



No. 697,653.

Patented Apr. 15, 1902.

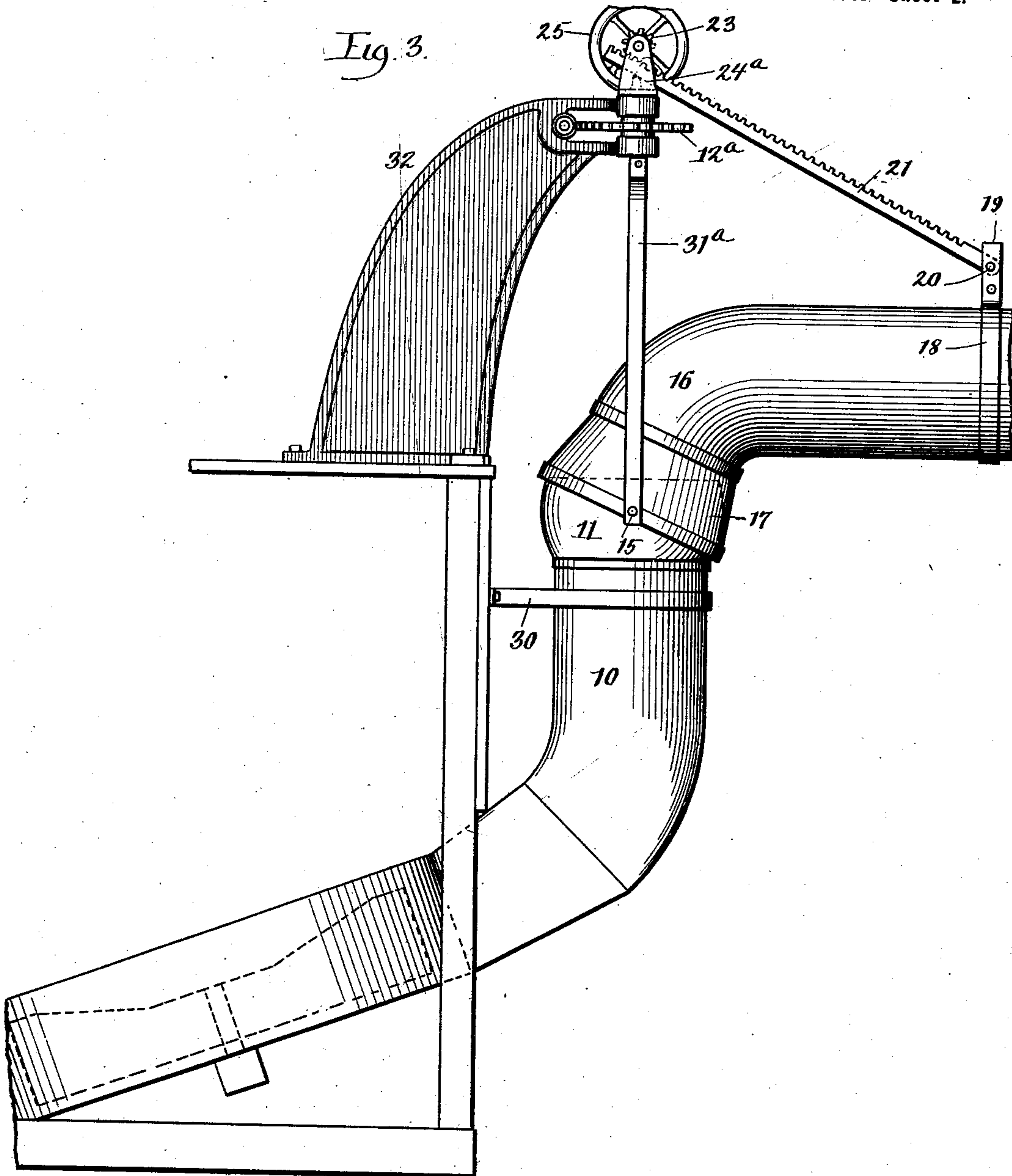
F. L. NORTON.  
PNEUMATIC STACKER.

(Application filed Jan. 6, 1902.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 3.



Witnesses:  
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Inventor:  
*Frederick Lee Norton*  
By *Perice Fisher*  
his Attorney.

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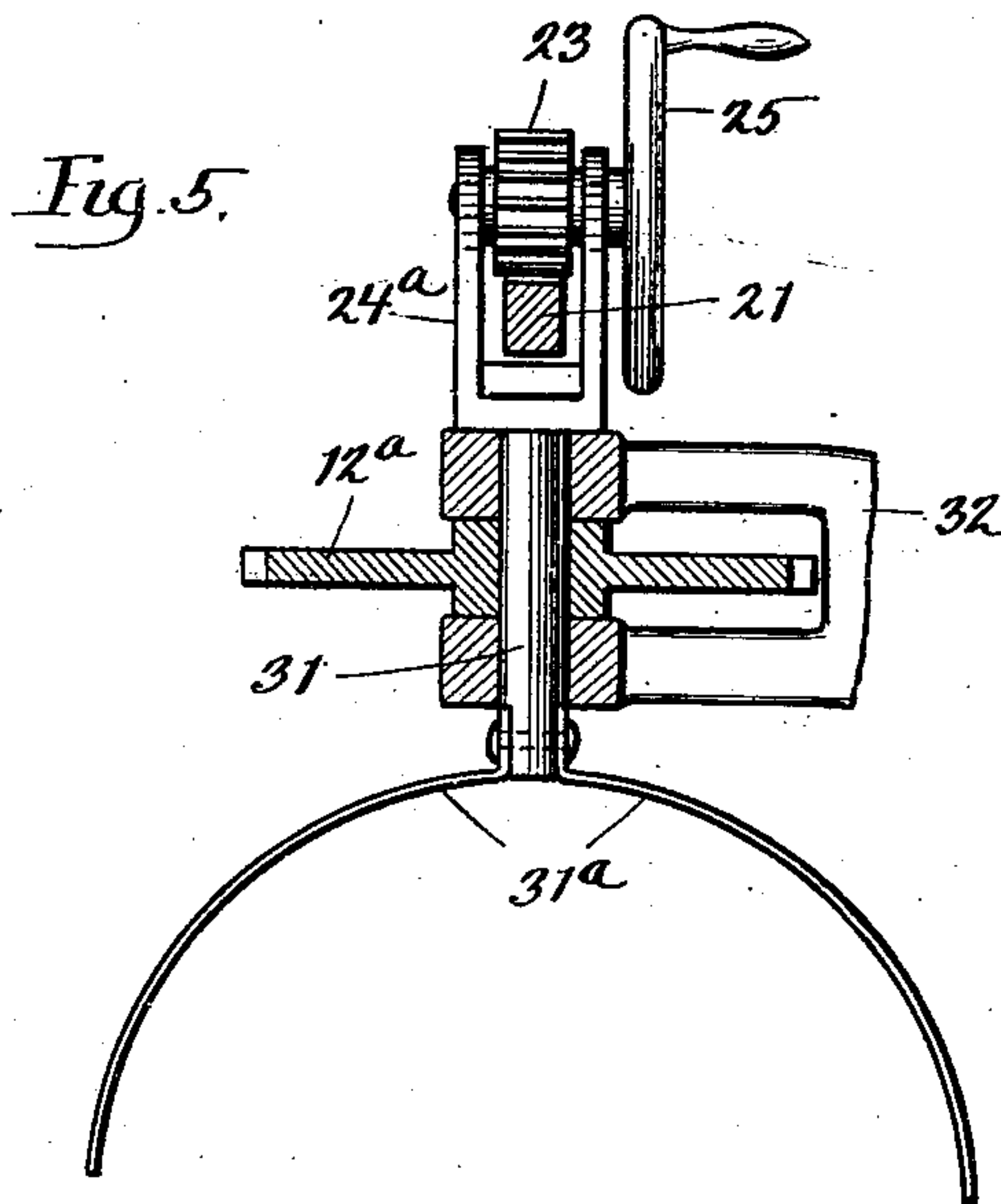
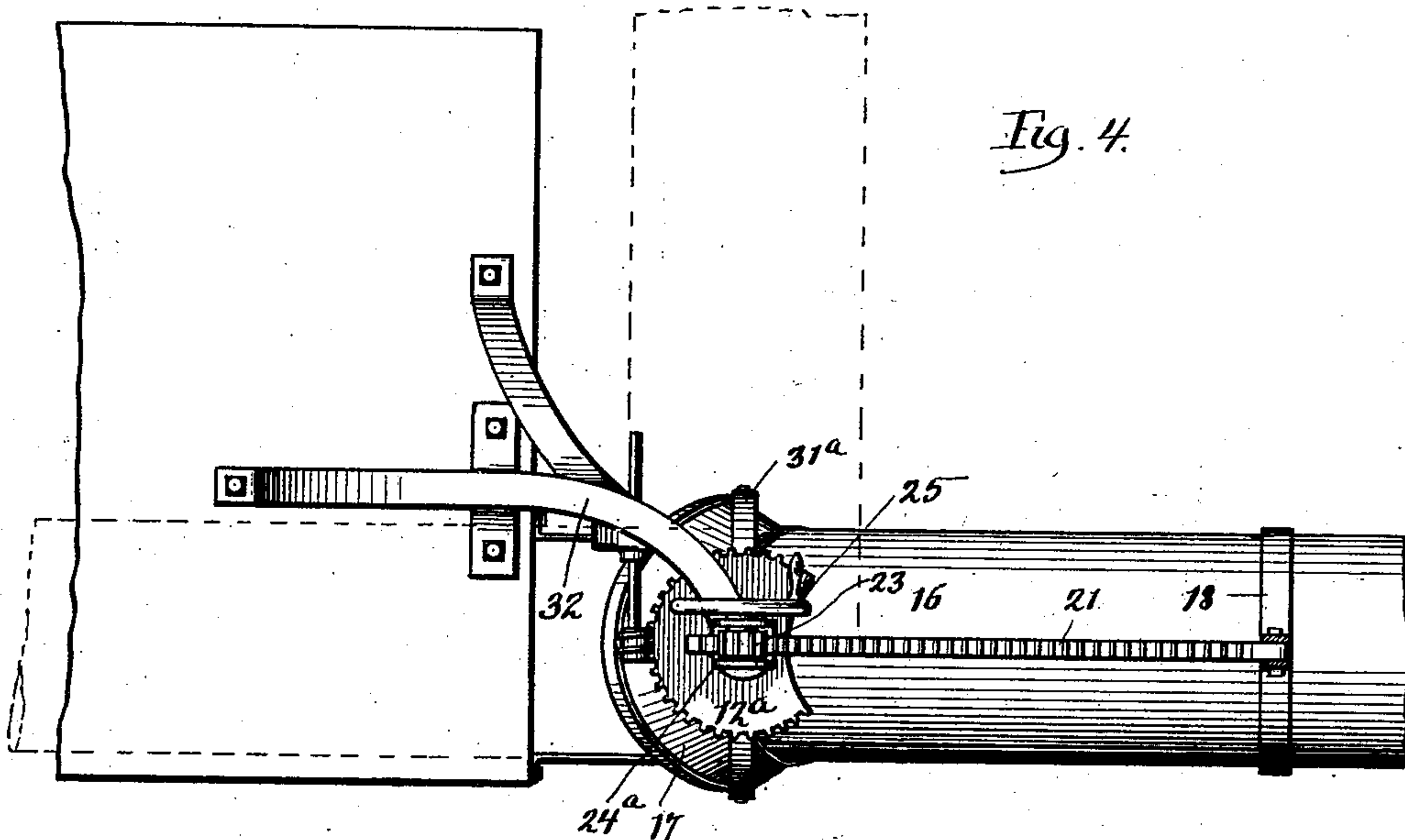
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# UNITED STATES PATENT OFFICE.

FREDERICK LEE NORTON, OF RACINE, WISCONSIN.

## PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 697,653, dated April 15, 1902.

Application filed January 6, 1902. Serial No. 88,586. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK LEE NORTON, a citizen of the United States, and a resident of the city and county of Racine, State of Wisconsin, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following is a full, clear, and exact description.

The invention designs to simplify the structure of this class of machines by making the main chute continuous instead of dividing it crosswise, as in usual practice hitherto.

The present plan wholly dispenses with the short inner section or "turret-stump," as it is sometimes called, thus eliminating besides the hinge-joint ordinarily used to connect the two (*i. e.*, the inner and outer) sections together, the continuous main chute being pivotally sustained directly at the oscillatory turn-table itself. There is no air-tight fit between the turn-table and the chute, but instead an intervening space is left, enough for free play of the adjacent chute-terminal at such times as the forward or discharge end of the chute is being raised and lowered. The movable chute-terminal and the stationary bustle-pipe leading from the blast-fan are slidably fitted together, and although said pipe fails to support the weight of the chute (the latter being carried from the turn-table) it will appear that the sliding fit referred to is of the universal sort, and thus proper to easily maintain a continuous passage from blast-fan to chute-exit, while yet preserving a substantially air-tight connection at the junction of the bustle-pipe and chute whether the chute shift to and fro or up and down, as often occurs in practice.

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

On the drawings, Figure 1 is a side elevation, and Fig. 2 a sectional plan at line 2 2 of Fig. 1, displaying one form of machine made in keeping with the invention. Another form is shown by Fig. 3 in side elevation, in plan by Fig. 4, and in detail sectional view by Fig. 5.

In the form shown by Figs. 1 and 2 the stationary bustle-pipe 10 extends, as usual, from the casing of the internal blast-fan and at its

upright terminal 11 projects slightly through the encircling turn-table 12. The oscillatory turn-table 12 is conveniently furnished with a gearing 13, which may rotate with the table back and forth in familiar fashion through aid of a worm-pinion or like expedient. The turn-table by means of its antifriction ball connection rides on top of platform 14, said platform being sustained in ordinary way at rear of the separator-casing. Upon diametric seats the pintles 15 of the main chute 16 are received at the turn-table, said chute being curved in elbow-like fashion near the rear and furnished with an enlarged terminal 17 to fit snugly over like terminal 11 on the bustle-pipe. By means of pivot connection 15 it is seen that the continuous chute 16 stands wholly sustained upon turn-table 12 and may freely oscillate with it to and fro about the expanded head 11 of the stationary bustle-pipe. The confronting ends of said pipe and chute are defined on a spherical curve struck from pintles 15 as an axis. Hence the chute can move not only in conjunction with turn-table 12, but independently thereof, can be raised up or down at will about pivots 15 to shift the vertical position of its outlet-mouth, while yet maintaining a closed connection at the fixed bustle-pipe through medium of the union-coupling 11 17, there arranged between them. Ring 18, fastened to chute 16, terminates above in a loop 19, within which is pivotally mounted, as at 20, the forward end of rack-bar 21. At the rear said bar rides on roller 22 and engages a pinion 23, which journals on yoke 24 and is actuated by hand-wheel 25. The foot of yoke 24 fastens to turn-table 12 and is held upright by side braces 26, extended between the yoke and table. On rotating the hand-wheel 25 it is obvious that pinion 23 can draw rack-bar 21 in or out, and thereby raise chute 16 up or down at will, said chute turning about pivots 15 quite clear from any contact with ring 12, although in snug fit at union 11 17 with bustle-pipe 10 throughout its traverse.

In the form displayed by Figs. 3 to 5 of the drawings the essentials of the invention are still retained, although the structure is considerably modified. As before, bustle-pipe 10 extends from the casing of the internal blast-fan and by ring-brace 30 has its terminal 11 kept upright in proper axial relation



alined with the short overhead shaft 31 for  
turn-table 12<sup>a</sup>. Standard 32, secured to the  
deck of the separator, projects at the rear and  
forks, as shown, to receive the hub of said  
5 turn-table and its shaft 31. The lower end  
of shaft 31 carries the suspender 31<sup>a</sup>, and this  
in turn receives below the pintles 15, projected  
at opposite sides from main chute 16. As in  
the first machine it is seen that the turn-table  
10 still affords seats for the pintles of the main  
chute, these being now found in the suspender  
carried from the turn-table shaft instead of  
being located on the table-rim. Under either  
plan the pintles 15 are in diametric relation  
15 at the junction 11 17 of the bustle-pipe and  
main chute. The chute participates in the  
oscillatory swing of the turn-table, from which  
it is hung. It is capable of an independent  
vertical play about its own pintles and finally  
20 retains its snug union with the bustle-pipe, no  
matter whether the motion described be ver-  
tical, horizontal, or both. In brief, while the  
main chute is freely sustained from the turn-  
table the chute still maintains a slidable fit  
25 with the outer end of the bustle-pipe, so as to  
shift universally thereon. The rack and pin-  
ion details for raising and lowering the chute-  
exit remain essentially the same as before de-  
tailed, except that yoke 24<sup>a</sup> is now carried by  
30 shaft 31 of the turn-table instead of being  
sustained from its rim. Other kinds of ad-  
justing mechanism for the chute can be used

with equal advantage. The chute can read-  
ily be of the telescopic sort, and generally  
the several details may be widely varied ac- 35  
cording to the mechanic's skill without de-  
parture from the essentials of the invention.

Having thus described my invention, what  
I claim as new, and desire to secure by Letters  
Patent, is— 40

1. In pneumatic stackers, the combination  
with the blast-fan and its stationary casing,  
of the bustle-pipe extended therefrom, the  
oscillatory turn-table at the outer end of said  
pipe and the continuous main chute devoid 45  
of cross-joint, sustained freely from the turn-  
table but slidably fitting the bustle-pipe so  
as to shift universally thereon, substantially  
as described.

2. In pneumatic stackers, the combination 50  
with the blast-fan and its stationary casing,  
of the bustle-pipe extended therefrom, the  
oscillatory turn-table at the outer end of said  
pipe and the continuous main chute devoid  
of cross-joint, curved downward at the rear 55  
and by opposite pintle connections sustained  
freely from the turn-table but slidably fitting  
the bustle-pipe so as to shift universally  
thereon, substantially as described.

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