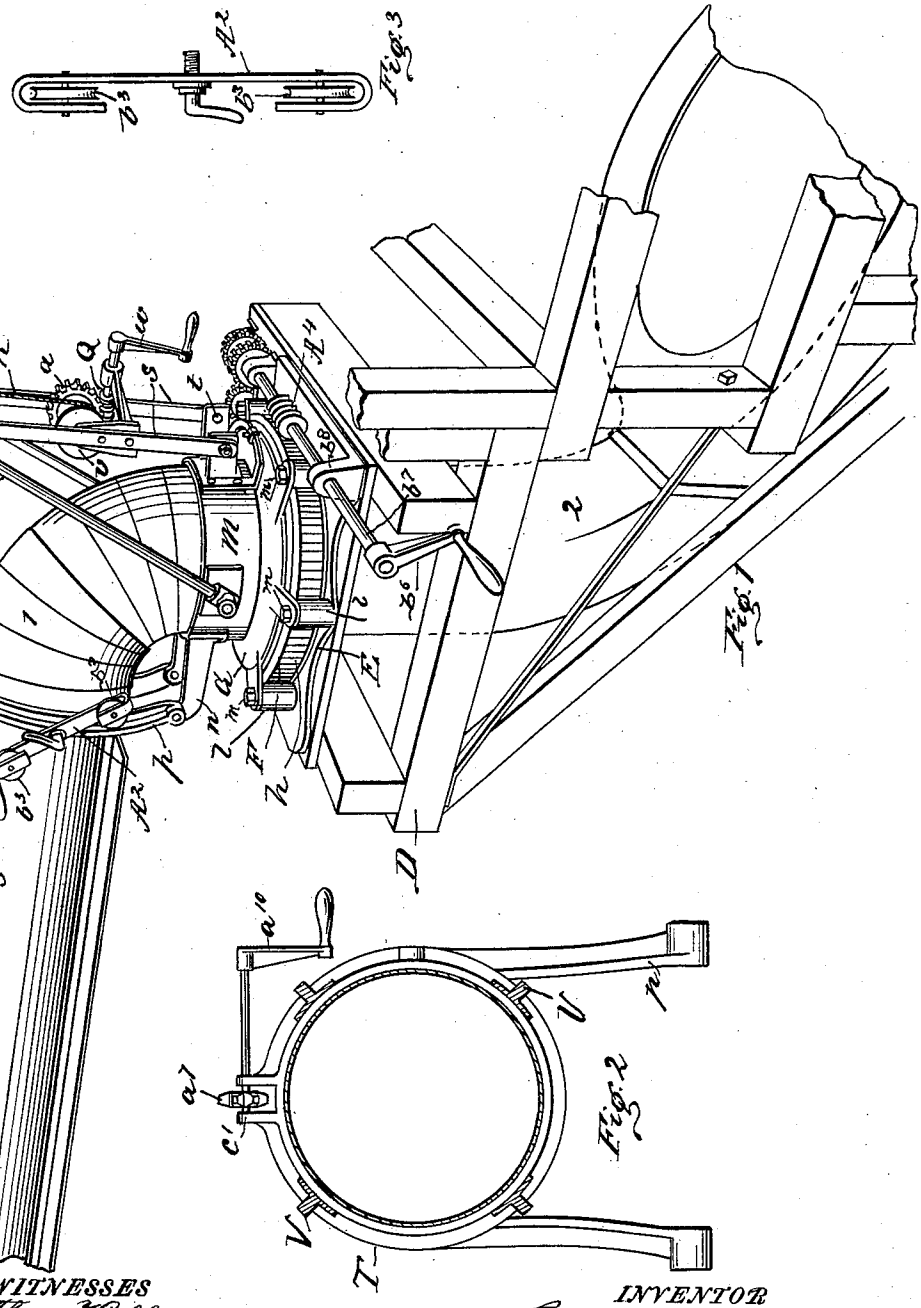
(No Model.)

5 Sheets—Sheet 1.

C. O. HEGGEM.

PNEUMATIC STACKER.

No. 595,390. Patented Dec. 14, 1897.



WITNESSES
Theo. Hiller.

INVENTOR
Charles O Heggem
By W K Miller
Attorney

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

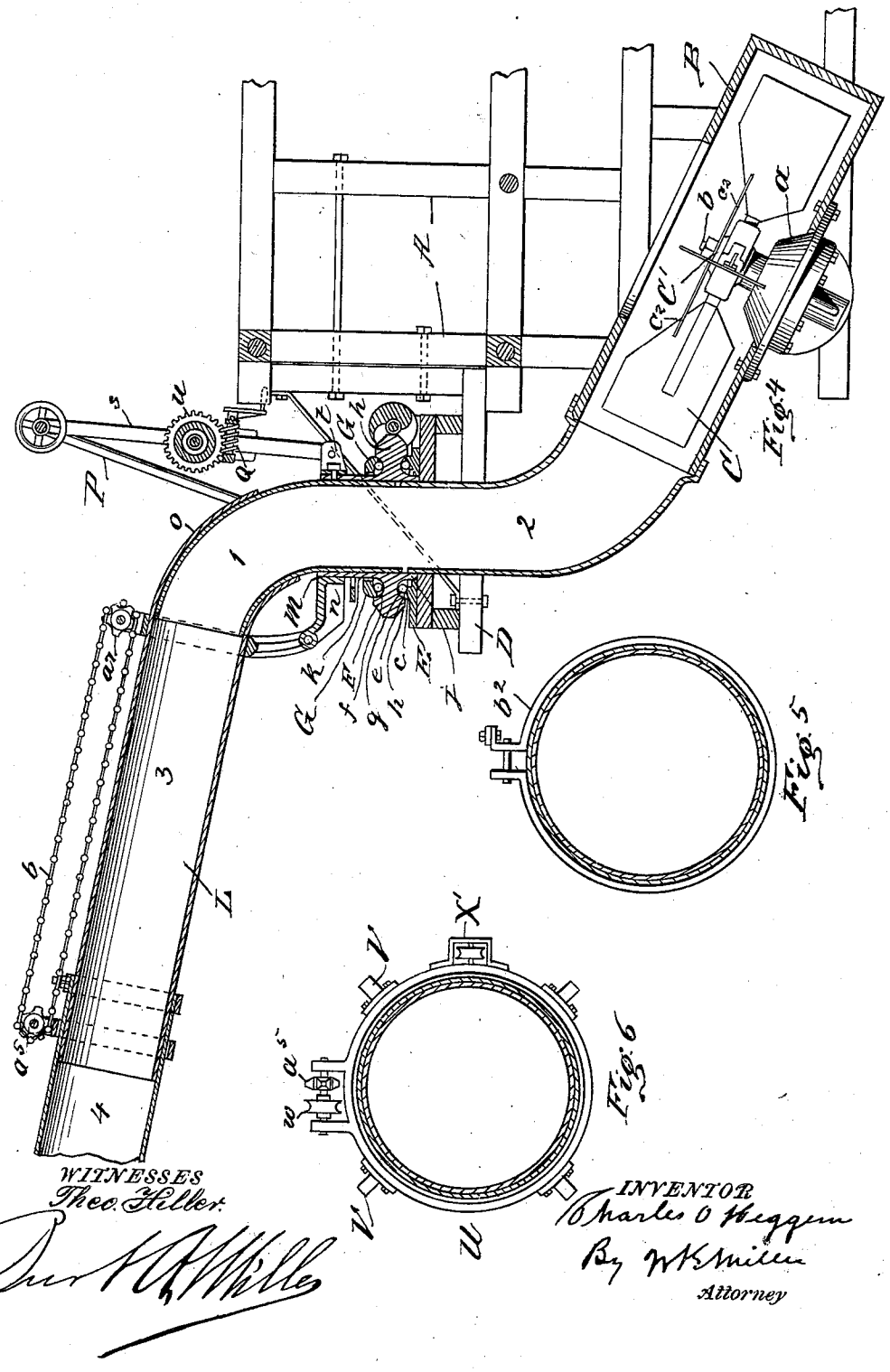
(No Model.)

5 Sheets—Sheet 2.

C. O. HEGGEM.

PNEUMATIC STACKER.

No. 595,390. Patented Dec. 14, 1897.



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

(No Model.) 5 Sheets—Sheet 3.

C. O. HEGGEM.

PNEUMATIC STACKER.

No. 595,390. Patented Dec. 14, 1897.

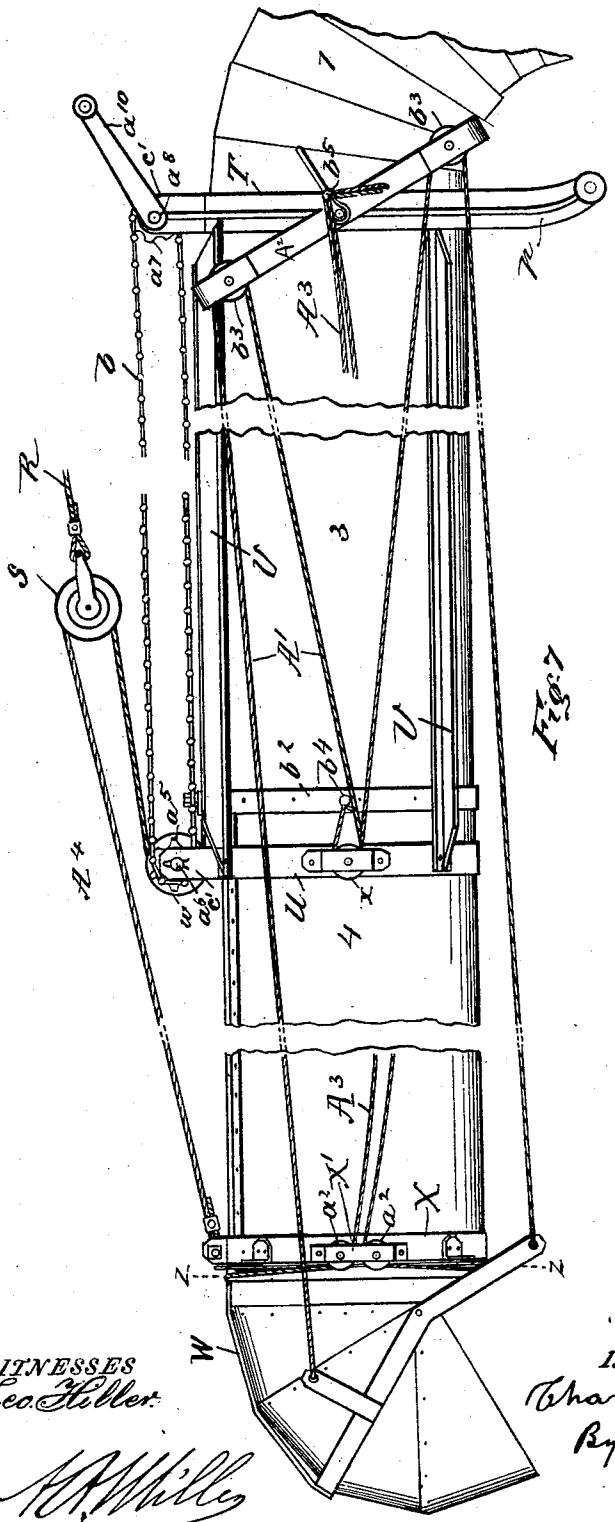


Fig. 7

WITNESSES
Theo. Hiller.
Dan'l W. Miller

INVENTOR
Charles O. Heggem
By W. K. Miller
Attorney

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

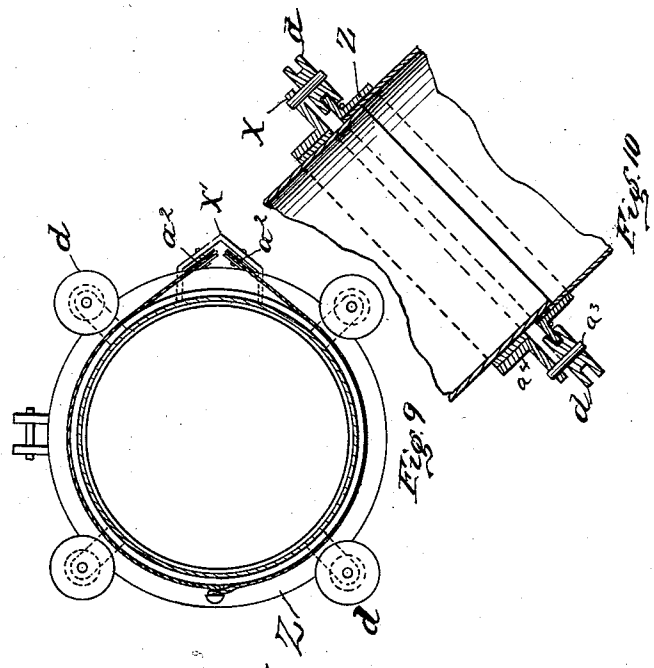
(No Model.)

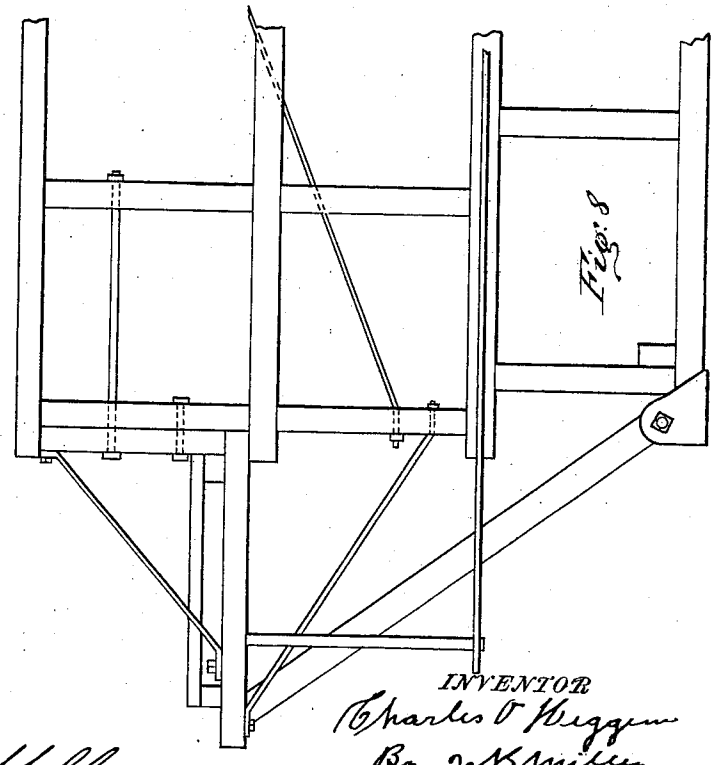
5 Sheets—Sheet 4.

C. O. HEGGEM.

PNEUMATIC STACKER.

No. 595,390. Patented Dec. 14, 1897.





WITNESSES
Theo. Hiller.

INVENTOR
Charles O. Heggem
By W. K. Miller
Attorney

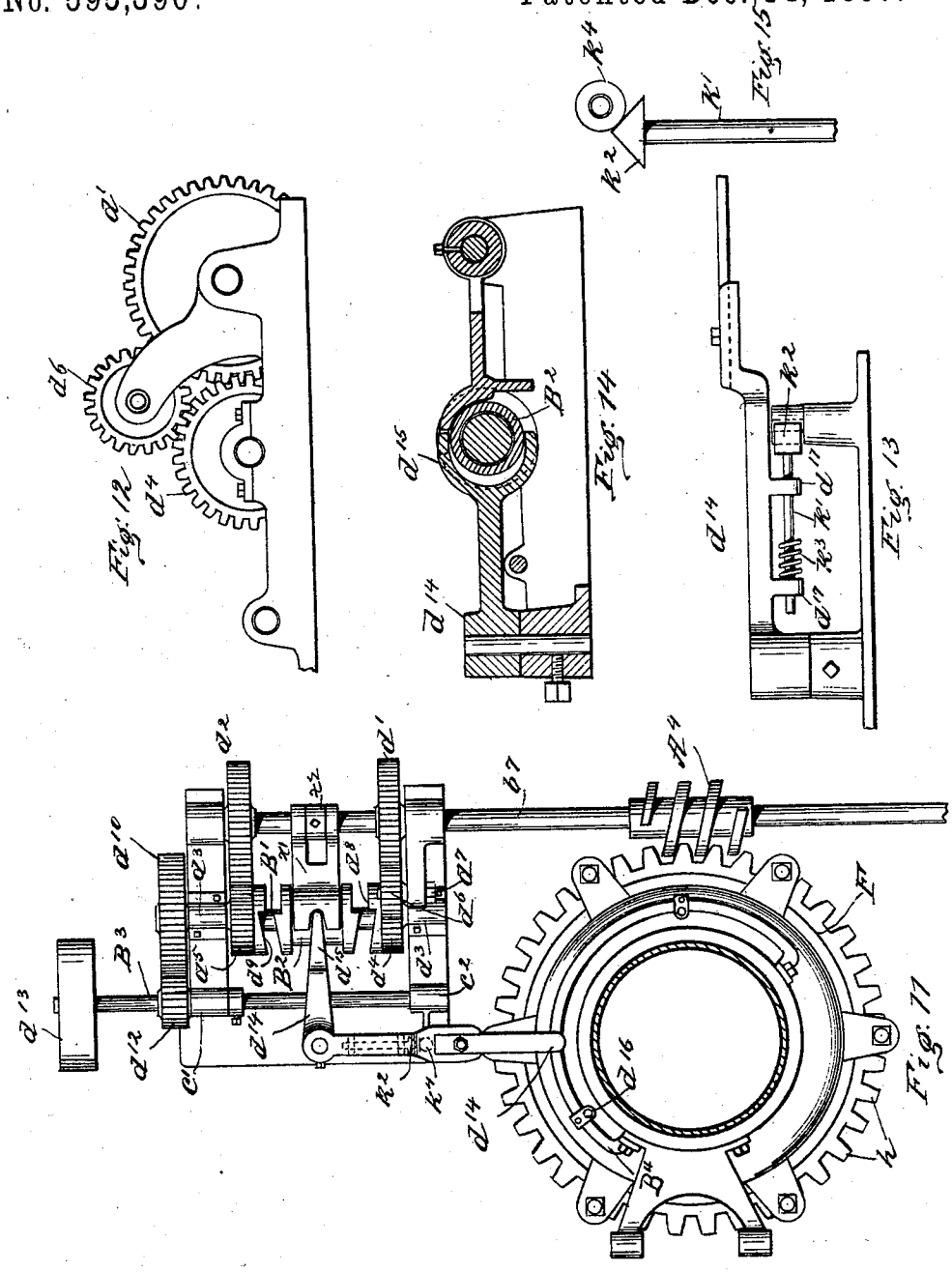
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 5 Sheets—Sheet 5.

C. O. HEGGEM.

PNEUMATIC STACKER.

No. 595,390. Patented Dec. 14, 1897.



WITNESSES
Theo. Keller.
Chas. A. Wills

INVENTOR
Charles O. Heggem
By W. K. Miller
Attorney

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

UNITED STATES PATENT OFFICE.

CHARLES O. HEGGEM, OF MASSILLON, OHIO, ASSIGNOR TO THE RUSSELL & CO., OF SAME PLACE.

PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 595,390, dated December 14, 1897.

Application filed July 11, 1896. Serial No. 598,795. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. HEGGEM, a citizen of the United States, and a resident of Massillon, county of Stark, State of Ohio, have invented a new and useful Improvement in Pneumatic Straw-Stackers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to certain improvements in pneumatic straw-stackers; and it consists of certain features of construction and combination of parts, as will be hereinafter described and claimed.

Figure 1 of the drawings is a view in perspective from left front of a fragment of the rear portion of a thresher-frame and the front portion of the discharge-pipe. Fig. 2 is a cross-section through the pipe at rear end of the elbow. Fig. 3 is a side view of sheave-support. Fig. 4 is a longitudinal section of the discharge-pipe and discharger and fragment of thresher-frame and cross-section of turn-table. Fig. 5 is a cross-section at front end of the rear section. Fig. 6 is a cross-section of front end of front telescoping section. Fig. 7 is a side view of the discharge-pipe with front portion cut away and cross-section cut out for the purpose of shortening the view. Fig. 8 is a side view of the rear portion of the threshing-machine frame. Fig. 9 is a cross-section through discharge-pipe on line *z z*, Fig. 7. Fig. 10 is a longitudinal section of a fragment of the discharge-pipe and hood, showing the manner of connecting the hood to the body of the pipe. Fig. 11 is a plan view of oscillating mechanism and turn-table. Fig. 12 is a side view of gearing. Fig. 13 is a side view of clutch-trip. Fig. 14 is a longitudinal section of trip. Fig. 15 is a portion of detail of shifter.

In the drawings, A denotes a rear end portion of the thresher-frame, to the lower portion of which is mounted the fan-casing B, which is arranged obliquely to the frame. The top of the casing is formed with an opening, through which the straw to be stacked is fed. The casing has secured to its bottom a journal-box *a*, projecting up into the casing and is of the form substantially as shown, in which is journaled the discharger-shaft *b*, oblique to the thresher-frame. A hub C′ is secured to the shaft *b*, to which the discharger or fan-blades C are secured. On the top of said hub is provided a deflecting cap or plate C^2, by which the straw and chaff are deflected to the blades and thereby thrown into the discharge-pipe.

The discharger and the gearing to drive it have been described in my application filed April 27, 1896, Serial No. 589,193.

D denotes a platform which is secured to the rear end of the thresher-frame at a point above the fan or discharger casing B. A metal plate E is supported on said platform and is provided with a central aperture surrounded by annular grooves or seats *c*, in which are placed antifriction-balls *e*. On the balls *e* is placed a turn-table F, having in its upper and lower faces about a center aperture grooves *f* and *g* and about its periphery a series of cogs or teeth *h*. The turn-table is provided with a downwardly-projecting short sleeve *j*, which projects into the central aperture in the plate E, and also with an upwardly-projecting short sleeve *k*. Antifriction-balls *e* are placed in groove *f*, and placed over them is a binding-plate G, supported on sleeves or spools *l*, through which bolts *m* are passed into the plate E to hold the plate G in position.

To the sleeve *k* is secured an elbow-section 1 of the discharge-pipe L. Another section 2 has its lower end connected with the fan-box B, while its upper end projects upwardly through the openings in the platform and plate E and almost connects with the lower end of the section. The adjacent ends of these two sections of the discharge-pipe are surrounded by the sleeve *j* of the turn-table, which tightly engages the ends and forms an air-tight joint.

M denotes a band or ring which is bolted to the upper end of the sleeve *k* and from which project rearwardly arms *n*. A pipe-section 3 has an elbow *o*, which passes down over the elbow of section 7 and is connected to the arms *n* by the arm *p*, so as to have a swinging movement therewith. The arms *p* may be connected with section 3 in any suitable manner—as, for instance, by a ring or band T, which is cast integral with the arms *p*. Supporting-standards P are secured to the ring M, one on each side of the discharge-pipe, the upper end of said standards being secured together by a pin *q*, on which is jour-

naled a sheave-wheel r. Brace-bars s are attached to the pin q at their upper ends, and their lower ends are secured to lugs t, projected from the band M. A worm Q is journaled to the bars s and engages a worm-wheel u, secured to the end of a winding-drum v, journaled to the brace-bars s. This worm is provided with a crank w. A cord R connects the drum v with the hoisting-pulley S, which will be explained farther on.

The discharge-pipe L is composed of sections 1, 2, 3, and 4, the two, 3 and 4, being known as "telescoping" sections—that is, section 4 is adapted to be drawn over section 3 to shorten or lengthen the pipe. About section 3 is provided a cage or frame for the support of the pulleys w and x and chain-wheels a^6 and a^7, composed of the bands T and U, having upwardly-projected lug c', that support chain-wheels a^6 and a^7 and the angle-bars V. At the outer end of section 4 is provided a rotatable hood W. About the inner end of the hood-section is placed a band of angle-iron Z, that forms a track for the grooved wheels d, by which the hood is supported in a rotatable connection with section 4 of the pipe. At one side of the band X is provided a frame X', that forms a support for the sheave-wheels a^2, and the grooved wheels d are supported on pins, as a^3, in brackets a^4, secured to band X.

To lengthen or shorten the pipe, a sprocket-wheel a^5 is supported on pin a^6, secured to the ring U, and a similar wheel a^7 is mounted on shaft a^8, journaled in lugs a^9 on band T. A crank a^{10} is secured on shaft a^8. A chain b is placed about the wheels a^5 and a^7 and secured to ring b^2 on the inner end of section 4.

By turning the crank a^{10} section 4 of the discharge-pipe may be drawn onto or off of section 3, and to take up or let out the rope A', by which the hood is moved up or down, an equalizing-bar A^2 is secured to ring T on the inner end of section 3 of the pipe, having at its end portions sheave-wheels b^3. The rope A' is rove about the pulleys b^3 in the equalizer-bar A^2 and the pulley x on band U. The ends of the rope are then secured to the hood. The middle portion of the rope is passed about a pin b^4, secured to band b^2 on the inner or front end of section 4 of the discharge-pipe. In operation section 4 may be moved forward or back without affecting the position of the hood W, and the position of the pipe may be changed or moved up or down to give direction to the flow of straw by drawing the lower side of the rope A' forward or back, as the case may be. To rotate the hood to a desired position to discharge the straw to either side, a rope, as A^3, is secured about the hood and the pulleys a^2 and passed forward and secured, as shown at b^5. By drawing on either end of this rope the hood may be rotated a distance to either side of the discharge-pipe for the purpose hereinbefore stated. To raise or lower the outer or rear end of the discharge-pipe, the crank w and drum v may be turned to wind or unwind the rope R to move the pulley S forward or back to take up or let out the rope A^4, on which the outer end of the pipe is supported, one end of said rope secured to band X on the rear end of section 4. The other end is passed about the sheaves S and w and secured to band b^2, that the telescoping sections may be operated without moving the pipe vertically. The supporting-arms p and n, being pivotally secured together, form a hinged support for the front end of section 3. Section 1, or the elbow, is formed of two telescoping parts, the one sliding over the other to provide for the vertical adjustment of sections 3 and 4. To rotate the table to oscillate the discharge-pipe about its pivotal connection with the body of the threshing-machine, a worm A^4 is provided to engage the teeth h on the periphery of the turn-table F. To oscillate the discharge-pipe by hand, a crank b^6 is mounted on the driving-shaft b^7, journaled in boxes b^8 on the platform E. By turning said shaft by the crank provided thereon the worm engagement with the teeth on the turn-table will cause the table to be rotated to oscillate the discharge-pipe or to hold it over the body of the machine for the purpose of convenience in transportation or storage.

To automatically oscillate the rear end of the stacker or discharge-pipe, I have secured to shaft b^7 gear-wheels d' and d^2, and on the driving-shaft B', which is journaled in boxes d^3, are loosely mounted gear-wheels d^4 and d^5, one of which, d^5, engages wheel d^2 on shaft b^7, the other engaging an intermediate wheel d^6, journaled on a stud d^7, said wheel d^6 engaging wheel d'. On shaft B', between the wheels d^4 d^5, is a clutch B^2, secured to said shaft in a sliding relation by a spline or other device, and on the inner faces of the wheels d^4 d^5 are provided corresponding clutches d^8 d^9.

On the end of shaft B' is mounted a gear-wheel d^{10}, that engages a similar driving-wheel d^{12} on shaft B^3, journaled in boxes c' c^2. On the end of said shaft is mounted a pulley d^{13}, which may have a belt connection with a similar pulley on the threshing-machine. Adjacent to the clutch is pivotally secured an operating-lever d^{14}, having prongs d^{15}, that embrace the clutch B^2 between the clutch-heads. The lever d^{14} extends over the segmental ring B^4, on which are provided stops d^{16}, adjustable on said ring, that engage the end portion of the lever d^{14}. On the under side of the lever are provided lugs d^{17}, that support a latch k', having a conical or truncated head k^2. On the body of the latch k' is provided a coiled spring k^3, the energy of which is exerted to throw the latch out. The object of the latch and spring is to throw the lever, so as to secure the engagement of the clutch.

In operation the pulley d^{13}, having a belt engagement with similar pulley on the threshing-machine, will continuously rotate the

shaft in one direction. The clutch having engagement with one of the wheels d^4 d^5 will rotate the shaft B′ in one direction. The worm A^4, rotating the table F, will carry one of the stops or blocks d^{16} against the sides of the end portion of the lever d^{14}. The block d^{16} will move the lever over to one side until the block d^{16} passes the end of the lever, which will then be driven by the spring k^3, driving the conical head k^2 down on the side of the stake k^4 to complete the throw of the lever to carry the clutch into engagement with one of the wheels d^4 d^5, thereby reversing the movement of the shaft b^7, turn-table, and discharge-pipe. This movement will continue until the other block d^{16} engages the other side of the lever d^{14} and reverses the movement of the parts. A latch, as x', is supported on shaft b^7 and secured against a sliding movement on said shaft by collar x^2. The latch is adapted to be dropped between the heads of the clutch B^2 to hold the clutch from engagement with the wheels d^4 d^5 when the machine is operated by hand.

In operation the straw and chaff will fall on the "discharger" or "blower," (as the fan and its chamber or box may be properly termed,) placed, as it is, obliquely to the body of the thresher. The straw and chaff will then be discharged through discharge-pipe to the place of stacking.

Having thus fully described my invention, what I claim is—

1. In a pneumatic straw-stacker, the combination of the hood W, band Z, that forms a track for grooved wheels d, band X that supports said wheels, and grooved wheels d, by which the hood is held in revoluble relation with the discharge-pipe.

2. In a pneumatic straw-stacker, the combination of a discharge-pipe having a telescoping section, the equalizer-bar A^2 secured to the forward section of the discharge-pipe and having sheave-wheels b^3 at its ends, wheel x on the telescoping section, rope A′, rove about said wheels and a rotatable hood W to which the rope is attached.

3. In combination in a pneumatic straw-stacker, a discharge-pipe having a telescoping section, the rope A^4 having its ends secured to the rear end portions of the discharge-pipe and telescoping section, the sheaves w, S, r, rope R, and a winding mechanism whereby the rear end of said pipe may be raised or lowered.

4. In a pneumatic straw-stacker, having a telescoping section, rotatable hood W, carried by said section, rope A′ and equalizer A^2, to operate the hood W, and ropes A^4 and R, chain-wheels A^5, a^7 and chain b whereby the discharge-pipe may be lengthened or shortened without affecting the hood or moving the pipe vertically.

In testimony whereof I have hereunto set my hand this 30th day of June, A. D. 1896.

CHARLES O. HEGGEM.

Witnesses:
W. K. MILLER,
BURT A. MILLER.