

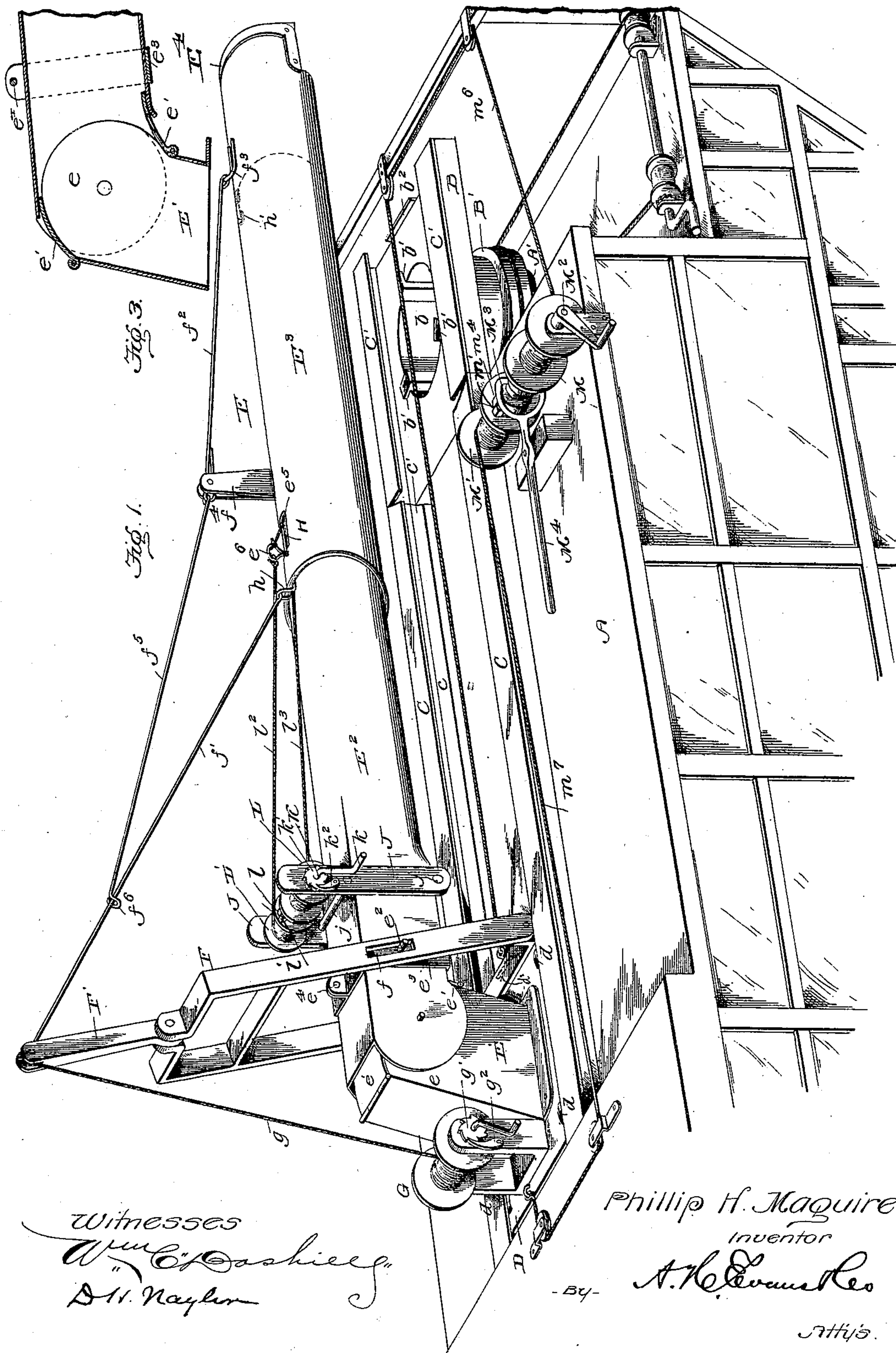
(No Model.)

2 Sheets—Sheet 1.

P. H. MAGUIRE.  
PNEUMATIC STACKER.

No. 549,519.

Patented Nov. 12, 1895.



*Witnesses*

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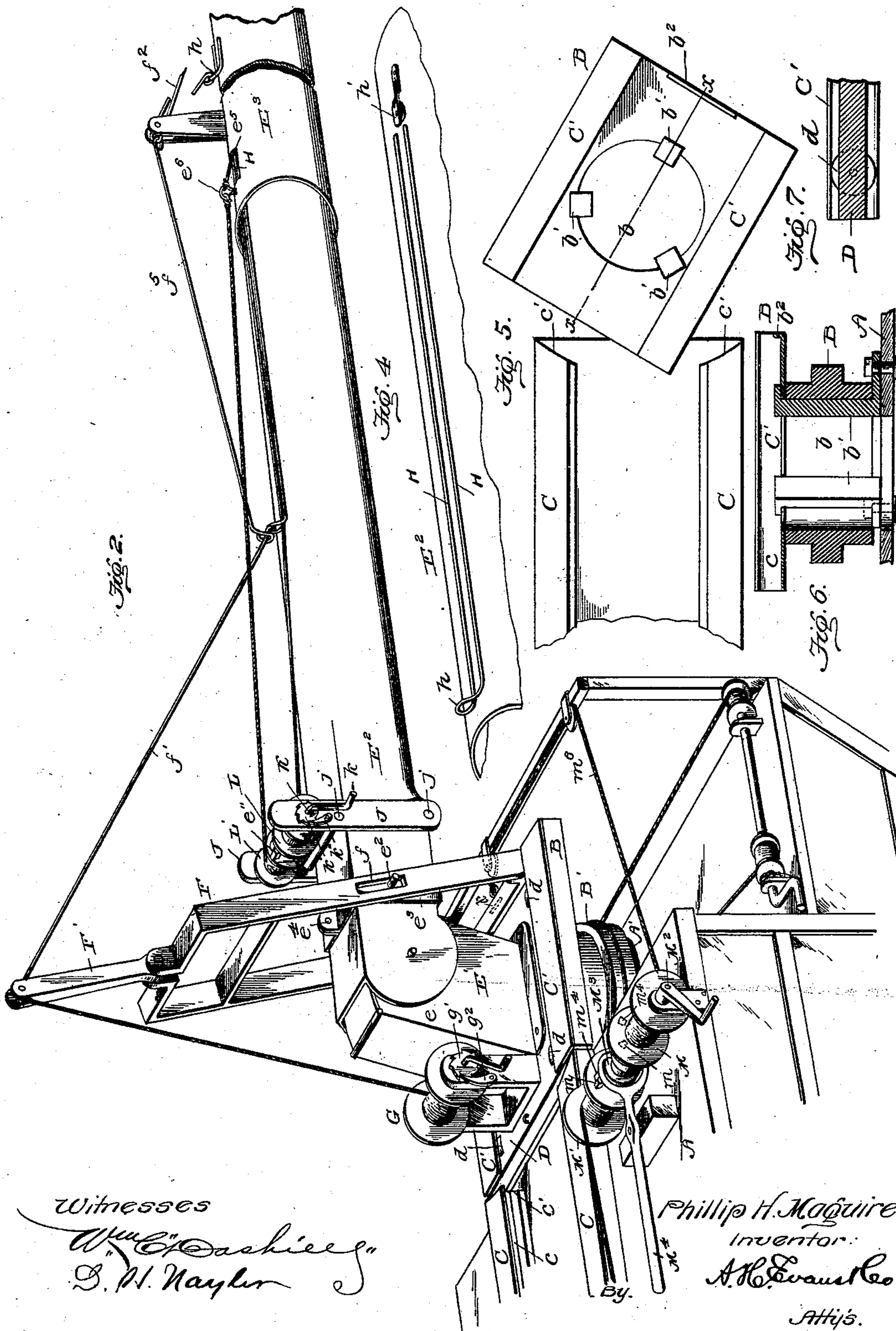
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# UNITED STATES PATENT OFFICE.

PHILIP H. MAGUIRE, OF BATTLE CREEK, MICHIGAN.

## PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 549,519, dated November 12, 1895.

Application filed June 24, 1895. Serial No. 553,917. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP H. MAGUIRE, a citizen of the United States, residing at Battle Creek, county of Calhoun, and State of Michigan, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following specification contains a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view showing the chute in the position it occupies when not in use. Fig. 2 is a similar view showing the chute in its operative position on the turn-table. Fig. 3 is a detail in section showing the inner hinged end of the chute and the doors closing the joints. Figs. 4, 5, 6, and 7 are other details.

The invention relates to pneumatic stackers; and the object of the invention is to provide the tubular chute with a carriage adapted to register with a track along the top of a grain separator or thrasher, one section of the track being on the horizontal turn-table, which has an opening registering with the straw-outlet of the thrasher and with the elbow at the inner end of the chute, so that the chute may not only be turned with the said turn-table as its axis, but may be run from said turn-table along the top of the thrasher when the latter is to be moved.

A further object is to provide a simple mechanism for moving the chute and its carriage along said track; also, to improve the construction of the chute itself and provide simple mechanisms for raising and lowering it as a whole, and also for operating it telescopically.

The invention will be first described, and then specifically pointed out in the claims.

In the drawings, A represents the top portion of a thrasher or grain-separator casing, provided with a turn-table B at its rear end, which has an opening *b*, registering with the straw-outlet A' in the top of separator-casing, through which outlet the straw is forced, as usual, by means of a blast of air from a suitable fan or blower. (Not shown.) This turn-table B is held in place by means of a circularly-arranged series of angle-brackets *b'*, engaging the wall of the opening *b* therein and overlapping the upper side of the turn-table,

as shown best in Fig. 6. These angle-brackets *b'* are secured at their lower ends to the top of the depressed rear end of the machine frame or casing, and the turn-table revolves freely upon them as its axis (see Fig. 5) in the usual manner. The exterior of the turn-table is formed as an operating-wheel B', which may be plain or toothed and operated in any suitable manner by means of a belt or gearing.

On top of the turn-table are parallel track-sections or guideways C' C', which register with the rear ends of the main tracks or guideways C C, of any suitable construction, upon the top of the casing A. These tracks and sections are provided with channels or guideways *c* in their adjacent faces, which receive the side edges of the carriage D, which carries the tubular chute E, and the rear ends of the tracks C C are cut away or beveled, as at *c'*, to permit the ends of the track-sections C' C' to pass them when the turn-table B is rotated. The forward end of the turn-table B is provided in its upper side with a stop *b<sup>2</sup>* to engage a lug or projection *d<sup>2</sup>* on the lower side of the forward end of the carriage D and limit the rearward movement thereof.

The carriage D is provided with wheels *d*, which run on the lower flange of the tracks.

The chute E has a stationary section or elbow E' at its inner end, which is secured to the upper side of the carriage, over an opening therein, which opening registers with the opening *b* of the turn-table when the carriage is in place thereon, and to the upwardly-extending side ears *e e* of the section or elbow E' are pivoted similar ears at the inner end of the vertically-swinging chute-section E<sup>2</sup>. The openings at the upper and lower sides of the joint between the sections E' E<sup>2</sup> are closed by the doors *e' e'*, which are hinged to the section E' and extend at their free ends into the top and bottom of the rear end of section E<sup>2</sup> and permit it to be freely adjusted at any desired angle. The upper door *e'* rests on the upper edges of the side ears *e e*, which prevent it from falling and hold it in contact with the upper side of the section E<sup>2</sup>.

The pivoted or hinged end of the chute-section is provided with pins *e<sup>2</sup>* through the medium of a strap *e<sup>3</sup>*, which encircles said section and has its ends connected by a bolt *e<sup>4</sup>*.



The pins  $e^2$  extend through slots  $f$  in the side arms of a standard  $F$ , pivoted at its lower ends to the carriage  $D$  and provided at its upper end with a pivoted arm  $F'$ , connected at its free upper end with the upper side of chute-section  $E^2$  by means of a rod  $f'$ . These pins  $e^2$  and slots  $f$  limit the vertical movement of the chute  $E$  and also assist in steadying it.

$G$  is a drum mounted on the carriage and provided with an operating cord or cable  $g$ , which is connected with the upper end of the arm  $F'$  and by means of which the chute  $E$  may be raised and lowered. The drum  $G$  is provided with an operating-crank and a ratchet  $g'$ , engaged by a pawl  $g^2$ , so that the parts will be held in their adjusted positions.

The outer sliding section  $E^3$  of the chute  $E$  is provided with a forward strut or brace  $f^2$ , secured at its forward end to an eye  $f^3$  and at its rear end to a standard  $f^4$ , and  $f^5$  is a similar brace or strut secured at one end to adjacent end of forward strut  $f^2$  or its standard  $f^4$  and having a sliding connection at its opposite end, through the medium of an eye  $f^6$ , with the rod  $f'$ , thus permitting the sliding movement of chute-section  $E^3$ .

On the upper side of the chute-section  $E^2$  are secured two parallel wires  $H$ , terminating at their rear ends in an eye  $h$ , to which the forward end of rod  $f'$  is secured, and at the forward end of the channel formed between said wires is pivoted a horizontal guide-pulley  $h'$ . The rear end of the sliding chute-section has an opening  $e^5$  in its upper side, and adjacent thereto is secured the eye  $e^6$  for a purpose which will be presently described.

$J$  represents a pair of arms secured by bolts  $j$  to the chute-section  $E^2$ , and a shaft  $K$  is mounted in the upper ends of said arms and provided with an operating-crank  $k$  and a ratchet  $k'$ , engaged by a pawl  $k^2$ . Upon the shaft  $K$  are mounted two drums  $L L'$ , the drum  $L$  being fast and the drum  $L'$  being loose on the shaft, while the adjacent ends of the drums are provided with clutch-teeth  $l l'$ . A cord or cable  $l^2$  is wound on drum  $L'$  and is connected to the eye  $e^6$ , while a similar cord or cable  $l^3$  is wound oppositely upon the drum  $L$ , and extends thence through the channel formed between the wires  $H$ , around the guide-pulley  $h'$ , and thence back through the opening  $e^5$  to the eye  $e^6$ , to which it is secured. Thus by operating the drums  $L L'$  the outer chute-section  $E^3$  may be slid out and in, as may be desired, and the wires  $H$  will protect the cord or cable  $l^3$  from contact therewith and the wear incident thereto.

By reason of the clutch-teeth  $l l'$  for operatively connecting the drums  $L L'$  there need be no nice adjustment of the length of the cords  $l^2 l^3$ .

In order to move the carriage  $D$  and its attached parts from the position shown in Fig. 1 to that shown in Fig. 2, and vice versa, I provide the two drums  $M M'$ , mounted loosely on the shaft  $M^2$  and having clutch-teeth  $m m'$  on their adjacent ends to alternately engage

the clutch-teeth  $m^4$  on the ends of the clutch-sleeve  $M^3$ , which sleeve is operated by the usual pivoted forked lever  $M^4$ . Cords or cables  $m^6 m^7$  are wound oppositely on the respective drums  $M M'$  and extend therefrom in opposite directions to the ends of the casing, where they pass around suitable guide-pulleys  $m^8$ , and thence to the respective ends of the carriage  $D$ , to which they are connected. The shaft  $M^2$  is always turned in the same direction and rotates whichever drum the sleeve  $M^3$  is clutched to, the other drum then unwinding.

The outer end of the chute-section  $E^3$  is cut away at its lower side and its edges are reinforced by a marginal strip  $E^4$ . Any suitable hood may be secured to the said outer end, if desired.

When the machine is being driven from place to place or is not in use, the chute will occupy the position shown in Fig. 1; but when the scene of operation is reached the shaft  $M^2$  and drum  $M$  will be operated to draw the carriage  $D$ , with the chute  $E$  and its operating mechanism, rearwardly upon the turn-table, when the chute will register with the straw-outlet in the casing. Then the drum  $G$  will be rotated to operate arm  $F'$  and rod  $f'$  till the chute is raised to the desired angle, and then the shaft  $k$  will be rotated to slide the chute-section  $E^3$  outwardly to any desired extent. The chute as a whole may be swung sidewise through the medium of the turn-table  $B$  and its operating-wheel  $B'$ . When the eye  $f^6$  on strut-section  $f^5$  engages the eye at the outer end of the rod  $f'$ , the section  $E^3$  of the chute will be held from further outward movement, and it is to brace the telescopic chute when thus fully extended that I provide the two-part brace  $f^2 f^5$ . The sliding chute-section  $E^3$  being wholly exterior to the inner section  $E^2$  no internal shoulder will be formed to impede the passage of the straw.

Instead of forming the channel for cord or cable  $l^3$  by means of the wires  $H$  said channel may be formed by a groove directly in the chute-section  $E^3$  or by means of a tube or half-tube secured thereon.

Having thus described the invention, what is claimed is—

1. The combination, with the machine casing having a straw discharge outlet at one end, and longitudinal tracks or guideways leading from said outlet, of the chute, and a carriage or slide at its lower end traveling along said tracks or guideways and adapted to move into and out of register with said outlet, substantially as described.

2. The combination with the machine casing having a straw discharge outlet at one end, longitudinal tracks or guideways leading from said outlet, and a turn-table having an opening registering with the outlet, and track or guideway sections on its upper side to register with said first mentioned tracks or guideways, of the chute and a carriage or slide at the inner end thereof and traveling on said



track to run on and off the turn-table, substantially as set forth.

3. The combination with the machine casing having a straw discharge outlet at one end and the longitudinal tracks or guideways leading from said outlet, of the laterally swinging chute and a carriage or slide at its inner end mounted on said guideways or tracks, substantially as described.

4. The combination with the machine casing, having a straw discharge outlet at one end and the longitudinal tracks or guideways leading therefrom, of the laterally and vertically swinging chute, a carriage or slide at the inner end thereof mounted on said tracks or guideways, substantially as described.

5. The combination with the machine casing having the straw discharge outlet at one end, and the longitudinal tracks or guideways leading from said outlet, of the chute, a carriage or slide at the inner end thereof and mounted on said tracks or guideways, a shaft provided with drums and a clutch, and oppositely wound cords or cables extending from said drums around guide-pulleys to the respective ends of the slide or carriage, substantially as described.

6. The combination with the machine casing having a straw discharge outlet, the tracks leading therefrom, a turn-table having an opening registering with said outlet and provided with an external operating wheel, and track sections on the upper side of the turn-table to register with said casing-tracks, of the chute, a carriage or slide at the inner end of the chute and traveling on said track and track sections, and mechanism for operating the carriage to move it on and off the turn-table, substantially as described.

7. The combination with the vertically swinging telescopic chute and mechanism for raising and lowering it, of an operating rod pivoted at one end to the inner chute section and connected at its opposite end with the operating mechanism, and a strut or brace on the outer chute section with its inner end extending to and sliding upon said operating rod, substantially as described.

8. The combination with the vertically swinging telescopic chute a standard extending above the hinged inner end thereof and provided at its upper end with a pivoted arm, a drum having a cord or cable connected with said arm and an operating rod connecting the arm with the inner chute section, of a strut or brace formed of two members, the forward one of which is mounted on the upper side of the outer chute section and the inner one of which extends therefrom to said operating rod, and there provided with an eye-receiving and sliding on said operating rod substantially as described.

9. The combination with the vertically

swinging telescopic chute having pins at the sides of the hinged ends, the standard having slotted side arms receiving said pins and pivoted at their lower ends, the operating arm pivoted on the upper side of said standard, a drum having an operating cord connecting with said arm and a rod extending from said arm to and connected with the hinged member of the chute, of a two-part strut on the upper side of the sliding chute-section and in sliding connection with said rod, substantially as described.

10. The combination with the telescopic chute comprising an inner section and an outer slidable section and the oppositely wound operating cords, having a winding shaft, of a channel along the side of the inner chute section, a guide pulley at the outer end of said channel, one of said cords extending along the channel, around the said pulley and secured to the inner end of the sliding chute section and the other cord extending directly to the inner end of the said sliding section, substantially as described.

11. The combination with the telescopic chute comprising an inner section and an outer slidable section the inner section of which is provided with parallel wires forming a channel between them, and a guide pulley at the forward end of said chute section, of an operating cord extending between said wires around said pulleys and connected to the sliding chute section, a second cord connected to the rear end of the outer sliding section and a drum mechanism for winding the cords in opposite directions to project and retract said sliding section, substantially as described.

12. The combination with the telescopic chute, comprising an inner section and an outer slidable section the inner section of which has a longitudinal channel or groove, of the side bars having cross bolts securing them to the rear end of the inner chute section, a shaft mounted on the upper ends of said bars and provided with a fast and a loose drum having clutch teeth on their adjacent ends, and the oppositely wound cords extending from the drums to the rear end of the sliding chute section; one cord extending through said channel and around a guide pulley at the outer end of the inner chute section, substantially as described.

13. The combination with the machine casing having an outlet in its upper side at one end, of a chute movable along the upper side of the casing into and out of register with said outlet, substantially as described.

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