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STACKING ATTACHMENT FOR THREHING MACHINES.

(No Model.) (Application filed Jan. 18, 1900.)

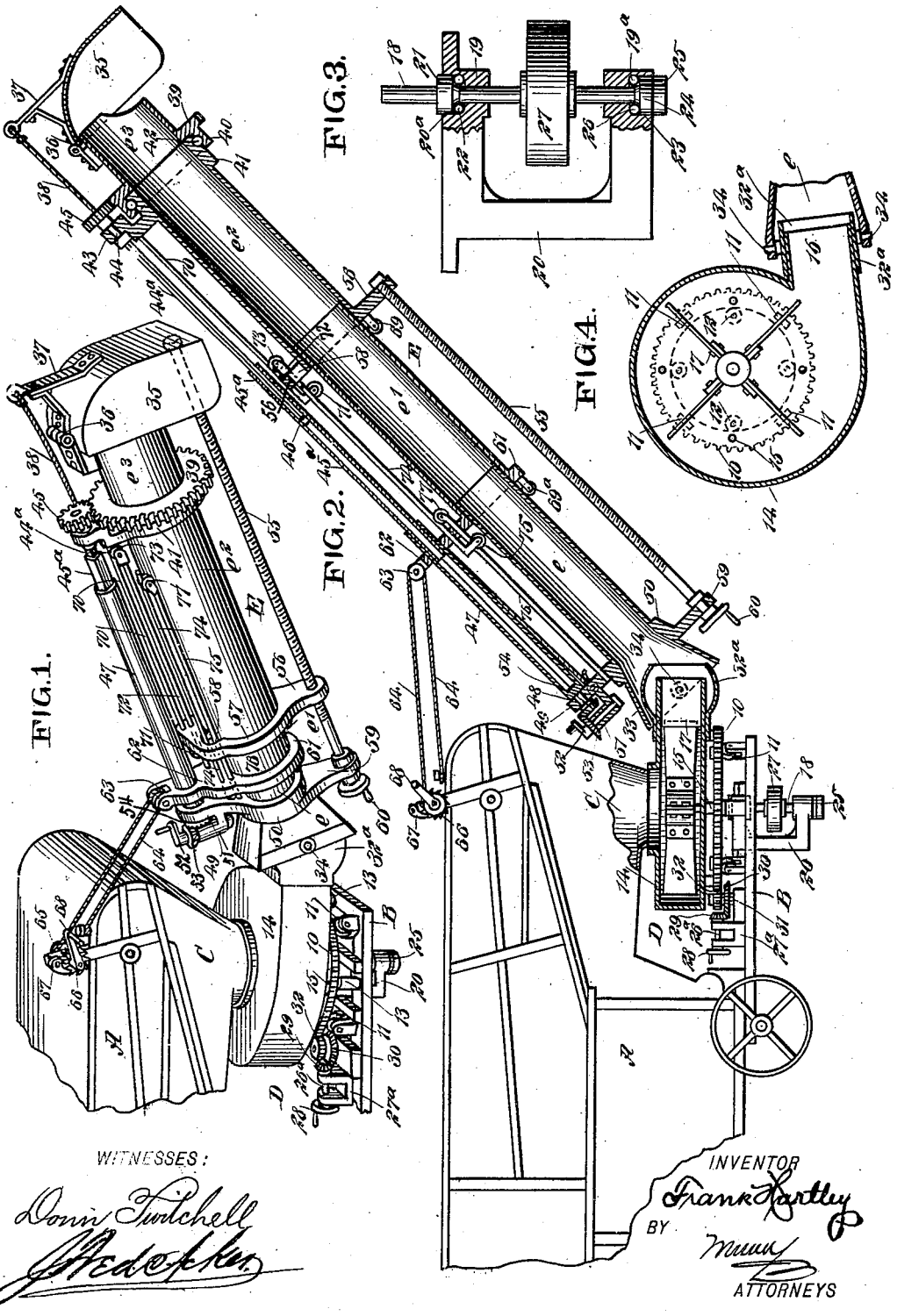

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

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STACKING ATTACHMENT FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 648,741, dated May 1, 1900.

Application filed January 18, 1900. Serial No. 1,893. (No model.)

To all whom it may concern:

Be it known that I, FRANK HARTLEY, a citizen of the United States, residing at Hartland, in the county of Niagara and State of New York, have invented a new and Improved Stacking Attachment for Threshing-Machines, of which the following is a full, clear, and exact description.

One object of my invention is to provide a straw-stacker adapted for attachment to any threshing-machine and to provide a turn-table for the stacker capable of being operated by a person standing at the side of the machine upon the ground or floor or on a platform of the machine, the operation of the turn-table being such that the stacker may be quickly moved from an extreme right to an extreme left position or any position between such points.

Another object of the invention is to provide means whereby an operator standing on the ground or floor at the side of the thresher may turn the hood in any direction and make the delivery or discharge tube long or short, as desired.

A further object of the invention is to so construct the stacker that the delivery-tube may be reduced in length to such an extent that the thresher, with the stacker applied and ready to work, may be conveniently placed in a barn or other inclosure and operated therein.

Another object of the invention is to reduce the friction of all the working parts by the application of ball or roller bearings and to provide a simple mechanism which will permit the delivery or discharge tube to be raised or lowered and the hood to be brought close to the ground when necessary.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improved stacker applied to the rear end of a threshing-machine, the delivery or discharge tube being shortened. Fig. 2 is a partial side elevation of the rear portion of a threshing-machine and a longitudinal vertical section through the stacker, the delivery or discharge tube being extended. Fig. 3 is a detail side elevation, parts being in section, of a bearing for the fan-shaft, illustrating said shaft in position in the bearings; and Fig. 4 is a horizontal section through the fan-casing of the attachment, the fan appearing in plan view.

A represents a thresher of any suitable or approved construction, and B the platform, which is located at or near the bottom thereof and extends rearwardly from the body of the thresher.

C represents an outlet at the bottom of the rear projecting portion of the threshing-machine, and D represents a turn-table which is carried by the platform B. This turn-table consists of a ring-gear 10, having exterior teeth, and the said gear is supported upon rollers 11, placed in suitable bearings supported by the platform B, and rollers 12, likewise supported by the platform through the medium of studs 13, engaged with the inner surface of the ring-gear 10, as shown in Fig. 4, preventing said gear from having side movement.

A fan-casing 14 is located above the ring-gear 10, being connected thereto by pins 15, as shown in Figs. 2 and 4, and this fan-casing is enlarged at one side, as shown particularly in Fig. 4, and by thus increasing the fan-casing at one side the air is less confined and less power is required to run the fan. The fan-casing 14 is provided with a throat 16, extending rearwardly beyond the rear of the threshing-machine, and the fan 17, located within the casing, may be of any suitable or approved construction. It may here be remarked that the enlarged portion of the fan-casing is that portion which is adjacent to the throat 16.

The fan 17 is mounted upon a shaft 18, and this shaft is held to turn in bearings 19 and 19ª, formed upon a bracket 20, which bracket is secured to the platform B and usually extends below the same, as shown in Fig. 2, the bracket being shown in detail in Fig. 3. The upper bearing 19 is provided with a recess or enlargement 20ª at its upper end, adapted to receive a cone 21, secured on the shaft 18, which cone rests upon rollers or balls 22, placed in the bottom of the enlargement or

recess 20^a. The lower bearing 19^a is provided with an enlargement 23 at its bottom portion, and a cone 24 is held on the shaft 18 within this lower enlargement by a suitable nut 25, and the cone 23 engages with rollers or balls 26, which in their turn engage with the upper wall of the said recess 23 of the bearings. Thus it will be observed that the shaft 18 may be revolved with the least possible amount of friction. The driving-pulley 27, which is secured to the shaft 18 between its bearings, may be connected with any suitable source of power.

The turn-table is operated in the following manner: A shaft 26^a is mounted in suitable bearings 27^a, secured on the platform B, and the shaft 26^a is provided with a hand-wheel 28 at one end and with a beveled pinion 29 at its opposite end. This beveled pinion 29 meshes with a beveled gear 30, and the beveled gear 30 is secured to a vertical shaft 31, suitably mounted on the platform B, and said shaft 31 carries a pinion 32, which meshes with the teeth of the ring-gear 10. The throat 16 of the fan-casing is provided with a sleeve 32^a, which is held against turning, and the rear end of this sleeve is enlarged beyond the diameter of the throat 16, as shown particularly in Fig. 2. A discharge or delivery tube E is carried by the turn-table, and this discharge or delivery tube is constructed in telescopic sections. As shown in the drawings, three sections are usually employed—namely, an inner or forward section *e*, an intermediate section *e'*, and an outer or rear section e^2. The forward end of the forward section *e* of the conducting-tube is much larger in area than the area of the sleeve 32^a, attached to the throat of the casing, and this enlarged portion of the conducting-tube is connected by pivots 34 with the said sleeve 32^a, as shown in Figs. 1 and 4.

A hood 35 is connected by a hinge 36 with a short tube e^3, and such short tube constitutes the rear end portion of the conducting or delivery tube E. An arm 37 is connected with the hood, and a rope 38 is attached to this arm and is carried to any convenient point for manipulating the hood from the ground or from a threshing-machine. The short tube e^3, at its forward end, is provided with an external gear 39, and an annular flange 40 is extended from the forward face of the said gear, the flange 40 being carried over a collar 41 formed upon the exterior of the rear portion of the rear section e^2 of the delivery-tube E. The opposing faces of the flange 40 and collar 41 are grooved to receive balls or rollers 42. Thus it will be observed that the short tube-section e^3, carrying the hood 35, may be turned upon the delivery-tube E with very little friction.

The hood-section of the discharge-tube E is adapted to be turned by a person standing on the ground or floor, and to that end a pinion 45 meshes with the gear 39, which pinion 45 is secured to a shaft 44, journaled in a bearing 43, constituting an upper extension of the collar 41, as shown in Fig. 2. The body portion 44^a of the shaft 44 is polygonal in cross-section, except at the forward extremity of the said shaft, where a circular enlargement 46 is formed. The polygonal section 44^a of the shaft 44 is adapted to enter a tubular shaft 45^a, whose rear end is interiorly polygonal; but the remaining portion of the interior of this tubular shaft 45^a is circular and of larger diameter than the polygonal portion, so that the circular section 46 of the shaft 44 will strike a shoulder on the tubular shaft 45^a when the sections of the discharge-tube have been drawn out to their full extent.

The tubular shaft 45^a is exteriorly polygonal and telescopes in a second tubular shaft 47, interiorly polygonal and exteriorly circular. This shaft 47 is journaled in an extension 62 from a collar 61, exteriorly and integrally formed upon the forward end of the intermediate section *e'* of the discharge-tube, and the forward end of the shaft 47 is journaled in an extension 49 from a collar 50, located exteriorly on the forward section *e* of the discharge-tube at its enlarged portion, as is also shown in Fig. 2. The extension 49 is provided with an auxiliary bearing 51, in which a shaft 52 is mounted to turn, provided with a hand-wheel or crank, and this shaft carries a beveled pinion 53, which meshes with a similar pinion 54, secured to the forward end of the tubular shaft 47, as shown in Fig. 2. Thus it will be observed that the conducting or delivery tube E may be made as short as desired without interfering with the action of the operating-shafts for the hood.

The adjustment of the sections of the discharge or delivery tube E is effected through the medium of a feed-screw 55. This screw is held to turn in a threaded aperture made in a lower extension 56 from a collar 57, which is secured externally to the forward end of the rear section e^2 of the conducting-tube E, and the upper portion of this collar 56 is provided near one side with an opening 58, as shown in Figs. 1 and 2. The other end of the feed shaft or screw 55 is held to turn loosely, but without end movement, in a downward projection 59 from the collar 50, secured to the forward end of the lower section *e* of the discharge-tube. The forward end of the feed screw or shaft 55 is provided with a hand-wheel 60, so that the said shaft or screw may be readily manipulated. The conducting-tube E may be raised or lowered as far as may be desired by placing a pulley 63 in the upper portion of the extension 62 of the collar 61 on the intermediate section *e'* of the said conducting-tube. One end of a rope or chain 64 is attached to the rear portion of the threshing-machine A, and this rope or chain is carried over the pulley 63 and back to the thresher A and over a drum 65, mounted in suitable bearings, the shaft of which drum is provided with a ratchet-wheel 66, engaged by

a pawl 67, and said shaft of the drum 65 is also provided usually with a crank-handle 68.

A roller 69 engages with the bottom of the intermediate section e' of the conducting-tube E, the roller being carried by an arm forwardly extended from the forward collar 56 of the rear section of said conducting-tube, and the forward collar 61 of the intermediate section e' of this conducting-tube is in its turn provided with a forwardly-extending arm carrying a friction-roller 69^a, which engages with the bottom surface of the forward section e of the conducting-tube. These rollers 69 and 69^a serve materially to support the sections of the conducting-tube at their lower portions. The upper portions of the sections of the conducting-tube E are supported usually, as shown in Figs. 1 and 2. This support consists in securing a rod 70 to the upper portion of the collar 41 at the forward end of the rear section e^2 of the said delivery or conducting tube, and carrying the said rod to the rear collar 57 of said rear section and forward of the said collar, the forward end of the rod 70, which extends downward, being provided with a pulley 71. This pulley 71 is adapted to engage with the bottom portion of a rod 72, and this rod 72 is secured to the upper portion of the collar 61 on the intermediate section of the delivery-tube, at one side of said collar, and the rod extends loosely through the upper portion of the collar 57, and its rear end is provided with a roller 73, which engages with the under surface of the rod 70, as shown in Fig. 2. At the opposite side of the conducting-tube a rod 74 is secured to the upper portion of the collar 61, extending forwardly of said collar and downward, carrying at its downwardly-extending end a friction-roller 75, and the rear end of the rod 74 is plain and is adapted to extend through the opening 58 in the collar 57. On the same side of the delivery-tube a rod 76 is secured to the upper portion of the forward collar 50, and this rod 76 is free to slide through the upper portion of the collar 61 and is provided at its rear end with a roller 77, engaging with the bottom of the rod 74, as shown in Fig. 2. When the sections of the delivery-tube are fully telescoped, the roller 77 passes through the opening 58 in the collar 57, as shown in Fig. 1. When the parts are to be telescoped, the screw-shaft 55 is turned in one direction, whereupon through the rod connection between the rear section e^2 of the said tube and the intermediate section e' of said tube the central or intermediate section e' is made to slide forwardly over the forward section e, and when the intermediate or central section is properly seated the rear section e^2 will telescope over the central or intermediate section, and a like telescopic action takes place between the sections of the shaft employed to turn the hood. When the sections of the delivery-tube are to be extended, the rear section is first carried rearward, and as the forward collar of that section engages with the projection formed on the rod 72 to receive the roller 73 the rear section e^2 will cause the intermediate or central section to be also drawn out.

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

1. A turn-table provided with a fan, means for operating the turn-table, a conducting-tube constructed in telescopic sections and pivotally connected with the fan-casing, an adjusting-shaft for the telescopic sections, a hood mounted to turn on the said tube, and an adjusting device for the hood.

2. A turn-table provided with a fan, means for operating the said table, a conducting-tube pivotally connected with the throat of the fan-casing, the said conducting-tube being constructed in telescopic sections, the rear section having a hood mounted to turn thereon, the hood being hinged to its support, a feed-shaft for the telescopic sections of the conducting-tube, and a telescopic shaft in gear connection with the support for the said hood.

3. A turn-table having a roller-support, gearing arranged to operate said table, a fan-casing carried by the said table, and adapted to receive straw, a fan located within the casing, and means for rotating the fan, a conducting-tube constructed in telescopic sections pivotally connected with the throat of the fan-casing, a hood, a support for the hood, the support for the hood having roller-bearings on the rear end sections of the conducting-tube, a gear carried by the support for the hood, a telescopic shaft, means for operating the said shaft, a pinion carried by the said shaft, in engagement with the gear of the hood-support, and an adjusting-shaft for the telescopic sections of the delivery-tube, as described.

4. A turn-table having a roller-support, gearing arranged to operate the said table, a fan-casing carried by the said table, being adapted to receive straw, a fan located within the casing, and means for rotating the fan, a conducting-tube constructed in telescopic sections, pivotally connected with the throat of the fan-casing, a hood, a support for the hood, the support for the hood having roller-bearings on the rear end section of the conducting-tube, a gear carried by the support for the hood, a telescopic shaft, means for operating the said shaft, a pinion carried by said shaft, in engagement with the gear of the hood-support, an adjusting-shaft for the telescopic sections of the delivery-tube, roller-supports for the lower portions of the sections of the delivery-tube, and supporting-rods for the upper portion of the sections of the tube, which rods are connected with sundry of the sections of the tube, are in sliding connection with others and have roller-bearings upon each other, as set forth.

5. The combination, with a threshing-machine having an outlet at the bottom of its

rear portion, a platform beneath the said outlet, and a turn-table mounted on the platform, the turn-table consisting of a ring-gear, roller-supports for the gear, roller-guides for the gear, a fan-casing connected with the outlet of the threshing-machine and attached to the ring-gear, a fan mounted to revolve within said casing, and means for rotating the ring-gear, of a telescopic delivery-tube, an adjusting-shaft for the sections of the tube, the tube being pivotally connected with the throat of the fan-casing, a hood, a support to which the said hood is hinged, said support being mounted to turn on roller-bearings on the outer surface of the rear section of the said delivery-tube, a gear carried by the support for the hood, a telescopic shaft supported by the said tube, means for turning the said shaft, and a pinion carried by the shaft and engaging with the said gear on the hood-support.

6. The combination, with a threshing-machine having an outlet at the bottom of its rear portion, a platform beneath the said outlet, and a turn-table mounted on the platform, the turn-table consisting of a ring-gear, roller-supports for the gear, roller-guides for the gear, a fan-casing connected with the outlet of the threshing-machine and attached to the ring-gear, a fan mounted to revolve in said casing, and means for rotating the ring-gear, of a telescopic delivery-tube, an adjusting-shaft for the sections of the tube, the tube being pivotally connected with the throat of the fan-casing, a hood, a support to which the said hood is hinged, the said support being mounted to turn on roller-bearings on the outer surface of the rear section of the said delivery-tube, a gear carried by the support for the hood, a telescopic shaft supported by the said tube, means for turning the said shaft, a pinion carried by the shaft and engaging with the said gear on the hood-support, roller-bearings for the top and bottom portions of the sections of the tube, the roller-bearings for one section being supported by an abutting section, and means, substantially as described, for raising and lowering the said tube.

7. In a straw-stacker, a turn-table, a fan, means for revolving the fan, a casing for the fan secured to the said turn-table, said fan having its side adjacent to the throat enlarged, a sleeve for the throat of the fan-casing, the said sleeve being held against turning and the rear end of the sleeve being enlarged, and a delivery-tube having its forward end enlarged and connected by pivots with the said sleeve, substantially as set forth.

8. A turn-table provided with a fan, means for operating the turn-table, a conducting-tube constructed in telescopic sections and pivotally connected with the fan-casing, an adjusting device for the telescopic sections, a hood mounted to turn on the said tube, and a telescopic shaft having a gear connection with the support for the hood, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK HARTLEY.

Witnesses:
R. E. ADAIR,
T. B. GRAGG.