E. M. PETERSON.

SWINGING STRAW STACKER.

APPLICATION FILED SEPT. 14, 1910.

1,022,592.

Patented Apr. 9, 1912.

2 SHEETS—SHEET 1.

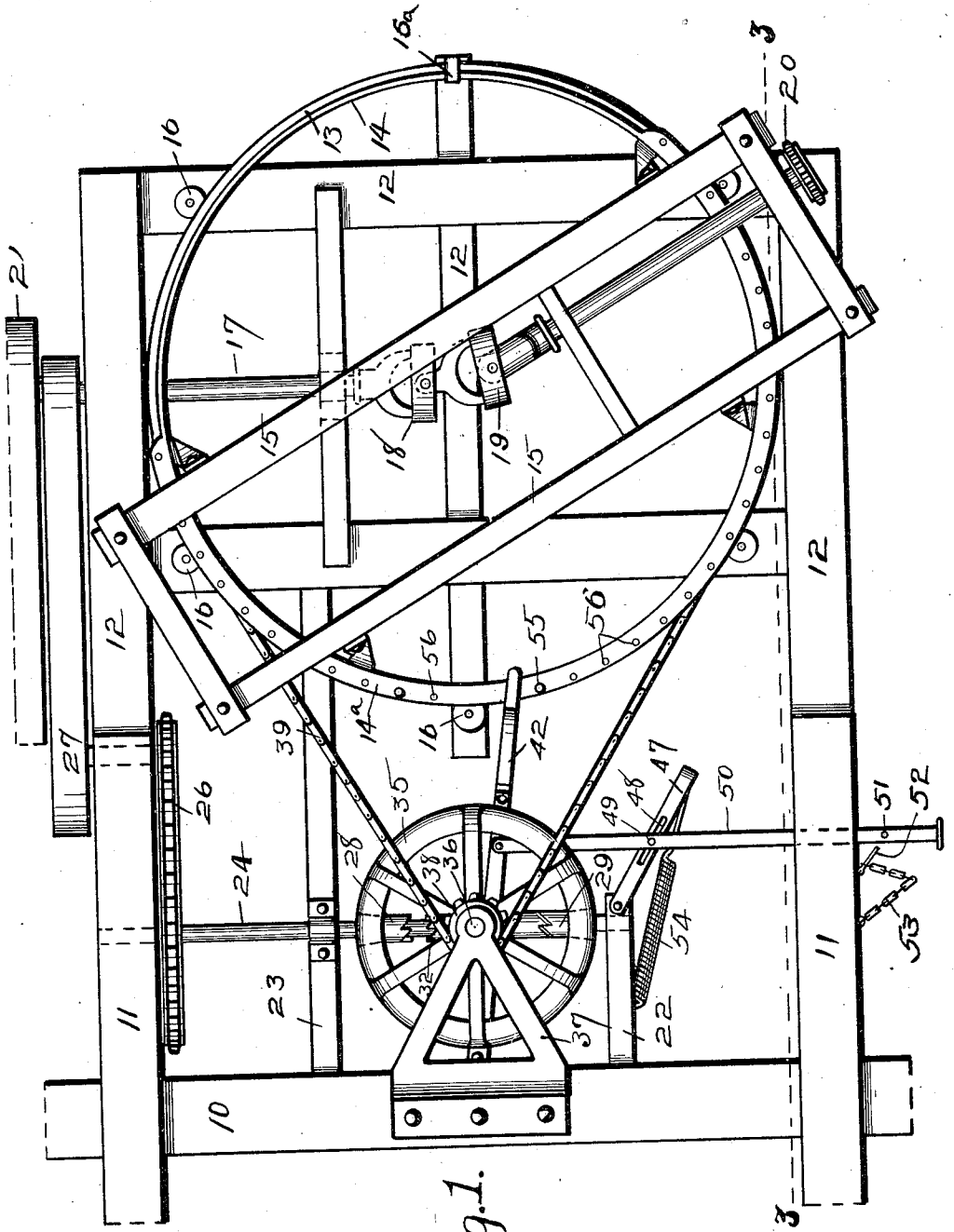

Fig. 1.

Witnesses.
W. A. Softus.
A. G. Hague.

Inventor.
Edward M. Peterson.
by J. Ralph Dwigatt.

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2 SHEETS—SHEET 2.

Fig. 2.

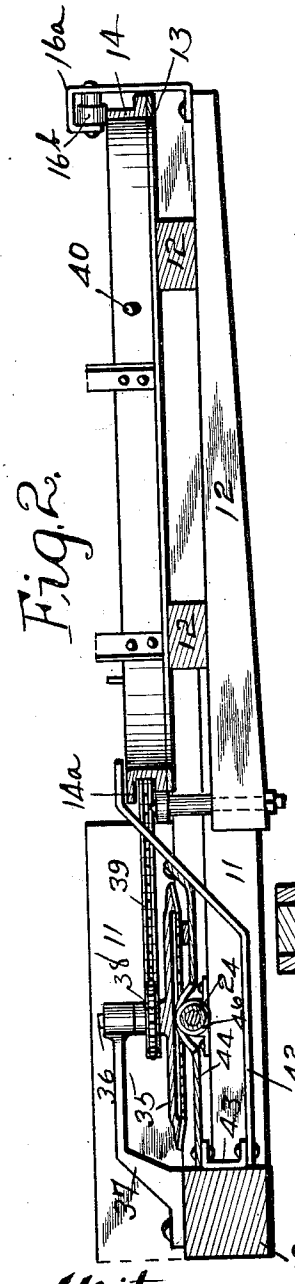


Fig. 5.

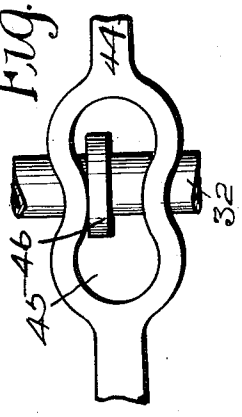


Fig. 4.

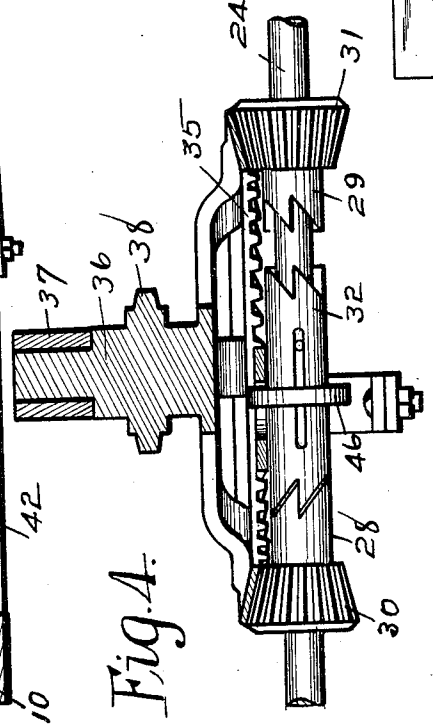
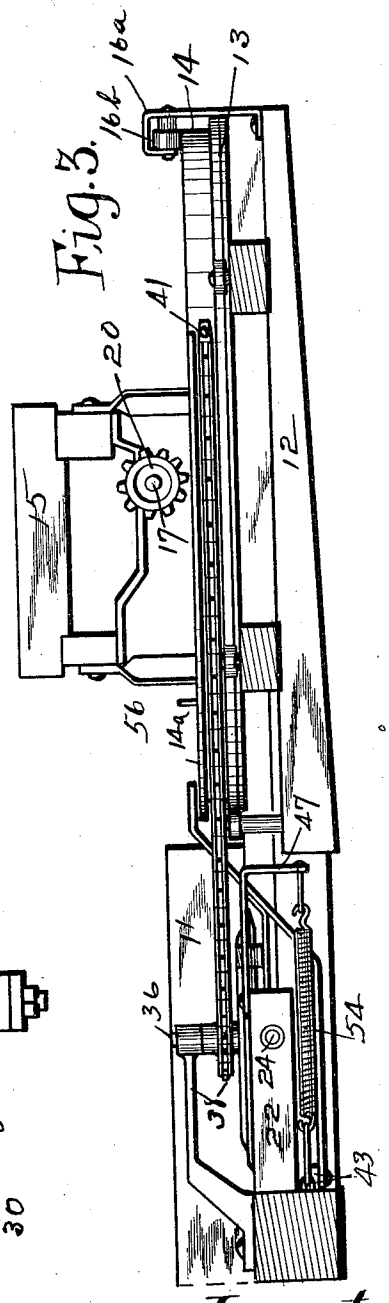


Fig. 3.



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by J. Ralph Onig Atty.

UNITED STATES PATENT OFFICE.

EDWARD M. PETERSON, OF LELAND, IOWA.

SWINGING STRAW-STACKER.

1,022,592. Specification of Letters Patent. Patented Apr. 9, 1912.

Application filed September 14, 1910. Serial No. 581,973.

To all whom it may concern:

Be it known that I, EDWARD M. PETERSON, a citizen of the United States, residing at Leland, in the county of Winnebago and State of Iowa, have invented a certain new and useful Swinging Straw-Stacker, of which the following is a specification.

The object of my invention is to provide an improved mechanism of simple, durable and inexpensive construction to be applied to a straw stacker for the purpose of automatically oscillating the stacker as required to distribute straw on a pile of segmental shape.

More specifically it is my object to provide a device of this kind in which power may be transmitted to the conveyer of the stacker by means of a single shaft while the stacker is being automatically oscillated.

A further object is to provide an improved automatic trip device for the purpose of reversing the motion of the oscillating mechanism; and further to provide a device of this kind in which there are comparatively few parts, all of which may be easily constructed and assembled, and which are not likely to get out of order.

Other and further objects of my invention will be fully set forth in the following specification.

My invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a top or plan view of the mechanism embodying my invention. Fig. 2 shows a central, longitudinal, sectional view of the same with the upper frame member removed. Fig. 3 shows a view taken on the line 3—3 of Fig. 1. Fig. 4 shows an enlarged, detail, sectional view of the mechanism for oscillating the turn-table member illustrating the clutch members for reversing the action of said mechanism, and Fig. 5 shows an enlarged, detail, plan view taken at the center of the sliding clutch member illustrating the construction of the collar thereon and the slotted arm for actuating said clutch member.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the rear cross beam of a separator frame.

The reference numeral 11 indicates the side beams of a separator frame to which are attached the side pieces of the stationary frame 12 for supporting my device. Mounted on the frame 12 is a stationary turn-table member 13. A rotary turn-table member 14 is rotatably mounted upon the stationary turn-table member 13. Extending horizontally from the top edge of the rotary turn-table member 14 is a segmental flange 14^a, the purpose of which will be hereinafter more fully explained. Mounted upon the rotary turn-table member 14 is an upper frame 15 to which a swinging stacker, not shown in the drawings, is pivoted to move in a vertical plane. For the purpose of holding said rotary turn-table member 14 in position over the stationary turn-table member 13, I have provided a series of guide rollers 16 to be mounted upon the frame 12 to engage the periphery of the rotary turn-table member 14. A bracket 16^a is also mounted on the frame 12 and a guide roller 16^b is mounted in the top thereof to engage the top of the rotary turn-table member 14 to prevent said turn-table member from tilting upwardly from the stationary turn-table member 13. The drive shaft 17 is mounted at one end upon the bottom of the frame 12 and at the other end upon the bottom of the upper frame 15. In order that the end of the shaft which is mounted upon the upper frame 15 may rotate in unison with said frame while the other end remains fixed to the stationary frame 12, I provide near the central portion of said shaft 17 two universal joints 18 and 19 so that said upper frame 15 may be rotated freely in either direction relative to the shaft 17. For imparting motion from the shaft 17 to the conveyer (not shown) I provide the sprocket wheel 20 at one end of the shaft 17 and I have provided for driving said shaft by means of the drive belt 21 at the other end of the shaft 17.

By the arrangement just described, it is obvious that power may be applied to the conveyer of a swinging stacker mounted on the frame 15 by means of a single shaft 17 when the frame 15 is in any position of its movement and that the said frame 15 may be moved to any desired position without being interfered with in its movement by any of the gearing devices and further, that the gearing mechanism is made up of few parts, all of which are of very simple con-

struction and are not liable to get out of order.

Fixed to one end of the frame are two supports 22 and 23 having a shaft 24 rotatably mounted thereon. I have provided for driving this shaft by means of a sprocket gearing 26 and a belt and pulley gearing 27, the latter being connected to the shaft 17. Fixed to the shaft 24 are two clutch members 28 and 29 spaced apart from each other and each provided with the beveled gear wheels 30 and 31 respectively. Slidingly mounted on the shaft 24 between the clutch members 28 and 29 is a clutch member 32. Arranged above the shaft 24 is a beveled gear wheel 35 in mesh with the pinions 30 and 31. A shaft 36 extends upwardly from the beveled gear 35 and is rotatably mounted at its upper end in one end of a supporting bracket 37. The other end of the supporting bracket 37 is firmly attached to the cross beam 10. A sprocket wheel 38 is mounted upon the shaft 36 above the beveled gear 35 and a sprocket chain 39 is attached at one end to the rotary turn-table (see Fig. 2) member 14 by means of the bolt 40 and passed around the sprocket wheel 38 and is attached at its other end to the opposite side of the rotary turn-table member 14 by means of the bolt 41, as clearly shown in Fig. 3.

By the arrangement just described, and assuming that the shaft 24 is being driven in one direction and that the sliding clutch member 32 is in engagement with the clutch member 28, as shown in Fig. 4, it is obvious that the pinion 30 will be driven which in turn will drive the beveled gear 35 and the shaft 36 so that the sprocket wheel 38 mounted on the shaft 36 will actuate the gear chain 39 which, being attached to the rotary turn-table member 14, will cause said rotary turn-table 14 to oscillate in one direction thus carrying the upper frame member 15 to one limit of its movement. Then when the sliding clutch member 32 is adjusted to engage the clutch member 29, the pinion 31 will be driven which in turn will drive the beveled gear 35 in the opposite direction from its first mentioned movement, and the movement of the sprocket wheel 38, the gear chain 39 and rotary turn-table member 14 will be reversed and the upper frame member will be carried to the other limit of its movement.

For the purpose of slidingly adjusting the sliding clutch member 32 to reverse the movement of the rotary turn-table member as just described, I provide a trip lever 42 fulcrumed at one end to the lower arm of the bracket 43. The bracket 43 is attached to the cross beam 10 and is provided with upper and lower arms. The other end of the said trip lever 42 extends over the segmental flange 14ª of the rotary turn-table member 14, as clearly shown in Fig. 2. Fulcrumed to the upper arm of the bracket 43 is a lever member 44 which extends through between the clutch member 32 and the beveled gear 35. The other end of the lever member 44 is attached to the trip lever 42. The said lever member 44 is provided with a slot 45 to receive the rim of the collar 46 mounted upon the sliding clutch member 32. The slot 45 is narrower at its central portion than it is at its ends so that when either side thereof comes in contact with the collar 46 it will strike said collar at a point spaced inwardly from the edge thereof.

Fulcrumed to support 22 is a second lever 47 having its other end turned downwardly Said lever is provided approximately at its central portion with a longitudinal slot 48 to receive a pin 49, which pin is inserted through the slot 48 and fixed to the draw bar 50. The draw bar 50 is pivoted at one end to the lever member 44 and is slidingly mounted near its other end on the beam 11 and extends a short distance past said beam. Said draw bar 50 is also provided with an opening 51 near its outer end. A pin 52 is attached to the beam 11 by means of a chain 53, the purpose of which will be hereinafter more fully explained. A spiral spring 54 is attached at one end to the cross beam 10 just below the frame member 22. The other end of said spring 54 is attached to the downwardly turned end of the lever 47.

In order to automatically actuate the trip lever 42, I provide two pins 55, which pins are capable of being adjusted in a series of openings 56 in the segmental flange 14ª of the rotary turn-table member to engage the end of the trip lever 42 so that when the rotary turn-table member 14 is at one limit of its movement one of the pins 55 will engage the trip lever 42 and move it in a horizontal direction and the bar which connects the levers 42 and 47 will move the lever 47 in a like direction. When the lever 47 reaches a position slightly past dead center with the spring 54, said spring will force both levers 42 and 47 to the opposite limit of their movement and the clutch member 32 being in engagement with the lever 42 by means of the collar 46 will be thrown quickly out of engagement with one of the rotary clutch members and into engagement with the other rotary clutch member, thus reversing the movement of the rotary turn-table member as before described.

It will be noticed that the slot 45 is considerably wider than the thickness of the collar 46; the obvious purpose of this construction is to allow the levers 42 and 47 to move from one limit of their movement to a position past dead center with the spring 54 before the opposite side of the slot 45 comes in contact with the collar 46 to actuate the clutch member 32. Then when the levers

42 and 47 move past dead center with the spring 54, the opposite side of the slot 45 will be in engagement with the collar 46 and the action of the spring 54 will throw the clutch member 32 quickly and forcibly from one limit of its adjustment to the other.

It is obvious that in throwing a toothed clutch member in and out of engagement with another toothed member while in motion it is very important that the sliding clutch member should be actuated quickly and forcibly in order to prevent the teeth from being broken off by the ends thereof coming in contact while in motion. For this reason I have provided for the sliding clutch member 32 to be actuated by means of the spring 54 as described.

In practical operation, when the operator wishes to throw the oscillating mechanism out of gear and thus stop the swinging motion of the stacker he simply inserts the pin 52 in the opening 51 and then manually pushes the draw bar 50 inwardly until the end of the pin 52 is in engagement with the beam 11. This will throw the levers 42 and 47 past dead center with the spring 54 and said spring 54 will throw the sliding clutch member 32 out of engagement with the clutch member 29. However the pin 52 in the draw bar 50 will hold said draw bar 50 in position to prevent the levers 42 and 47 from reaching the opposite limit of their movement and so hold the clutch member 32 spaced between the clutch members 28 and 29. Then when the operator wishes to throw the device back into gear he simply removes the pin 52 from the opening 51, whereupon the draw bar 50 will be released and allow the spring 54 to move the levers 42 and 47 to the limit of their movement, thus throwing the sliding clutch member 32 quickly and forcibly into engagement with the clutch member 28.

The pins 55 may be adjusted to any desired position in the openings 56 and when the rotary turn-table 14 is oscillated in either direction one of the pins 55 will engage the lever 42 and thus actuate the clutch member 32 which will result in moving the rotary turn-table member 14 in the opposite direction from its first direction of movement. By adjusting the pins 55 in the openings 56 the path of the stacker may be altered.

I claim as my invention:

1. In a device of the class described, a movable turn table, a shaft, two clutch members thereon, a movable clutch member on said shaft, beveled gears on said clutch members, an upright shaft, a pinion thereon in mesh with said beveled gears, means whereby the rotation of said upright shaft is imparted to said movable turn table, a bracket having two arms, a lever pivoted to one of said arms extending to a point adjacent to said movable turn table, limiting pins on said movable turn table designed to engage the end of said lever, a second lever pivoted to the other arm of said bracket and to said first lever, said second lever being operatively connected with said movable clutch member, a draw bar slidingly mounted and pivotally connected with said first lever, a third lever pivoted at one end and provided with a longitudinal slot near its center, a pin on said draw bar mounted in said slot, a contractible coil spring secured to the free end of said third lever and mounted at its other end at such a point that at one point in the movement of the lever, said spring is parallel therewith, and means for limiting the movement of said draw bar in one direction.

2. A device of the class described, comprising a stationary frame, a turn-table mounted thereon, an upper frame mounted on the turn-table, a shaft mounted on the stationary frame, means for rotating said shaft, two clutch members rotatably mounted on the shaft, a sliding clutch member mounted on the shaft between the rotary clutch members, a collar on the sliding clutch member, a beveled gear operatively connected with the rotary clutch members, an upright shaft actuated by the beveled gear, a sprocket wheel mounted on the upright shaft, a sprocket chain passing around said sprocket wheel and having both ends attached to the turn-table at points substantially opposite each other, a lever fulcrumed at one end on the stationary frame for actuating the sliding clutch member to throw it into and out of engagement with the rotary clutch members, said lever being provided with a slot, said slot being designed to receive the rim of the collar on the sliding clutch member, the sides of said slot being spaced apart sufficiently to allow the lever to move horizontally a certain distance without engaging the collar, a second lever fulcrumed at one end to the stationary frame, and provided with a longitudinal slot near its center, a bar connected at one end to the first mentioned lever and extending outwardly past the frame, said bar being also connected with the second lever by means of a pin designed to be inserted through the slot in the second lever and embedded in the bar, a spiral spring attached at one end to the stationary frame and at the other end to the free end of the second lever, said turn-table being provided with a series of openings, two pins designed to be detachably adjusted in said series of openings for engaging the first mentioned lever to move both levers to position past dead center with the spiral spring, whereupon the action of the spring will quickly and forcibly throw the sliding clutch member out of engagement with one of the ro-

tary clutch members and into engagement with the other one, substantially as described and for the purposes stated.

3. In a device of the class described, the combination of a stationary frame, a turn-table mounted on said frame, an upper frame mounted on the turn-table, a shaft mounted on the stationary frame, a clutch mechanism mounted on the shaft having two pinions mounted thereon, a beveled gear in mesh with the two pinions, an upright shaft actuated by the beveled gear, a sprocket wheel on the upright shaft, a sprocket chain connected at both ends with the turn-table and passing around said sprocket chain, and a trip mechanism for actuating the clutch mechanism comprising a collar on the sliding clutch member, a lever fulcrumed at one end to the stationary frame and having its other end extending over the turn-table, said lever being provided with a slot to receive the rim of the collar, the sides of said slot being spaced apart sufficiently to allow the lever to move a short distance in a longitudinal direction without engaging the collar, said slot also being narrower at its central portion than it is at either end so that the sides thereof will engage the collar at a point spaced inwardly from the edge of the collar, a second lever fulcrumed at one end to the stationary frame and having its free end turned downwardly, said second lever being provided with a longitudinal slot, a bar connected at one end with the first mentioned lever and extending a short distance past the stationary frame, said bar being connected near its central portion with the second lever by means of a pin, said pin being designed to be inserted through the slot in the second lever and fastened to the bar, a spiral spring attached at one end to the stationary frame and at the other end to the free end of the second lever, said turn-table being provided with a series of openings, two pins designed to be detachably adjusted in said series of openings for engaging the first mentioned lever to move both levers to position past dead center with the spiral spring whereupon the action of the spring will quickly and forcibly actuate the clutch mechanism, said bar being provided with an opening near its outer end, and a pin designed to be inserted through said opening for holding the parts of the clutch mechanism out of engagement with each other, substantially as described and for the purposes stated.

Des Moines, Iowa, Aug. 23, 1910.

EDWARD M. PETERSON.

Witnesses:

ALFRED I. PETERSON,

O. H. K. EIDAHL.