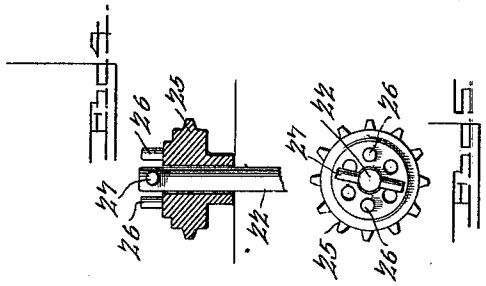
No. 669,500. Patented Mar. 12, 1901.

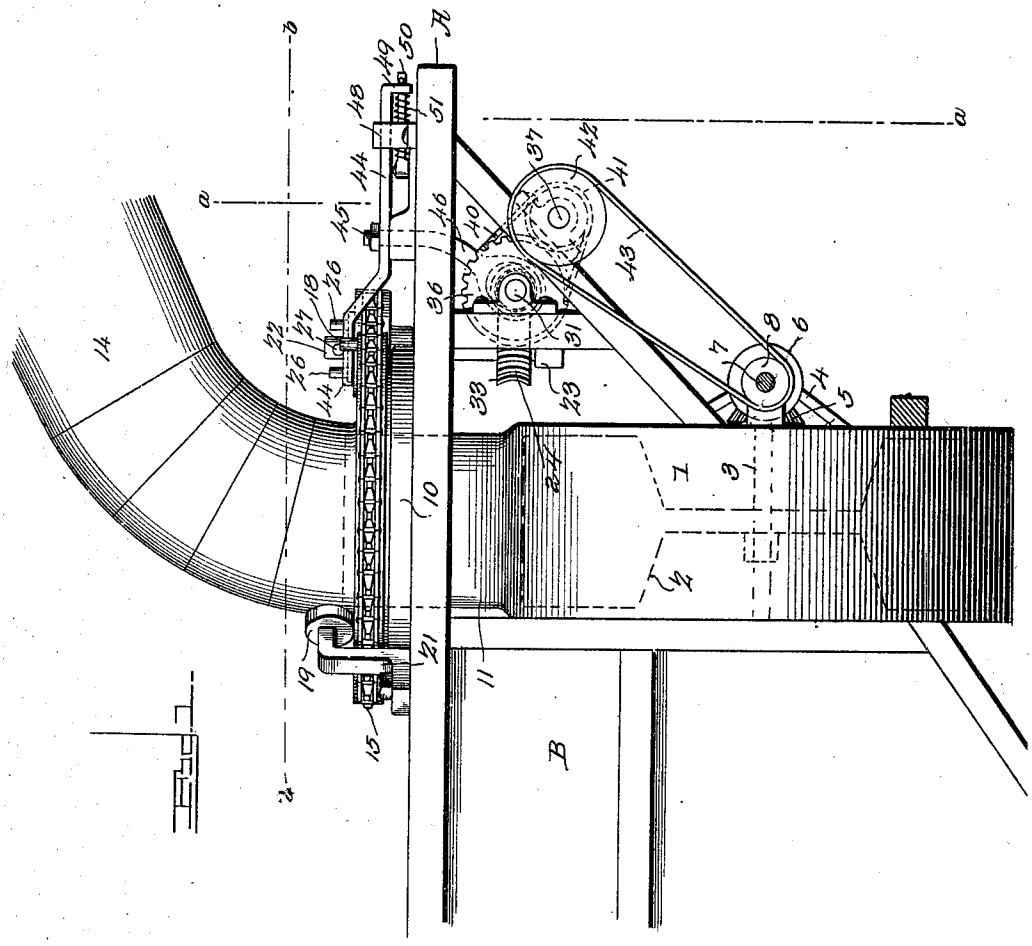
J. M. ANDREWS.

PNEUMATIC STRAW STACKER.

(Application filed June 20, 1900.)

(No Model.) 2 Sheets—Sheet 1.





Witnesses
E. F. Stewart.
J. W. Garner

John M. Andrews Inventor
by C. A. Snow & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 669,500. Patented Mar. 12, 1901.

J. M. ANDREWS.

PNEUMATIC STRAW STACKER.

(Application filed June 20, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

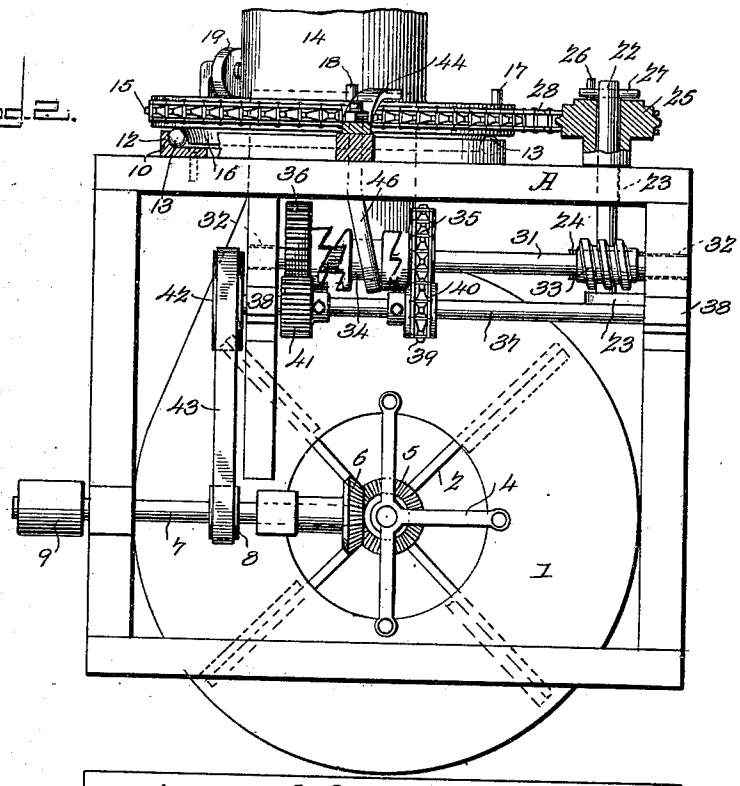
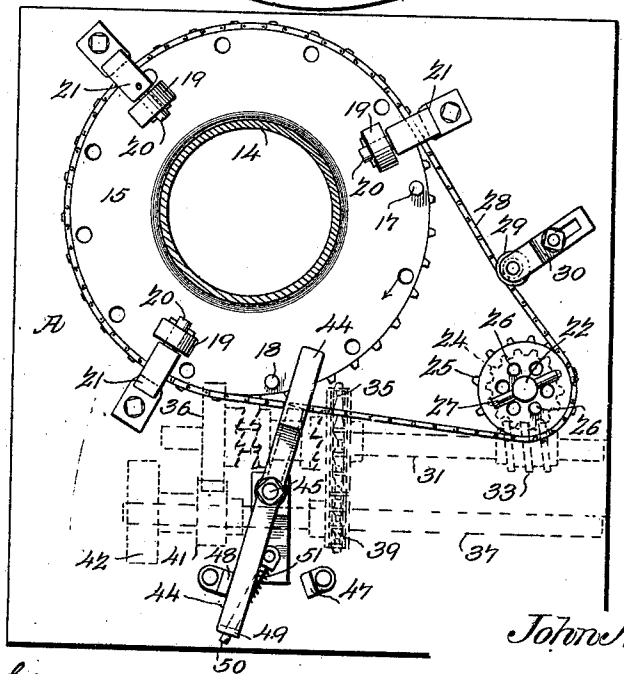


Fig. 3.



Witnesses,
E. F. Stewart
J. W. Garner

John M. Andrews
Inventor
By C. A. Snow & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN M. ANDREWS, OF ANDREWS, TENNESSEE.

PNEUMATIC STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 669,500, dated March 12, 1901.

Application filed June 20, 1900. Serial No. 20,992. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. ANDREWS, a citizen of the United States, residing at Andrews, in the county of Maury and State of Tennessee, have invented a new and useful Pneumatic Straw-Stacker, of which the following is a specification.

My invention is an improved pneumatic straw-stacker, one object of my invention being to effect improvements in the driving and reversing mechanism for swinging the stacker-tube, whereby the latter is automatically swung first in one direction and then in the reverse direction when the blast-fan is in operation.

A further object of my invention is to effect improvements in the driving and reversing mechanism for swinging the stacker-tube, whereby the latter is caused to dwell for a period of time at each limit of its path before reversing the direction of its movement.

My invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a pneumatic straw-stacker constructed in accordance with my invention. Fig. 2 is a rear elevation of the same, partly in section, on the line *a a* of Fig. 1. Fig. 3 is partly a top plan view and partly a horizontal section on the line *b b* of Fig. 1, the subjacent power and reversing mechanism being indicated in dotted lines. Figs. 4 and 5 are detail views.

Below the platform A, which projects from the casing B of a grain-separator or threshing-machine, is a fan casing or drum 1, in which is a revoluble blast-fan 2, which is mounted on a shaft 3, that is journaled in bearings 4 on the sides of the fan-casing. The interior of the latter communicates at a suitable point with the opening in the casing of the threshing-machine or separator, through which the straw is discharged after the grain has been threshed therefrom. The said shaft 3 is provided at its outer end with a miter-gear 5, which is engaged by a similar gear 6 on the power-shaft 7. Said power-shaft has a pulley 8 and a power-pulley 9, the latter being rotated by a power-belt (not shown) in the usual manner.

A circular base-plate 10 is bolted or otherwise secured on the platform A above the fan-casing, and the latter has an upward-extending discharge-arm 11, which passes through a central opening in the said base-plate. An annular raceway 12 is formed in the upper side of the base-plate, in which raceway are bearing-balls 13. The lower section of the stacker-tube 14 is secured to a master-wheel 15, the latter having a central opening through which the arm 11 of fan-casing 1 extends, whereby the blast from the fan is delivered directly into the lower end of the stacker-tube, and the said master-wheel is provided on its lower side with a coacting raceway 16, disposed opposite the raceway 12 and engaged by the bearing-balls, the said master-wheel being thereby adapted to rotate on the base-plate 10 and the friction between the master-wheel and the base-plate being reduced to the minimum. The master-wheel is provided with peripheral sprocket-spurs, and on its upper side are tappet-studs 17 18, which are disposed at a suitable distance apart. A series of antifriction-rollers 19 are journaled on spindles 20 of angle-brackets 21, which are bolted on the top of the platform A, the said antifriction-rollers bearing downward on the upper side of the master-wheel and preserving the same in its seat on the base-plate 10. The master-wheel forms the direct support and pivot for the stacker-tube, and it will be understood that by partly rotating the master-wheel first in one direction and then in the reverse direction the stacker-tube may be oscillated or swung laterally, so as to appropriately discharge the straw, which is conveyed pneumatically therethrough by the blast from the blast-fan onto a stack or rick.

A vertical shaft 22 has its bearings, as at 23, in and below the platform A. A worm gear-wheel 24 is fast on the lower portion of the said shaft and a sprocket-pinion 25 is loose on the upper end thereof. The sprocket-pinion is provided on its upper side with stop pins or studs 26, which are disposed opposite each other, and the shaft 22 is provided near its upper end with a transversely-disposed tappet-pin 27, the projecting ends of which on opposite sides of the shaft 22 are adapted to engage the stop pins or studs 26 when the

shaft 22 is rotated in either direction, whereby the said shaft is permitted to partially rotate before imparting rotary motion to the pinion 25. The latter is connected to the sprocket-wheel or master-wheel 15 by an endless sprocket-chain 28. An idle sheave 29, carried by an adjustable bracket 30 on the platform A, engages one lead of the endless sprocket-chain and may be so adjusted as to maintain the sprocket-chain at the tension required.

A shaft 31 is disposed below the platform A and journaled in suitable bearings, as at 32. The said shaft has a worm 33, which engages the worm-gear 24, and on the said shaft is splined a clutch 34, which is adapted to engage either a sprocket-wheel 35 or a spur-gear 36, which are loose on said shaft 31. A counter-shaft 37 is disposed parallel with the shaft 31 in bearings 38. Said counter-shaft has a sprocket-wheel 39 fast thereon, which is connected to the wheel 35 by an endless sprocket-chain 40, a spur-gear 41 fast thereon, which meshes with the gear 36, and a pulley 42, which is connected to the pulley 8 on shaft 7 by an endless belt 43.

A shifting lever 44 is fulcrumed on the platform A, as at 45, and has a depending arm 46, the lower end of which is forked or bifurcated and engages the double-ended clutch 34. The inner arm of the said shifting lever projects over the master-wheel 15 and is disposed between the tappet-studs 17 18. The outer arm of the said shifting lever operates between stops 47 48 and has a downward-extending ear or lug 49, through an opening in which extends an oscillating rod 50. A spring 51 on the said rod bears against the inner side of the lug or ear 49, and the tension of the said spring serves to keep the lever 44 in engagement normally either with the stop 47 or the stop 48.

The operation of my invention is as follows: The shaft 7 when the same is rotated communicates power to the blast-fan, and the shaft 37 and the clutch 34 being in engagement either with the wheel 35 or the wheel 36 the shaft 31 is caused to rotate in one direction and rotate the shaft 22 in one direction, the pinion 25 on said shaft 22, through the endless sprocket-chain 28, causing the master-wheel to partly rotate in one direction, and thereby swing the stacker-tube to one side until one of the tappet spurs or studs 17 18, by engagement with the shifting lever 44, moves the latter to the reverse position to that which it initially assumed, hence shifting the clutch 34 and reversing the direction of rotation of the shafts 31 22 through the means hereinbefore described. As the shaft 22 changes the direction of its rotation the pin 27 thereof becomes for a time disengaged from the studs or pins 26 of pinion 25, hence permitting the latter, and consequently the master-wheel, to which it is connected, to remain idle during a partial rotation of the shaft 22, thereby causing the stacker-tube to dwell at each limit of its path before reversing the direction of its movement, this dwelling of the stacker-tube causing more of the straw to be deposited at the ends of the rick than at any other portion thereof, as is required in the formation of a rick, and hence dispensing with the employment of one or more hands on the rick to appropriately dispose the straw thereon, as is now commonly required with machines of this character.

Having thus described my invention, I claim—

1. In a pneumatic straw-stacker, the combination of a stacker-tube having a master-wheel forming the pivotal support thereof, a loose pinion to rotate said master-wheel, a shaft and coacting stops to rotate said pinion and permit of the partial rotation of said shaft independently of said pinion, a shaft and connections to rotate said pinion-shaft, shifting mechanism to rotate said shaft in opposite directions, alternately, and a shifting lever actuated by stops or tappets carried by said master-wheel, whereby said stacker-tube may be automatically swung from side to side and caused to "dwell" at the limits of its path at each change in the direction of its movement, substantially as described.

2. In a pneumatic straw-stacker, the combination of a stacker-tube having a master-wheel forming the pivotal support thereof, said master-wheel having sprocket-teeth, a loose sprocket-pinion, an endless sprocket-chain connecting said master-wheel and sprocket-pinion, a shaft and coacting stops to rotate said pinion and permit of the partial rotation of said shaft independently of said pinion, a shaft and connections to rotate said pinion-shaft, shifting mechanism to rotate said shaft in opposite directions, alternately, and a shifting lever actuated by stops or tappets carried by said master-wheel, for the purpose set forth, substantially as described.

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

JOHN M. ANDREWS.

Witnesses:

J. F. BROWNLOW,

W. I. COLLIER.