

No. 713,739.

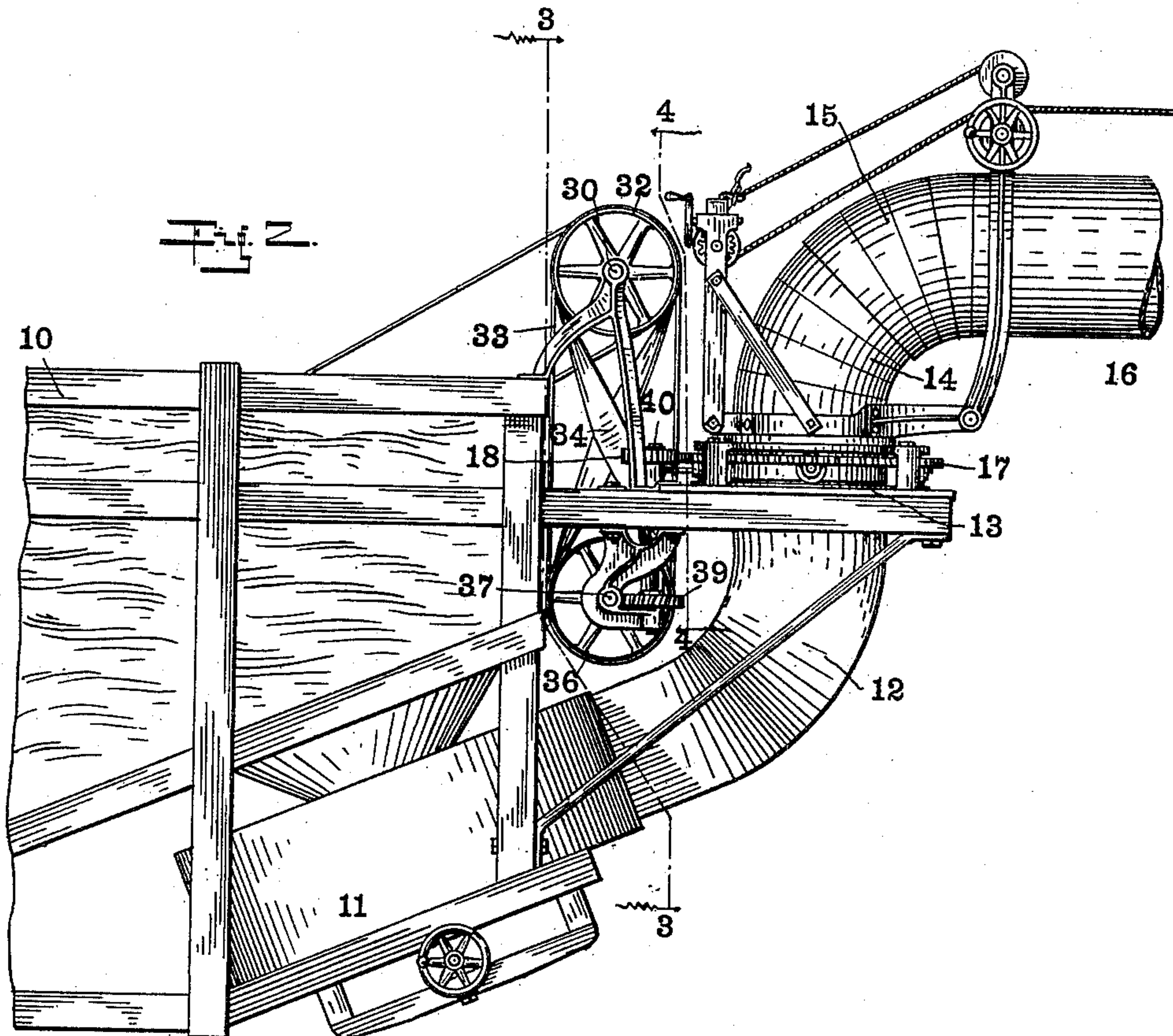
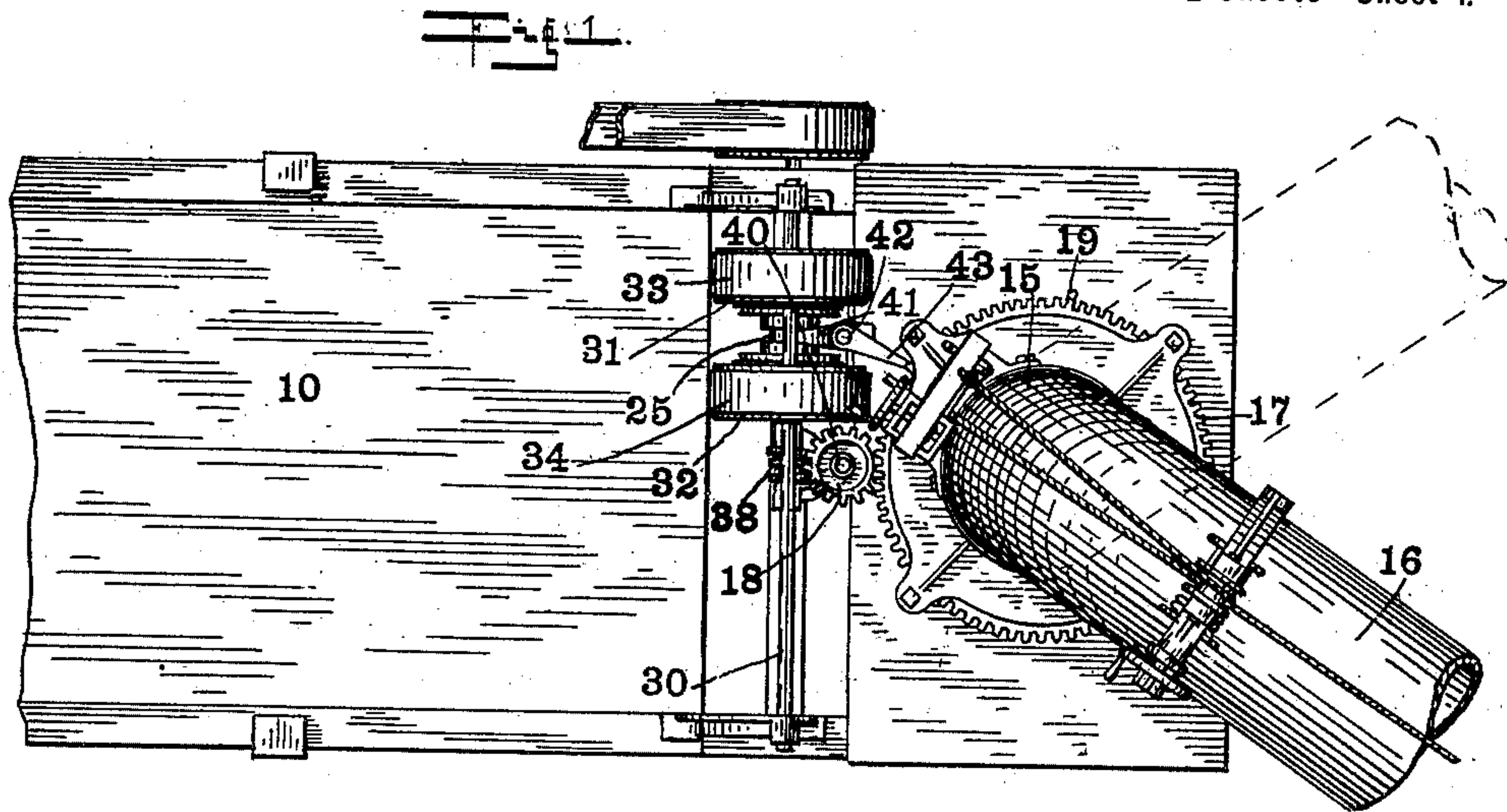
Patented Nov. 18, 1902.

C. BRADFORD.
PNEUMATIC STACKER.

(Application filed May 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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INVENTOR

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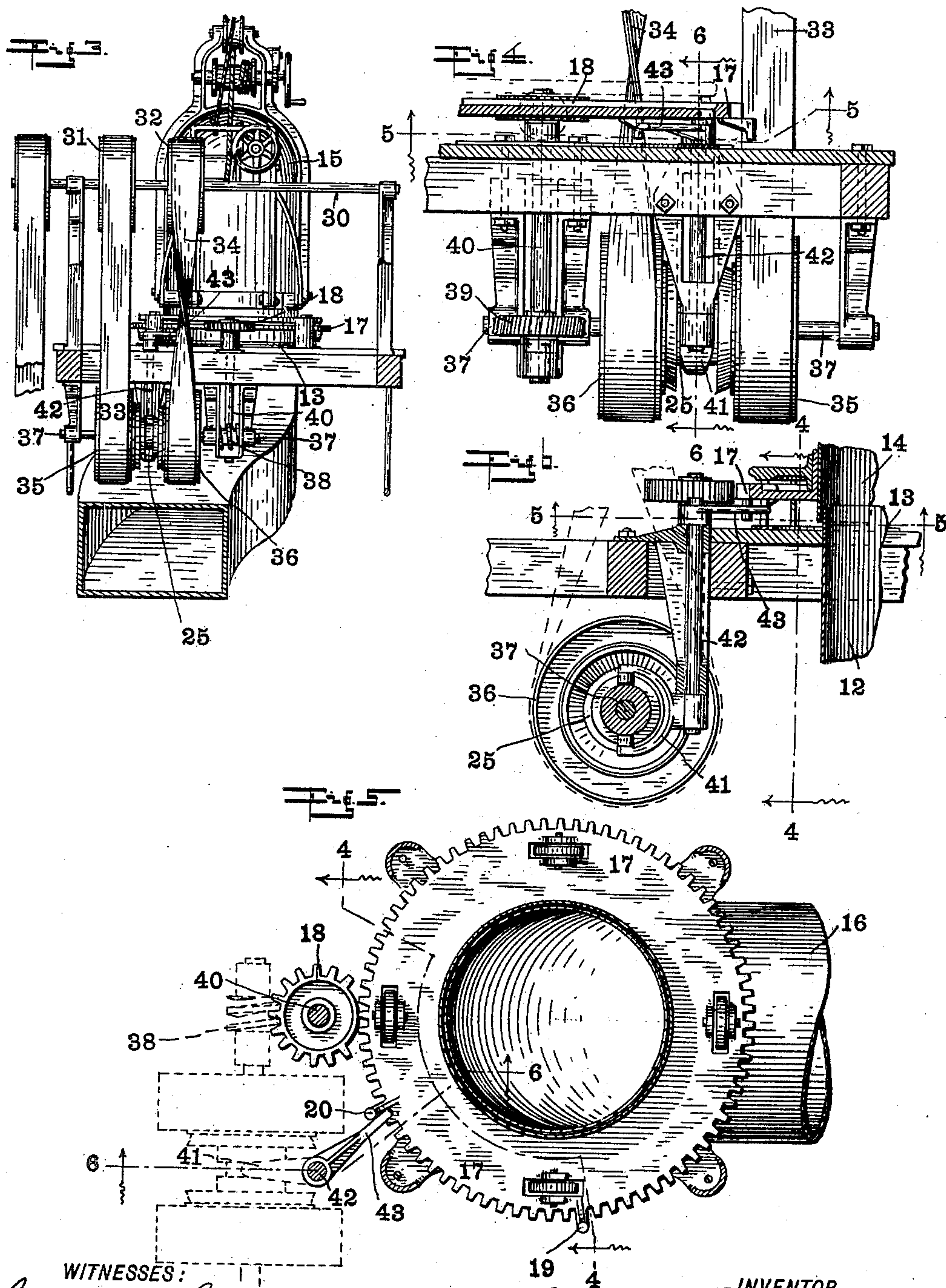
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WITNESSES:

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UNITED STATES PATENT OFFICE.

CHESTER BRADFORD, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE INDIANA MANUFACTURING COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF WEST VIRGINIA.

PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 713,739, dated November 18, 1902.

Application filed May 17, 1902. Serial No. 107,798. (No model.)

To all whom it may concern:

Be it known that I, CHESTER BRADFORD, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following is a specification.

My present invention relates to that class of apparatus for taking away the straw, stalks, dust, &c., from machines used in threshing or separating and cleaning grain, seeds, &c., and conveying the same away and depositing it upon stacks or elsewhere, which machines are generally known as "pneumatic stackers" and of which that illustrated in Letters Patent of the United States No. 467,476 to James Buchanan, dated January 19, 1892, is a leading example and that illustrated in the Patent No. 596,914, issued upon the application of William Seburn January 4, 1898, is an improved type.

The object of said invention is to provide in such a machine a means whereby the delivery-duct may be caused or enabled to pause at each end of its travel before starting on its return movement, so that the ends of the stack or pile of straw or other material may be built up full and square at the end.

Such invention is carried out by an apparatus which includes what is commonly known as a "mutilated gear and a shifting mechanism," as will hereinafter be more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a top or plan view of the rear portion of a threshing-machine or separator provided with a pneumatic stacker and the lower portion of such a stacker, said view thus illustrating the mechanism involved in my present invention and the immediately adjacent parts; Fig. 2, a side elevation of the same; Fig. 3, a transverse sectional view as seen when looking in the direction indicated by the arrows from the dotted line 3 3 in Fig. 2; Fig. 4, a detail transverse vertical sectional view, on a considerably-enlarged scale, as seen when looking in the direction indicated by the arrows from the dotted line

4 4 in Figs. 2 and 6; Fig. 5, an under side plan view of the turn-table and immediately adjacent parts as seen when looking upwardly from the dotted line 5 5 in Fig. 4; and Fig. 6, a detail sectional view as seen when looking in the direction indicated by the arrows from the dotted line 6 6 in Fig. 5, the position of the driving mechanism in relation thereto being indicated by dotted lines.

As heretofore stated, this invention is shown in connection with an ordinary threshing-machine or separator and a type of pneumatic stacker which is applicable to use with such a machine. It is to be understood, however, that the invention is applicable to any pneumatic stacker when used with any machine to which such a stacker is applicable and is not confined to threshing-machines only. The separator 10, the fan-housing 11, the stationary duct-section 12, the turn-table 13, the elbow-duct section 14, mounted thereon, the telescopic elbow-duct section 15, adapted to move over the section 14, and the fragment of the outgoing or delivery duct section 16, as well as the devices for raising and lowering the same, are therefore of any suitable type and not being peculiar to my present invention will not be further described herein, except incidentally in describing the invention.

The annular toothed rim or gear 17 on the turn-table is arranged in the same relation to the other parts that it ordinarily is in machines of this character and is the means by which the delivery-duct section of the stacker is driven back and forth. It is propelled by a pinion 18, which, however, is "mutilated" or has a portion of its teeth omitted at one point, so that as it engages with and drives said rim, and consequently causes the straw-duct to move from side to side, it will escape from engagement therewith at a certain point in the travel, and thus permit said straw-delivery duct to remain at a predetermined point for a short period until such mechanism reengages and starts it again on its travel. Said toothed rim or large gear is provided at proper points with arms or projections 19 and 20, which are adapted to come in contact with the shifting-lever, by means of which a clutch mechanism, presently to be described, is so

shifted as to reverse the movement of the duct at a proper point when it has reached the limit of travel in one direction or the other. This clutch mechanism consists of a
 5 shifting clutch, as 25, suitably located in respect to the turn-table, a shaft adapted to be driven in one direction or the other as the clutches reverse, and suitable power connections from said shaft through said clutch to
 10 the mutilated gear wheel or pinion 18, whereby the latter is given the necessary movement first in one direction and then in the other. I have shown a common form of such mechanism, consisting of the constantly-driven
 15 shaft 30, two pulleys 31 and 32 thereon, belts 33 and 34, (one straight and the other crossed,) running from said pulleys to two other pulleys 35 and 36, loosely mounted on the shaft 37, on which the clutch 25 is also mounted
 20 and which are adapted to drive said shaft in one direction or the other, according to which of them is at the time engaged by said clutch. Upon this shaft 37 is also a worm 38, which through a worm-gear 39 drives the shaft 40,
 25 which shaft also carries the pinion 18. A shifting-fork 41 is mounted on a pivot-shaft 42 at a suitable point near the clutch, which pivot-shaft also carries the shifting-lever 43, which extends out into the path of the projections 19 and 20 on the large gear or toothed rim 17.

In operation when the clutch is thrown into engagement and the parts described are thus set in motion the pinion 18 engages with the
 35 toothed rim 17 and drives the turn-table carrying the delivery-duct of the straw-stacker around for the predetermined distance until the mutilated section thereof comes opposite to the teeth on the rim 17, when, as will be
 40 readily understood, the engagement ceases and the movement of the latter stops. The pinion 18, however, continues on its course, and the teeth thereon presently reengage with those of said toothed rim. The arrangement
 45 is such that when this takes place the projection 20 almost immediately comes in contact with the lever 43, shifting the clutch and starting the mechanism into motion in the opposite direction. This continues as before
 50 until the motion is again shifted by the coming in contact of the projection 19 with the arm 43. Briefly stated, then, the motion is as follows: The movement of the delivery-

duct of the straw-stacker is regular throughout the greater portion of its travel. The
 55 movement then ceases for a brief period. It is then resumed for an instant merely, when it is reversed and moves back slightly. The pause continues then for another brief period, when upon the regular reengagement of the
 60 pinion with the toothed rim the regular movement is resumed and continues until the other end of the path of travel is reached, whereupon the movements just described are repeated, and so on continuously as long as
 65 the machine is in operation.

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

1. The combination, in a pneumatic stacker,
 70 of the delivery-duct, a turn-table carrying the same, a curved rack on said turn-table, a mutilated gear adapted to engage with said rack and thus actuate said turn-table, a mechanism for driving said mutilated gear,
 75 and means for reversing said mechanism at the end of a predetermined travel in each direction and arranged to operate after the mutilated gear has passed out of engagement with
 80 said curved rack, whereby the latter is permitted to pause at each end of its travel before starting on its return movement.

2. The combination, in a pneumatic stacker, of the trunk or chute, a turn-table carrying
 85 the same, a curved rack on said turn-table, a mutilated gear-wheel adapted to engage with said rack and thus actuate said turn-table, a reversing mechanism for driving said mutilated gear first in one direction and then
 90 in the other, a lever for shifting said reversing mechanism, and two strikes for operating said lever carried by the turn-table and situated to come into engagement therewith just after the reengagement of the toothed portion of
 95 the mutilated gear with the curved rack, whereby the trunk or chute is continuously driven back and forth with a pause near the termination of movement in each direction.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this
 100 13th day of May, A. D. 1902.

CHESTER BRADFORD. [L. S.]

Witnesses:

ARTHUR M. HOOD,
 JAMES A. WALSH.