No. 668,141. Patented Feb. 12, 1901.

W. W. DINGEE.

WIND STACKER.

(Application filed June 25, 1900.)

(No Model.) 4 Sheets—Sheet 1.

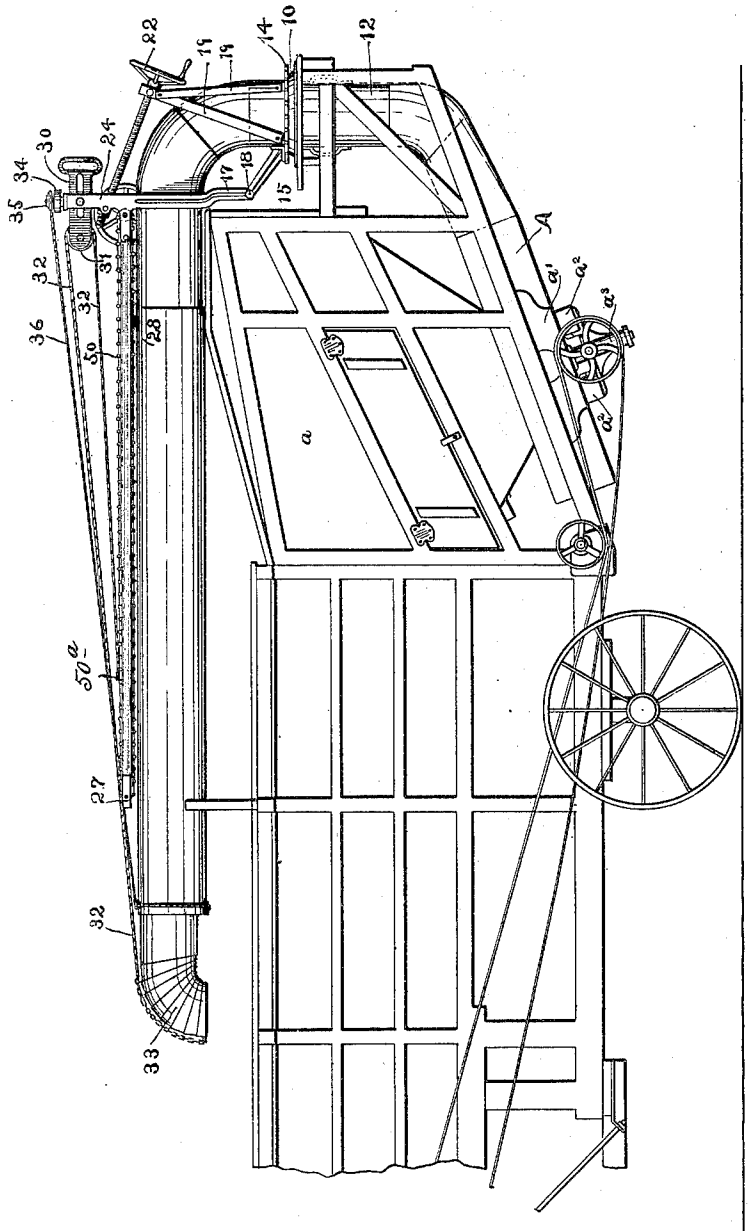


Fig. 1.

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No. 668,141. Patented Feb. 12, 1901.

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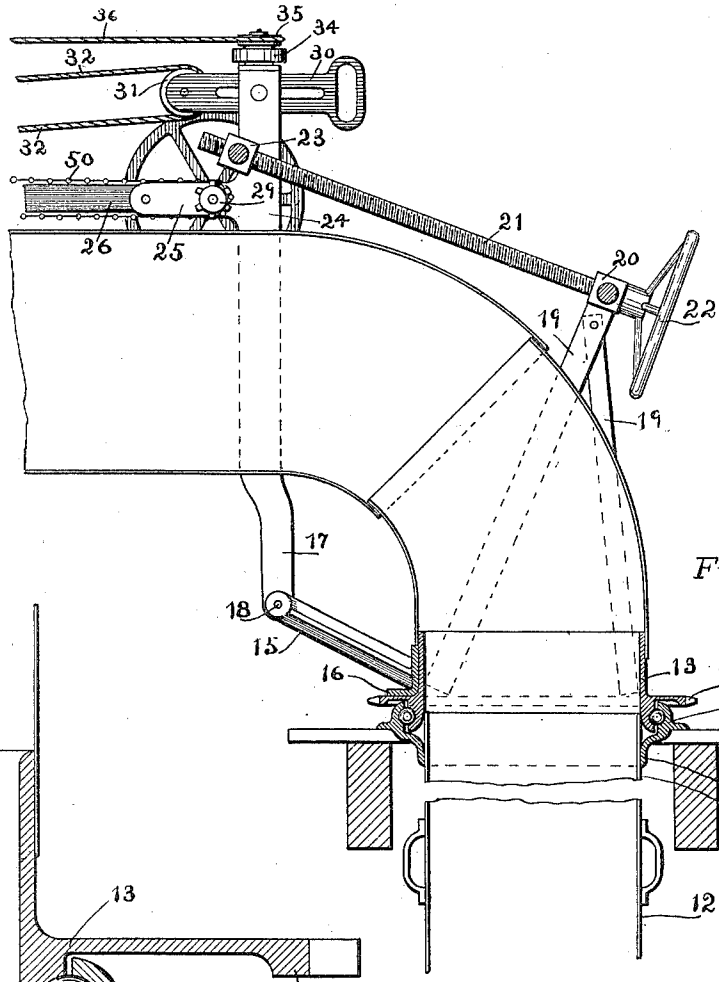


Fig. 2.

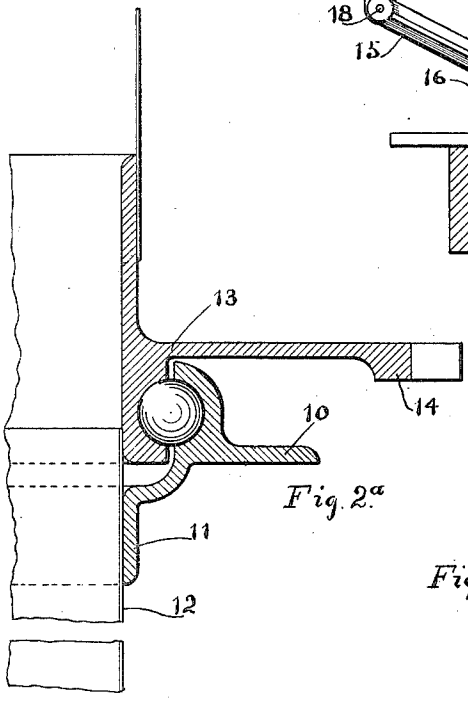


Fig. 2a

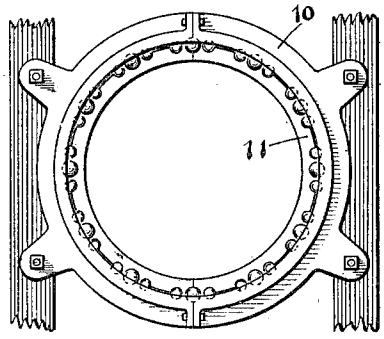


Fig. 2b

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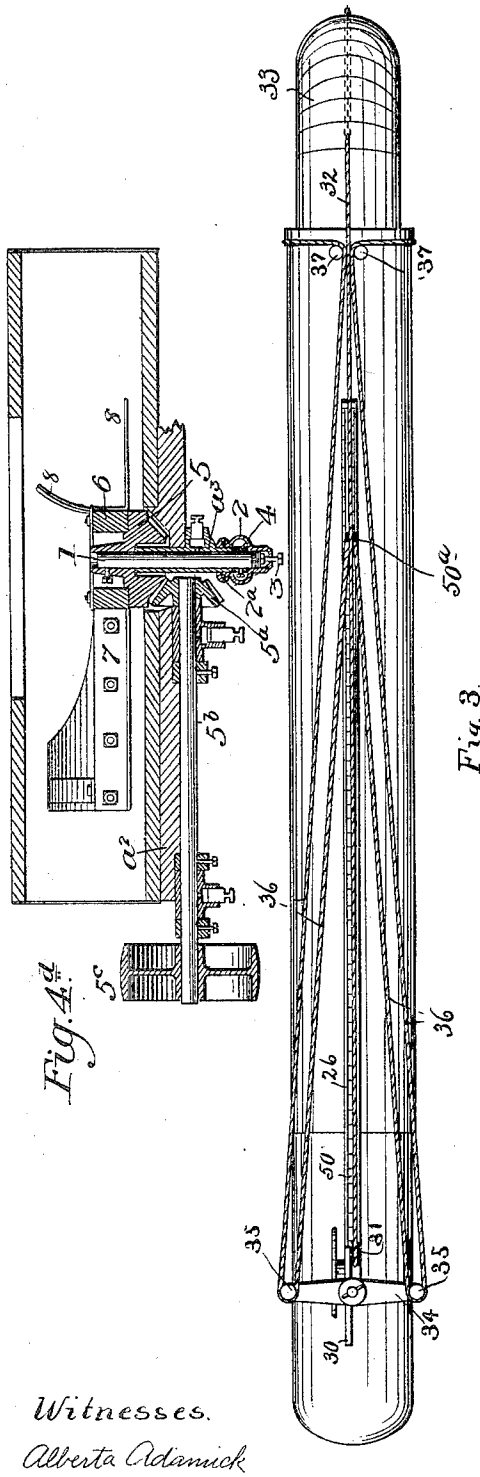


Fig. 3.

Fig. 4.

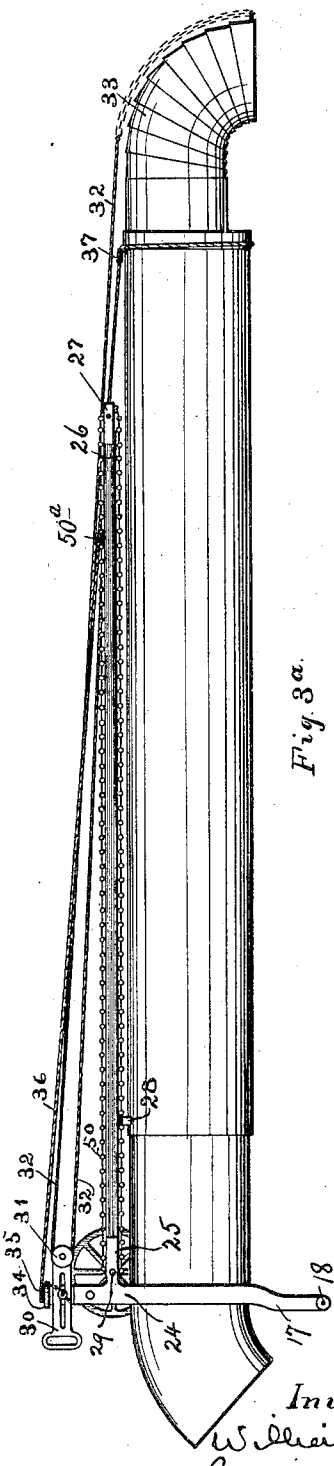


Fig. 3a.

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No. 668,141. Patented Feb. 12, 1901.

W. W. DINGEE.

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(Application filed June 25, 1900.)

(No Model.) 4 Sheets—Sheet 4.

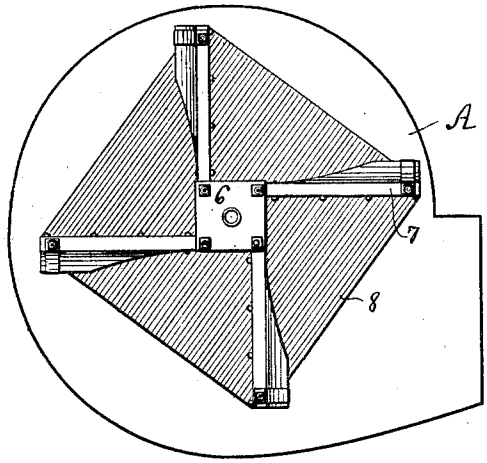


Fig. 4.

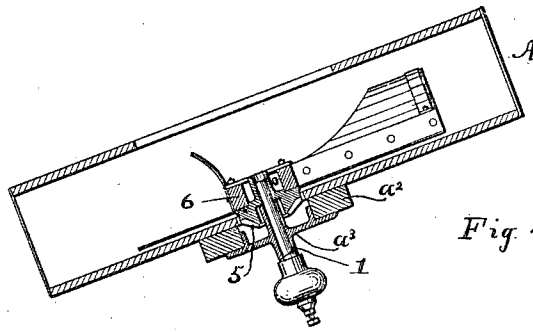


Fig. 4a.

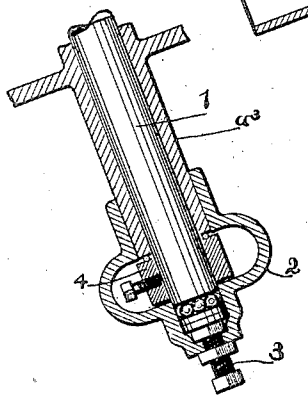


Fig. 4c.

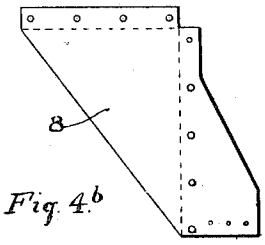


Fig. 4b.

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UNITED STATES PATENT OFFICE.

WILLIAM W. DINGEE, OF RACINE, WISCONSIN, ASSIGNOR TO THE J. I. CASE THRESHING MACHINE COMPANY, OF SAME PLACE.

WIND-STACKER.

SPECIFICATION forming part of Letters Patent No. 668,141, dated February 12, 1901.

Application filed June 25, 1900. Serial No. 21,453. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. DINGEE, a resident of the city and county of Racine, in the State of Wisconsin, have invented certain new and useful Improvements in Wind-Stackers, of which the following is a full, clear, and exact description.

The invention relates to fan-blast stackers now frequently used in conjunction with threshing-machines to remove the loose straw, chaff, &c., from the interior of the thresher by the aid of an air-blast and thence to elevate and project such refuse materials onto an adjacent stack or heap.

The nature of the improvements will appear in detail from the description following and be thereafter pointed out by claims at the conclusion.

On the drawings, Figure 1 is a side elevation toward the rear of the thresher, showing the stacker attached; Fig. 2, a detail sectional view at the junction of the main trunk with the turret of the straw-pipe; Fig. 2^a, an enlarged sectional view at the joint of the turret with its platform-ring; Fig. 2^b, a plan view of said ring, the turret being removed; Figs. 3 and 3^a, respectively, plan and elevation views of the trunk part of the straw-pipe; Fig. 4, a plan view of the fan with the top of its case taken off; Fig. 4^a, a transverse sectional view of the fan and case; Fig. 4^b, a development of the curved sheet constituting a fan-vane; Fig. 4^c, an enlarged sectional view of the fan-axle and its box-bearing; Fig. 4^d, a transverse sectional view of the fan and case at right angles to Fig. 4^a.

The threshing-machine, with its usual casing, is carried on the customary running-gear, the casing a for the stacker being attached at the rear in continuation of the main frame, but with its sills set at a slight incline, as shown, Fig. 1. Brackets a', fastened on each side beneath the sills, carry the cross-trees a^2, upon which rests the fan-case A, Fig. 4^a, the angular wings for journal-box a^3 being snugly secured at confronting lower edges of the cross-trees a^2 to constitute a stout interbrace. Fan-axle 1 extends through the elongated journal-box a^3 and at its lower end is stepped on an antifriction-bearing with a seat therefor in terminal cup 2. The cup is divided longitudinally, its two halves being clamped to position about the journal-box by means of the confronting ears 2^a and the screw-bolts therefor. Step-bolt 3 projects through the cup to adjust the antifriction-bearing, while collar 4, clamped to the axle within cup 2, affords seat for a series of balls in touch with the lower edge of journal-box a^3. It is seen that axle 1 may easily turn, but is held from all endwise shift either up or down. When in rapid motion, the fan tends to lift the axle, together with collar 4, so that the balls thereon travel against the lower edge of box a^3.

Above the journal-box the head of fan-axle 1 sockets in the eye of miter gear-wheel 5, which latter is driven by companion gear 5^a, carried on shaft 5^b. The shaft is sustained in bearings from the cross-ties a^2 and is rotated by pulley 5^c from any suitable source of power.

Bolted upon or cast in piece with gear-wheel 5 is the fan-hub 6, carrying spokes 7, projected therefrom in offset instead of usual radial relation. The spokes sustain the several disk-sections, which together constitute the fan proper. Fan-hub 6 being in fact or effect an integral part of gear-wheel 5, it is seen that the fan freely rotates under direct control of the gear 5 5^a. Axle 1 manifestly serves as a centering-stud rather than as a medium for communicating the power, although in ordinary practice it is customary to unite the axle with the hub by the aid of pinch-screw or other expedient. Should the screw loosen while the machine is running, the fan still persists in its motion, owing to the control relation of the gear 5 5^a.

The disk-sections 8 to constitute the fan are conveniently cut in the general form shown, Fig. 4^b, and are united at their bent-up edges to the sides of the spokes, one free edge curving over to constitute the vane or wing.

The presence of the disk as part of the fan relieves the load from friction contact with the casing, and besides enables the load to acquire an initial impetus for its ascent, while the offset position of the vanes causes the air to draw evenly into all parts of the fan-eye,

and thus enables the burden to be steadily projected and elevated through the casing-outlet.

Upon the operator's platform or deck at the rear is fastened the circular table 10, having downwardly-turned lip 11 to receive the upper end of pipe 12, fitting below over the nozzle of the fan-casing. Handles on pipe 12 allow it to be slipped up or down far enough to expose the interior for clearing obstructions at the angles or turns of the conduit. Table 10 is conveniently made of two semicircular parts furnished with a grooved upper extension or lip to afford seat for the series of antifriction-balls located between said lip and the turret-ring 13. The ring is sleeved by a vertical joint within the table 10 and through the medium of the interposed ball-bearings is not only free to rotate back and forth, but under coaction with the table is kept upright to prevent any sagging of the main trunk of the conduit. Thus constructed there is no need for the hasps or overhangs which are generally present to hold the turret-ring in place when a simple horizontal joint is employed between the ring and table, as in prior machines. Hasps or overhangs often interfere with the easy play of the toothed drive-flange carried on the turret-ring.

Drive-flange 14 is here shown projecting in piece from ring 13 above and over the upright lip of table 10. At the junction of the flange and ring is seated the angle-plate 16, carrying parallel radius-arms 15, which at pivot 18 unite with companion radius-arms 17, having the usual collar to encircle the rear section of the main trunk.

Brace-standards 19, secured below against ring 13, afford journal-seats at their apexes for the terminals of a cross-block 20, smoothly receiving the threaded rod 21, operated by hand-wheel 22. At its forward end said rod engages a screw-nut 23, which journals between upright posts 24, projecting from the ring for radius-arm 17. On turning the hand-wheel the screw-rod 21 coacts with nut 23 to raise or lower the front of the main trunk about pivot 18 as a center.

Between lugs or ears 25, at the feet of upright posts 24, is fastened the rear end of a stiff bar 26, extending thence over and parallel with the trunk nearly to the outer joint of its telescopic sections. An endless chain 50 passes around sprocket 27, carried at the front of bar 26, and is secured by one of its links, as at 28, to the body of the trunk. Sprocket 29, journaled in lugs 25, sustains the rear of the chain and by means of its hand-wheel enables the trunk-sections to be drawn in or out, as desired. When this occurs, the length of the straw-pipe necessarily varies; but this in turn renders some provision requisite for ready adaptation of the swiveling discharge-nozzle and hood carried thereby at the front of the trunk, so that these may conform to the telescopic shift without breakage of the control-ropes or other parts. One of the upright posts 24 sustains an adjustable slotted plate 30, carrying a sheave 31, over which runs the rope 32, fastened forward to the collapsible hood 33 and at the rear to one of the upper links, as at 50^a, on endless chain 50. The movement of the link is exactly the reverse of the movement of the trunk-section which sustains the hood. Hence the play of one precisely compensates for the play of the other, and thus the hood remains at set position, unaffected by the telescopic shift. In similar fashion the oscillating tiller 34, pivoted at top of upright post 24 and secured by thumb-nut or like expedient, as desired, is furnished with sheaves 35, over which run the reversing-ropes 36 for the swiveling nozzle. One end of each rope may be fixed to an upper chain link, as at 50^a, after the manner of the hood-rope, while the opposite ends run past guide-sheaves 37 toward the front and on making a half-turn about the trunk hitch to the cowl-piece.

Obviously details of structure can be varied by the mechanic's skill without departing from the essentials of the invention.

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

1. In wind-stackers, the combination with the fan-casing and the elongated journal-box, of the fan-axle stepped in said box, the gear-wheel sustained about the axle and carrying the fan-hub thereon, the series of spokes projected from the hub, and the disk-sections with their edge vanes or wings, said sections being fastened to the outreaching spokes, substantially as described.

2. In wind-stackers, the combination with the fan-casing and the elongated journal-box, of the fan-axle stepped in said box, the gear-wheel sustained about the axle and the fan having its hub carried by said gear-wheel, substantially as described.

3. In wind-stackers, the combination with the fan-hub having spokes or arms projected therefrom, of the set of disk-sections each formed of a metal plate bent up to constitute the wing or vane and secured at upturned edges to the spokes, substantially as described.

4. In wind-stackers, the combination with the platform-table and with the turret-ring sleeved together by vertical joint between them, of the interposed bearing-balls, seated at the joint in said table and ring respectively, to freely sustain the stacker-trunk upright, substantially as described.

5. In wind-stackers, the combination with the platform-table having downturned lip, of the turret-ring sleeved vertically in said table, the interposed antifriction-balls sustained at the sleeve-joint between said table and ring respectively, and the upright section of the straw-pipe movable to and fro

across the inner edge of such joint to close or expose the pipe interior, substantially as described.

6. In straw-stackers, the combination with the telescopic main trunk and with the endless-chain mechanism for varying the length of said trunk, of the swiveling nozzle at the front end of the trunk, the collapsible hood mounted thereon, and the shifting-cables extended respectively from said nozzle and hood and in reverse about suitable guides or sheaves to a union with said chain, substantially as described.

7. In straw-stackers, the combination with the telescopic main trunk, of the endless-chain mechanism for varying the length thereof, the swiveling nozzle at the front of said trunk, the pair of shifter-cables reversely retained at the forward end between such trunk and nozzle and the pivoted tiller at the rear about which said cables oppositely pass and then return to a union with the endless chain, substantially as described.

8. In straw-stackers, the combination with the telescopic main trunk, of the endless-chain mechanism for varying the length thereof, the collapsible hood at the front, the adjusting-bar therefor permanently sustained at the rear, and the control-cable extended back from the hood, about a guide on said bar and in reverse to a union with the endless chain, substantially as described.

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