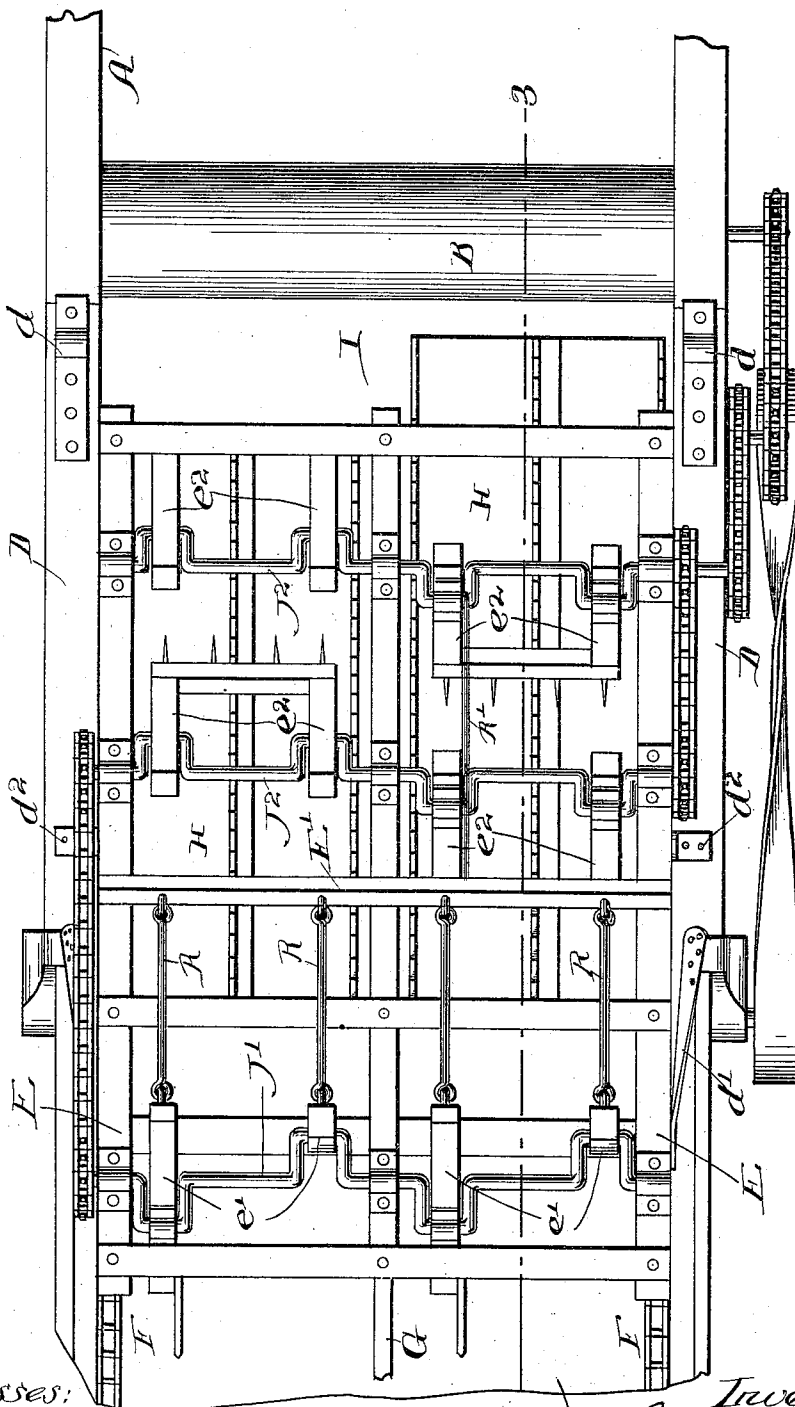
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Fig. 2.



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BAND CUTTING AND FEEDING ATTACHMENT FOR THRASHING MACHINES.

Patented Oct. 24, 1893.



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5 Sheets—Sheet 5.

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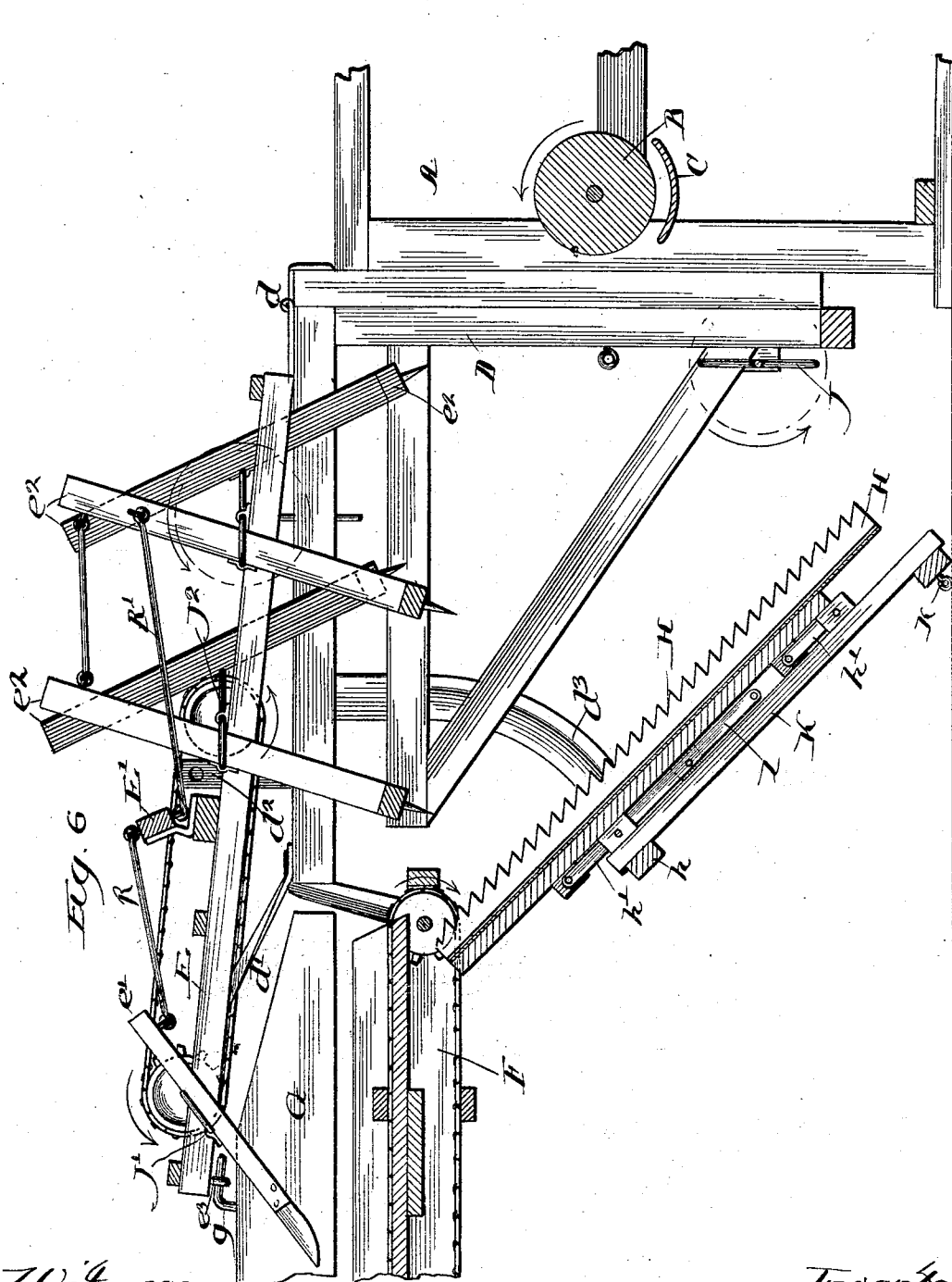


Fig. 6

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UNITED STATES PATENT OFFICE.

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BAND-CUTTING AND FEEDING ATTACHMENT FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 507,163, dated October 24, 1893.

Application filed November 9, 1891. Serial No. 411,265. (No model.)

To all whom it may concern:

Be it known that we, LOUIS QUINTUS and WILLIAM QUINTUS, citizens of the United States of America, residing at Garner, in the county of Hancock and State of Iowa, have jointly invented certain new and useful Improvements in Band-Cutting and Feeding Attachments for Thrashing-Machines, of which the following is a specification.

Our invention relates to an attachment designed for use upon thrashing machines or grain separators, to receive the grain as it is pitched to the machine and to cut the bands and feed the loose straw to the machine.

It consists in certain novel features of the framework and feeding mechanism, by means of which a much more satisfactory operation and convenient manipulation are attained. These different features will be specifically described in connection with the general description of the attachment, after which, the essential portions thereof will be clearly and definitely pointed out in the claims appended hereto.

Our preferred construction is illustrated in the drawings by means of six figures, of which—

Figure 1 is a side elevation of the attachment; Fig. 2, a plan of the same; Fig. 3, a section in line 3—3 of Fig. 2. Fig. 4 is a sectional plan taken in line 4—4 of Fig. 3. Fig. 5 is a sectional plan taken in line 5—5 of Fig. 3, and Fig. 6 is a view partly in side elevation and partly in longitudinal vertical section showing the frame K dropped down.

In the views, A is a skeleton frame representing the end of the thrashing machine or separator, B is a roller indicating the position of the cylinder, and C represents the ordinary concave beneath the cylinder.

Upon the end of the separator and hinged thereto at d , is a triangular frame D, supporting the greater portion of the feeding mechanism, this frame being held against the vertical end of the separator by its own weight, or by any suitable fastenings. The rear end of the frame D, supports the front end of an endless conveyor F, Figs. 1, 2, 3, operated by suitable chain gearing, this conveyor being intended to receive the bundles of grain and being provided with suitable means for carrying the grain toward the thrasher.

To the frame D, are fastened the upper ends of two preferably curved dependent arms d^3 , Figs. 1, 3, 4, 5, and in the lower ends of these arms is pivotally supported the rear end of an inclined frame K, whose front end is supported by means of a rod, k , Figs. 1, 3, the rod being preferably movable for the purpose of dropping the end of the frame as illustrated in Fig. 6 to permit access to the cylinder of the separator.

Above the frame K, and side by side are two longitudinally oscillating tables H, H, supported upon vibrating arms h' , each of which is pivoted at its upper end to one of the tables and at its lower end to the frame K, these tables being so placed as to receive the bundles of grain discharged from the conveyor F. The movement of the tables is controlled by means of oscillating levers l , l , extending above and below the frame K, and pivoted thereto at their centers, the upper ends of the levers being pivoted to the tables H, H, respectively, while their lower ends are pivoted to the rear ends of connecting rods L, L, the front ends of the connecting rods being pivoted to cranks formed in a transverse crank rod J, Figs. 1, 3, 4, 5. The cranks on the crank rod J, are oppositely placed, so that as one of the tables H, moves toward the separator, the other moves away from it, the relative positions of the two tables being clearly shown in the different figures. Each of the tables is provided with a series of longitudinal bars fastened to its upper face and notched, substantially as shown in the drawings, the object of these serrated bars being to retard the grain in its movement toward the separator.

Upon the upper and horizontal bars of the frame D, are secured two vertical standards, d^2 d^2 , each formed with a series of holes, as shown in Fig. 1, and an inclined frame, E, is adjustably supported by means of pins, e , passing through the holes in the standard and into the frame at points midway between its ends. The front end of the frame E, rests upon the frame, D, and its rear end is supported by means of braces, d' , each formed with a series of holes permitting changes of the point of support to correspond with the variation of the inclination of the frame.

Upon the frame E, are three transverse

crank shafts, J' , J^2 , J^3 , mounted in suitable bearings and rotated by sprocket wheels and chains, shown in the drawings.

Upon the cranks of the rearmost crank shaft, J' , are hung a series of approximately vertical levers, e' , provided at their lower ends with knives adapted to sever the bands of bundles of grain passing beneath them upon the endless conveyer F. The movement of the upper ends of the levers e' , is limited by means of swinging rods R, running forward to a stationary transverse bar E' , and as the centers of the levers move in circles in vertical planes, the knives move downward and upward, and toward and away from the separator, the downward movement of each of the knives being at the beginning of its movement toward the separator and its upward movement being at the beginning of its movement away from the separator. The knives in their movement toward the separator not only cut the bands of the bundles lying on the conveyer, but they also assist in moving the grain toward the separator, especially if the straw be tangled as is frequently the case, and as each of the knives moves upward at the end of its stroke toward the separator, its reverse movement is wholly above the grain on the conveyer. The motion of the knife, thus obtained, is almost exactly the same as if it were in the hand of a skilled operator, and we believe that this movement of the knife is a valuable feature in the operation of the machine.

On the cranks of the crank shafts J^2 , are mounted two sets of rakes e^2 , e^3 , one set being over each of the tables H, H. The upper ends of these sets of rakes are connected by a rod R' , with a stationary cross-bar E' , and the rotation of the crank shaft J^2 , gives to the rakes substantially the same motion as that of the knife levers e' , already described. The cranks of each of the shafts J^2 , lie in one direction over one of the tables H, and in the opposite direction over the other, so that as the points of one set of rakes are moving toward the separator, the points of the other set are moving away from the separator; and the cranks on the crank shafts J, and the operating parts connecting therewith, are so arranged that as the points of either set of rakes e^2 , are moving toward the separator, the table H, immediately beneath them, is moving in the opposite direction. Each of the rakes moves toward the separator while in its lowest position and while it is nearest to the surface of the table beneath it, and at the same time, the table moves away from the separator. The consequence is that as a bundle of grain is discharged from the conveyer onto either of the tables H, H, the rakes engage the upper surface of the bundle and draw it toward the separator, and at the same time, the movement of the table away from the separator draws the under portion of the bundle backward, and the whole bundle is thus spread longitudinally by a

movement identical with that given to a bundle by the hand of a skilled feeder. At the end of each stroke of the rakes toward the separator, they move upward and their reverse stroke is wholly above the grain and out of contact with it. It will thus be seen that the tables do not tend to feed the grain toward the machine, but rather assist in spreading the grain of the bundle and equalizing the feed to the machine. In fact, we have found, in practice, that if the oscillating mechanism be detached from the tables H, H, and they be held stationary, the feed is much more rapid than when they are moved in the manner hereinbefore described and explained, and that the increase of the length of stroke of each of the tables decreases the speed of the feed of the machine.

A center board, G, of ordinary construction is hung above the central line of the conveyer, its front end being supported by a hook g , passing through a staple e^3 , at the rear end of the frame E. This center board serves to straighten the bundles of grain as they are thrown on the conveyer, and also to divide the bundles into two separate streams which fall upon the tables H, H, respectively. The motion of the tables in opposite directions and the corresponding movements of the two sets of rakes deliver these two streams of grain to the separator at alternating intervals and thus materially assist in equalizing the feed of grain to the thrasher. This is a matter of great importance since it makes it possible to run the thrasher constantly to its full capacity, and we have found that the use of the absolutely uniform feed secured by this machine increases the capacity of the thrasher at least one fourth as compared with the best results attainable when the grain is fed by hand.

A short feed-board I, is pivoted to the frame D, behind the front ends of the tables H, H, the front end of the feed-board being supported loosely by the concave C, as shown in Fig. 3. The pivot of the feed-board is a rod i , preferably removable for the purpose of removing the feed-board.

Having now described and explained our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with the endless conveyer, F, and center board, G, of the independent longitudinally reciprocating tables, H, H, adapted to receive grain from the conveyer and alternately operating raking mechanisms supported above said tables and adapted to deliver grain from the tables alternately, said raking mechanisms and said tables being so timed as constantly to move in opposite directions; substantially as shown and described.

2. In a machine of the class described, the combination with a conveyer adapted to receive bundles of grain and move them forward, and means for cutting the bands on said bundles, of a longitudinally reciprocating

ing table adapted to receive the grain from the conveyer, a rake movably supported above said table, and means, substantially as shown and described, for bringing said rake into and lifting it above the grain upon the table, the movement of the rake when in the grain being in the direction of the movement of the bundles upon the conveyer, and the rake and table being timed to move in opposite directions; substantially as shown and described.

3. In a device of the class described, the combination with suitable thrashing mechanism, of a longitudinally reciprocating table, H, crank shafts J^2 , J^2 , supported above said table, rakes e^2 , e^2 , pivoted above said crank shafts, and means, substantially as shown and described, for rotating said crank shafts and for operating said table, whereby each of said rakes may move first downward and then toward the thrashing mechanism, and the table at the same time may move away from the thrashing mechanism; substantially as shown and described.

4. The combination with the conveyer adapted to receive the bundles of grain and means for cutting the bands on said bundles, of longitudinally reciprocating tables H, H, provided with serrated bars adapted to retard the movement of the grain, crank shafts J^2 , J^2 , supported above said tables, rakes e^2 , e^2 , pivoted on the cranks of said shafts, and means, substantially as shown and described, for rotating the crank shafts and imparting recip-

rocal movement to the tables, whereby each of the rakes may move first downward and then in the direction of the feed of grain, and at the same time the table beneath the rake may move in the opposite direction; substantially as shown and described.

5. In a feeding attachment for grain separators, a supporting frame D, a rocking grain table H, carried by a frame K, pivoted at its end opposite from the separator to the frame, D, and detachably connected at its other end to said frame, whereby the entire table may be dropped downward and away from the machine; substantially as shown and described.

6. In a feeding attachment for grain separators, the combination of a supporting frame D, a rocking grain table, carried by means of vibrating arms h' , upon a frame K, pivoted at its rear end to the frame, D, and detachably supported at its opposite end, a rotating shaft, J, connected with the driving mechanism and bearing crank arms, a lever or levers, l , fulcrumed upon the frame, K, and pivoted at one end to the feed table, and a link L, pivoted upon the crank arms at one end and removably pivoted at its opposite end to the free and rear ends of the lever or levers, l ; substantially as shown and described.

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