

No. 685,628.

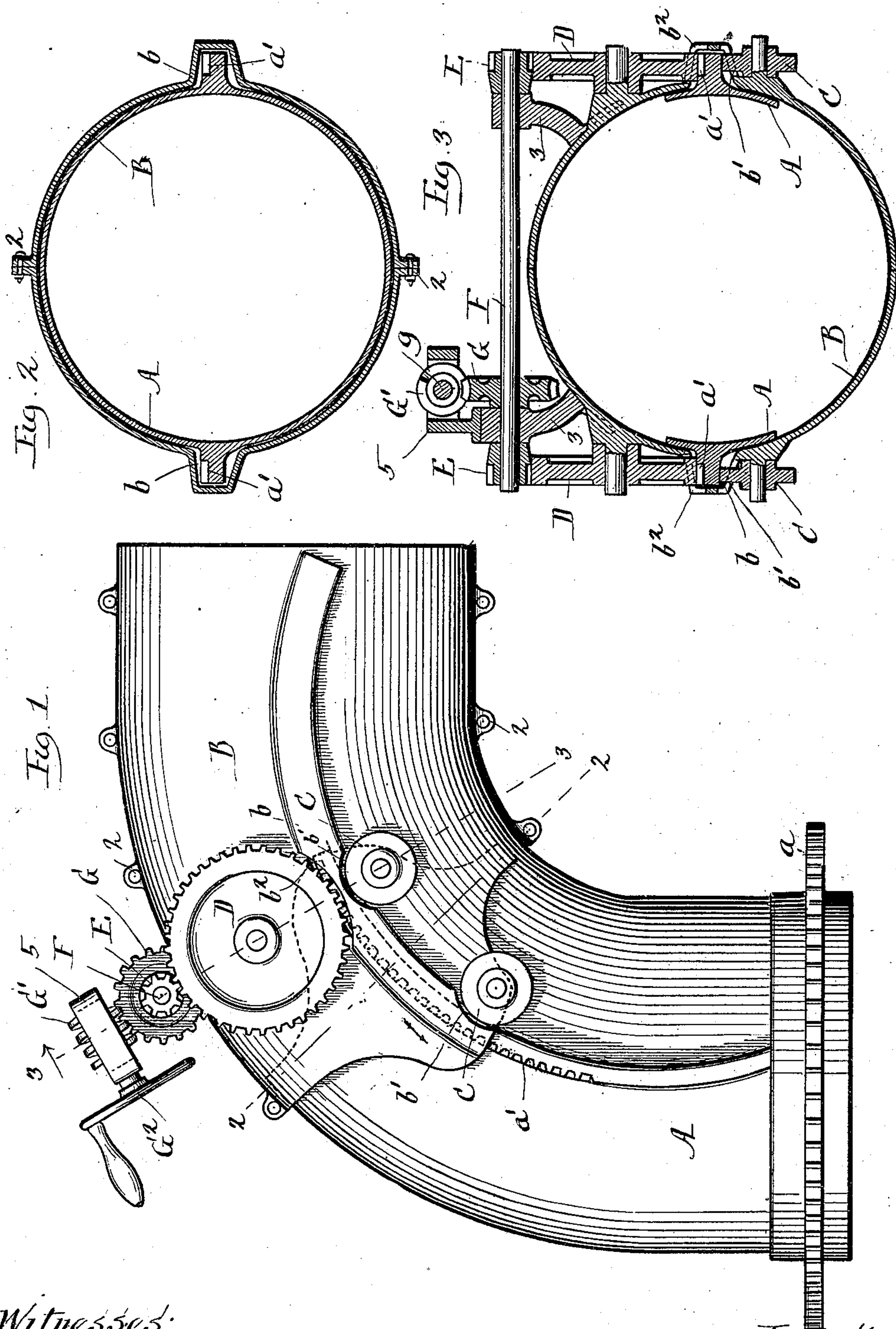
Patented Oct. 29, 1901.

G. W. MORRIS.
PNEUMATIC STACKER.

(Application filed May 6, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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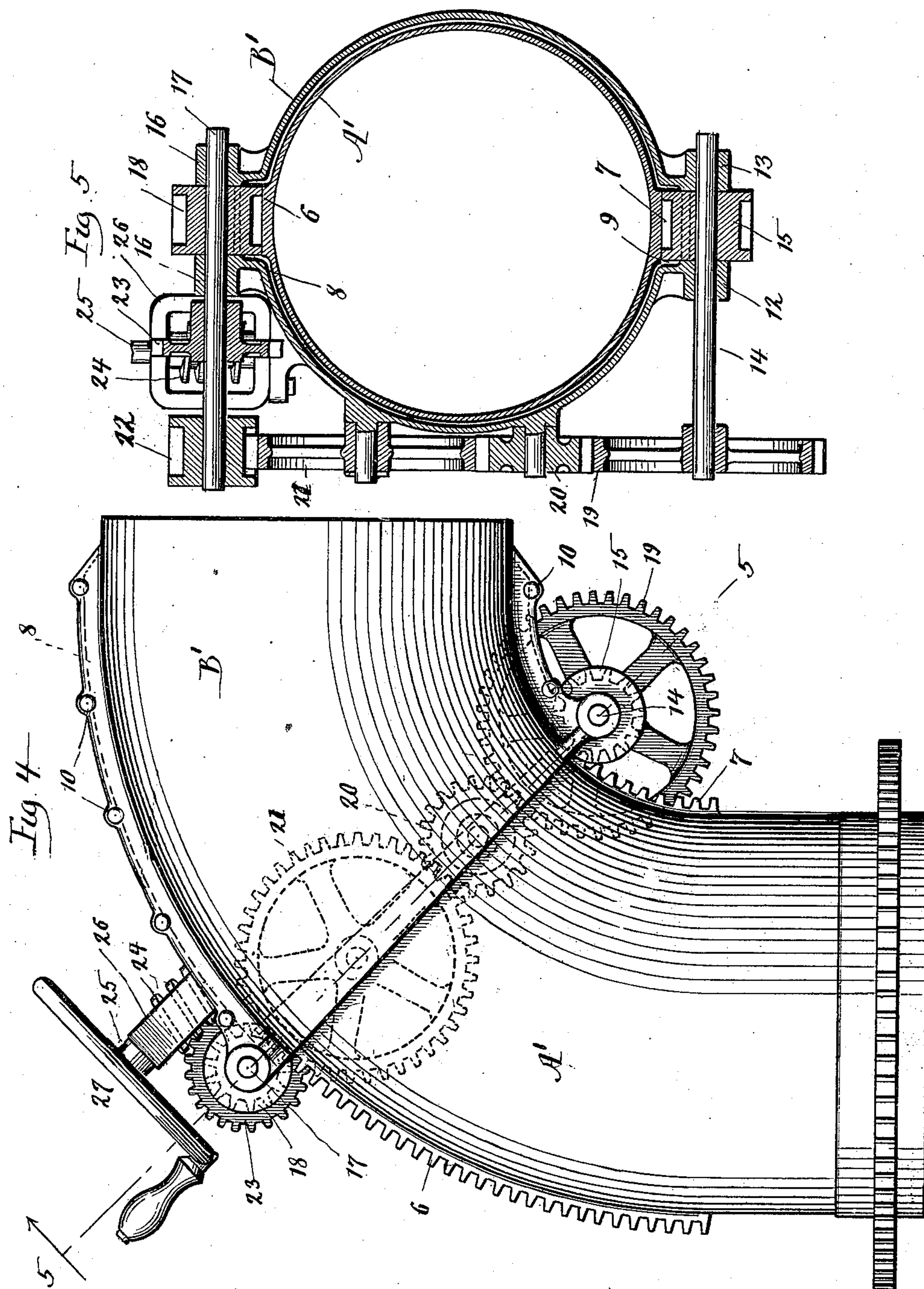
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UNITED STATES PATENT OFFICE.

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PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 685,628, dated October 29, 1901.

Application filed May 6, 1901. Serial No. 59,022. (No model.)

To all whom it may concern:

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

This invention relates to pneumatic straw-stackers, and has for its object to provide im-
15 proved means for varying the elevation of the stacker-trunk.

The invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawings, and particu-
15 larly pointed out in the claims at the end of this specification.

Figure 1 is a view in side elevation showing the lower or elbow portion of the trunk-pipe of a pneumatic stacker having my in-
20 vention applied thereto. Fig. 2 is a view in cross-section on line 2 2 of Fig. 1. Fig. 3 is a view in cross-section on line 3 3 of Fig. 1. Fig. 4 is a view in side elevation showing a modified construction embodying features of
25 the invention. Fig. 5 is a view in cross-section on line 5 5 of Fig. 4.

The elbow portion of the discharge-pipe or trunk is shown as consisting of telescopic sections A and B, the section A being shown as
30 provided at its base with a gear-wheel a , whereby the revolution of the discharge-pipe or trunk will be effected in a manner well understood by those familiar with this class of devices. The section A will be mounted in the
35 usual or suitable manner upon a base or turret, (not shown,) and the section B will have connected thereto an outwardly-extending body portion of any desired length. The section B is of sufficiently greater diameter than
40 the section A to set over the same and is of such curvature as to permit it to move downwardly over the upper part of the section A when the body portion of the pipe is to be raised. Upon each side of the elbow-section
45 A is formed a segmental rack a' , that sets within channels b of like curvature formed at each side of the section B. The pipe-section B is preferably a two-part casting divided longitudinally and having its abutting edges
50 formed with lugs or flanges 2, whereby the

parts may be conveniently bolted together. Each side of the section B below the channel b is provided with studs, whereon are jour-
naled bearing-rollers C in suitable number, these rollers projecting through openings b' in
55 the channel b and engaging the plain under sides of the segmental rack-bars a' . Upon each side of the pipe-section B is also jour-
naled a gear-wheel D, that passes through a cut-away space b^2 in the subjacent channel b
60 and meshes with the teeth of a corresponding rack-bar a' . The gear-wheels D mesh with pinions E, that are keyed to a shaft F, that is journaled in brackets 3, rising from the up-
per part of the pipe-section B. Upon the
65 shaft F is keyed a worm-wheel G, with which meshes a worm-pinion G', that is fixed to shaft g , journaled in the bracket 5, extending upward from the adjacent bracket 3. One end of the shaft g is furnished with a hand-wheel
70 G², whereby the shaft may be conveniently turned.

The operation of parts as thus far de-
scribed is as follows: When the elbow or pipe
sections A and B are in the relation shown
75 in Fig. 1, it will be understood that the body portion of the trunk or discharge-pipe is in approximately horizontal position. If now it is desired to raise the body portion of the
80 discharge-pipe or trunk, the operator will turn the hand-wheel G², thereby causing the worm-gear mechanism to impart revolution to the shaft F and from this shaft and its
85 pinion E to the gear-wheels D. As the gear-wheels D are thus revolved their engage-
ment with the teeth of the segmental racks a' will cause the pipe-section B to move down-
wardly in the direction of the arrow, Fig. 1, thus correspondingly effecting the elevation
90 of the discharge-pipe or trunk carried by the section B.

In the modified form of the invention illus-
trated in Figs. 4 and 5 the elbow is shown as formed of telescopic curved sections A' and
B'. The section A' is provided upon its up-
95 per side with a segmental rack 6 and upon its lower side with a corresponding segmental rack 7 of shorter curvature. The section A' sets within the section B', and the racks 6
and 7 are received by corresponding channels 100

8 and 9. The section B' is preferably a two-part casting, its flanged edges being bolted together, as at 10. As shown, the pipe-section B' is provided adjacent its lower end with bearings 12 and 13, in which is journaled the shaft 14, that carries a pinion 15, engaging with the lower segmental rack 7 on the pipe-section A'. In like manner the top portion of the pipe-section B' is provided with bearings 16, wherein is journaled the shaft 17, to which is keyed a pinion 18, that engages the upper segmental rack 6 of the pipe-section A'. The shaft 14 has keyed to its outer end a pinion 19, that meshes with a pinion 20, journaled upon a stud projecting from the side of the pipe-section B', and this pinion 20 in turn meshes with a gear-wheel 21, journaled upon a stud projecting from the side of the pipe-section B'. The gear-wheel 21 meshes with a pinion 22, keyed to the shaft 17, and upon this shaft is also keyed a worm-pinion 23, that is driven by a worm 24, fixed to the shaft 25. The shaft 25 is journaled in the frame 26, conveniently bolted to the top of the pipe-section B', and the outer end of the shaft 25 is provided with a hand-wheel 27, whereby it may be operated.

From the foregoing description it will be seen that when it is desired to raise the body portion of the discharge-pipe or trunk it will be connected to the pipe-section B', and the operator will turn the hand-wheel 27, causing the worm-gearing to impart revolution to the shaft 17 and from this shaft by the gear-wheels 22, 21, 20, and 19 to the shaft 14. As the shafts 17 and 14 are thus revolved their respective pinions 18 and 15, being in mesh with the corresponding segmental racks 6 and 7 of the pipe-section A', will draw downward the section B' over the section A', thus causing the elevation of the trunk or body portion of the discharge-pipe that will be connected to the free end of the section B'. It is manifest that the segmental racks 6 and 7 and the gearing that connects the shafts of the pinions engaging said racks will be properly proportioned, so as to impart an easy movement of the pipe-section B' over the section A'.

The details of construction above set out may obviously be varied by the skilled mechanic without departure from the scope of the invention.

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

1. In a pneumatic stacker, the combination with a discharge-pipe or trunk having curved telescopic sections of plural racks longitudinally mounted upon one of said sections and pinions engaging said racks mounted upon the other of said sections, and means for operating said pinions.

2. In a pneumatic stacker, the combination with a discharge-pipe or trunk having curved sections, of rack-bars at opposite points of one of said sections, pinions engaging said rack-bars carried at opposite points of the

other of said sections, and suitable gearing connecting said pinions.

3. In a pneumatic stacker, the combination with a discharge-pipe or trunk having curved telescopic sections, of rack-bars upon the inner section and pinions mounted upon the outer section engaging said rack-bars, and suitable gearing connecting said pinions.

4. In a pneumatic stacker, the combination with a discharge-pipe or trunk having curved telescopic sections, of rack-bars at opposite points of the inner section, channels to receive said rack-bars at the opposite points of said outer section, pinions carried by said outer section for engaging said rack-bars and suitable gearing connecting said pinions.

5. In a pneumatic stacker, the combination of a discharge-pipe or trunk having two curved telescopic sections, of longitudinal curved racks mounted on one of said sections, pinions engaging said racks mounted upon the other of said sections, gearing connecting said pinions and worm-gearing for operating said gearing.

6. In a pneumatic stacker, the combination with a discharge-pipe or trunk having curved telescopic sections, of rack-bars at opposite points of one of said sections, pinions engaging said rack-bars carried at opposite points of the other of said sections, suitable gearing connecting said pinions, and a worm-gear for imparting movement to said pinions.

7. In a pneumatic stacker, a discharge-pipe or trunk having two tubular telescopic elbow-sections, the outer section being formed of two parts bolted together and rack and pinion mechanism for imparting movement to said outer section.

8. In a pneumatic stacker, the combination with a discharge-pipe or trunk having telescopic sections, of rack-bars at opposite points of the inner section, pinions engaging said rack-bars and carried at opposite points of the outer section, a shaft geared to said pinions and worm-gearing for actuating said shaft.

9. In a pneumatic stacker, the combination with a discharge-pipe or trunk having telescopic sections, of rack-bars at opposite points of one of said sections, pinions engaging said rack-bars at opposite points of the other of said sections, gearing connecting said pinions and bearing-rollers engaging said rack-bars.

10. In a pneumatic stacker, the combination with a discharge-pipe or trunk having telescopic sections, of rack-bars mounted upon one of said sections, pinions engaging said rack-bars mounted upon the other of said sections, operating-gearing for said pinions and bearing-rolls mounted upon one of said sections and engaging the other section.

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Witnesses:

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