No. 626,380.

Patented June 6. 1899.

A. VAN HOUWELING.

STRAW STACKER.

(Application filed Oct. 22. 1898.)

(No Model.)

5 Sheets—Sheet 1.

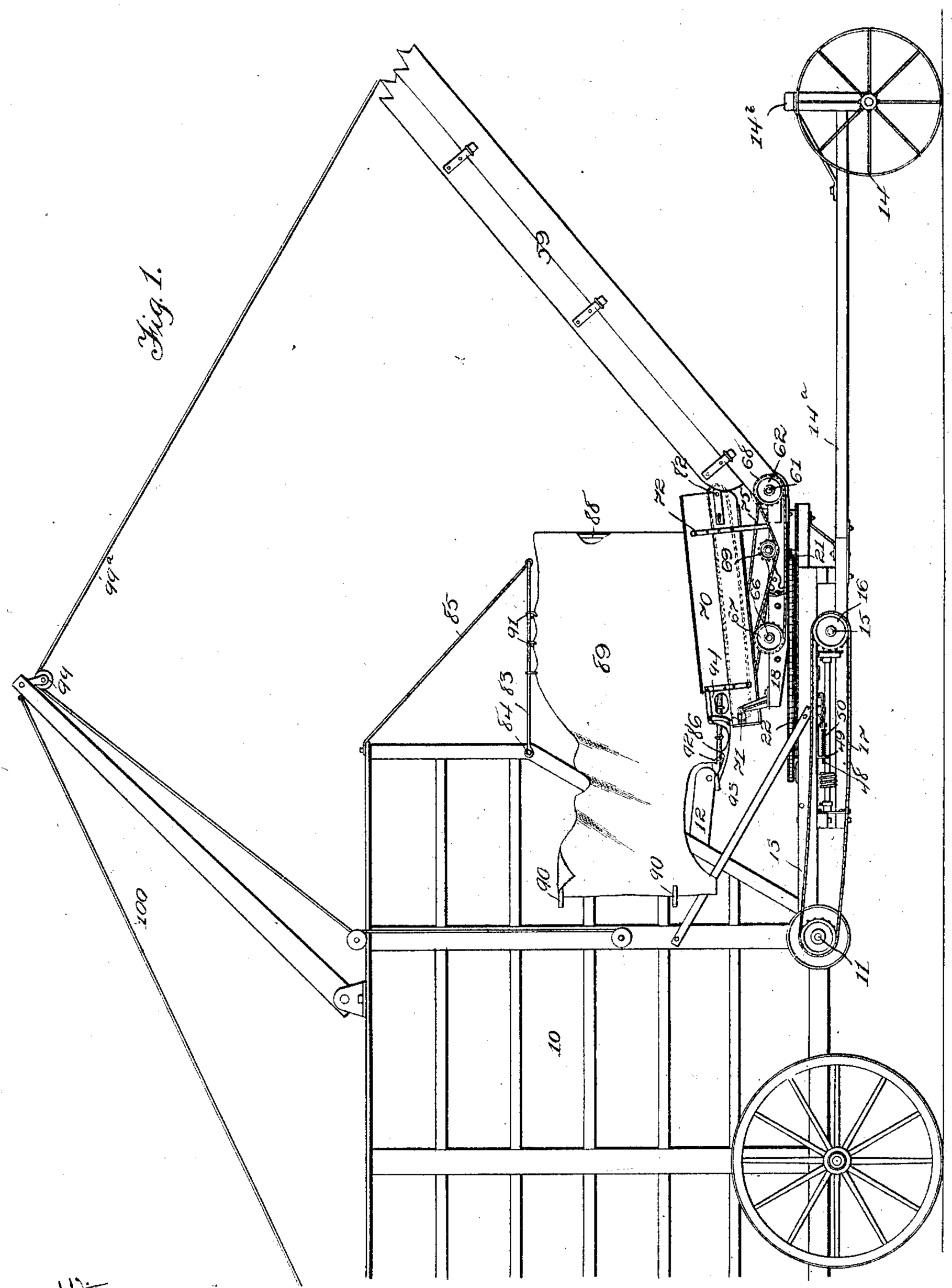

Fig. 1.

Witnesses:

Jas. Barels.

Thomas G. Orwig.

Inventor:

Arthur Van Houweling

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(No Model.) 5 Sheets—Sheet 2.

Fig. 3.

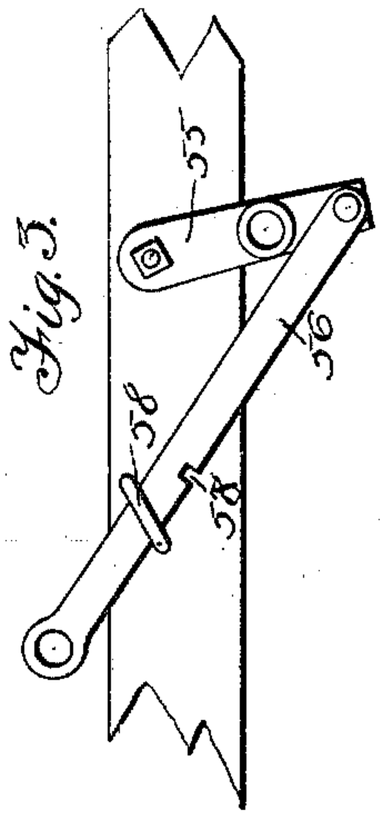

Fig. 4.

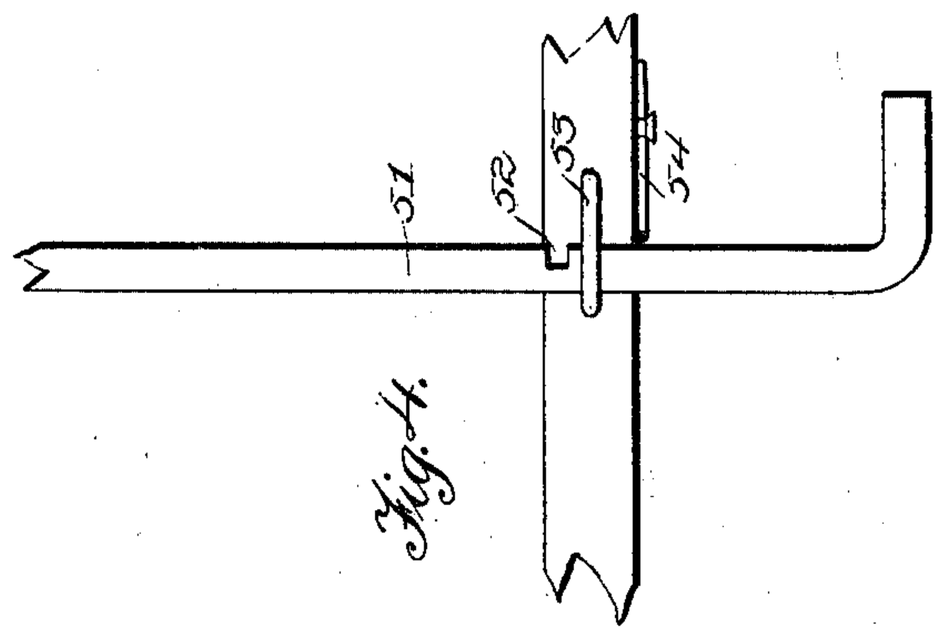

Fig. 2.

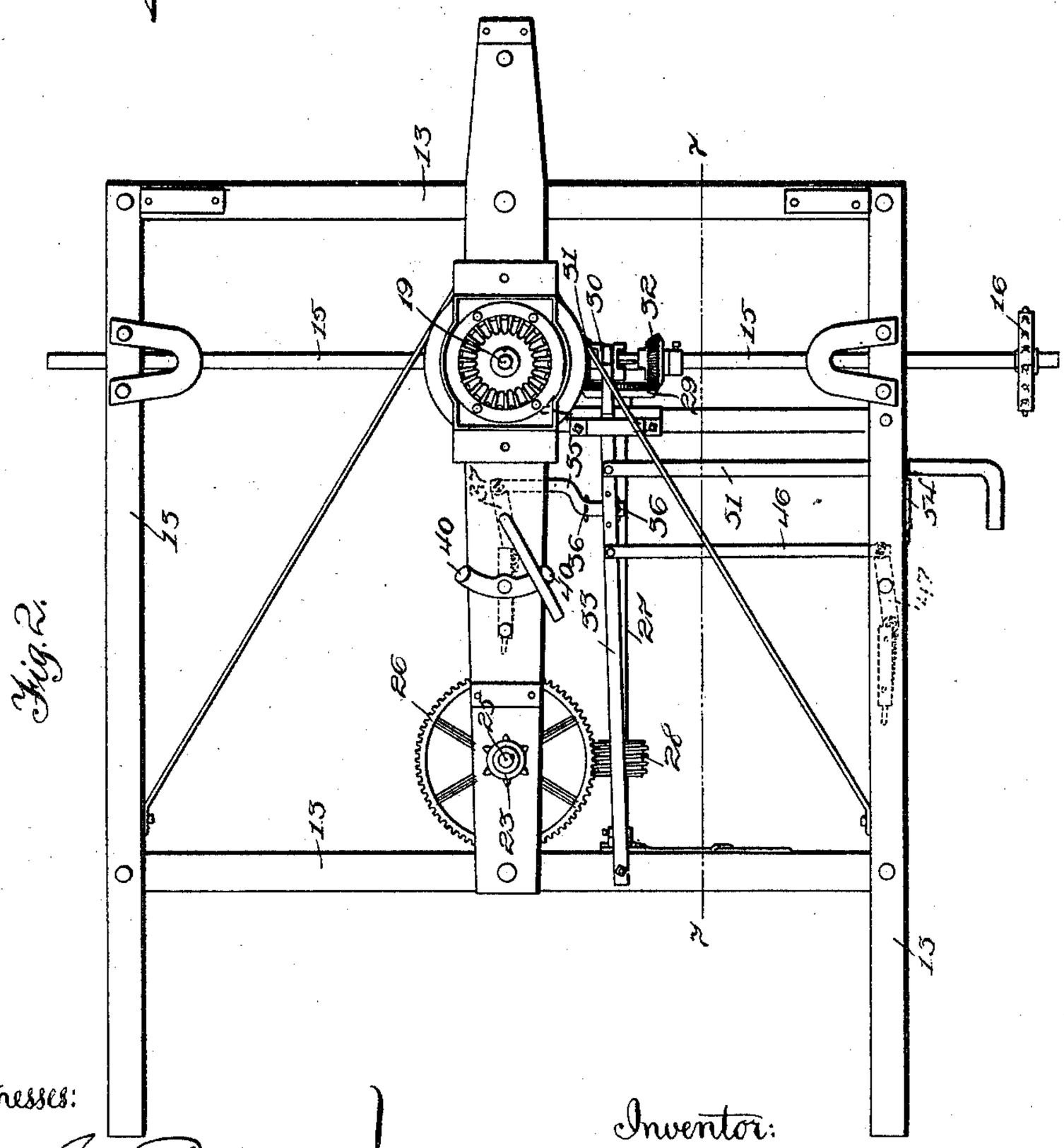

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Fig. 6.

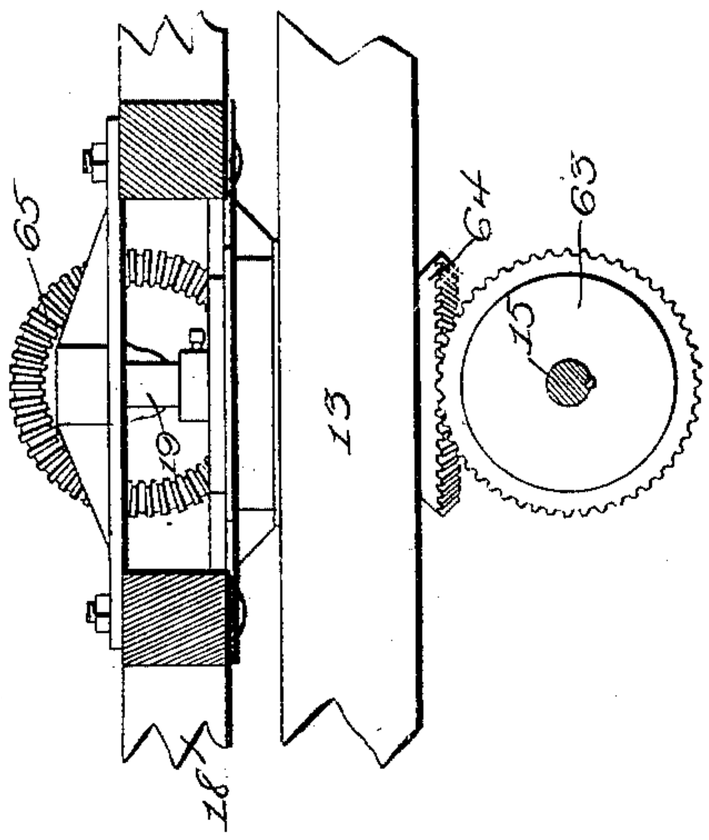


Fig. 7.

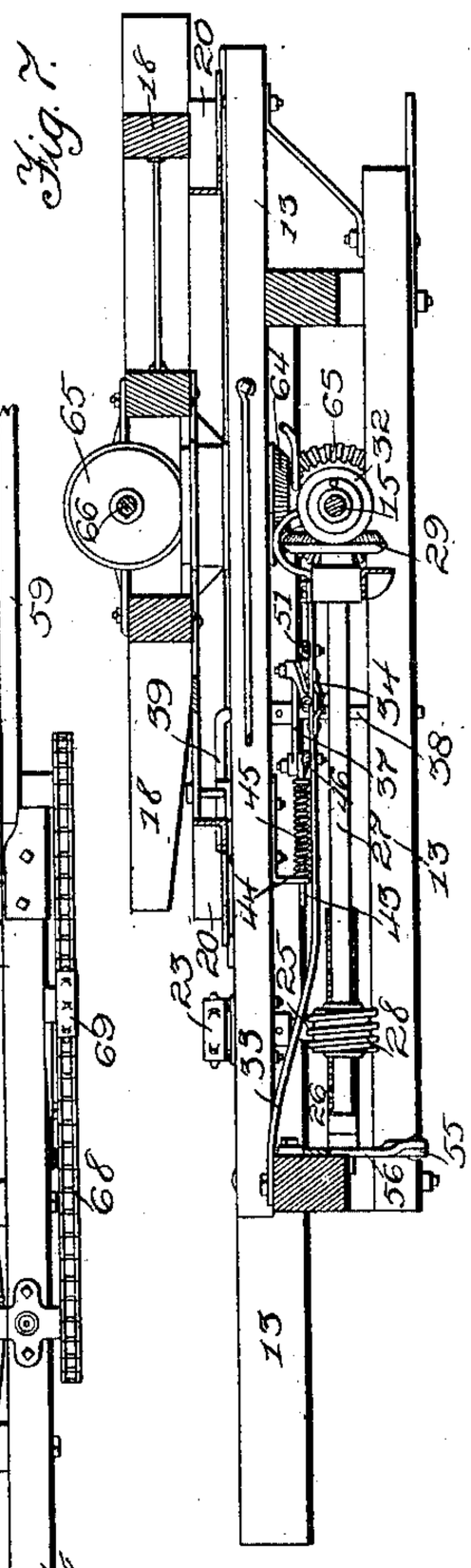
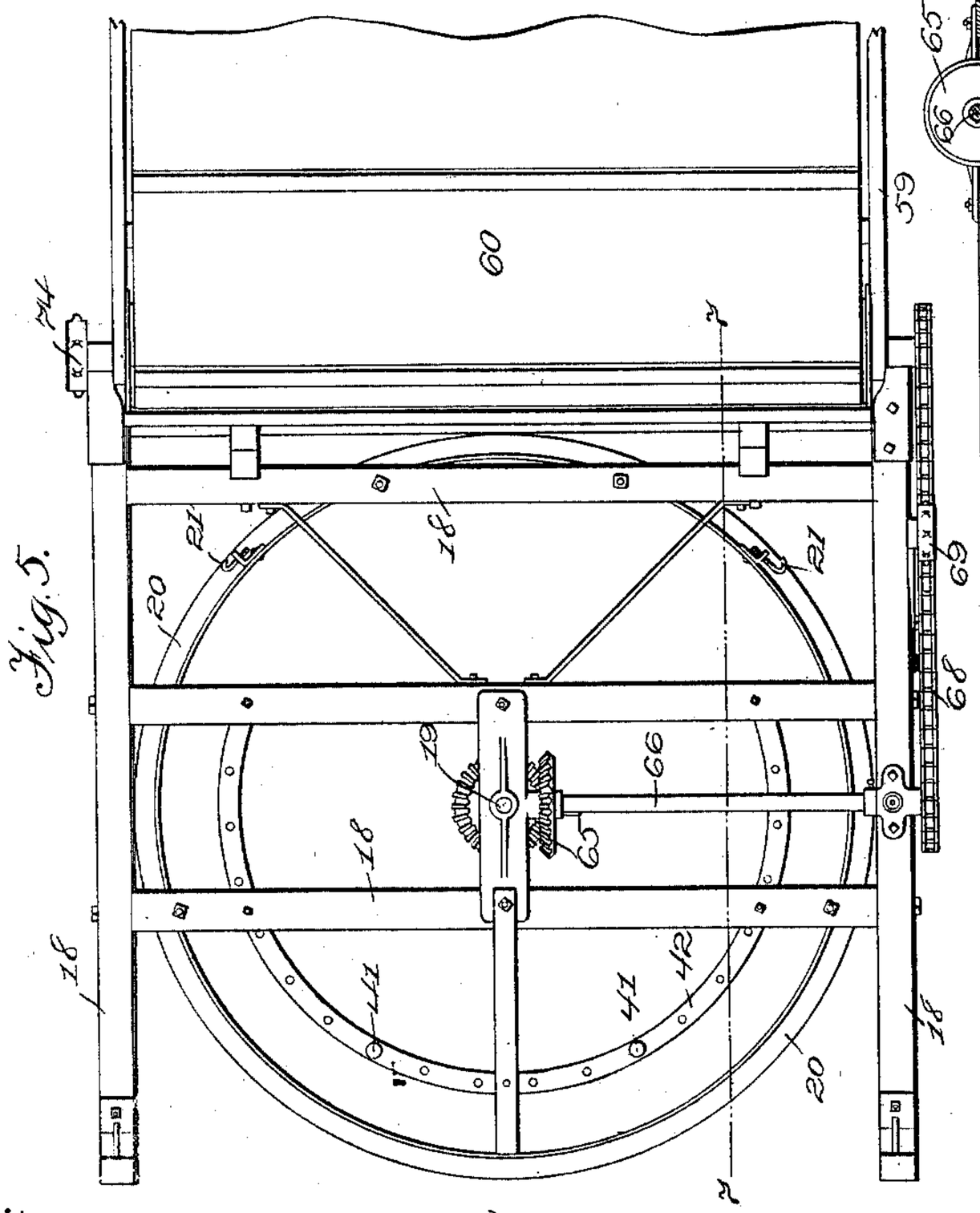


Fig. 5.



Witnesses:

Jas. Dacels.
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No. 626,380. Patented June 6, 1899.

A. VAN HOUWELING.

STRAW STACKER.

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(No Model.) 5 Sheets—Sheet 4.

Fig. 9.

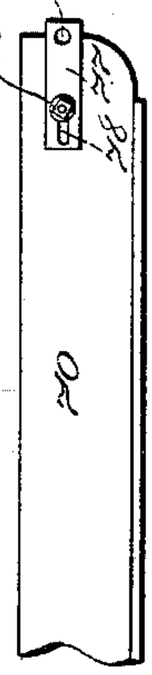

Fig. 10.

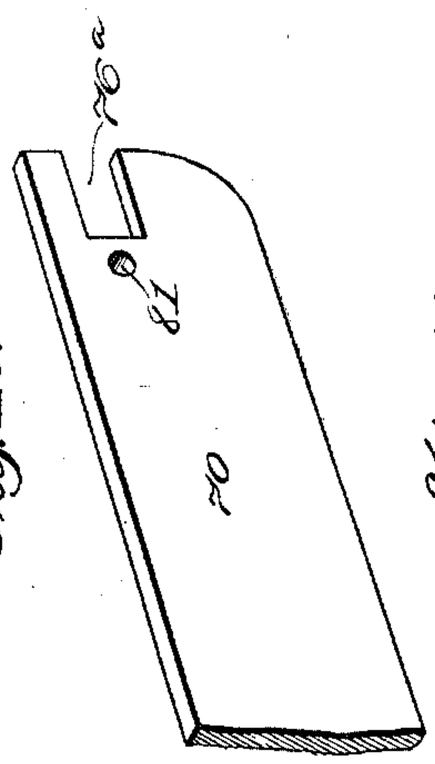

Fig. 11.

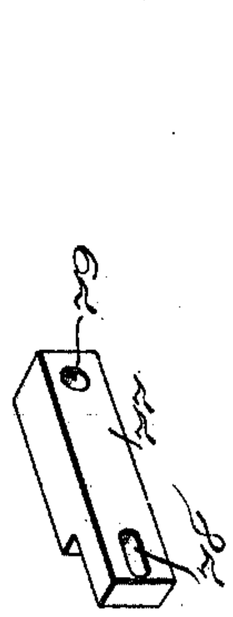

Fig. 8.

Witnesses:
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No. 626,380. Patented June 6, 1899.

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(Application filed Oct. 22, 1898.)

(No Model.) 5 Sheets—Sheet 5.

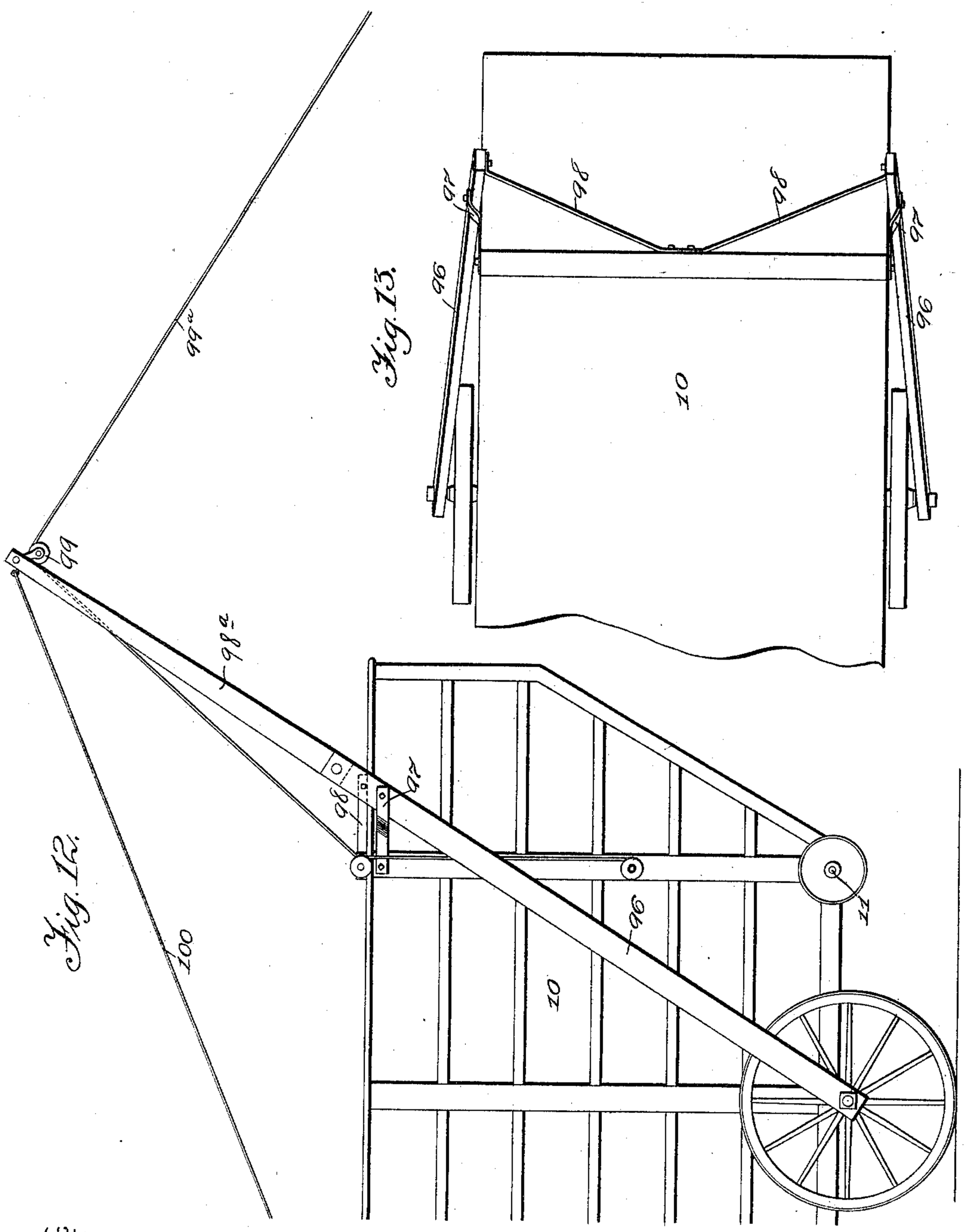

Fig. 12.

Fig. 13.

Witnesses:

Jas. Bares.

Thomas G. Orwig.

Inventor:

Arthur Van Houweling

UNITED STATES PATENT OFFICE.

ARTHUR VAN HOUWELING, OF PELLA, IOWA, ASSIGNOR TO THE PELLA AUTOMATIC STRAW STACKER COMPANY, OF SAME PLACE.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 626,380, dated June 6, 1899.

Application filed October 22, 1898. Serial No. 694,285. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR VAN HOUWELING, a citizen of the United States, residing at Pella, in the county of Marion and State of Iowa, have invented a new and useful Straw-Stacker, of which the following is a specification.

This invention relates to that class of straw-stackers in which the conveyer is automatically oscillated, and hence a stack is formed that is segmental in shape; and my object is, primarily, to provide improved and simplified means for controlling the reversing mechanism and for preventing the said mechanism from stopping when on a dead-center, so that no matter where the machine stops the oscillations of the stacker will begin as soon as the thresher is operated, and, further, to provide a new and useful device for conducting the straw from the stacker to the conveyer, so that a strong wind will not blow the straw away from the conveyer.

A further object is to provide means of simple, strong, and durable construction that may be easily operated and whereby the oscillations of the stacker may be stopped, so that it will remain in any position in which it is placed.

Heretofore it has been found that as the oscillating stacker moves from one side to the other and the weight of the rear end of the stacker is thrown upon the top of the thresher such shifting weight will tend to injure and destroy the thresher. Another object of my invention is to provide means of simple, strong, and durable construction for supporting this weight from the rear axle of the stacker, so that the thresher-body will not sway, and thus become impaired, &c.

My invention consists, first, in the construction, arrangement, and combination, with an oscillating straw-stacker, of the means for preventing the reversing mechanism from stopping on a dead-center; in the construction of the means for conducting the straw from the thresher to the carrier; in the construction, arrangement, and combination, with the stacker, of the means for throwing the oscillating mechanism out of gear; in the construction of the device for supporting the weight of the stacker from the rear axle of the thresher, and in certain other details of construction, arrangement, and combination of parts, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows the entire stacker in side elevation and applied to the rear end of a thresher, parts of the canvas straw-conductor being broken away to show the lower curved guide-rod therefor and also showing a modified form of stacker-supporting frame on top of the thresher. Fig. 2 shows a top or plan view of the frame that is attached to the thresher and parts of the mechanism thereof. Fig. 3 shows an enlarged detail view of the adjustable support or bearing for the front end of the shaft that supports the worm-gear. Fig. 4 shows an enlarged detail view of the hand-lever for throwing the reversing mechanism out of gear and for locking the stacker against an oscillatory movement. Fig. 5 shows a top or plan view of the frame that supports the conveyer and which rests upon the frame shown in Fig. 2. Fig. 6 shows an enlarged detail view of the gears by which motion is transmitted to the oscillating carrier. Fig. 7 shows a vertical sectional view through the indicated line 7 7 of Figs. 2 and 5, said parts being shown connected in this view. Fig. 8 shows an enlarged top view of the canvas guides for conducting the straw to the conveyer and also the connected parts. Fig. 9 shows a detail side view of the rear end of the short conveyer. Fig. 10 shows a perspective view of one of the side pieces of same. Fig. 11 shows a perspective view of one of the blocks for supporting the conveyer-shaft on said end. Fig. 12 shows a side elevation of the rear end of the thresher, also my preferred form of device for supporting the rear end of the stacker from the rear axle of the thresher. Fig. 13 shows a top or plan view of the rear end of the thresher with my preferred form of stacker-supports fixed thereto, the A-shaped frame at the top for supporting the pulley being omitted.

Referring to the accompanying drawings the reference-numeral 10 is used to indicate that portion of the thresher shown, and 11 a shaft at its rear end operated by the mechanism of the thresher. A conveyer 12, operated

by the thresher mechanism, leads rearwardly from the machine to a point where it will discharge upon the short conveyer hereinafter described. A frame 13 is secured to the rear end of the thresher, and its rear end is supported by the wheel 14 on the end of a pivoted tongue 14^a. This frame is designed to carry the weight of the stacker mechanism and has a cross-piece 14^b at its top to receive said stacker. Near the central portion of the frame 13 is a shaft 15, with bearings in the side of the frame, and a sprocket-wheel 16 is fixed to its one end and connected with the thresher by means of a chain 17, whereby the shaft is constantly rotated during the operation of the thresher. Power is transmitted to this shaft to operate the conveyer of the stacker, as will be hereinafter set forth.

The frame to which the stacker is pivoted is indicated by the reference-numeral 18 and is mounted upon a shaft 19. A circular flanged rim 20 is fixed to the under surface of this frame concentrically of the said shaft and has the hooks 21 on opposite sides of its rear edge. A sprocket-chain 22 is attached at its ends to these hooks and is passed around the said rim and also around a sprocket-wheel 23, by which the stacker-frame is oscillated. Motion is imparted to this sprocket-wheel as follows: Said wheel is fixed to a vertical shaft 25, and a worm-gear 26 is fixed to the lower end of this shaft. A shaft 27 is mounted in bearings and extends longitudinally of the machine-frame and has a worm 28 thereon meshing with the said worm-gear 26. On its rear end is a bevel-gear 29, to which motion is imparted from the shaft 15, as hereinafter set forth. A clutch 30 is feathered to the aforesaid shaft 15, and two bevel-gears 31 and 32 are loosely mounted on the shaft on opposite sides of the clutch and provided with mating clutch-surfaces on their inner ends. Hence when the clutch is thrown into engagement with either of them the bevel-gear 29 will be rotated. This clutch is automatically moved by means of the following mechanism: A lever 33 is pivoted at its front end to the frame 13 and has its other end inserted in an annular groove in said sliding clutch member. On the under surface of the lever is a loop 34, and an arm 35 is extended through this loop. It is provided with two pins on opposite sides of the loop. The other end of this arm 35 is pivoted to a lever 37, which in turn is fixed to a shaft 38, which has a crank-arm 39 fixed to its upper end and which extends forwardly on the top of the frame 13, its oscillation being limited by means of the stops 40. This crank-arm is operated automatically by the stacker by means of the pins 41, adjustably secured to the rim 42 on the oscillating frame, and obviously as the said crank-arm is moved the lever 33 will be operated to throw the clutch in or out of gear with the bevel gear-wheels, whereby the movement of the shaft 27 is changed and through the worm-gear and other parts the stacker-frame is oscillated automatically. It is essential to the proper operation of this reversing mechanism that the sliding clutch member be not permitted to stand out of engagement with both of the bevel-gear clutches at one time, and it is to be borne in mind, in this connection, that the oscillating stacker-frame may stop its movement when at any point. Hence if a direct and positive connection were provided between the lever 39 and the sliding clutch the said clutch would be held out of engagement with both of the bevel-gear clutches during that period of time when the sliding clutch is first disengaged from the mating clutch and until the lever 39 passes a dead-center, and if the oscillations of the stacker would stop during such time the sliding clutch member would not be in position to start the stacker to oscillating when the thresher is started. I have provided means whereby the lever 39 is automatically thrown to one or the other limit of its movement as soon as it has passed a dead-center, as follows: A rod 43 is pivoted to the forward end of the lever 37 and the forward end of said rod is pivoted to a support 44 on the frame 18. An extensile coil-spring 45 is mounted on this rod to impinge against the forward end of said lever 37. Hence said lever cannot remain on a dead-center, but will be thrown to one or the other limit of its movements.

As before stated, the connection between the rod 35 and the lever 33 is a limited sliding one, made so by the pins 36. The reason why this is so construed is that the sliding clutch may not be withdrawn from engagement with one clutch until after such time as the lever 39 has passed a dead-center. To illustrate: Assuming that the lever 37 were in the position shown in Fig. 2, the arrangement of the pins 36 is such that said lever 39 might be moved until past a dead-center before the pin 36 nearest to the lever 39 engaged the lever 33. Hence if the oscillating stacker stops at any time before this the sliding clutch would still be in engagement with the bevel-gear clutch, and if the stacker stopped at any time after said lever had passed a dead-center the spring 45 would throw the lever 39 to the other limit of its movement, which same would carry the sliding clutch into engagement with the other bevel-gear clutch, and when the lever 39 is at either limit of its movement the spring 45 serves to hold the sliding clutch member to yielding engagement with the adjacent bevel-gear clutch. It is obvious, however, that as soon as the oscillating stacker turns and moves the lever 39 even a small part of its stroke the tension or resiliency of the spring is overcome and there is no means for holding the clutches in engagement. It is for this purpose I have provided the auxiliary spring device, as follows: A rod 46 is pivoted direct to the lever 33 and extends laterally to a short lever 47, fulcrumed to the frame 18. On the front end of this lever 47 a rod 48 is pivoted, and said rod is also pivoted

to a support 49 on the frame 18, and an extensile coil-spring 50 is mounted thereon to impinge against the front end of the lever, thus normally exerting a yielding pressure upon the lever 47, tending to throw it past a dead-center. Hence the force of this spring is exerted indirectly upon the lever 33 to prevent it from standing on a dead-center. The said spring 50, however, is necessarily somewhat less resilient or powerful than the spring 45, for if this were not so the operation of said spring 45 would be interfered with. The force of this spring 50 is only sufficient to move the sliding clutch and hold it in engagement with one of the bevel-gear clutches when the resiliency of the spring 45 has been overcome by moving or holding the lever 39, as before suggested.

In order that the manner in which the two springs 45 and 50 coact in producing a clutch device that is interposed to connect an oscillating stacker which is liable to stop at any point throughout its movement with one or the other of two gear-wheels fixed to a power-shaft, said connection to be such that the clutch cannot under any circumstance stop in a position between the said gear-wheels, may be clearly understood, I append the following brief résumé of the functions of the several parts constituting the means for accomplishing this desirable result: On the said power-shaft I have rotatably mounted two gears, each having a clutch-face. A clutch is slidingly feathered to the shaft between them, and obviously if this clutch could stop at any point midway between the gears no power could be transmitted from the said power-shaft to operate the oscillator. The said feathered clutch is on a lever, and this lever is connected with a device which is operated by the oscillations of the stacker to thereby move the said clutch-lever for the ultimate purpose of reversing the stacker. This connection between the clutch-lever and said device cannot be direct, for the obvious reason that if it were so and the stacker stopped at a point other than either extreme of its movement the feathered clutch would be out of engagement with both of said gear-wheels. Hence said connection is made a limited sliding one and the clutch-lever is not moved by the said device until the stacker has described about half of its movement. This device, which is operated by the oscillating stacker, is prevented from stopping on a dead-center by means of a spring 45, above described. Hence if the said device has moved, say, one-third of its revolution, and the stacker stops the device will be thrown by said spring back to its starting-point and by reason of the sliding connection with the clutch-lever the clutch will still engage the gear-wheel; but supposing that the stacker has moved nearly half a revolution and stopped, the said spring 25 will have become compressed and held so by the inertia of the stacker, so that said spring can have no effect upon the sliding clutch-lever, which would be in position between the gear-wheels on the power-shaft, and if said shaft were again started the stacker would not oscillate. It is for this contingency that I have provided the auxiliary spring 50 and connected parts. This device, as above fully described, is connected direct to the clutch-lever. The spring is weaker than the one 45, so that when both the springs may operate on the clutch-lever the spring 45 will not be hindered by the spring 50; but when the spring 45 is held inoperative under the conditions noted above, then said spring 50 will operate to hold the clutch in engagement with the nearest gear-wheel clutch.

When it is desired to stop the oscillations temporarily, a rod 51, which is attached to the lever that operates the sliding clutch, is moved into position where the notch 52 is engaged therein by the staple 53. Then the hook 54 is placed over the rod 51, and said rod is thereby held in place, and when in this position the clutch is held midway between the bevel-gears. When this rod is not thus used, it is free to slide in the supporting-staple. When, however, the notch is in engagement with the staple, as suggested, it is obvious that the sliding clutch will be locked midway between the two bevel-gear clutches and the oscillations of the stacker-frame prevented—that is, the stacker cannot swing laterally on account of the engagement of the worm-gear 26 with the worm 28. Hence this rod 51 is used only when it is desired to prevent the stacker from oscillating and for locking it in said position, so that it cannot be moved by the wind or from other causes.

I have provided means for throwing the worm 28 out of engagement with the worm-gear 26, as follows: The numeral 55 indicates a hanger attached to the frame 13 and having a bearing therein for the shaft 27. A rod 56, having a notch 57, is pivoted to the said hanger and its upper end passed through a staple 58 and the frame 13. Hence when said rod 56 is pulled laterally the shaft on which the worm-gear is fixed is also moved, thereby throwing said worm out of engagement with its worm gear-wheel. When this is done, obviously the stacker is not oscillated by power from the machine, but may readily be swung laterally by hand. For this reason the two devices just described are greatly advantageous, for by their use the oscillations of the stacker are discontinued by the power of the machine, and when the former device is used the stacker is locked against movement that is not desirable, and in the latter case the stacker is left free to be moved by hand.

The stacker conveyer-frame is indicated by the numeral 59 and is of the ordinary construction. Its endless conveyer 60 is passed over a shaft 61, which provides a pivotal support for the frame and which has a sprocket-wheel 62 therein, whereby power is transmitted to it for the purpose of operating the conveyer.

I transmit power to the sprocket-wheel 62

as follows: The reference-numeral 63 indicates a bevel gear-wheel on the shaft 19. A bevel gear-wheel 64 on the top of this shaft 19 serves to transmit power to the gear-wheel 65, which in turn is fixed to the shaft 66. This shaft 66 has a sprocket-wheel 67 on its outer end, and a sprocket-chain 68 connects it with the said sprocket-wheel 62. An adjustable chain-tightener (indicated by reference-numeral 69 and of ordinary construction) is pivoted to the side of the frame 18 to engage this chain 62. By this means the endless conveyer is operated. I have placed this conveyer a considerable distance from the thresher, so that there will be sufficient room between the thresher and the stack. To convey the straw from the conveyer to the said endless carrier, I have provided the following mechanism: The numeral 70 indicates a short conveyer-frame supported above the conveyer by means of the shaft 71 at its forward end, whereby the short conveyer-frame is pivotally mounted, and at its rear end by means of the braces 72, which rest upon the frame 18. On this shaft 71 is a sprocket-wheel 72, and 74 indicates a sprocket-wheel on the end of the shaft, and a chain 75 connects the sprockets 73 and 74. By this means motion is transmitted to the conveyer 76 on this short conveyer-frame 70. At the rear end of this conveyer-frame are the slots 76, and in these slots the blocks 77, each having a slot 78 in its forward end and an opening 79 in its rear end, are mounted. A bolt 80 is passed through the slot 78 and also through an opening 81 in the side of the frame 70, and the conveyer-shaft 82 is passed through the opening 79. By this means the endless conveyer may be adjusted as to tension. It is obvious that the short conveyer 70 may be elevated at its rear end, so that access may be had to the mechanism beneath it without interfering with any of the operative mechanisms of the device. I have provided means also for confining the straw so that it must pass upwardly through the stacker, so that the wind cannot blow any of it away before passing through the said conveyer. Reference-numeral 83 indicates a semicircular metal guide-rod secured at its ends, by means of the bolts 84, to the rear end of the thresher to extend horizontally rearward and is supported at its central portion by means of a brace 85. 86 indicates a similar guide-rod secured at its ends by means of bolts 87 to the frame of the short conveyer 70. Two uprights 88 are fixed by means of the bolts 87 and project straight upwardly. Two strips of canvas 89 are provided on opposite sides of the device, their forward end being secured by means of the cleats 90 to the side of the thresher, and their rear ends are secured to the said uprights 88 at the central portion of the strips. They are supported at their tops by the sliding rings 91, which are fixed to the top edges of the canvas strips 89 and are mounted on the semicircular guide-rod 83, and their lower edges are held in place by means of the rings 92 on the guide-rod 86.

To prevent the straw from dropping through the space between the conveyer 12 and the short conveyer 70, I have provided a semicircular wooden frame 93, fixed to the frame 70 and passed under the short conveyer 12, and a canvas bottom is fixed to the said semicircular wooden frame 93 and is connected on a semicircular line 95 at its rear end. By this means it is obvious that no matter in which way the conveyer swings the straw must pass to the short conveyer 76.

I have provided means for supporting the rear end of the stacker as follows: The numeral 96 indicates two uprights having their lower ends connected with the rear axle of the threshing-machine and extending upwardly and rearwardly to a point a slight distance above the top of the machine. Braces 97 are provided to support the said uprights against rearward movement, and braces 98, extending transversely of the threshing-machine, are provided for preventing the uprights from moving laterally relative to the machine. Pivotally connected with the top of said uprights is an A-shaped frame 98ª, and a pulley 99 is mounted at the apex of this frame. A rope 99ª is passed over this pulley and has its rear end connected with the upper end of the stacker and its forward end secured in position where it may be handled by an operator. A guy-rope 100 is fixed to the apex of the said A-shaped frame and extends to a point near the forward end of the thresher, where it is attached. It is obvious that the weight of the stacker will not be thrown on top of the thresher.

In machines of this class heretofore where the stacker was supported upon the thresher the weight of the oscillating stacker has been alternately thrown from one side of the machine to the other as the stacker was oscillated, which obviously is highly objectionable and tends to weaken and destroy the threshing-machine; but in this device the swaying of the thresher from side to side by reason of the weight of the stacker being shifted during its oscillations is entirely prevented, because the weight of the stacker is thrown entirely upon the uprights 96, and they are attached direct to the axle of the thresher. This axle obviously cannot sway, and hence the top of the thresher could not sway. It is true that the braces 96 are connected with the top of the thresher, but even though part of the weight was supported upon the top of the thresher by means of the braces 97 and 98 the thresher could not sway because of the uprights 96, which are so arranged as to prevent such movement. It is, however, a fact that these braces 97 and 98 do not throw the weight of the stacker upon the top of the thresher, because of the rope 100, which is attached to the front of the thresher and to the top of the derrick 98ª. Therefore, in fact,

the weight of the stacker is thrown upon the rear axle of the thresher, and the braces 97 and 98 only serve to hold the uprights 96 in place.

Having thus described the construction, arrangement, and function of each of the operative mechanisms in turn, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an automatic oscillating straw-stacker the combination of a frame designed for attachment to a thresher, an oscillating frame mounted above it, a shaft in the aforesaid frame driven by power from the thresher, two bevel-gears rotatably mounted on the shaft and clutch devices on their adjacent faces, a clutch feathered to the shaft between the said clutch devices, a bevel gear-wheel meshed with both of the aforesaid gears, means for imparting motion from said latter bevel-wheel to swing the oscillating frame, a lever fulcrumed to the frame which is connected to the thresher, and connected to said feathered clutch, a vertical shaft mounted in said frame, a lever on its upper end designed to be engaged by the oscillating frame, an arm on the lower end of the shaft and having a limited sliding connection with the said lever that is connected with the clutch so arranged that the clutch is not withdrawn from engagement with one of the bevel-gear clutches until the lever aforesaid on the vertical shaft has passed a dead-center when moving in either direction, and means for yieldingly holding the lever that is connected to the feathered clutch to one or the other limits of its movements, for the purposes stated.

2. In an automatic oscillating straw-stacker, the combination of a frame designed for attachment to a thresher, an oscillating frame mounted above it, a shaft in the aforesaid frame driven by power from the thresher, two bevel-gears rotatably mounted on the shaft and having clutch-surfaces on their adjacent faces, a clutch feathered to the shaft between the said clutch devices, a bevel gear-wheel in mesh with both of the aforesaid gears, means for imparting motion from said latter bevel gear-wheel to turn the oscillating frame, a lever fulcrumed to the frame which is attached to the thresher and connected to the said feathered clutch, a vertical shaft mounted in said frame, a lever on its upper end designed to be engaged by the ocillating frame, a yielding pressure device for preventing said lever from standing on a dead-center, an arm on the lower end of the shaft and having a limited sliding connection with the clutch-lever so arranged that the clutch is not withdrawn from engagement with one bevel-gear clutch until the lever on the vertical shaft has passed a dead-center when moving in either direction, an arm pivoted to said clutch-lever and a yielding pressure device of less resiliency than the aforesaid yielding pressure device connected with said arm whereby it is forced to and held at one or the other limit of its movement, for the purposes stated.

3. In an automatic oscillating straw-stacker, the combination of a frame designed for attachment to a thresher, an oscillating frame mounted above it, a shaft in the aforesaid frame driven by power from the thresher, two bevel-gears rotatably mounted on the shaft and clutch devices on their adjacent faces, a clutch feathered to the shaft between the said clutch devices, a bevel gear-wheel meshed with both of the aforesaid gears, means for imparting motion from said latter bevel-wheel to swing the ocillating frame, a lever fulcrumed to the frame which is connected to the thresher and connected to the said feathered clutch, a vertical shaft mounted in said frame, a lever on its upper end designed to be engaged by the oscillating frame, an arm on the lower end of the shaft and having a limited sliding connection with the clutch-lever, so arranged that the clutch is not withdrawn from engagement with one bevel-gear clutch, until the lever on the vertical shaft has passed a dead-center when moving in either direction, a rod 46 pivoted to said clutch-lever, a short lever 47 fulcrumed to the frame, a rod 48 pivoted to the front end of said lever 47, a support 49 on the said frame, and a spring 50, substantially as and for the purposes stated.

4. In an automatic oscillating straw-stacker, the combination of a stacker-frame, a shaft driven by power from the thresher, two bevel-gears, having clutch-surfaces on their adjacent faces rotatably mounted on said shaft, a clutch device feathered to the shaft between them, a lever connected with the clutch and fulcrumed to the stacker-frame, an arm connected with the said lever, and having a limited sliding movement relative thereto, an oscillating stacker-frame mounted above the said frame, mechanism connected with the stacker-frame whereby the oscillating frame in its movement will operate said arm to move the clutch-lever, a yielding pressure device for preventing said arm from stopping on a dead-center, a rod pivoted to said clutch-lever, and a yielding pressure device of less resiliency than the said yielding pressure device connected with said rod whereby the rod is made to force and hold the lever to one or the other limit of its movement, for the purposes stated.

5. In an automatic oscillating straw-stacker, the combination of a stacker-frame, a shaft 15 mounted therein, a clutch 33 feathered to the shaft, two bevel-gears 31 and 32, having clutch-surfaces thereon, a lever 33 fulcrumed to the machine-frame and connected with said clutch, an arm 35 having a limited sliding connection with the lever, a lever 37 pivoted to the said arm, a shaft 38 having said lever fixed thereto, an arm 39 on the top end of the shaft 38, a rod 43 pivoted to the lever 37 and to a support 44, a spring 45 on said rod, a rod 46 pivoted to the lever 33, a short lever 47 fulcrumed to the machine-frame and having

said rod pivoted to one end, a rod 48 pivoted to the opposite end of the lever and to a fixed support and a coil-spring 50 thereon, all arranged and combined for operation substantially as and for the purposes stated.

6. In an automatic oscillating straw-stacker, the combination of a frame, a shaft, a worm on its forward end, a worm-gear normally in mesh with the said worm to be driven thereby, an oscillating stacker-frame connected indirectly with said worm-gear to be moved in unison therewith, and means for preventing the worm from oscillating the stacker-frame comprising a hanger 55 attached to the fixed stacker-frame, a bearing in said hanger for the worm-shaft, a rod 56 having a notch 57 and pivoted to said hanger and a staple 58 designed to receive said notched rod for the purposes stated.

7. In an automatic oscillating straw-stacker, a device for temporarily throwing the stacker-reversing mechanism out of gear comprising, in combination, a shaft driven by power from the thresher, two bevel-gears rotatably mounted thereon and having clutch-surfaces, a clutch feathered to the shaft between them, a bevel-gear in mesh with both of said bevel-gears, a shaft fixed to the latter bevel-gear, a lever connected with the clutch, and a rod 51 attached to the lever having a notch 52 therein, a staple 53 in the stationary stacker-frame and a hook 54 to engage the rod, substantially as and for the purposes stated.

8. In an automatic oscillating straw-stacker, the combination of a fixed frame, a vertical shaft thereon, a sprocket-wheel on top of the shaft, means for driving the shaft, an oscillating frame mounted above the fixed frame, a circular rim having an outwardly-extending flange at its bottom, fixed to the oscillating frame, hooks fixed to said rim, and a sprocket-chain having its ends attached to said hooks its end portions resting upon the flange and its central portion passing around the said sprocket-wheel, for the purposes stated.

9. In an oscillating straw-stacker, the combination of two uprights secured to the oscillating stacker-frame, two flexible strips fixed at their rear ends to the said uprights and at their forward ends to the sides of the thresher, a guide-rod with its ends fixed to the rear ends of the thresher, means for slidingly connecting the top central portions of the flexible strips with said guide-rod, and a second guide-rod, attached to the oscillating stacker and means for slidingly connecting the lower edge of the flexible strips with said guide-rod, for the purposes stated.

10. The combination with an automatic oscillating straw-stacker of two uprights designed to be pivotally connected at their lower ends with the rear axle of a thresher, means for connecting their upper ends to the top of the thresher and for preventing the movement of the uprights relative to the top of the thresher, an A-shaped frame pivoted to the top of the uprights, a pulley supported in said A-shaped frame and a rope passed over the pulley and attached to the stacker-frame, for the purposes stated.

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