

(No Model.)

2 Sheets—Sheet 1.

C. M. TANQUARY.
FEEDER FOR THRASHING MACHINES.

No. 519,029.

Patented May 1, 1894.

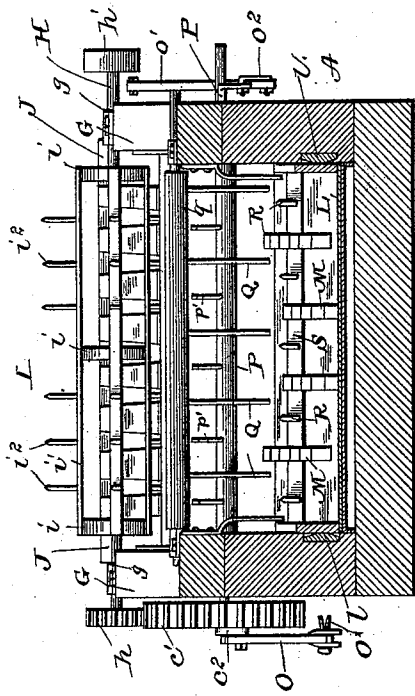
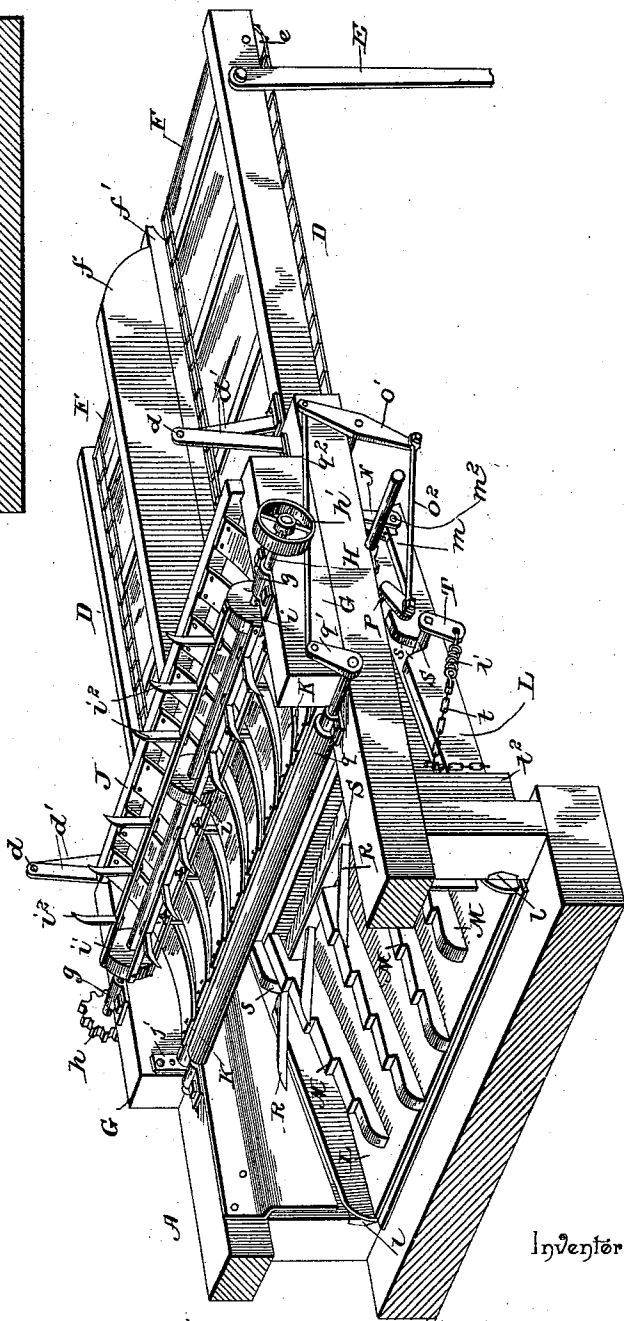


Fig. 4.

Fig. 1.



Witnesses

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Inventor

Cassius M. Tanquary
By his Attorneys.
C. Snow & Co.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

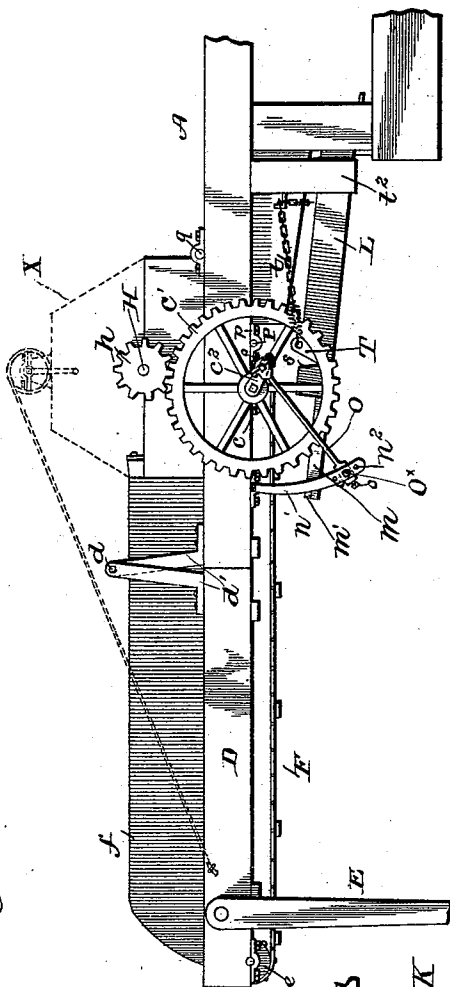


Fig. 3.

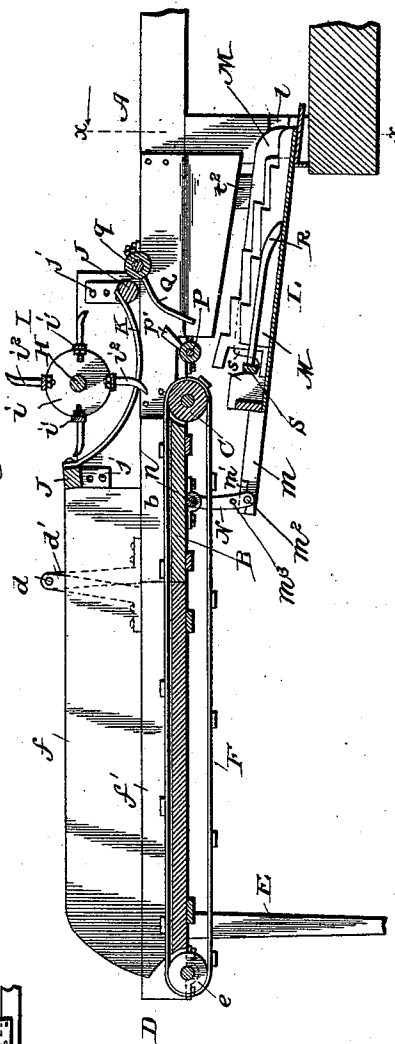
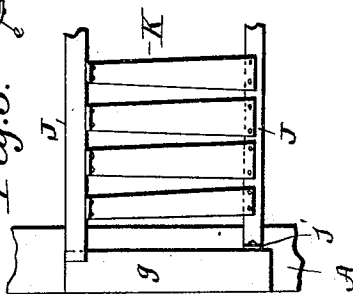


Fig. 5.



Witnesses
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By
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UNITED STATES PATENT OFFICE.

CASSIUS M. TANQUARY, OF SPARLAND, ILLINOIS, ASSIGNOR OF ONE-HALF
TO ALLISON GARRETT, OF SAME PLACE.

FEEDER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 519,029, dated May 1, 1894.

Application filed May 29, 1893. Serial No. 475,973. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS M. TANQUARY, a citizen of the United States, residing at Sparland, in the county of Marshall and State of Illinois, have invented a new and useful Feeder for Thrashing-Machines, of which the following is a specification.

This invention relates to band cutters and feeders; and it has for its object to provide an improved machine of this character adapted to be attached to an ordinary thrashing machine so as to be used as a part thereof, and to be transported from place to place therewith.

To this end the main and primary object of the present invention is to provide an improved band cutter and feeder, which will insure the effective cutting of the bands from the bundles of grain, and their even and steady distribution into the cylinder of the thrasher.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a band cutter and feeder constructed in accordance with this invention. Fig. 2 is a side elevation of the machine from the side opposite to that shown in Fig. 1. Fig. 3 is a central vertical longitudinal sectional view of the machine. Fig. 4 is a vertical transverse sectional view on the line $x-x$ of Fig. 3. Fig. 5 is a detail plan view of a portion of the machine showing more clearly the arrangement of the knife fender strips.

Referring to the accompanying drawings:—A represents the fixed feeder frame carrying at its outer end the stationary platform B, having a central dividing strip b , and arranged in front of the inner apron roller C, having its journals mounted in suitable bearings c , at opposite under sides of the fixed feeder frame, and carrying at one end thereof the cog wheel c' , provided with a crank c'' , for the purposes to be hereinafter described. The fixed feeder frame A, is adapted to be suitably secured to the cylinder end of a

thrashing machine so that the machine will feed directly into the cylinder of the thrasher, and will be moved from point to point with the same as a part thereof. Arranged at the outer ends of the fixed feeder frame A, is the outer hinged carrier frame D. The outer hinged carrier frame D, is hinged at its inner extremities to the frame A, by the hinges d , comprising the upwardly extending members d' , jointed at their upper ends and attached at their lower ends to the extremities of the meeting frames, so that the outer hinged frame D, can be thrown entirely back over the fixed frame members out of the way, when not in use. The outer hinged carrier frame D, when let down to its extended position, and supported on the pivoted legs E , attached to its outer ends, is adapted to align with the stationary feeder platform B, and carries in its outer ends the outer apron roller e , which accommodates the outer portions of the separate bundle aprons F, the other inner portions of which pass over the other inner apron roller C, and are driven thereby. The separate bundle aprons of carriers F, are of the ordinary construction and are separated from each other by the central dividing board f , attached at its inner end to a suitable point of attachment on the fixed frame, and rest at its lower edge on a central dividing strip b , and a strip f' , aligning therewith and secured centrally to the frame D. Now by reason of this construction, it will be seen that the grain can be fed in bundles to each of the aprons, and carried to the band cutting devices and auxiliary feeding devices arranged over and beyond the inner portions of said aprons, and by using one of the aprons separately, or both together, the quantity of grain fed to the thrashing machine cylinder can be easily regulated.

Arising from opposite top sides of the fixed feeder frame A, are the supplemental side bearing frames G, carrying the top bearings g , which receive the journal ends of the rotating knife shaft H. The rotating knife shaft H, carries at one end the pinion h , which meshes with the cog wheel c' , to impart motion thereto, and at its other end carries the belt or band pulley h' , which receives a belt from the thrasher, or said pulley can

be placed on the end journal of the roller C opposite the cog wheel if found expedient.

Securely attached to the revolving knife shaft H, or mounted thereon to turn therewith, is the upper knife cylinder I. The upper knife cylinder I, comprises a regularly spaced series of shaft disks i , connected by a series of knife bars i' , to which are bolted the upper band cutting knives i^2 . The upper band cutting knives i^2 , have their bolted inner ends secured in the knife bars, and are provided with outer beveled cutting edges which are adapted to be carried through the bundles of grain, and against the bands so as to effectually cut the same before the bundles are distributed into the thrashing machine cylinder.

Adjustably attached at their opposite ends to the inner side ends of the bearing frames G, are the transverse frame rods J. The transverse frame rods J, have secured to their opposite ends the attaching links j , adjustably connected to the frames G, so as to raise and lower said rods, and said rods form a supporting frame for the curved fender strips K. The curved fender strips K, completely embrace the under portion of the knife cylinder I, to prevent the grain from being wrapped therearound, and at this point it may be well to note that the top portion of the knife cylinder may be inclosed in a suitable box casing X, shown in dotted lines in the drawings, and on top of which may be arranged suitable winding devices for raising and lowering the outer hinged frame D, in and out of position, all of which will be easily understood.

Referring again to the curved fender strips K, which are arranged under the knife cylinder and directly over the inner ends of the bundle aprons, the same are regularly spaced from each other in order to permit the upper knives i^2 , to travel therebetween, and the spaces between said strips are narrowed toward the thrasher, so as to provide means for entirely freeing the band cutting knives from clinging grain, as such knives pass through the spaces between the strips and above the same. From the foregoing, it will be apparent that as the bundles of grain are carried by the aprons F, under the fender strips, the upper band cutting knives cut the bands, as the bundles of grain are directed onto the reciprocating feed pan L. The reciprocating feed pan L, is arranged to have its outer end reciprocate under the inner apron roller C, so that the grain discharged from the aprons F, will fall onto said pan, and being entirely inclosed, will, in its reciprocations, serve to direct the grain to the thrashing machine cylinder. The reciprocating feed pan L, is adapted to also have a slightly vibrating motion and the guides l , which are secured to opposite sides of the pan, hold the same to its work as it reciprocates back and forth, and such forward end of the feed pan also slides on the feed board or table of

the thrasher to secure the proper feeding of the grain thereto. The feed pan L, is imperforate and is provided with a series of parallel notched feed bars M, the outer of which are higher than the central ones, in order that the grain will be shoved toward the center of the pan to provide for feeding the grain to the center of the thrashing machine cylinder, and also to provide a construction which assists in straightening out the bundles which might drop crosswise onto the pan. The reciprocating feed pan L, has extended from its opposite outer extremity the attachment arms m , having at their outer ends the bearing boxes m' , which receive the connecting pins m^2 , adapted to engage any of the adjustment perforations m^3 , formed in the depending rock arms N, projected from the main transverse rock shaft n . The main transverse rock shaft n , is journaled in suitable bearings at opposite under sides of the fixed feeder frame A, and carries at one extremity the main crank arm n' , also provided with adjustment perforations n^2 , to adjustably receive one end of the pitman O, the other end of which is loosely connected with the crank c^2 of the cog wheel c' , so that motion will be communicated to the main rock shaft simultaneous with the movement of the upper band cutting cylinder and the bundle carriers or aprons. The pitman O, is provided with the jam-nut boxes o , at each end, so that the wear on the connections can be easily taken up to provide for an easy running of the machine.

The main transverse rock shaft n , carries at its end opposite to its crank arm the double rock or cross arm o' , to the lower end of which is loosely attached the connecting rod o^2 , which is itself connected with the crank end of the lower rock knife shaft P. The rock knife shaft P, is journaled in suitable bearings p , at opposite under sides of the frame A, in very close proximity to the inner apron roller C, and carries a transverse series of beveled under-cutting knives p' , which serve to cut the bands of the bundles from their under sides or beneath so as to insure the cutting thereof in case the upper cutting knives fail to do their work. The knife shaft P, serves another important function in that, on account of its rocking motion it acts in the capacity of a concave for the upper knife cylinder which works thereover, and together with such upper knife cylinder insures the effective cutting of the bands, and is particularly important in case two bundles, one on top of the other, were carried between the upper and lower cutting knives. In such case the upper knives will cut the bands of the upper bundle and the lower knives those of the lower bundle. After the cut bundles pass between the band cutting knives, the same drop onto the feed pan L, so as to be shoved by the same into the thrashing machine cylinder, but in order to provide for the proper feed and distribution of the grain into the thrasher so as not to choke the same, I employ a series of

swinging check fingers Q, secured at their upper ends to the check feed shaft q. The check feed shaft q, is journaled transversely of the frame A, on top of the same and carries at one end the crank q', to which is pivotally connected one end of the connecting rod q², the other end of which is attached to one extremity of the double rock or cross arm o', so that the check feed device will be operated simultaneously with the outer working parts of the machine. By reference to the drawings it will be seen that the swinging check fingers work from a point in very close proximity to the undercutting band knives, to a point directly over the reciprocating feed pan so as to form a check for a certain quantity of the grain, which has been fed onto the same from the bundle aprons. As the feed pan L, moves forward to feed into the thrashing machine cylinder, the check feed fingers move or strike down so as to hold a certain quantity of the grain onto the feed pan, and thereby prevent the latter from feeding two or more bundles into the thrashing machine at once and thereby choking it. This result is therefore avoided by means of this check feed device, and on the return or backward movement of the reciprocating feed pan, the check feed fingers rise from the grain they have held, so that such checked or retained grain can be kicked into the thrasher by the kicker knife arms R. The kicker knife arms R, are turned up and beveled at one end to form cutting edges which are adapted to be driven into the grain or bundles, so as to serve to shake out and distribute the grain evenly into the thrasher. The kicker knife arms R, are carried on the transverse kicker shaft S, journaled at its opposite ends in the bearing notches s, formed in opposite sides of the feed pan, and carrying at their extremities outside of the feed pan the rock arms T, to which are attached one end of the stationary chains t, which carry the spring t', and adjustably attached to the posts t², depending from the fixed feeder frame, so as to regulate the swing or kick of the kicker knife arms. The stationary chains t, are so adjusted that on the forward movement of the feed pan, to feed a portion of the grain into the thrashing machine cylinder, the kicker knife arms will rest flat on the bottom of the feed pan, but as the pan moves backward and the check feed device lifts itself above the pan, the kicker shaft S, is carried back with the pan and is thereby caused to rock or oscillate so as to quickly throw up its knife arms, and feed certain portions of the grain into the thrasher as already described. This construction secures a positive feed to the thrasher cylinder on both the forward and backward movements of the feed pan, thereby greatly increasing the capacity of the feeder. At this point further attention is directed to the importance of the transverse rock shaft n, and its removable connection with the pitman O. It will be obvious that by reason of the employment of this rock shaft,

motion is readily communicated to all the working parts of the machine beyond the upper knives, thereby securing a number of lever connections which greatly reduce the friction of the machine while running. The adjustment perforations n², in the main crank arm of said rock shaft, are adapted to receive the removable key pin O^x, which provides a convenient attachment whereby the pitman O, can be readily disconnected from the said rock shaft. This is an important feature of the present machine, inasmuch as by simply pulling out the key pin O^x, the pitman is disconnected, so that by pulling back on the main rock arm of said rock shaft, the feed pan L, is withdrawn from its guides, thereby permitting it to drop down out of the way, giving the operator a free and easy access to the thrashing machine cylinder in order to repair or inspect the same. The disconnected parts can be readily connected together in a short time, and it will of course be obvious that the chains t, are disconnected from their supports when lowering the feed pan out of the way.

It will of course be understood that suitable devices may be connected with the machine to throw the same in and out of gear, and any changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a band cutter and feeder, the combination with the feeder frame; of the separate bundle carriers arranged within the frame, a reciprocating feed pan arranged in the frame beyond the bundle carriers, an upper rotary band cutting knife located intermediate of the bundle carriers and said pan, and a lower oscillating band cutting device arranged below the upper rotary knife and adjacent to the inner ends of the bundle carriers, substantially as set forth.

2. In a band cutter and feeder, the combination with the feeder frame and the carrier devices therein; of a vertically adjustable fender frame mounted within the feeder frame, and having a parallel series of spaced curved fender strips, and a rotary knife cylinder journaled on the feeder frame in the space above the curved strips of the fender frame and carrying a series of band cutting knives working in the spaces between said strips thereunder, substantially as set forth.

3. In a band cutter and feeder, the combination of separate parallel bundle carriers, a reciprocating feed pan arranged under the delivering ends of said carriers, upper and lower band cutting knives intermediate of the pan and said carriers, a check feed device beyond the knives, and an auxiliary kicker feed mounted in said pan, substantially as set forth.

4. In a band cutter and feeder, the combination with the fixed feeder frame, and the outer hinged frame; of the endless bundle carriers, side bearing frames arising from opposite top sides of the fixed frame, a curved fender frame adjustably arranged between the bearing frames and having a parallel series of spaced fender strips, and the rotating knife cylinder journaled on said side bearing frames over the fender frame and carrying a series of band cutting knives working in the spaces between said strips, substantially as set forth.

5. In a band cutter and feeder, the combination with the feeder frame and the bundle carriers; of the vertically adjustable fender frame arranged over the delivering end of the bundle carriers and having a parallel series of curved fender strips separated from each other to form receding spaces, a rotating knife shaft journaled on top of the feeder frame above the fender frame, the knife cylinder comprising a regularly spaced series of shaft disks mounted on the knife shaft and a series of knife bars connecting said disks, and band cutting knives attached to said knife bars and working in the spaces between said fender strips, substantially as set forth.

6. In a band cutter and feeder, the combination with the bundle apron; of the upper rotating band cutter arranged above the delivering end of said apron, and a lower oscillating or rock knife shaft arranged in a line with said apron and carrying a series of under-cutting knives, substantially as set forth.

7. In a band cutter and feeder, the combination with the bundle carrier; of an oscillating or rock knife shaft arranged in a line with the delivering end of said carrier and having a series of under-cutting knives, substantially as set forth.

8. In a band cutter and feeder, the frame, the bundle carrier, a reciprocating feed pan arranged under the delivering end of said carrier and provided with a series of notched feed bars the outer of which are higher than the central ones, the band cutting knives, and swinging check feed device arranged beyond the band cutting knives, and an auxiliary kicker feed mounted in said pan, substantially as set forth.

9. In a band cutter and feeder, the combination with the frame, the bundle carrier and the band cutting devices; of a reciprocating feed pan arranged under the delivering end of the bundle carrier and provided with bearing notches in its opposite sides, a check feed shaft mounted to rock on top of said frame

and carrying a series of swinging check fingers, and a transverse kicker shaft mounted to rock in the bearings of said feeder pan and carrying a series of kicker knife arms adapted to work flat onto and above the pan, substantially as set forth.

10. In a band cutter and feeder, the combination with the frame, the bundle carrier and the band cutting devices; of a reciprocating feed pan arranged under the delivering end of the bundle carrier and working beyond the same and provided with rearwardly extended attachment arms and bearing notches in its sides, notched feed bars secured in said pan, a swinging check feed device mounted on the frame above said feed pan, a transverse kicker shaft mounted to rock in the bearings of said feeder and carrying a series of kicker knife arms, and rock arms at its extremities, stationary spring chains attached at one end to the rock arms of said kicker shaft and adjustably at their other ends to suitable points of attachment, and the main transverse rock shaft connected with the band cutting devices, the attachment arms of the feed pan, and said check devices, to insure simultaneous movement, substantially as set forth.

11. In a band cutter and feeder, the combination with the frame, the apron rollers journaled in said frame, one of which carries at one end a cog wheel provided with a crank, the band cutter having a pinion meshing with said cog wheel and a drive pulley, a reciprocating feed pan having rearwardly extended attachment arms, a lower knife shaft having a crank arm at one end, a check feed shaft having a similar crank arm at one end, the main transverse rock shaft journaled under the feeder frame and having an operating crank arm at one end, and depending rock arms adjustably connected with the attachment arms of the feed pan, a pitman adjustably connected to the crank of said cog wheel and removably to the operating crank arm of the main rock shaft, a double crank or cross arm attached to one end of the main rock shaft, and connecting rods attached to the extremities of said double rock shaft and to the crank arms of the lower knife shaft and said check feed shaft respectively, substantially as set forth.

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

CASSIUS M. TANQUARY.

Witnesses:

FRANK KEHLENBACH,
GEORGE SIMPSON.