

(No Model.)

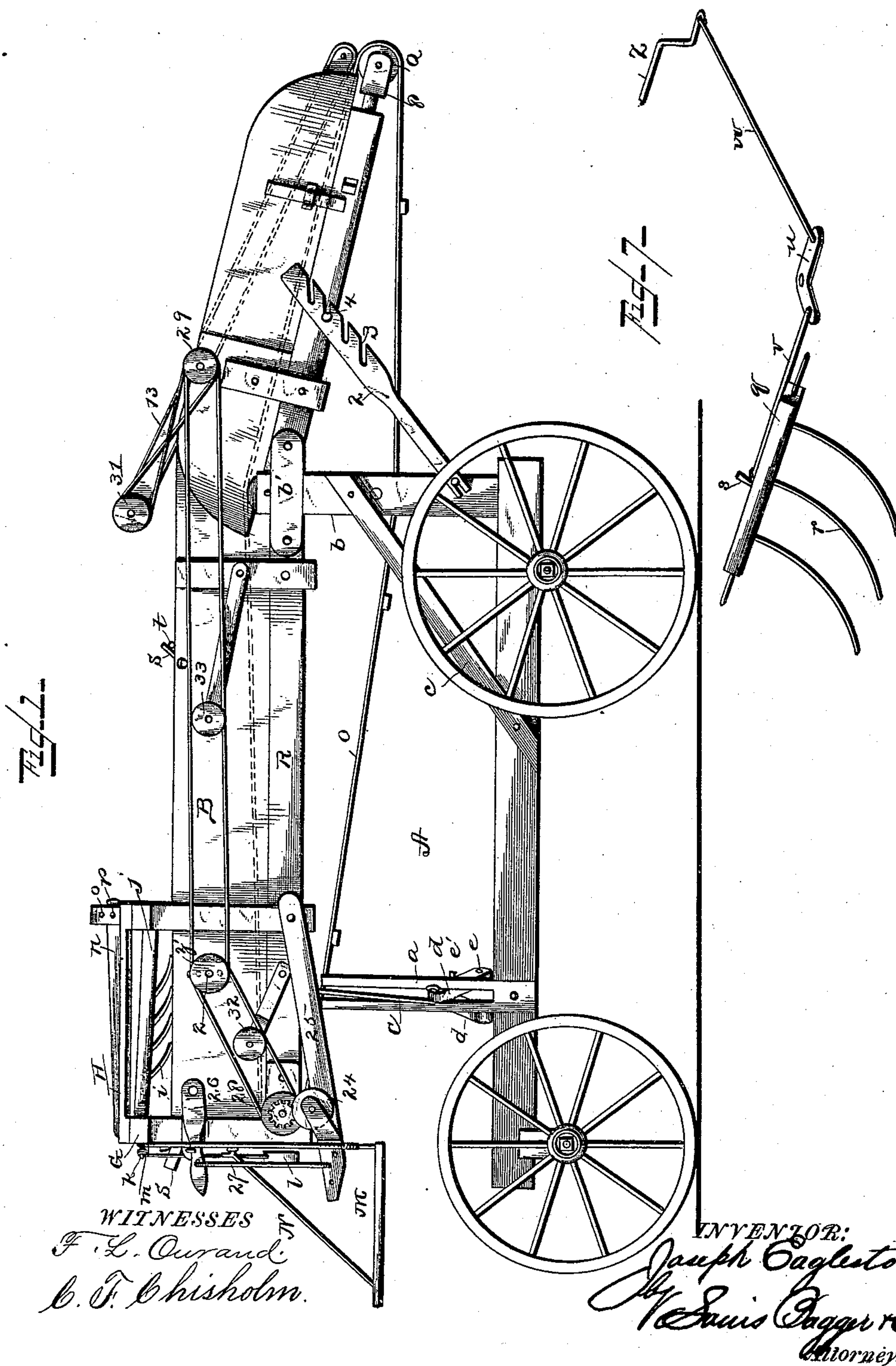
4 Sheets—Sheet 1.

J. EAGLESTON.

CUTTER AND FEEDER FOR THRASHING MACHINES.

No. 450,098.

Patented Apr. 7, 1891.



(No Model.)

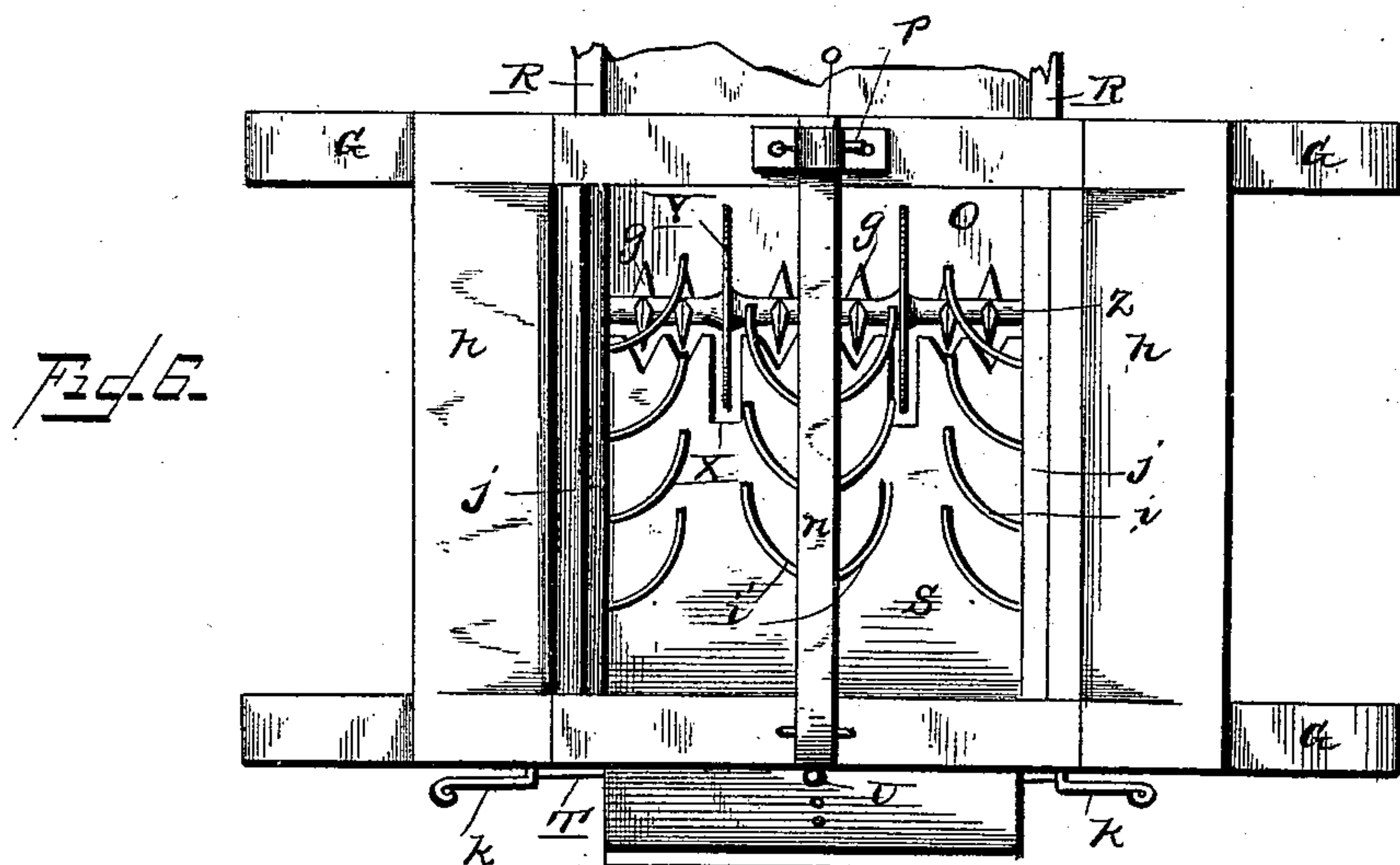
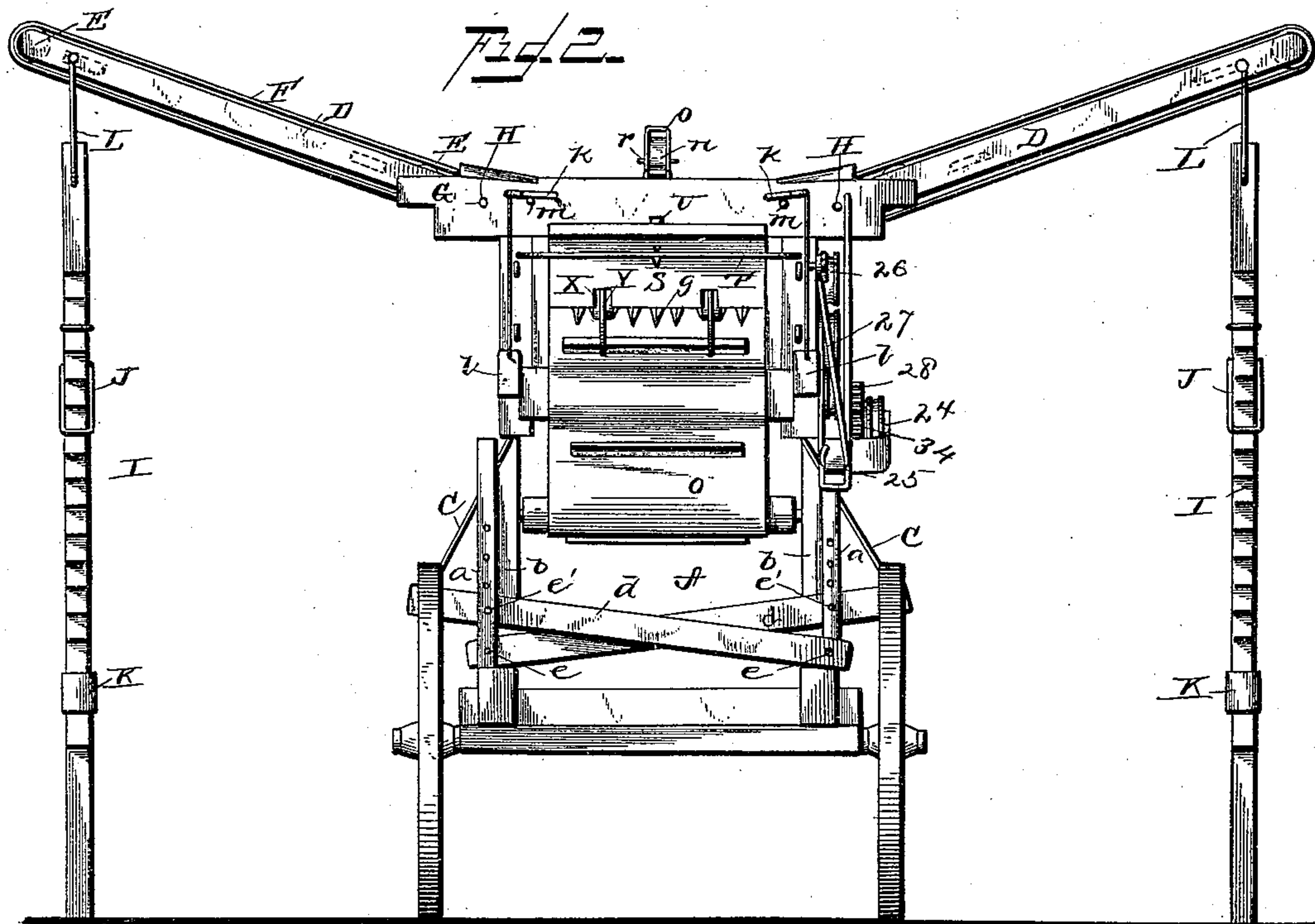
4 Sheets—Sheet 2.

J. EAGLESTON.

CUTTER AND FEEDER FOR THRASHING MACHINES.

No. 450,098.

Patented Apr. 7, 1891.



WITNESSES

F. L. Curand,
C. F. Chisholm.

INVENTOR:

Joseph Eagleston,
By Sams, Daggner & Co.,
Attorneys.

(No Model.)

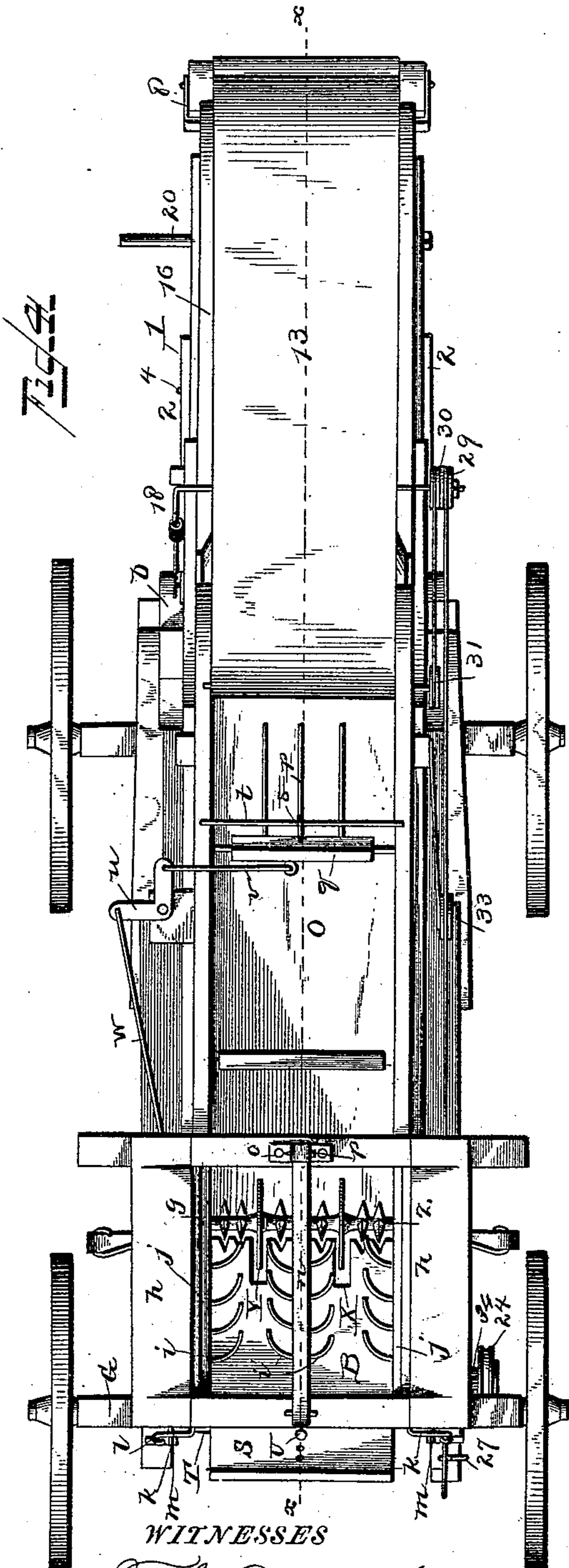
4 Sheets—Sheet 3.

J. EAGLESTON.

CUTTER AND FEEDER FOR THRASHING MACHINES.

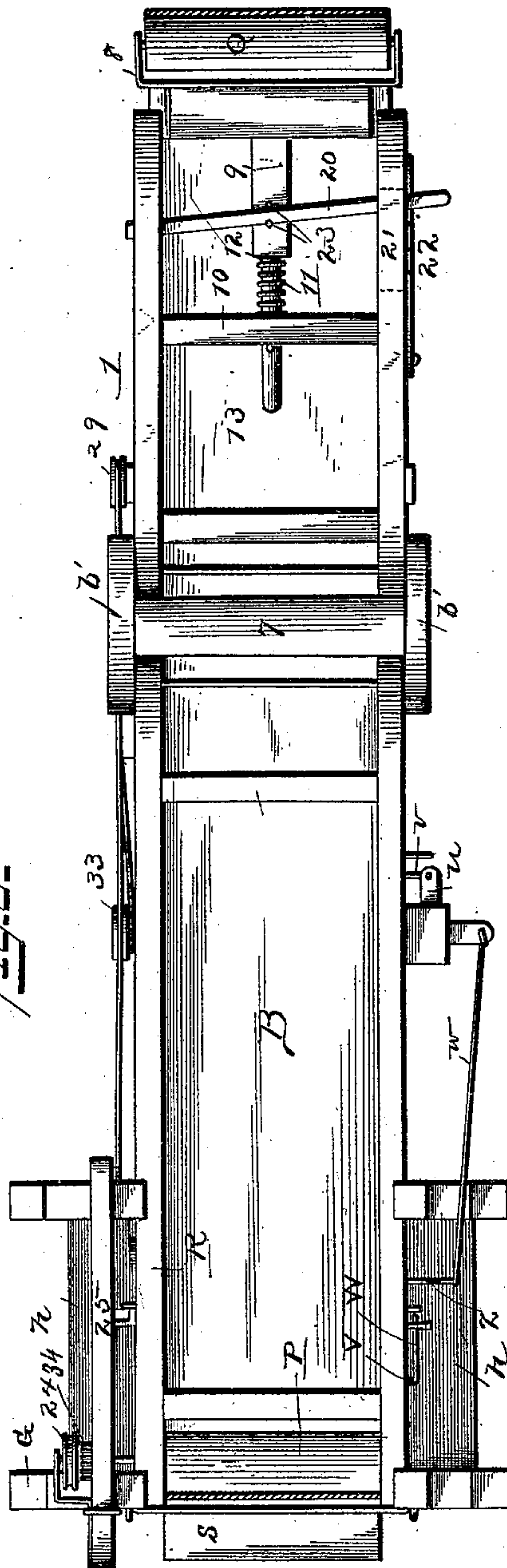
No. 450,098.

Patented Apr. 7, 1891.



WITNESSES

F. L. Curran.
C. P. Chisholm.



INVENTOR:

Joseph Eagleston,
By Edwin Jagger & Co.,
Attorneys.

(No Model.)

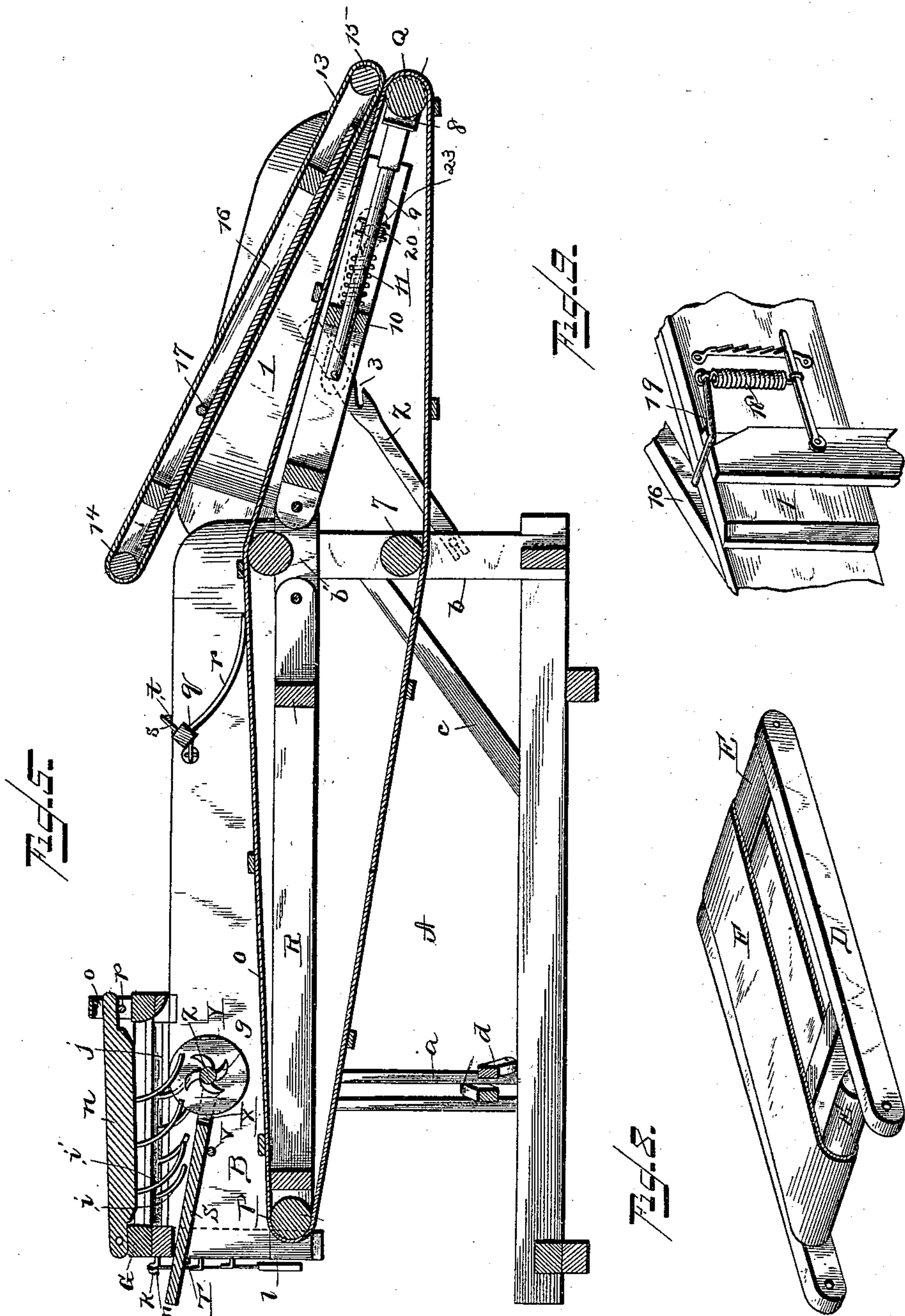
4 Sheets—Sheet 4.

J. EAGLESTON.

CUTTER AND FEEDER FOR THRASHING MACHINES.

No. 450,098.

Patented Apr. 7, 1891.



WITNESSES

F. L. O'Rand.
C. P. Chisholm.

INVENTOR:

Joseph Eagleston
By David Daggner & Co.
Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH EAGLESTON, OF ORIENT, OHIO, ASSIGNOR OF ONE-HALF TO WILLIAM WELSH, OF SAME PLACE.

CUTTER AND FEEDER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 450,098, dated April 7, 1891.

Application filed June 20, 1889. Renewed October 1, 1890. Serial No. 366,747. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH EAGLESTON, a citizen of the United States, and a resident of Orient, in the county of Pickaway and State of Ohio, have invented certain new and useful Improvements in Cutters and Feeders for Thrashing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my band cutter and feeder for thrashing-machines. Fig. 2 is a front elevation of the same, showing the adjustable feed wings or aprons in position. Fig. 3 is a plan of the under side of the chute with the apron removed. Fig. 4 is a top or plan view of the machine. Fig. 5 is a longitudinal sectional view of the vertical plane indicated by the broken line marked *xx* in Fig. 4. Fig. 6 is a top plan view enlarged of the feed-box and its appurtenances. Fig. 7 is a perspective detail view of the reciprocating shaker or distributor. Fig. 8 is a perspective detail view of one of the removable feed-wings with a portion of the belt broken away, and Fig. 9 is a perspective detail view of the tension device for the upper apron of the chute.

My invention relates to improvements in combined band cutters and feeders for thrashing-machines, and has for its object to facilitate and expedite the cutting of the bands on the sheaves and the feeding of the same to the concave of the thrashing-machines.

With this object in view my improvement consists, first, in the combination, with the feed-chute and feed-box of a machine, of adjustable feed wings or aprons; secondly, in the construction and combination of parts of the guides which direct the sheaves to the band-cutting mechanism; thirdly, in the construction and arrangement of an improved spreading device; fourthly, in the construction and combination of parts of the delivery end of the chute; fifthly, in the mechanism for effecting the proper adjustments of the various parts, and, lastly, to the mechanism

whereby the several parts of the machine are operated, substantially as will be hereinafter more fully described, and pointed out in the claims.

Reference being had to the accompanying drawings, in which like letters and numerals of reference denote corresponding parts of the several figures, the letter A designates a frame-work, which is supported upon wheels in the usual manner. At the opposite ends of this supporting-frame are vertical uprights or standards *a a b b*, the latter of which are braced to the side sills of the frame A by the braces *c*. The forward standards *a* are bifurcated to adapt them to receive the free ends of the levers *d d*, which cross each other, as will appear more clearly by reference to Fig. 2, said levers being pivoted or fulcrumed upon pins or bolts *e*, inserted through the bifurcated standards *a*. The free ends of the levers project at opposite ends through the bifurcated standards, and are held therein adjustably by means of the bolts *e'*, and the front end of the machine, which contains the feed-box, may be thereby adjusted vertically at any desired elevation. It will be observed that this adjustment may be effected in a moment of time simply by shifting the adjusting-bolts, which may be done while the machine is in operation, and without interfering with or changing any of its operating parts.

The chute shown at B is connected to the outer ends of the adjustable levers *d* by means of rods C, which support the chute. These rods are of such a length that when the levers *d* and the forward end of the chute are allowed to drop to their lowest position, the sides of the chute clearing the standards *a*, the chute rests between the upper ends of said standards.

When the machine is in operation, so-called "feed-wings" are attached temporarily to opposite sides of the feed-trough. These feed-wings consist of rectangular frames D, provided with rollers E at opposite ends, over which passes an endless apron F. The inner ends of the frames D are connected pivotally to the parallel cross-bars G of the feed-box by means of pins H, and the outer ends of the frames are supported upon extensible standards I by means of the bails L. The ex-

tensible standards I consist of two bars sliding upon each other and held together by means of keepers K, one of said bars being notched to form a rack adapted to engage the
 5 bail J of the other standard, so that by disengaging this bail from the rack the latter may be raised or lowered at will, and when the proper elevation has been attained the rack is held in place by causing its appropriate notch to engage the hinged bail J. In
 10 this manner it will be seen that the elevation of the feed-wings may be regulated to correspond to the elevation of the feed-box, and also that the pitch or angle of the feed-wings
 15 relative to the feed-box may be adjusted at will by lengthening or shorting the extensible standards I.

To the front end of the machine, a suitable distance below the feed-box, is attached a platform M, supported by hangers N. In operating the machine the operator stands upon this platform and feeds the sheaves as they are being tossed upon the wings on opposite sides of the machine from the wagon by pushing the sheaves down into the feed-box. To
 25 some extent this feeding will be done automatically, owing to the incline of the feed-wings, which should be set at such an angle that the sheaves will slide down into the box of themselves upon the endless apron which works upon the rollers in the frame. By raising or lowering the front end of the machine and properly adjusting the outer ends of the feed-wings the latter may readily be set at
 30 such an angle as to feed the sheaves from the wagon into the feed-box without much effort on the part of the operator, whose duty is simply, in a measure, to guide and control the feeding of the sheaves into the feed-box.
 35 When one load is received at one time only, only one of these feed-wings is used; but, if desired, both may be used simultaneously, one on each side of the machine, as shown in Fig. 2.

45 The bottom of the feed-box is formed by the endless chute-apron O, which works upon rollers P Q at opposite ends of the machine, and its sides are formed by the parallel side pieces R R, while the parallel cross-pieces G
 50 G, hereinbefore referred to, form the ends of said feed-box. The forward end of the feed-box, which receives the sheaves from the feed-wings, is provided with an adjustable false bottom S, the front end of which rests upon
 55 a transverse rod T, and is held in place adjustably thereon by means of a peg or pin U. The inner or rear end of said false bottom is similarly supported upon a crank-shaft V, the crank of which bears against the under side
 60 of the bottom S. Shaft V projects through one of the sides R, and is provided with a handle W for turning it, said handle being held in position, after adjusting the crank-shaft, by a pin, as shown in Fig. 3, inserted in
 65 one of a series of holes in the side piece R or by other suitable means. Thus it will be seen that the inner or rear end of the false bottom

S may be adjusted at any desired pitch or angle by turning the crank-shaft; and, further, that it may be made to project more or
 70 less into the feed-box by pulling it back or pushing it forward upon the transverse rod T, which supports its forward end and forms its fulcrum. In order to effect the latter adjustment, the forward end of the false bottom
 75 is provided with a series of apertures for the insertion of the holding peg or pin U. The rear end of this inclined false bottom S, which receives the sheaves as the same are deposited
 80 in the feed-box from the lateral feed-wings, is slotted longitudinally, as shown at X, to make room for the circular revolving cutters Y. The latter are mounted upon a shaft Z,
 85 journaled adjustably in the sides of the chute and provided with triangular teeth *g*, which operate to draw the sheaves toward the cutters and also to force the straw after the bands have been cut into the chute.

In order to regulate and equalize the feeding of the sheaves to the revolving cutters, the
 90 feed-box is provided below and parallel to its fixed sides with wings *h*, which receive the sheaves from the movable feed-wings, with a series of curved fingers *i*, the inner ends of which are fixed in rack-bars *j*, the ends of
 95 which are provided with trunnions pivoted in the fixed cross-beams G. One of these trunnions, which is pivoted in the front cross-beam G, projects through the same and is bent at right angles to form a crank, as shown
 100 at *k* in Fig. 2, to the outer end of which is attached a weight *l*. The outer end of this crank is supported upon a stud or projection *m*, which limits its downward play or motion, so that when the machine is in its normal condition the fingers *i* will project inwardly toward the middle part of the feed-box.
 105

Upon the forward cross-beam G is hinged a bar *n*, the free end of which is adapted to be moved upward in a vertical plane parallel to
 110 the longitudinal axis of the machine, and confined within a keeper *o*, limiting its upward motion as well as its lateral play. This keeper *o* is provided with a series of registering apertures on opposite sides for the
 115 insertion of a pin *p*, which supports the free end of bar *n* in its elevated position. By shifting this pin it will be seen that the free end of bar *n* may be raised or lowered within the limit of the keeper *o*. This pivoted and
 120 adjustable bar *n* is provided on its under side with rearwardly-projecting and curved fingers *i'*, the points of which, like the fingers *i*, are curved rearwardly in the direction of the revolving cutters, so as to feed the sheaves
 125 against the same. By this position of the adjustable inclined plane or bottom S, yielding finger-bars *j*, and central adjustable finger-bar *n* the sheaves of grain, as these are received into the feed-box, will arrange themselves
 130 longitudinally in the same, so as to be fed with evenness and regularity toward the revolving shaft Z and cutters Y. If a heavy sheaf of grain is received in the box, its

weight will operate to depress the yielding side fingers *i*, so as to carry it in its proper position against the revolving cutters, which sever the band, and, on the other hand, if a light sheaf is received in the box the side fingers *i* will be held in their normal position by means of weights *l* without yielding, thus conducting the sheaf properly against the cutters in such a manner as to sever the band neatly and expeditiously. After the band has been cut the fingers or deflectors *i i'* further operate to spread the straw and conduct the same against the teeth of the revolving shaft, which pull it upon the endless apron forming the bottom of the chute, said apron being provided with the usual slats or cross-bars for feeding the straw without slipping. In order to scatter the straw in a layer of even thickness upon this apron, I further employ a transversely-reciprocating shaker-bar *q*, the ends of which project through and work in apertures in the sides of the chute. This bar is provided on its under side with a series of curved and rearwardly-projecting fingers *r*, the free ends of which rest upon the straw as it passes below the bar, and the bar itself is provided with a projecting pin *s*, which by bearing against the transverse guide-rod *t* forms a combined guide and support for the reciprocating bar. A transversely-reciprocating motion is imparted to this by means of an elbow *u*, one arm of which is connected to the shaker-bar by means of a rod *v*, while the other arm of the elbow is connected by a rod *w* to the projecting end of the revolving cutter-shaft *Z*. Thus it will be seen that at the same time this shaft revolves, thereby cutting the bands and feeding the loose grain into the chute, an oscillating or reciprocating motion is imparted to the shaker-bar and its fingers transversely across the chute in such a manner as to spread and evenly distribute the loose grain upon the endless apron, which forms the bottom of the chute. The rear end of the chute, back of this reciprocating shaker-bar, consists of an extension 1, the forward end of which is hinged in a cross-head *b'* at the upper ends of the rear standard *b*. The free end of this hinged extension 1 is supported adjustably upon side braces 2, having a series of notches 3 adapted to engage headed pins or bolts 4 in the sides of the extension, so that by shifting these bolts in the various notches in the supporting-braces the rear end of the chute may be raised or lowered at will independently of the other part of the machine, so as to bring its delivery end into its proper position relative to the concave of the thrashing-machine.

The endless apron, which forms the bottom of the chute, is suspended between a roller *P* at the forward end of the machine and another roller *Q* at the rear end, the under side of the apron, which passes below the chute, passing under another roller 7, which connects the rear standards *b b*. The apron is kept taut by means of the end roller *Q*, which is

journaled in an adjustable box or bearing 8, said bearing having a central tongue or projection 9, which works through cross-bar 10, connecting the side pieces of the extension-frame 1, as will appear more clearly by reference to Fig. 3 of the drawings. A spring 11 is placed along the inner end of this tongue or extension 9, bearing with one end against the fixed cross-bar 10, and with its other end against a shoulder or offset 12 upon the tongue, so as to exercise an outward pressure upon the latter and upon the roller-bearing 8 at its outer end. Thus it will be seen that the box or bearing 8, carrying the roller *Q*, which supports the rear end of the apron, has a tendency to be forced rearwardly or outwardly, thereby always causing the canvas or endless apron in the bottom of the chute to be taut, regardless of the pitch or elevation at which the hinged extension may be adjusted.

In order to compress and compact the loose grain before the same is delivered to the concave of the thrashing-machine, I employ an upper apron 13, which is suspended over and works upon transverse rollers 14 and 15 at opposite ends of the pivoted frame 16, which has its fulcrum upon an axis 17, journaled in opposite sides of the chute-extension. The axis or fulcrum 17 being nearer to the inner end of this pivoted apron-carrying frame than to its outer end, it follows that the latter will by its own gravity bear against the rear end of the bottom apron *O*; but in order to increase this pressure, which may not at all times be found to be sufficient, I employ an adjustable spring 18, fastened on one side of the machine and connected at its upper end to a crank 19 at one end of the axis or fulcrum-bar 17. This spring operates to push against the free end of the crank, thereby tilting the latter in an upward direction, and consequently forcing the rear end of the apron-carrying frame 16 in a downward direction, so that the rear ends of the upper apron 13 and lower apron *O* will be brought toward each other with such a degree of pressure as to compact the layer of grain as the same passes out of the machine and is delivered into the concave of the thrashing-cylinder.

In some cases it will be desirable to lessen the effective force of the spring 11, which, as we have seen, exercises an outward pressure on the bottom end of the roller *Q*, or, in other words, to adjust said roller by hand and fix it at a desired point. For this purpose I provide the tongue 9, to the rear end of which the movable roller-box 8 is attached, with a lever 20, one end of which is fastened in one of the side pieces of the extension 1, while its other end projects through a slot 21 in the other side piece, said projecting end or handle of the lever being held in its adjusted position by means of a rack 22, engaging a projection on the handle. The middle part of this adjusting-lever 20 is slotted for the insertion of the tongue, which is provided with pins or projections 23, one on each side of the lever,

so that by moving the projecting end of the lever forward or back the tongue and the roller-bearing at the outer end of same may also be moved forward or back, thereby limiting and fixing the tension brought to bear on the apron O at will.

Motion is imparted to the several operated parts of the machine by a chain or belt from the separator or engine connecting one of the revolving pulleys on the latter with a pulley 24, journaled in bearings at the outer end of a lever 25, the free end of which may be raised or lowered by means of a handle-lever 26, within easy reach of the operator standing upon platform M, said handle-lever 26 being connected to the free end of lever 25 by a connecting-rod 27. The pulley 24, which receives the belt from the separator or other prime motor, has a gear-wheel 34, adapted to engage a pinion 28 upon the outer end of the shaft of the forward apron-roller P, so that by moving the handle of lever 26 in an upward direction said pinion 28 will engage or mesh with the gear-wheel 24, thereby imparting a revolving motion to the roller. The shaft Z is also provided with a pulley z , connected to a pulley on the shaft of roller P by a chain or belt, while another concentric pulley z' on the cutter-shaft Z is similarly connected to a pulley 29 at the outer end of the axis 17 by another endless belt or band. The axis or fulcrum-shaft 17, which, as we have seen, supports the pivoted frame 16, is provided with another pulley 30, concentric to and moving with the pulley 29, an endless band or belt connecting said pulley 30 with a pulley 31 at the outer end of the shaft of roller 14, around which the forward end of the upper apron 13 revolves. The several belts or endless bands connecting these pulleys and imparting a revolving motion to the same are kept taut by means of riders or idlers 32 and 33, swinging in arms or bearings which are pivoted upon the sides of the machines at suitable points.

The handle-lever 26, by which the machine is started or stopped at will, may be held in position by means of a rack, the notches of which engage a projection or catch on the lever in the well-known manner.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. The combination of the supporting frame or carriage, the chute hinged to the rear end of the same, the crossing levers playing in bifurcated standards at the forward end of the carriage, the rods connecting the outer end of said levers to the forward end of the chute, and the pins or bolts whereby said levers are held in position after adjustment, substantially as and for the purpose shown and set forth.

2. The combination of the feed-box formed by the fixed sides and movable bottom apron of the chute, the inclined and adjustable false

bottom, the crank-shaft for adjusting the elevation of the inner end of the same, the revolving shaft having teeth and circular cutters playing in slots in the inner end of the false bottom, the yielding finger-bars at opposite sides of the feed-box, provided with weights for regulating their tension or resistance, and the centrally-pivoted finger-bar adjustable vertically at its rear end, substantially as and for the purpose set forth.

3. The combination of the chute, the movable bottom apron of the same, the transversely-reciprocating shaker-bar provided with a series of curved and rearwardly-projecting fingers on its under side and having a projecting guide-pin on its upper side, the transverse guide-rods supporting said pin or projection, and means, substantially as described, for imparting a vibratory or transversely-reciprocating motion to the shaker-bar, substantially as and for the purpose set forth.

4. The combination of the feed-box constructed substantially as described, the main chute pivoted at its rear end in the supporting frame or carriage and vertically adjustable at its forward end, the hinged chute-extension, the notched side braces or supports for adjusting the pitch or angle of the same, the spring-actuated roller-box at the rear end of said adjustable extension, the roller connecting the supports which carry the pivoted rear end of the main chute, and the endless apron passing at one end over a roller underneath the feed-box and at the other end over the spring-actuated roller at the rear end of the adjustable extension, substantially as and for the purpose set forth.

5. The combination of the main chute, the pivoted and adjustable extension to the same, the endless bottom apron connecting and passing over the forward end of the main chute and the rearward end of the extension, and the upper frame pivoted substantially as shown and carrying an endless apron adapted to bear with its rear end against the rear end of the bottom apron, substantially as and for the purpose set forth.

6. The combination of the main chute, the pivoted and adjustable extension to the same, the endless bottom apron, the pivoted upper apron-frame, the endless upper apron working upon rollers in said frame and resting with its rear end upon the rear end of the bottom apron, and a spring adapted to force the rear end of the upper apron against the corresponding end of the bottom apron, substantially as and for the purpose set forth.

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

JOSEPH EAGLESTON.

Witnesses:

W. A. SMITH,
WM. MASON.