

**No. 608,223.**

**Patented Aug. 2, 1898.**

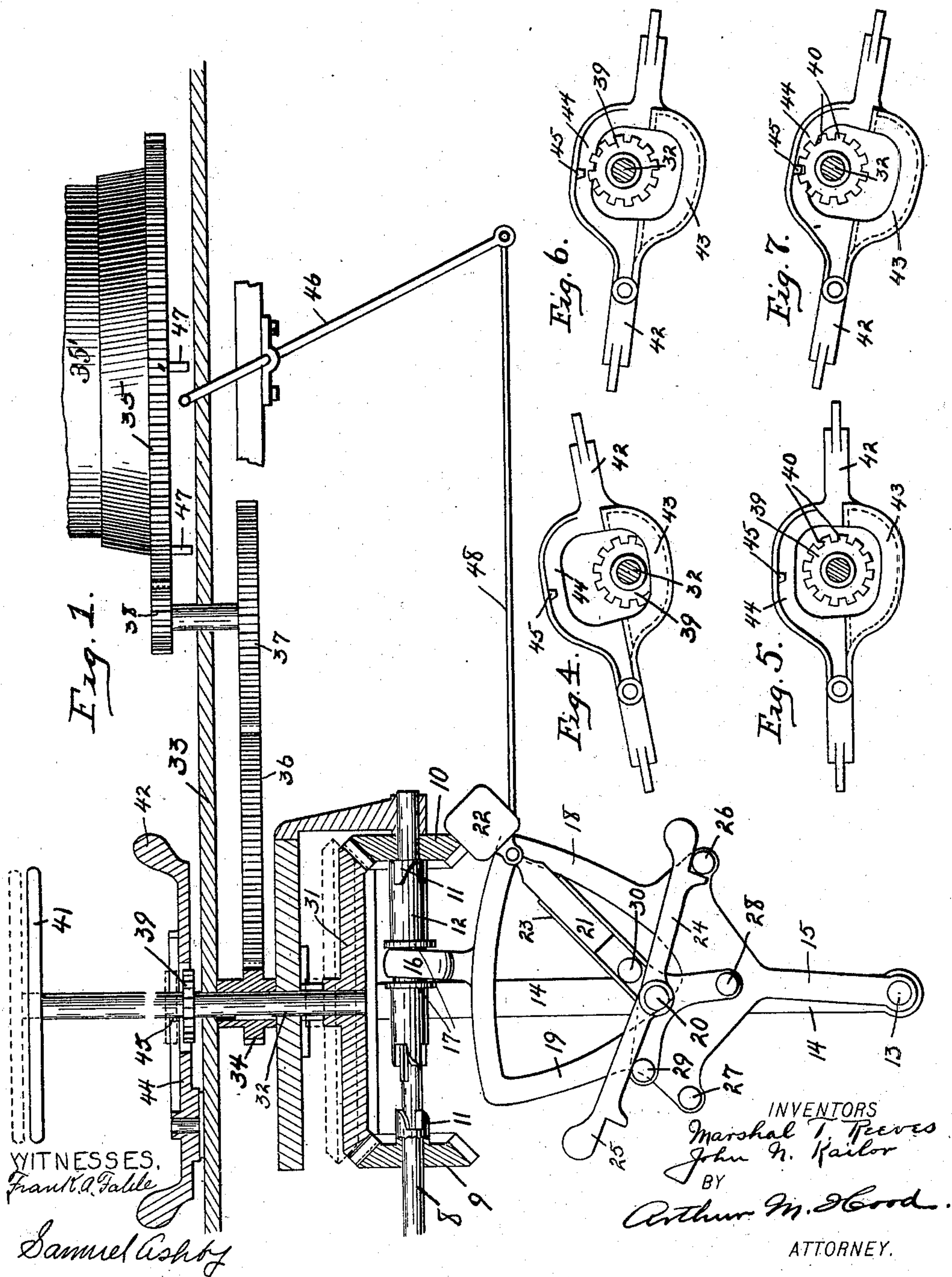
**M. T. REEVES & J. N. KAILOR.**

# AUTOMATIC OSCILLATING MECHANISM FOR STACKERS.

(Application filed Jan. 21, 1898.)

(No Model.)

**2 Sheets—Sheet 1.**



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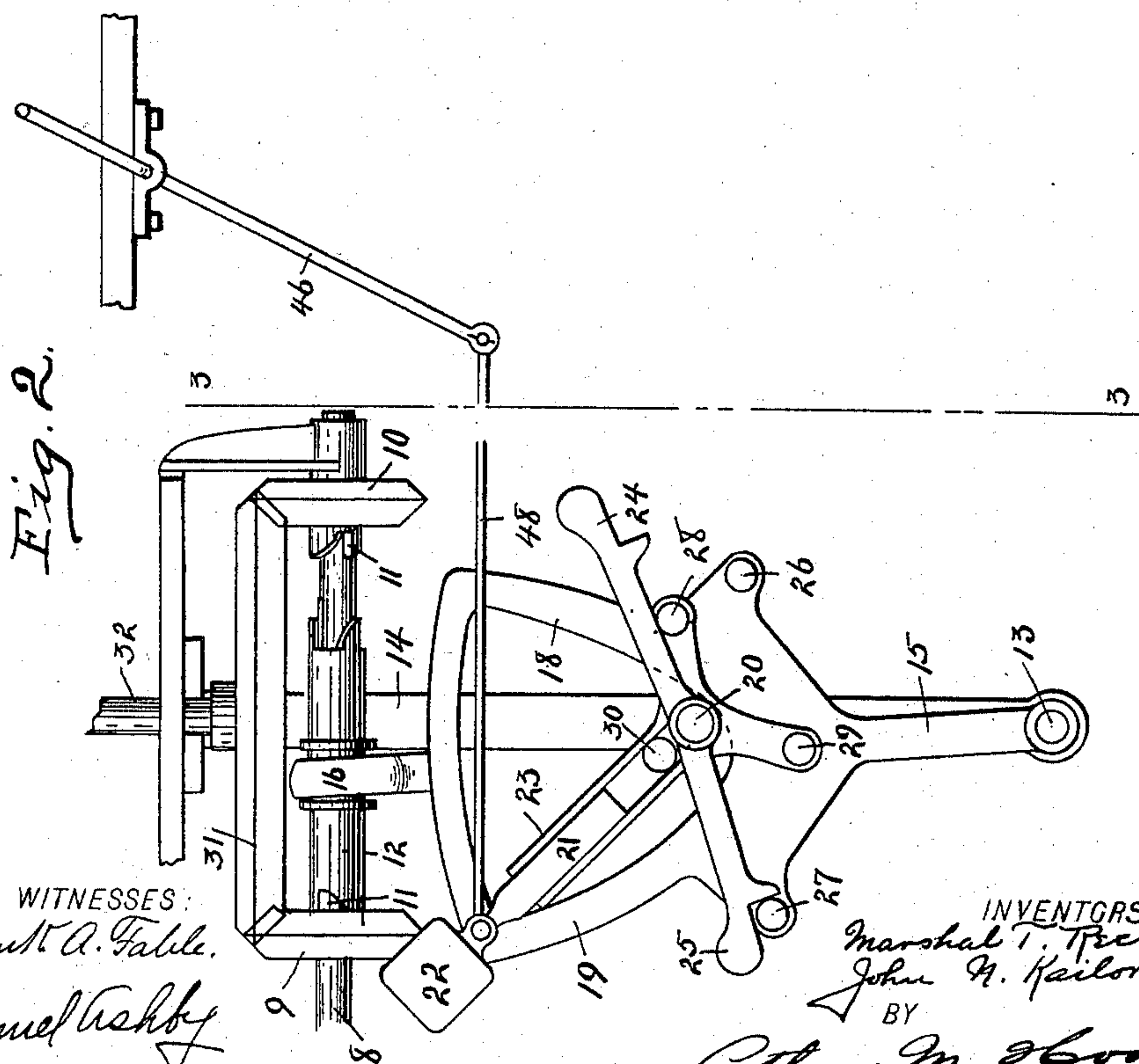
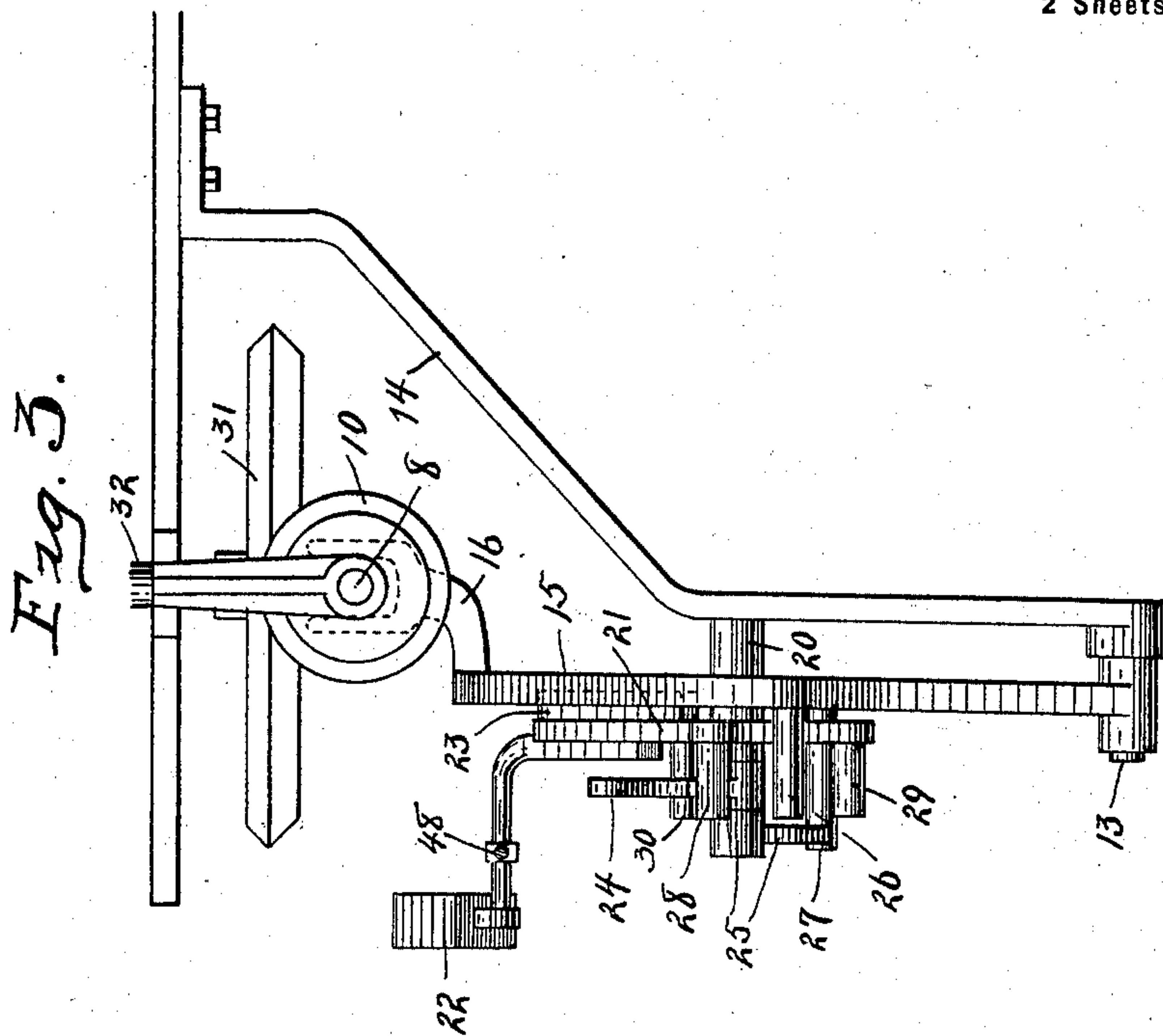
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**2 Sheets—Sheet 2.**



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC OSCILLATING MECHANISM FOR STACKERS.

SPECIFICATION forming part of Letters Patent No. 608,223, dated August 2, 1898.

Application filed January 21, 1898. Serial No. 667,394. (No model.)

*To all whom it may concern:*

Be it known that we, MARSHAL T. REEVES and JOHN N. KAILOR, citizens of the United States, residing at Columbus, in the county of Bartholomew and State of Indiana, have  
5 invented a new and useful Automatic Oscillating Mechanism for Stackers, of which the following is a specification.

Our invention relates to an improvement  
10 in automatic gear-reversing mechanism.

The object of our invention is to produce a simple and efficient device for automatically oscillating the discharge-tube of a pneumatic  
15 stacker, to provide means by which the said tube may be oscillated by hand, to provide means for locking the tube in any desired position, and to provide such other means as shall be hereinafter described and claimed.

The accompanying drawings illustrate our  
20 invention.

Figure 1 is a front elevation of our device, a portion of the parts being shown in vertical section for the sake of clearness. Fig. 2 is a similar view of the main portion of the device,  
25 showing the parts in the position opposite to that shown in Fig. 1. Fig. 3 is an end elevation on line 3 3, Fig. 2. Figs. 4, 5, 6, and 7 are detail plans of the means for holding the driving-gears in engagement with each other,  
30 for holding said gears apart, and for locking the train of gears connected with the stacker-tube.

In the drawings, 8 indicates the driving-shaft, upon which are rotatably mounted the  
35 two bevel-gears 9 and 10, the said gears facing each other and each provided on its inner side with a clutch member 11. Keyed upon shaft 8 and longitudinally movable thereon between the two gears is a clutch 12, which  
40 is provided at each end with portions adapted to engage with the clutch members 11 of the two gears 9 and 10. Pivoted below shaft 8 upon a pivot 13, carried at the lower end of a bracket 14, is a swinging arm 15, the upper  
45 end of which is provided with a yoke 16, which receives the clutch 12 and lies between a pair of collars 17, carried by the clutch. Arm 15 is substantially triangular in outline, and the center of the upper larger end thereof is cut  
50 out, so as to form a pair of diverging fingers

18 and 19. Passing through the lower end of the opening thus formed between the roots of the fingers is a stud 20, which is carried by the bracket 14. Pivotaly mounted upon stud 20 is a trip-lever 21, which carries at its upper  
55 end a weight 22. Lever 21 also carries a cam or block 23, which lies between the fingers 18 and 19 and is adapted to engage either of said fingers. Pivotaly mounted upon stud 20 outside the trip-lever are two catches 24 and 25,  
60 the ends of which are adapted to engage pins 26 and 27, respectively, which pins are mounted upon the swinging arm 15 upon opposite sides of the medial line thereof. Upon the lower end of the trip-lever upon opposite sides  
65 of the medial line are two pins 28 and 29, adapted to engage the under side of catches 24 and 25, respectively, and to lift said catches alternately out of engagement with their respective pins carried by the swinging arm 15. The  
70 trip-lever is also provided with a pin 30, which projects over the catches and is so arranged that it will prevent either of the catches when in operative position from being accidentally  
75 disengaged from its pin.

Mounted so as to mesh with the two gears 9 and 10 is a gear 31, the shaft 32 of which passes up through the platform 33, upon which the discharge-tube of the stacker is supported. Keyed upon shaft 32 and through  
80 which the said shaft may be longitudinally moved is a gear 34, which is connected with the gear 35 by any suitable train of gears, such as the gears 36, 37, and 38. The gear 35 supports in any suitable manner the  
85 stacker-tube 35'. Secured to shaft 32 above platform 33 is a collar 39, provided on its periphery with a series of teeth 40, and secured to the upper end of said shaft is a hand-wheel 41. Pivoted to one side of shaft 32 is  
90 a foot-lever 42, provided with a pair of arms 43 and 44, which lie upon opposite sides of the shaft 32 a sufficient distance apart to allow the collar 39 to pass between when the said lever is in its medial position, as shown in  
95 Fig. 5. Arm 43 lies a sufficient distance from the platform 33 so that when gear 31 is in mesh with gears 9 and 10 the lever 42 may be swung upon its pivot until said arm lies immediately above collar 39, as shown in Fig. 100



4, thus locking the gear 31 in position and preventing it from becoming accidentally disengaged from the gears 9 and 10.

It is sometimes desirable to stop the oscillation of the stacker-tube or to be able to oscillate it by hand, at the same time allowing the gear-reversing mechanism to be undisturbed. In this case the operator grasps the hand-wheel and lifts the shaft 32 and gear 31 into the position shown in dotted lines in Fig. 1, the shaft passing through the gear 34 and the collar 39 also rising into the position indicated above the upper edge of the arm 44 of the lever 42. The foot-lever may then be swung into the position shown in Fig. 6, in which the arm 44 lies beneath and supports the collar 39, together with the shaft and gear 31. In this position, the gear 31 being out of mesh with the gears 9 and 10, the operator may swing the gear 35 by hand.

In order to lock the gear 35 and the attached stacker-tube in any desired position, the foot-lever is swung into the position indicated in Fig. 7, in which the arm 44 is pushed farther under the collar 39 and a lug 45 brought between any two of the teeth 40.

Pivoted beneath the gear 35 is a lever 46, the upper end of which is arranged in position to be engaged by pins or lugs 47, carried by said gear, and the lower end of which is connected to the trip-lever 21 by means of a link 48.

The operation is as follows: Suppose the parts to be in the position shown in Fig. 1, clutch 12 being in engagement with the gear 10, trip-lever 21 thrown to the right, and lug 23 in engagement with the finger 18 of the swinging arm 15, pin 29 in engagement with and supporting catch 25, and the catch 24 in engagement with the pin 26. In this position of parts the foot-lever 42 would be thrown into the position shown in Fig. 4, in which the arm 43 lies over the collar 39. The rotation of the driving-shaft will then cause gear 35 to rotate, carrying with it the stacker-tube. The rotation of gear 35 will in time bring one of the pins 47 in engagement with the upper end of the lever 46, and a continued movement thereof will swing the said lever upon its pivot. The swinging of lever 46 will, through link 48, swing the trip-lever 21 upon its pivot. The first movement of the trip-lever withdraws block 23 from engagement with the finger 18 of the swinging arm 15, withdraws pin 30 from above catch 24, and catch 25 gradually descends with the pin 29. The continued movement of the trip-lever brings pin 28 into engagement with catch 24 and lifts it from engagement with pin 26. As soon as the trip-lever passes its medial position the weight 22 causes it to move suddenly forward, bringing the block 23 into engagement with the finger 19 of the arm 15, thus suddenly withdrawing the clutch 12 from engagement with the gear 10 and as suddenly forcing it into engagement with the gear 9. This continued movement of the trip-lever

also allows catch 25 to descend into position to engage pin 27 of the arm 15 as it is thrown forward by the engagement of lug 23, thus locking the arm in position and preventing the clutch from becoming accidentally disengaged from the gear 9. If for any reason the catch 25 should stick and refuse to drop into position, the pin 30 would positively force it down and hold it from accidental displacement. The change of position of the clutch 12 reverses the direction of rotation of the gear 31, together with the train of gearing connected thereto, and the gear 35. The rotation of the gear 35 continues in the reverse direction until the other of the pins 47 comes into engagement with the upper end of the lever 46, when the operation just described is repeated. It will be noticed that the clutch 12 in either of its positions is positively locked in position until it is properly displaced by the movement of the gear 35, whose motion it is desired to regulate.

We claim as our invention—

1. In a gear-reversing mechanism, the combination with a driving-shaft, of a pair of gears mounted thereon, a third gear, means for bringing said gears separately into operative engagement with said third gear, an arm engaging said means, a trip-lever engaging said arm, a pair of catches arranged to alternately engage the arm, means for swinging the trip-lever, and means for alternately disengaging the catches from engagement with the arm.

2. In a gear-reversing mechanism, the combination with a driving-shaft, of a pair of gears mounted thereon, a third gear, means for bringing said gears separately into operative engagement with said third gear, a swinging arm engaging said means, a weighted trip-lever engaging said swinging arm, and means for swinging the trip-lever, the arrangement being such that, as the trip-lever passes its medial position, its weight will cause the swinging arm to swing suddenly upon its pivot, substantially as and for the purpose set forth.

3. In a gear-reversing mechanism, the combination with a driving-shaft, of a pair of gears mounted upon said shaft, a third gear, means for bringing said gears into operative engagement with said third gear, an arm engaging said means, a trip-lever engaging said arm, a pair of catches pivoted upon the pivot of the trip-lever, means carried by the trip-lever for alternately disengaging the catches from the arm, and means for swinging the trip-lever.

4. In a gear-reversing mechanism, the combination with a driving-shaft, of a pair of gears mounted thereon, a third gear, means for bringing said gears separately into operative engagement with said third gear, an arm engaging said means, a trip-lever engaging said arm, a pair of catches pivoted upon the pivot of the trip-lever, a pair of pins carried by the arm and arranged to be alternately engaged by the catches, a pair of pins carried by the trip-lever and arranged to alternately engage



the catches and lift them from engagement with the pins carried by the arm, and a pin carried by the trip-lever above the catches in position to hold either of said catches in engagement with the pins carried by the arm.

5 5. In a gear-reversing mechanism, the combination with a driving-shaft, of a pair of gears mounted thereon, a third gear, means for bringing said gears separately into operative engagement with said third gear, an arm arranged to engage said means and provided with a pair of separated fingers, a trip-lever provided with means for alternately engaging said fingers, a pair of catches pivoted upon 15 the pivot of the trip-lever, means carried by said arm to be engaged alternately by said catches, means carried by the trip-lever for alternately engaging the catches and lifting them from engagement with the arm, and 20 means for swinging the trip-lever.

6. In an oscillating mechanism for stackers, a driving-shaft, a gear mounted thereon, a second gear adapted to normally mesh with said first gear, a shaft connected with said 25 second gear, the said shaft being longitudinally movable, so as to throw the second gear out of engagement with the first gear, and means for maintaining said shaft in either position.

30 7. In an oscillating mechanism for stackers, a driving-shaft, a gear mounted thereon, a second gear adapted to normally mesh with said first gear, a shaft connected with said second gear, means for lifting said shaft and 35 thereby lifting the second gear from engagement with the first, and a lever for engaging the said shaft and holding it in either of its positions.

8. In an oscillating mechanism for stackers, a driving-shaft, a gear mounted thereon, a 40 second gear adapted to normally mesh with said first gear, a shaft connected with said second gear, means for lifting the said shaft and gear, and a lever, provided with means for engaging the said shaft and thereby hold- 45 ing the second gear in engagement with the first, and for holding the second gear out of engagement with the first, and also provided with means for engaging the said shaft and preventing it from being rotated, substan- 50 tially as and for the purpose set forth.

9. In an oscillating mechanism for stackers, a driving-shaft, a gear mounted thereon, a second gear adapted to normally mesh with 55 the first gear, a shaft connected with said second gear, a collar 39 carried by said shaft, and a lever 42 provided with arms 43 and 44 arranged to engage said collar, said shaft being adapted to be lifted so as to lift the second gear out of engagement with the first gear, 60 substantially as described.

10. In an oscillating mechanism for stackers, a driving-shaft, a gear mounted thereon, a second gear adapted to normally mesh with 65 the first gear, a shaft connected with said second gear, a collar 39, provided with teeth 40, carried by said shaft, a lever 42 provided with arms 43 and 44 arranged to engage the collar, and a lug 45 mounted upon the arm 44, all combined and arranged to cooperate substan- 70 tially as and for the purpose set forth.

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