(No Model.) 3 Sheets—Sheet 1.

R. L. DENNISON.

SELF FEEDER FOR THRASHING MACHINES.

No. 517,845. Patented Apr. 10, 1894.

Fig. 1.

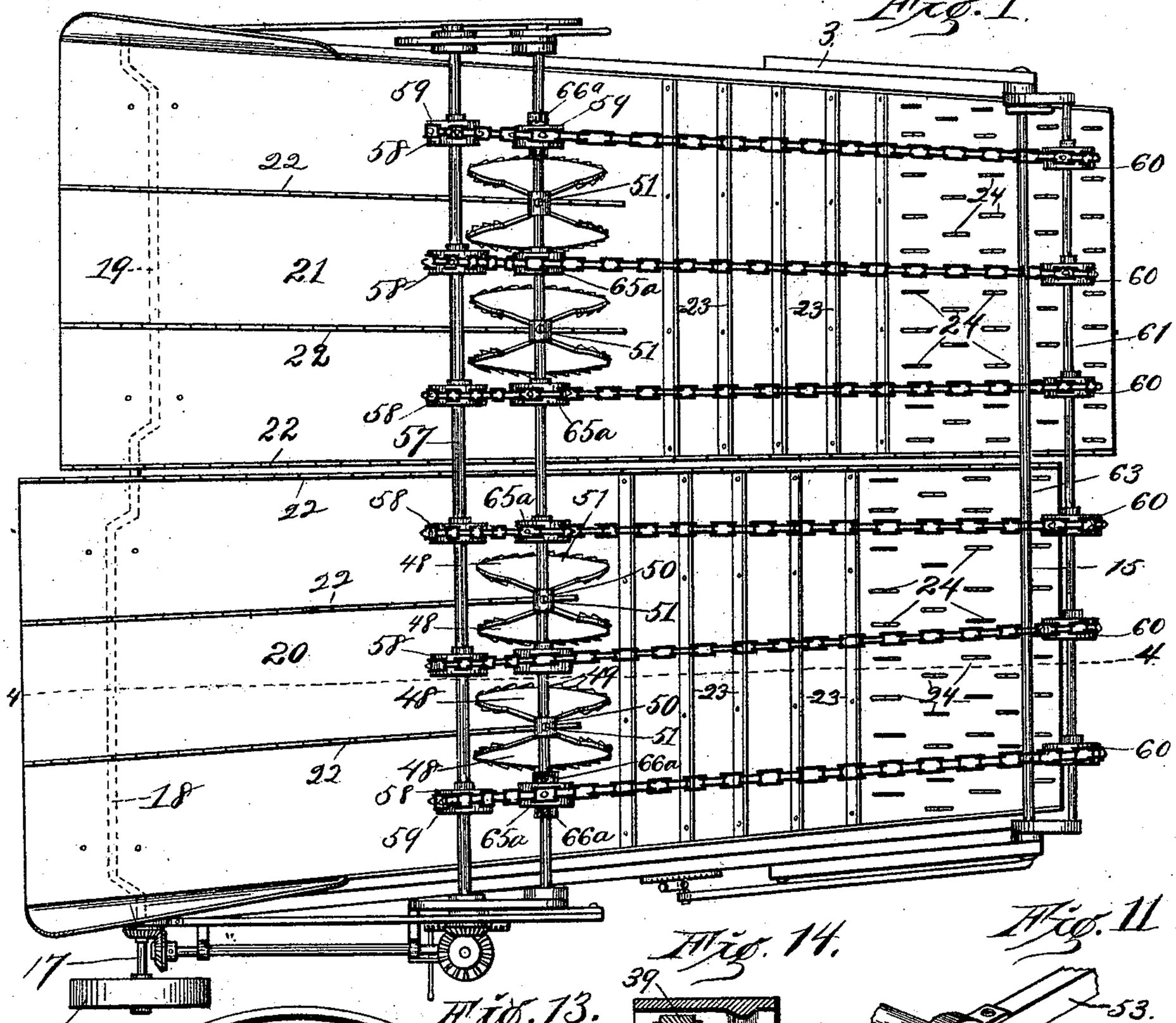


Fig. 13.

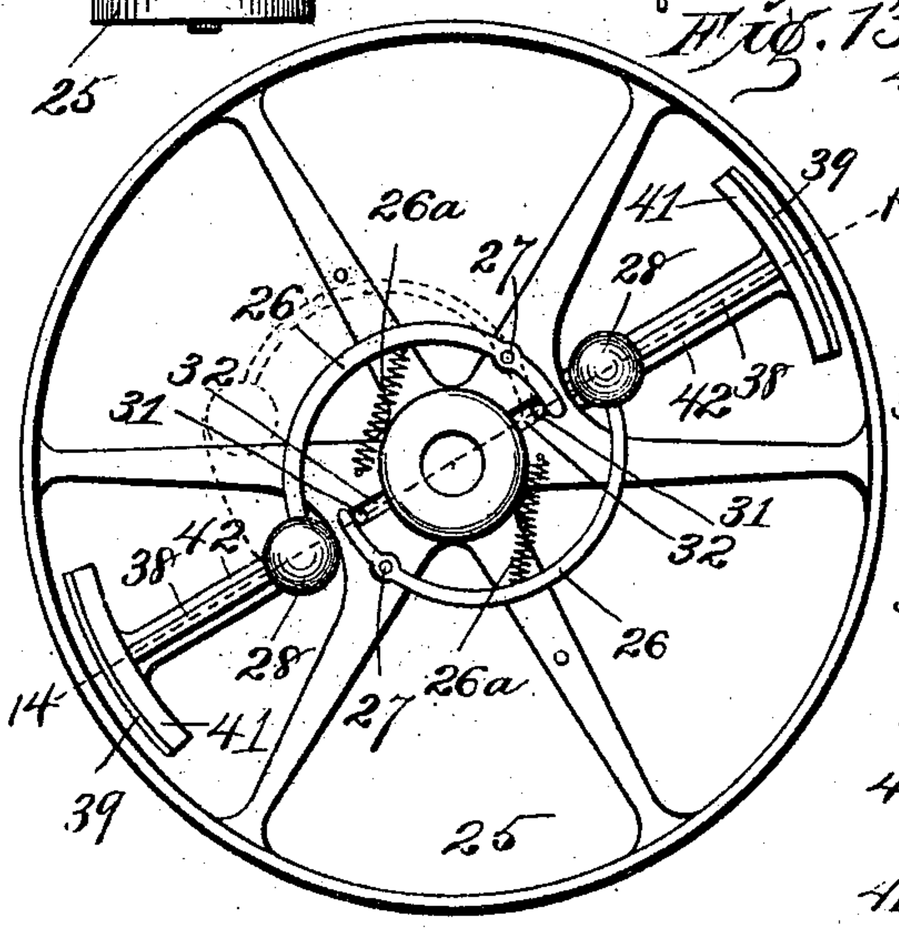


Fig. 14.

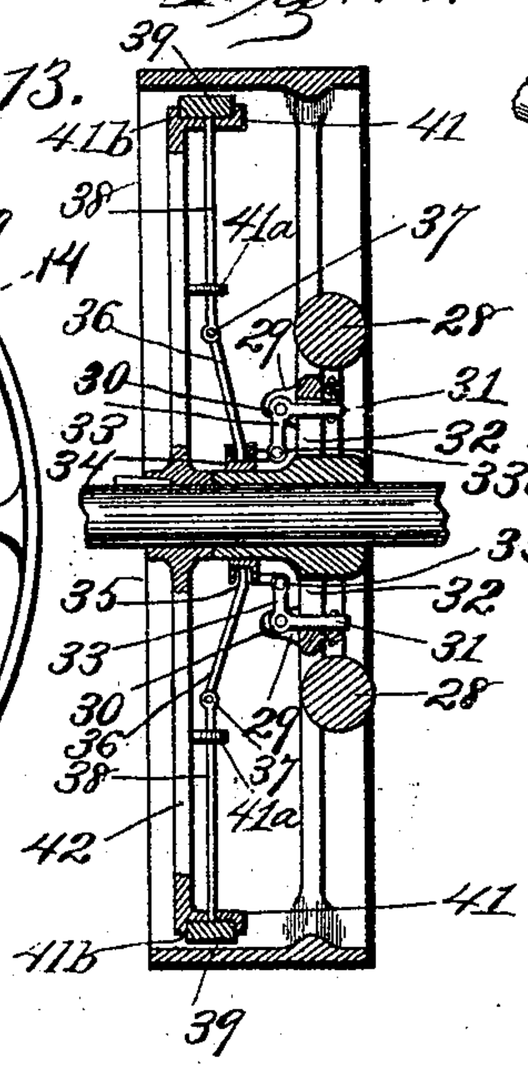


Fig. 11.

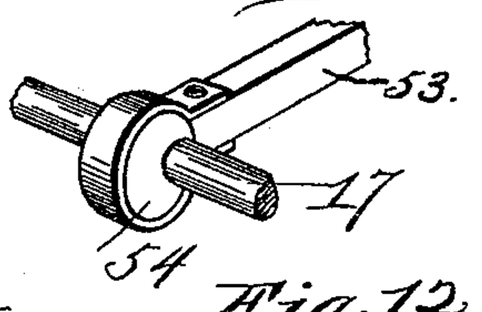
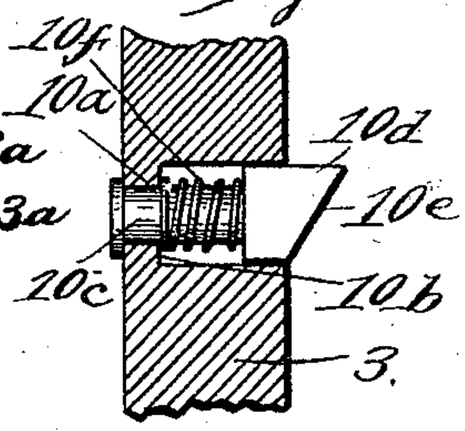


Fig. 12.



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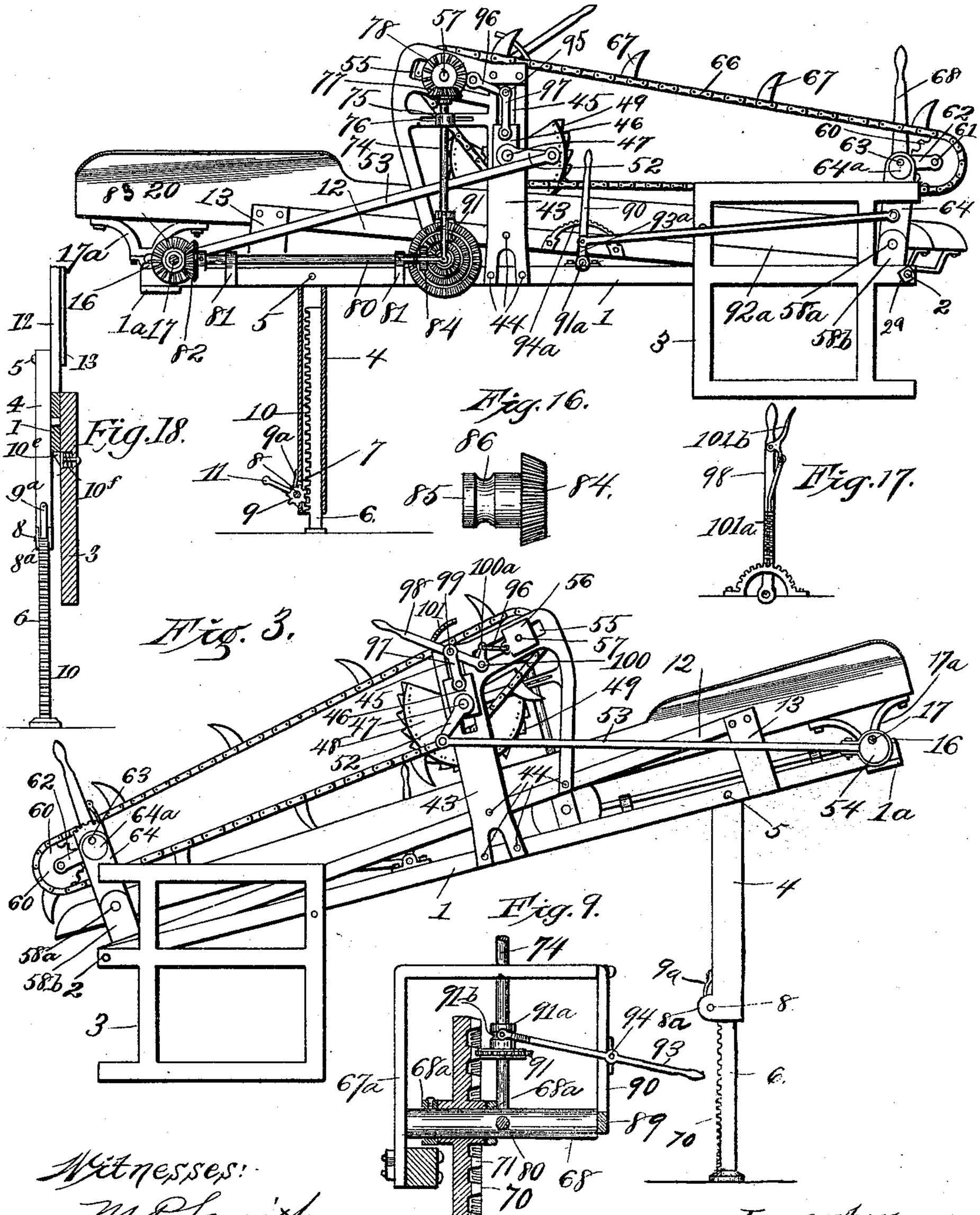
(No Model.) 3 Sheets—Sheet 2.

R. L. DENNISON.

SELF FEEDER FOR THRASHING MACHINES.

No. 517,845. Patented Apr. 10, 1894.

Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

R. L. DENNISON.

SELF FEEDER FOR THRASHING MACHINES.

No. 517,845. Patented Apr. 10, 1894.

Fig. 4.

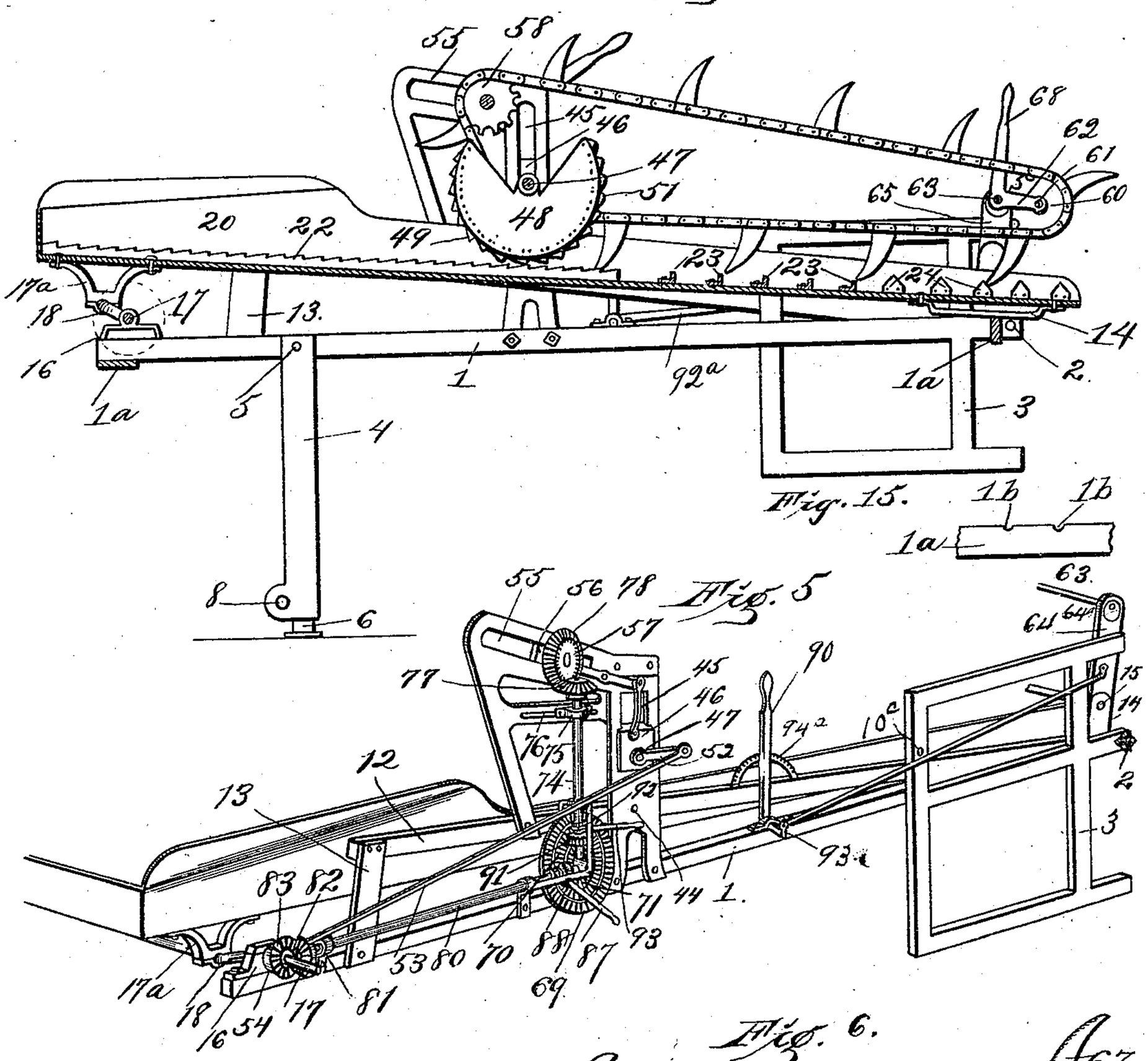


Fig. 5

Fig. 6.

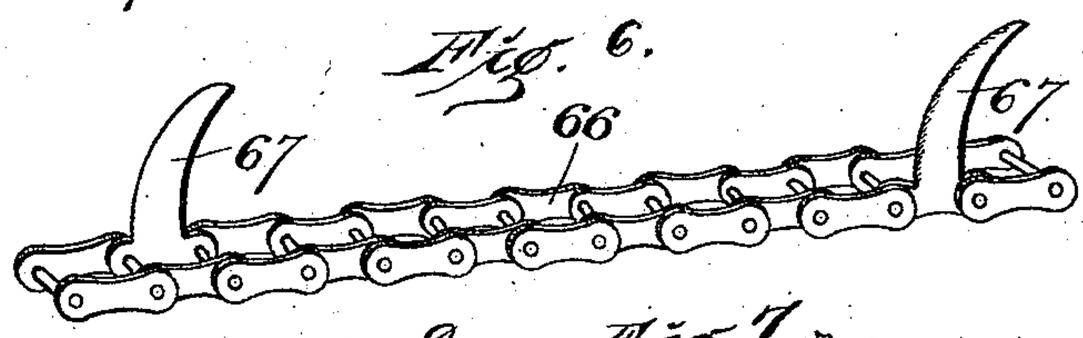


Fig. 10

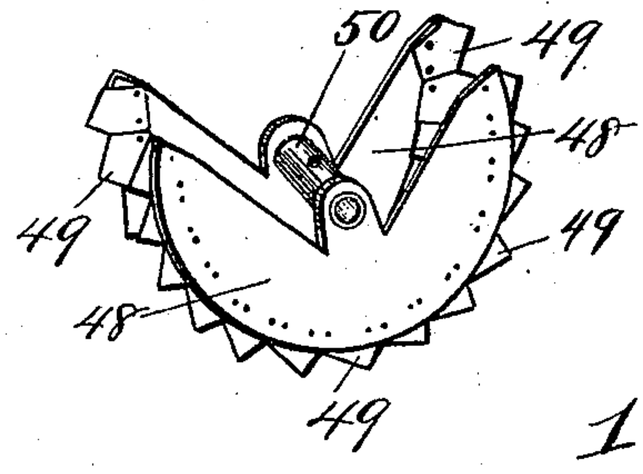


Fig. 8.

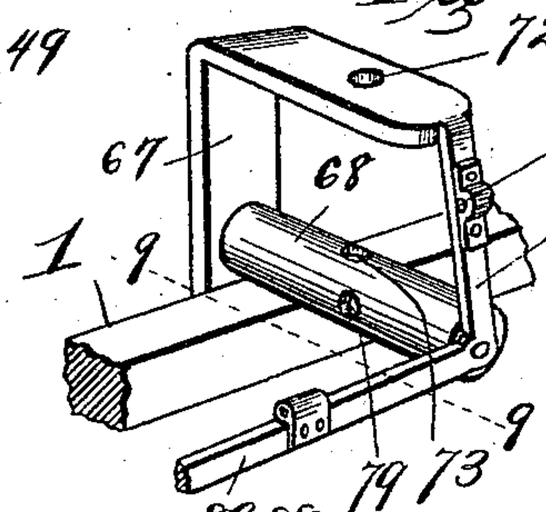
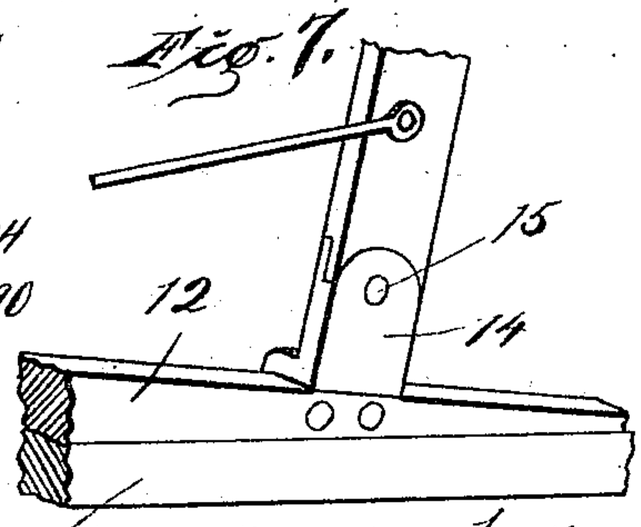


Fig. 7.



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UNITED STATES PATENT OFFICE.

ROBERT L. DENNISON, OF KANSAS CITY, MISSOURI.

SELF-FEEDER FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 517,845, dated April 10, 1894.

Application filed April 14, 1893. Serial No. 470,271. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. DENNISON, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Self-Feeders for Thrashing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in self-feeders for thrashing machines; and the objects of my invention are to provide a self-feeder, having a top and bottom feed, and consisting of a number of reciprocating pans or tables to form the bottom feed and a number of traveling chains to form the top-feed, and top and bottom band cutters; means to regulate the quantity of feed by raising or lowering the top feed and also to pivotally elevate or lower the self-feeder, and to adjust the feed-chains so as to always maintain the same relative distance between the said feed-chains and the cylinder of the thrasher; further to improve the construction of governor belt-pulleys which will begin to actuate the feed-pans or tables before the desired speed of the cylinder is attained, and will reciprocate the feed pans or tables at a slower rate when the speed of the cylinder diminishes and to provide mechanism whereby the speed of travel of the feed chains may be increased or diminished; and furthermore to provide a self-feeder which is direct and positive in action and which is strong and durable of construction.

To the above purposes, my invention consists in certain peculiar and novel features of construction and arrangement, as will be fully described and claimed hereinafter.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1, is a top plan view of a self-feeder constructed in accordance with my invention. Fig. 2, is a side elevation of the same, and in its normal or lowered position, and showing one of the supporting legs in section. Fig. 3, is a view of the opposite side of the self-feeder from that shown in Fig. 2, and showing the self-feeder in its elevated position. Fig. 4, is a vertical longitudinal section, taken on the line 4—4 of Fig. 1. Fig. 5, is a perspective view of one side of the self-feeder, to more clearly disclose the construction of the speed-changing mechanism for the feed-chains. Fig. 6, is a detail perspective view of a portion of one of the feed-chains, and showing also the formation of the feed-arms carried thereby. Fig. 7, is a perspective view of a portion of the frame-work, and showing the pivotal connection therewith of the arms carrying the front end of the feed-chain mechanism. Fig. 8, is a detail perspective view showing the casting or bracket to support the differential speed gearing. Fig. 9, is a vertical section, taken on the line 9—9 of Fig. 8, and also showing the three-face or multiple gear, and the pinion adapted to engage one or the other sets of teeth on said gear-wheel. Fig. 10, is a detail perspective view of one of the band-cutters. Fig. 11, is a detail perspective view of a portion of the crank-shaft at the front end of the self-feeder, and showing one of the eccentrics carried thereon to operate the band-cutters. Fig. 12, is a sectional view, showing the spring-actuated catch for assisting in supporting the weight of the self-feeder when in its elevated position. Fig. 13, is a face view of the belt wheel carried by the crank-shaft, and the appliances by which the belt-wheel is thrown into gear with the said shaft. Fig. 14, is a vertical sectional view, taken on the line 14—14 of Fig. 13, and showing a portion of the shaft there-through. Fig. 15, is a detached view of a portion of the rear end-bar of the rectangular framework. Fig. 16, is a detached view of one of the slidable pinions of the differential gear mechanism. Fig. 17, is a detached view in elevation, of one of the levers and its locking mechanism, by which the boxes carrying the band-cutting shaft and the upper-most feed mechanism shaft are adjusted. Fig. 18, is a vertical section of a portion of the machine in order to show the spring-actuated bolts in operative position to assist in supporting the pivotal frame.

Referring to the drawings, a rectangular framework is composed of the longitudinal and parallel side rails or bars 1, and the transversely extending and parallel bars 1^a connecting the front and rear ends of the side rails or bars 1, the rear end rail 1^a being pref-

erably provided with a series of notches or recesses in its upper edge at 1^b; the object of which will be hereinafter referred to. The ends of the side rails or bars 1, are pivoted upon the transversely aligned bolts 2, which pass through the end of a vertically supported and rectangular frame 3, and are engaged by retaining nuts 2^a. These rectangular frames 3, are adapted to be supported in any suitable manner at the front end of a thrashing machine (not shown) so that the pivotal point of the side rails or bars will be in a lower horizontal plane than the under side of the cylinder (also not shown) of the thrashing-machine, and a suitable distance forward thereof.

In order to make the self-feeder vertically adjustable to accommodate itself to the heights of stack, I provide a pair of telescopic legs, each consisting of a sleeve 4 rectangular in cross-section, which is pivoted at its upper end at 5 to the inner side of one of the rails or bars 1, and near the front end thereof. Fitting within said sleeves are the rectangular rack bars 6 and mounted upon the transverse and horizontal shaft 8, supported in bearings 8^a, formed at the lower end of the sleeves 4, are the gear-pinions 9, which projecting through the openings 7 in the front side of the sleeves 4 mesh with the teeth 10 of the rack-bars 6. It will thus be seen that by operating the crank-handle 11 secured rigidly upon one end of the shaft 8, the pinions 9 are caused to travel upward upon the rack-bars 6, until the self-feeder frame is raised to the desired height; the pawl 9^a, pivotally carried upon the sleeve 4 is then thrown into engagement with the pinion 9, and preventing it from further movement, locks and sustains the said frame at the desired elevation.

To form an additional support for the feeder, when in its elevated position, openings 10^a are formed through each frame 3 near its upper end, and are enlarged at their inner ends to form shoulders 10^b. A headed pin 10^c is fitted through each openings 10^a, and a bolt 10^d is secured upon its inner end, said bolt being beveled at 10^e upon its under side. A spiral spring 10^f surrounds each pin 10^c and bears at its opposite ends against the shoulder 10^b and the adjacent end of the bolt; the tendency of said springs being to force the bolts inward, and the heads of the pins 10^c against the outer sides of the frames 3. Now as the feeder is elevated, the upper side of the rails 12 come in contact with the beveled under side of the bolts 10^d, and forcing them outward, compress the springs 10^f. Immediately the rails 12 and 1 have passed said bolts, the pressure of the springs return them to their original position, and the under side of the rails 1 are adapted to rest thereon.

To form a support for mechanism hereinafter described, I provide a pair of longitudinally extending and inclined bars 12, each supported at its rear end upon the upper side of the corresponding side rail 1, and at its forward end secured to the upper end of the standard 13, mounted upon the side rail near its forward end.

Revolubly mounted in bearings 16 upon the front end, and extending transversely of the frame-work formed by the side rails 1 and the end rails 1^a, is a shaft 17; said shaft being formed with the oppositely disposed cranks 18 and 19. The similar feed-pans or tables 20 and 21 of approximately oblong rectangular form, are provided with the depending brackets 17^a, to form bearings for the crank-sections 18 and 19 of the shaft 17. Secured longitudinally to the under side of the feed-pans or tables 20 and 21 near their rear ends, are a number of engaging brackets 14; these brackets are adapted to slide in the recesses or notches 1^b of the rear end rail 1^a.

The feed-pans or tables are of peculiar construction, being formed with a series of ratchet toothed bars 22, which extend longitudinally of and from the front end of said feed-pans or tables about half way of their length. A series of spreader strips 23 are also secured transversely of each feed pan or table, and in rear of these cross-strips 23, the remainder of the bottom of the feed-pans are occupied by a number of longitudinally arranged and vertically secured sickle-teeth 24; these sickle-teeth 24 forming the bottom band-cutter, as hereinafter explained.

I have provided an improved friction-clutch governor to regulate the quantity of feed, and the speed of travel by which it passes to the cylinder.

Referring now to the construction: The feed governor belt pulley 25 is mounted loosely upon the projected end of the crank shaft 17 and is connected by a belt (not shown) to the cylinder pulley (also not shown); and is designed to actuate the feed pans or tables as hereinafter more fully explained in the operation of the device. A cross bar 42 is formed with a hub which is mounted upon and keyed to revolve with the shaft 17; said cross bar being located inward of the belt wheel, and formed with outwardly projecting arms 41 at its outer ends, and closely adjacent to the inner side of the rim of said governor belt wheel. The wheel 25 is formed with oppositely disposed and short radial slots 32 and curved levers 26 are pivoted at 27 so that their short ends will project slightly beyond and across the slots 32. These curved levers are approximately semicircular in form and are provided with a weight or enlargement 28 at their outer ends, and retraction-springs 26^a are secured to the inner edge of said levers about midway their length, and are also secured at their opposite or inner ends to the governor belt-wheel; the tendency of the springs 26^a being to hold the weighted end of the levers 26 adjacent to the hub of the wheel, and so that the shorter or inner ends of said levers shall be located at the outer end of the slots 32. On its inner side the belt wheel is formed with the parallel ears or lugs 29, one on each side of and at

the outer ends of the slots 32 and between these ears or lugs 29 are pivoted the bell crank levers 30 in such a manner that the horizontal arms 31 thereof in their normal position project through the outer ends of the slots 32, and the arms 33 extend radially inward and are pivotally connected at 33ª to lugs projecting outwardly from the annular sleeve or collar 34; this sleeve or collar being mounted to slide upon the hub of the belt wheel. Extending radially through the arms 41 and the guide arms 41ª of the cross bar 42, are rods 38 the outer ends of which carry a brake or friction shoe 39, resting when the wheel is in its normal and stationary position, and until it has attained a certain speed of revolution, in the guide grooves 41ᵇ in the outer ends of said arms. The inner ends of the rods 38 are pivotally connected at 37 to the link rods 36, the inner ends of these rods 36 engaging the annular groove 35 of the sliding sleeve or collar 34 mounted upon the hub of the governor belt wheel. It will thus be seen that the retraction springs 26ª will hold the weighted levers in the position shown in Fig. 13 until a certain speed has been attained; when the speed has been attained the momentum will tend to throw the weighted levers pivotally outward causing the inner or short ends thereof, to move inward and operate the bell crank levers 30 which slide the grooved collar or sleeve 34 inward upon the hub and cause the pivotal link-bars 36 to move the brake shoes 39 into frictional contact with the inner side of the governor belt wheel 25; and the cross bar 42 being keyed rigidly upon the shaft 17 causes said shaft to revolve slowly, because the pressure of the shoes 39 upon the inner side of the belt-wheel is only slight. As the speed of the belt-wheel increases the increased centrifugal force is exerted to apply the friction shoes 39 more firmly against the belt-wheel and the speed of the crank-shaft increases in a corresponding ratio. Should the cylinder fall below its proper speed from any cause whatever, the centrifugal force being diminished, the pressure of the friction shoes upon the wheel is relaxed and they slip or slide upon the wheel, therefore allowing the said wheel to rotate at a greater speed than the crank-shaft. Should the speed of the governor or belt-wheel diminish sufficiently the springs 26ª overcoming the centrifugal force, will contract and pull or move the weighted levers inward toward the hub and allow the belt-wheel to revolve loosely upon the crank-shaft.

It will be understood from the above that as the pressure of the friction shoes against the wheel increase or diminish, the speed of the crank-shaft increases or diminishes gradually also.

To form a support for mechanism hereinafter described, I provide at opposite sides of the feeder the skeleton supporting brackets 43, these brackets being formed with depending legs or standards which are secured by bolts 44 or other suitable means, to the supporting rails or bars 1 and 12. The rear portions of these brackets are formed near their upper ends with the perpendicularly extending slots 45 and extending transversely and horizontally of the self-feeder and journaled at its opposite ends in bearings 46 adapted to slide in the slots 45 is a rock shaft 47. A series of segmental band cutters are formed of the downward divergent plates 48 having teeth 49 on their lower edges; these plates being connected at their upper end by a short hub or sleeve 50. A series of these circular band cutters are secured by set screws 51 rigidly upon the rock shaft 47, in such manner that the divergent plates 48 shall be on opposite sides of and above one of the longitudinal feeder bars 22 of the pans 20 and 21. Secured upon the outer ends of the rock-shaft 47 are the rock arms 52 which are pivotally connected through the medium of the rod 53 with the similarly disposed eccentrics 54, upon the opposite ends of the crank shaft 17 and adjacent to the bearings 16 upon the side rails 1 of the framework. It will thus be seen that the revolution of the crank-shaft causes the eccentrics 54 to actuate or rock the upper band cutters 48. Formed in the upper portion of the skeleton brackets 43 are the similar and oppositely disposed slots 55; these slots extend from a point adjacent to the upper ends of the slots 45 upwardly and forwardly for a suitable distance, and extending transversely of the feeder and revolubly mounted near its opposite ends in the bearings 56 adapted to slide in the slots 55, is a shaft 57, and rigidly mounted upon said shaft are a series of sprocket wheels 58. Pivotally secured at 58ª to the upwardly extending and similar brackets 58ᵇ of the supporting frame-work are the lower ends of the similar and oppositely disposed standards 64, and extending transversely of and above the rear end of the feed pans or tables, is a rod 63 the opposite ends of which are secured in the similar eccentrics 64ª, which are revolubly mounted in circular openings in the pivotal standards 64 and adjacent to the inner sides of the standards 64 are the rock-arms 62 carried by and extending outwardly from the rod 63 and revolubly journaled near its opposite ends in the outer ends of said rock-arms 62 is a shaft 61, carrying a series of sprocket wheels 60 rigidly mounted thereon, which sprocket wheels are connected through the medium of endless feed-chains 66 with the sprocket wheels 58. These sprocket feed chains 66 are also guided under and engage the guide sprocket wheel 65ª, mounted loosely upon the rock shaft 47, and retained in position by collars or sleeves 66ª secured by set screws upon said shaft. These guide chains are provided with a number of feeder-arms or hooks 67, the peculiar formation of which allows them to engage into the grain and hold it back from the cylinder which would otherwise (especially in damp weather) pull the grain forward in slugs; and also the curved formation

of said hooks, allows them to be freely disengaged from the grain at the proper time. Now, should the grain be damp or from other cause it be necessary or desirable to lessen the distance between the bottom-feed and the top-feed mechanism, the operator by means of the eccentric adjustment can lower the top-feed mechanism at that point, for a slight distance only, but sufficient, without changing or appreciably changing the tension of the chains. To accomplish this, the operator moves the lever 68 outward, or toward the thrasher cylinder, and the eccentrics rotating in the pivotal standards 64, the shaft carrying the discharge end of the said mechanism, moves downward so that the feeder-arms 67, will pass entirely or nearly through the volume of straw or grain passing to the cylinder, so that it cannot be drawn forward in slugs by the cylinder. To more clearly understand this operation, reference is to be had to Figs. 2, 3 and 4, where it will be noticed that the normal position of the rod 63, is vertically above the center of the eccentrics 64^a, or approximately so. Now, by operating the lever 68, outwardly, the eccentrics 64^a, are rotated and carry the rod 63, in a line concentric with the axis of the shaft 57, for a slight distance. If necessary or desirable that a new chain be substituted for one already in place, by continuing the operation of the lever in the direction indicated, or by reversing the direction of operation, the rod 63, is moved out of said concentric line and nearer to the shaft 57, thereby slackening the chains so that the desired chain may easily be removed. The manner of arranging the front ends of the chains 66, so that they shall extend downwardly and rearwardly under the guide sprocket wheel 65^a, obviates the necessity of the usual bump-board, to prevent the grain being carried by the wind or otherwise above the feed mechanism. When the front end of the feed chain and band cutting mechanism is set, being vertically adjustable, it controls the quantity of feed between the table and the band.

I will now proceed to describe the speed adjustment mechanism for the feed chains. Secured to extend perpendicularly from one of the side rails 1 of the frame work, is a rectangular bracket 67^a, said bracket being formed with an outwardly extending and horizontal stub-axle 68′, and mounted to revolve loosely upon said stub-axle and between the sleeves or collars 68^a, is a multiple gear wheel; said wheel being formed with three circular series of teeth upon its outer face, and concentric to the axis of said wheel. The bridge or horizontal portion of the bracket 67^a is provided with a vertical aperture or passage 72 which forms a guide bearing for the vertical shaft 74, said shaft being journaled at its lower end in a socket or recess 73 near the outer end of the stub-axle 68′, and journaled near its upper end in a bearing 75, adapted to have a slight sliding movement in the horizontal slot 76; and a bevel pinion 77 is rigidly mounted upon the upper end thereof and meshes continually with the bevel pinion 78 upon the projecting end of the shaft 57. Extending longitudinally of the outer side of the rectangular frame work is a shaft 80, the rear end of which is journaled in a socket 79 in the stub axle 68′ of the bracket 67^a. Said shaft is also supported in bearings 81, secured to the side rail 1 of the supporting frame-work and keyed or otherwise rigidly secured upon its outer or forward end is the bevel pinion 82, meshing continually with the bevel pinion 83 mounted upon the projecting end of the shaft 17 and adjacent to the outer side of the eccentric 54. To change the speed of the travel of the feed chains 66, a pinion 84 is mounted to slide upon and revolve with the shaft 80, and is formed with a collar or hub 85 provided with an annular groove 86; a lever 87 is pivoted at 88 to the horizontal arm 89 of an L-shaped bracket secured at its opposite ends to the adjacent bearing 81 of the shaft 80, and to the outer end of the horizontal arm or bridge of the bracket 67^a, and also to the outer end of the stub axle 68′. This lever 87 is formed with a bifurcated or forked inner end engaging the groove 86 of the hub of the sliding pinion 84, which is adapted by the operation of the lever 87, to be thrown at will, into engagement with one or the other of the circular series of teeth 69, 70 or 71 of the multiple gear mounted upon the stub axle 68′. A sliding pinion 91 is also mounted upon the shaft 74 and is also formed with a hub 91^a; this hub being formed with a groove 91^b, engaged by the bifurcated or forked inner end of the lever 93 pivoted at 94 to the vertical arm 90 of the L-shaped bracket secured to the bracket 67^a and bearing 81. It will thus be seen that the feed chains are caused to travel, from the action of the shaft 17, and through the medium of the gearing described and that, by the operation of either or both of the levers 87 and 93 the speed of travel of the said chains may be increased or diminished at the will of the operator. It being desirable when the feed is to be taken from a high stack that the outer or front end of the feed pans or tables be elevated as hereinbefore described, it is also necessary to provide means for adjusting the feed-chains so as to maintain the same relative distance between the feed hooks or arms thereof and the cylinder of the thrashing machine. To this end, a lever 90 is rigidly mounted or fixed upon one end of a shaft 91^a which extends transversely of and is journaled in bearings upon the rails 1 of the machine. A pair of link bars or rods 92^a are pivoted at their opposite ends to a rock arm 93^a extending upwardly from the shaft 91^a near each end, and to the pivotal standards 64 carrying the forward end of the feed chain mechanism. This lever 90 is preferably of spring metal and is adapted to engage the ratchet teeth of the segment 94^a, secured to the supporting rail 12. The

sliding boxes 56 of shaft 57, and 46 of shaft 47, at one side of the machine are pivotally connected by the link rods 96 and 97, and at the opposite side of the machine, the link rod 97 is pivotally connected to a hand lever 98 at 99, the inner end of which lever is pivoted at 100 to the outer side of the supporting bracket 43, and is formed above said pivotal point with an upwardly extending and short arm 100^a, which is pivotally connected to the sliding box 56 through the medium of the short link 96. A rack segment 101, concentric to the pivotal point of the lever 98, is supported at the upper end of the bracket 43 and is adapted to be engaged by the spring actuated rod 101^a carried by said lever; said rod being pivotally connected at its upper end to a hand lever 101^b, by which said rod may be moved from engagement with the teeth of the rack segment. From this description, it will be seen that when the forward or outer end of the feeder is elevated the levers 90 and 98 may be operated to pivotally move the standards 64 and the sliding boxes 46 and 56 respectively, so that the relative distance between the cylinder and the feed chains may be maintained. It will be understood that the boxes 56 are moved outward and slightly upward, and the gear wheel 78 meshing with the gear wheel 77 causes the bearing 75 to have a slight movement in the slot 76; the bearings at the lower end of the shaft 74 being formed sufficiently large to allow said slight movement of the bearing 75 to take place without affecting the positions of the pinions 91 and 77 relative to the multiple gear wheel and the pinions 78 respectively. In operation, the shaft 9 being operated to extend the telescopic supporting legs so as to elevate the forward or outer end of the self feeder to the desired height, and the mechanism of the feed chains being operated as described to maintain the proper distance from the cylinder of the thrasher, the motive power is started to operate the cylinder which transmits movement to the governor belt-wheel 25. When the proper speed is attained the lever arms 26 of the governor wheel automatically operate to throw the brake shoes into frictional contact with the inner side of said wheel and cause the operation of the crank shaft 17. As the speed of the belt wheel increases, the speed of the crank-shaft is also increased until the required speed has been attained. The operation of the crank shaft causes the reciprocating movement of the feed pans or tables, the rear ends of said pans sliding upon the cross bar 1^a at the rear end of the machine. This movement causes the grain or sheaves dropped from the stack upon the front end of the feed-pans or tables, with the assistance of the longitudinal toothed-bars 22, to move longitudinally (as shown in Fig. 1) under the feed chains and cutters 48 which sever the bands. The continued movement of the feed chains cause the grain by the assistance of the transverse spreader bars 23 to be distributed evenly upon the said pans or tables and moved toward the rear end of the machine and upon the bottom or lower sickle teeth 24, which in case the upper band cutters 48 failed, will sever said bands and the grain is then fed by the hooks or arms 67 of the feed chain to the cylinder of the thrasher, which thrashes the grain from the head. As the stack decreases in height the shaft 9 may be operated to shorten the telescopic legs so that the feeder is lowered to correspond, and the levers 90 and 98 are operated to maintain the feed chain mechanism at the same relative distance from the cylinder.

From this description, it will be seen that I have produced a self feeder for thrashing machines by which the quantity of grain passing to the cylinder of the thrasher, may be regulated, by which the feeder may be bodily raised or lowered to correspond with the height of the stack from which the feed is obtained; by which the feed chains may be adjusted so as to maintain the same relative distance between said feed chains and the cylinder of the thrasher, by which the speed of travel of the feed chains may be increased or diminished at will, and means by which the speed of the crank shaft is so governed that the feed mechanism will not operate until the desired speed of the cylinder is attained. Furthermore, a self feeder which is direct and positive in action is strong and durable of construction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A self-feeder, for thrashing machines, comprising a support, a frame carried by said support, and reciprocating feed-pans carried by said frame, stationary standards carried by said frame, and a shaft extending transversely of the feeder and journaled in said standards, a pair of standards pivotally supported near the discharge end of the feeder, and a rod carried by said pivotal standards and having arms, and a shaft journaled in said arms, and a top-feed mechanism carried by the shaft of the stationary and the shaft supported from the pivotal standards, and means to operate the pivotal standards to adjust the discharge end of the top-feed mechanism, substantially as set forth.

2. A self-feeder for thrashing machines, comprising a pair of stationary supports, a frame pivotally carried by said supports, telescopic legs pivoted to the front portion of said frame and resting upon the ground, and means to extend or contract said legs to raise the frame, and spring-actuated locking-bolts, carried by the supports, and located between the pivotal point of the frame, and the telescopic legs carried by said frame, and adapted to engage the under side of the pivotal frame to assist the telescopic legs in supporting the frame in its elevated position, substantially as set forth.

3. A self-feeder for thrashing machines,

comprising a pair of supports, a frame pivotally carried between said supports, telescopic legs supporting the opposite or free end of the frame, a number of reciprocatory feed-pans carried by said pivotal frame, and a top-feed mechanism consisting of chains having arms, supported longitudinally of and above said feed-pans, and an eccentric adjustment whereby the discharge end of the top-feed mechanism may be operated to slacken said chains, substantially as set forth.

4. A self-feeder for thrashing machines, comprising a support, a frame carried by said support, and reciprocatory feed-pans carried by the frame, a pair of stationary standards carried by the frame, and a shaft carried thereby, a pair of standards pivotally supported near the discharge end of the machine, and eccentrics mounted revolubly in said pivotal standards, a rod rigidly connecting said eccentrics, and arms carried by said rod, a shaft journaled in said arms, a top-feed mechanism, supported upon the shaft carried by the said arms and the shaft of the stationary standards, and a handle or lever projecting from one of the said arms so that the discharge end of the top-feed mechanism may be eccentrically raised or lowered, substantially as set forth.

5. A self-feeder for thrashing machines, comprising supports, a frame pivoted at one end, and between said supports, and having telescopic legs supporting the opposite or free end of said frame, and reciprocatory feed-pans carried by the frame, and stationary slotted standards carried by said frame, and a cross-shaft having bearings in the slots of the standards, and sprocket wheels thereon, and standards pivotally carried at the discharge end of the machine and a shaft provided with sprocket-wheels supported from said pivotal standards, and endless-chains having feed-arms connecting the first mentioned and last mentioned sprockets, and means to independently and vertically adjust the opposite ends of the endless chains, with reference to the vertical adjustment of the feeder, substantially as set forth.

6. In a self-feeder for thrashing machines, the combination with a pivoted frame, and a lower feed mechanism carried thereby, of a pair of standards pivotally carried by the said pivoted frame, a rod extending transversely of the machine, and connecting said pivoted standards, and having arms, and a shaft operatively mounted in said arms, an endless top-feed mechanism operatively supported by said shaft at one end, and from the said pivoted frame at the opposite end, a lever mounted upon the said pivoted frame, and operatively connected to one of the pivoted standards, and means to secure the said lever at any desired point in the plane of its movement, substantially as and for the purpose set forth.

7. In a self-feeder for thrashing machines, the combination with a support, a crank shaft, and reciprocatory feed-pans carried by said shaft, and a power-shaft of a belt-pulley mounted loosely upon the crank-shaft, and operatively connected to the power-shaft, a grooved sliding sleeve operatively connected to the said wheel to turn therewith, a cross-bar mounted rigidly upon the shaft and carrying friction-shoes, and rods operatively connecting the friction-shoes and the grooved sleeve, and means whereby, as the belt-pulley is rotated the sleeve shall be moved and the friction-shoes forced against the inner side of the rim of the belt-pulley, substantially as set forth.

8. In a self-feeder, the combination with a feed-pan carrying crank-shaft, and a power-shaft of a belt-pulley mounted loosely upon the crank-shaft and operatively connected to the power-shaft and having an extended hub, an annularly grooved sliding sleeve mounted upon the extended hub, belt-crank levers pivotally carried by the wheel, and having arms pivotally connected to the sliding sleeve, and arms projecting through radial slots in the wheel, spring-retracted levers pivoted to the wheel and having weights upon one end, and having their opposite end adjacent to the end of the free arms of the bell-crank levers, a cross-bar keyed upon the shaft and carrying friction-shoes having radially guided stems or rods, and link-rods pivotally connected to the said stems or rods, and extending obliquely downward and outward and engaging loosely the annular groove of the sliding sleeve, substantially as set forth.

9. In a self-feeder for thrashing machines, the combination with a frame carrying reciprocatory feed-pans, of a pair of stationary standards carried by said frame, and having vertical slots, and having inclined slots, extending upwardly and forwardly from the upper end of the vertical slots, sliding boxes mounted in the vertical slots in which a shaft is journaled, and sprocket wheels mounted upon said shaft, and sliding boxes mounted in the inclined slots and links pivotally connecting the boxes of the vertical slots with the boxes of the inclined slots, and a shaft having sprocket-wheels, journaled in the boxes of the inclined slots, and standards pivotally supported near the discharge end of the feeder, and a shaft having sprocket-wheels supported therefrom, and endless chains having arms, operatively connecting the sprockets of the last mentioned shaft and the shaft of the boxes of the inclined slots, and extending obliquely downward and rearward and guided under the sprockets of the shaft carried by the boxes of the vertical slots, and a lever to adjust the front end of the endless chains, and means to hold said chains at any point of adjustment, substantially as set forth.

10. A self-feeder for thrashing machines, comprising a pair of supports, a frame pivotally carried between said supports, a crank-shaft revolubly mounted upon said pivotal frame, gear-pinions carried upon each end on

the crank-shaft, a top-feed mechanism, comprising a number of revoluble transverse shafts, sprocket wheels carried thereby, and endless chains having curved feed-arms adapted to travel around said sprocket wheels, a multiple gear wheel carried by the pivotal frame, a shaft carrying a pinion meshing with the pinion of the crank-shaft, and a slidable pinion also on said shaft, and means to throw said pinion into engagement with one or the other of the sets of teeth of the multiple gear, and a pinion on one of the sprocket shafts, and a shaft having a pinion meshing with the pinion of the sprocket shaft, and also a slidable pinion, and means to throw said pinion into engagement with one or the other of the sets of the multiple gear, to increase or decrease the speed of travel of the feed-chain mechanism, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

ROBERT L. DENNISON.

Witnesses:
G. Y. THORPE,
M. P. SMITH.