

924,363.

W. S. LIDDELL.  
COTTON TRAMPER.  
APPLICATION FILED FEB. 16, 1909.

Patented June 8, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

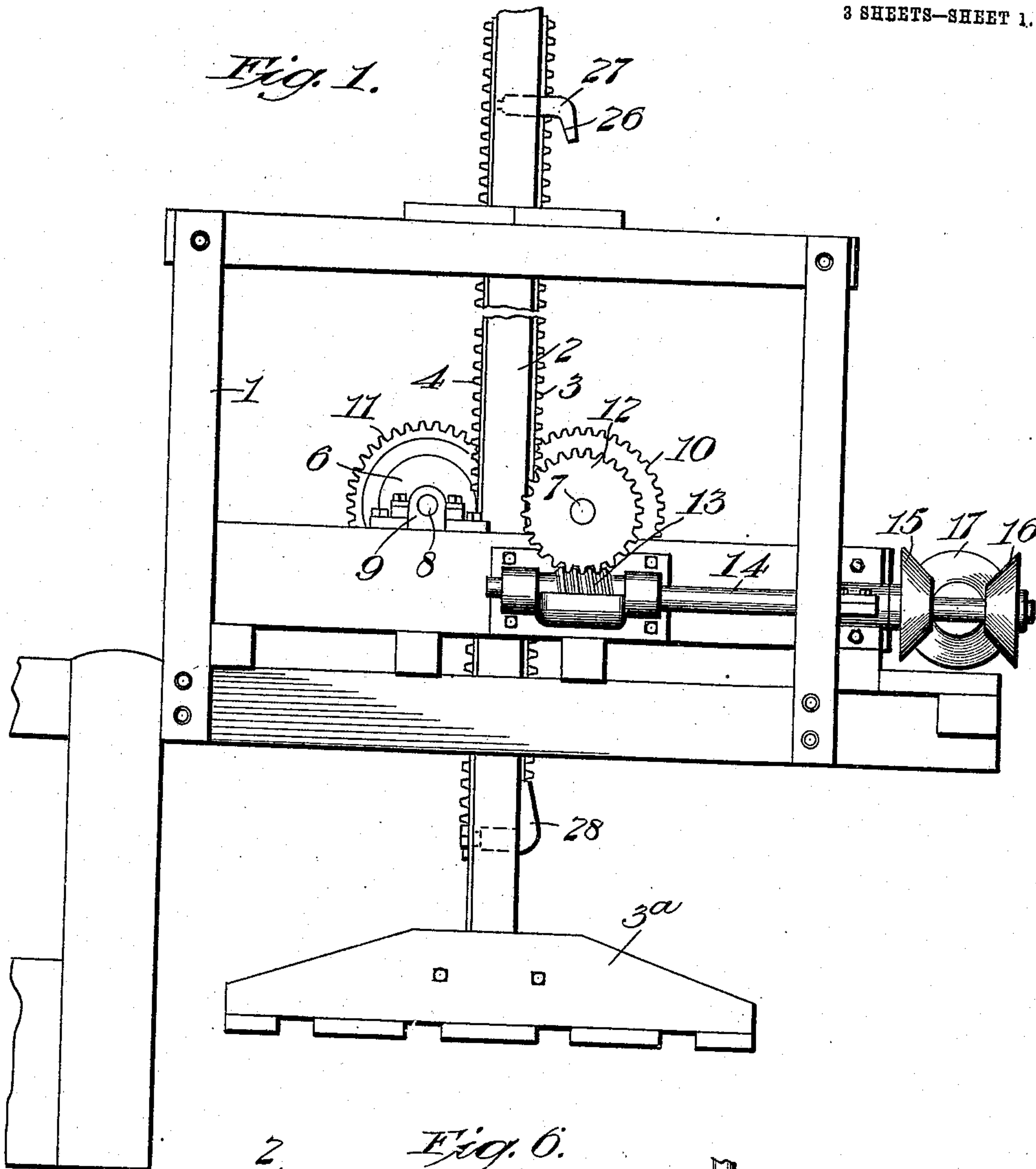
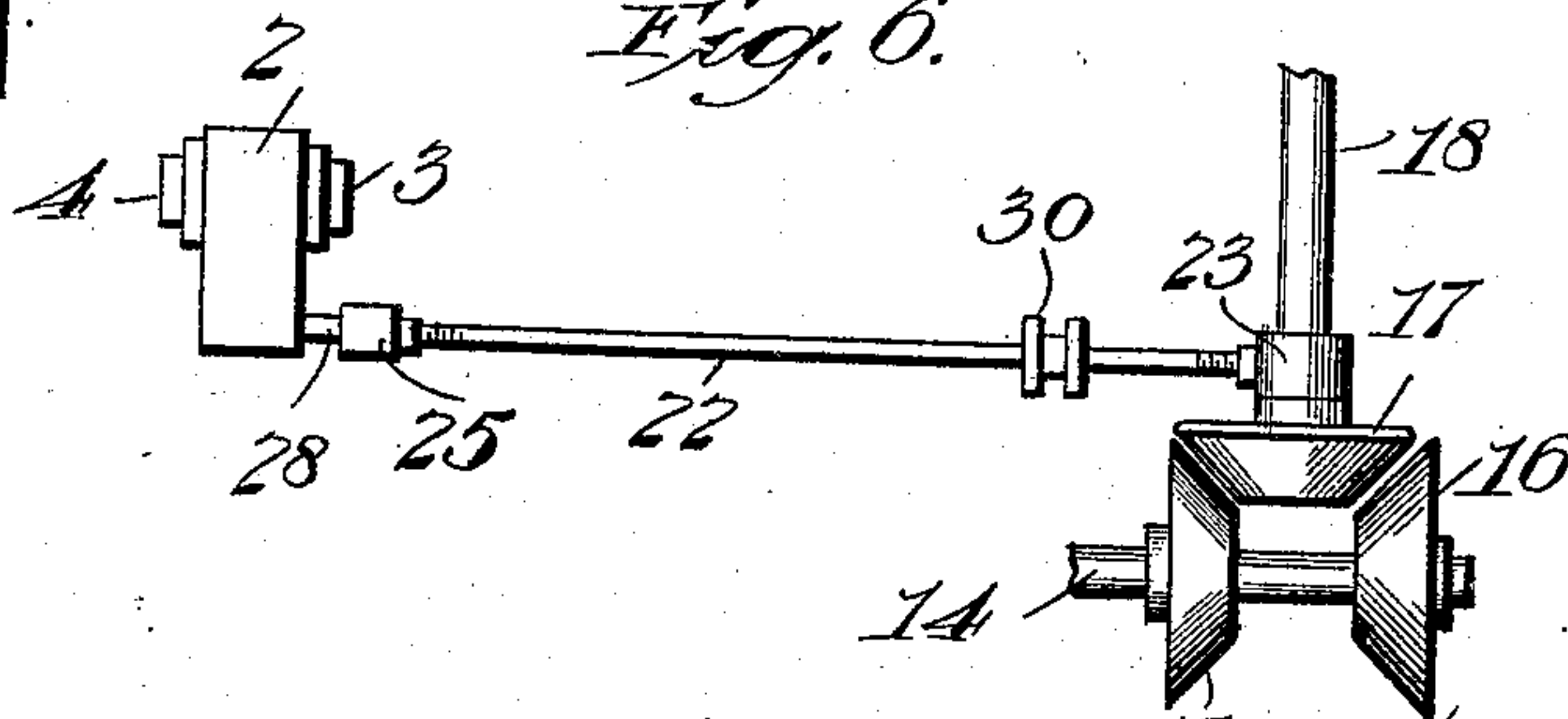


Fig. 6.



Witnesses

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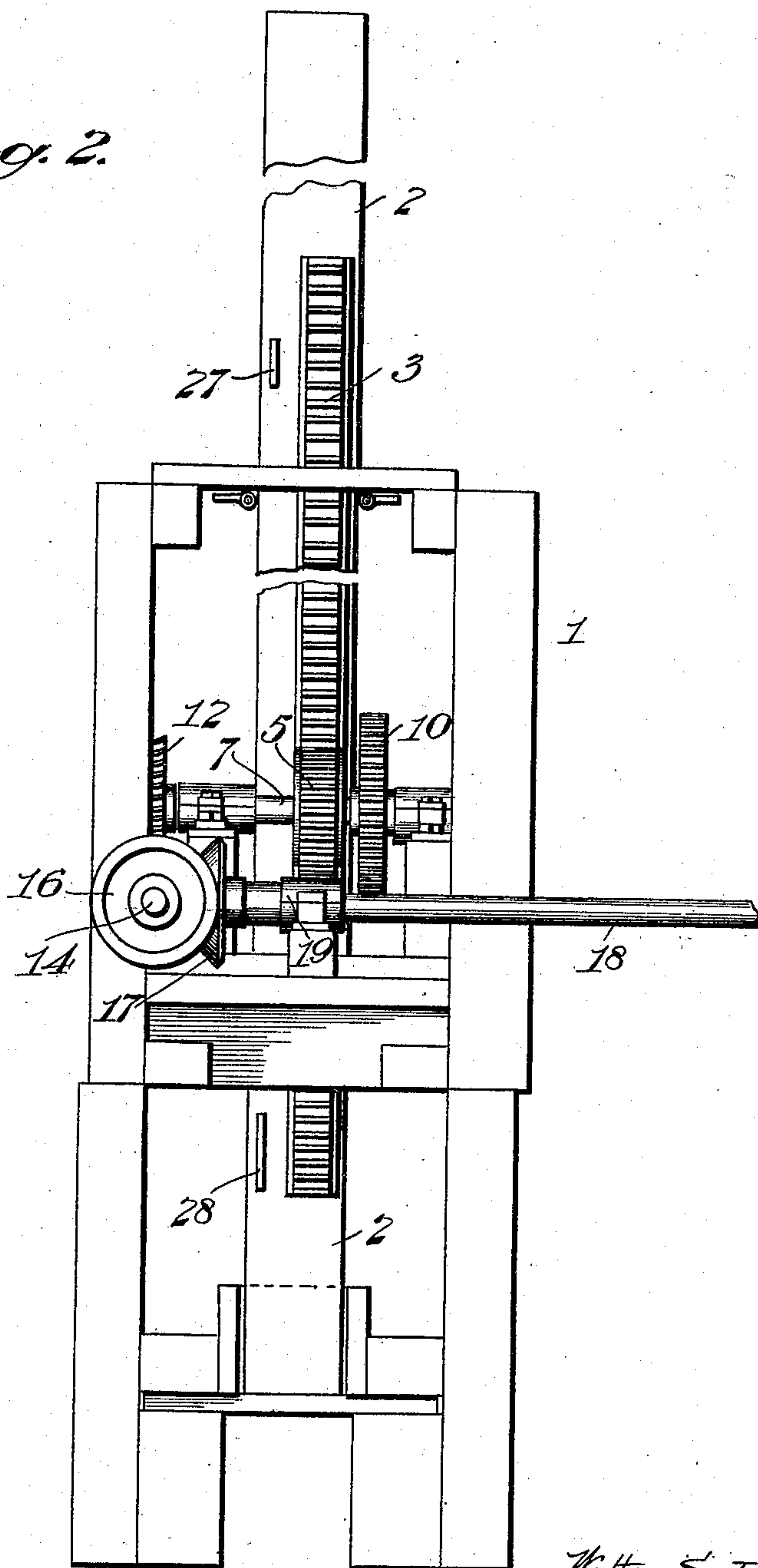
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Fig. 2.



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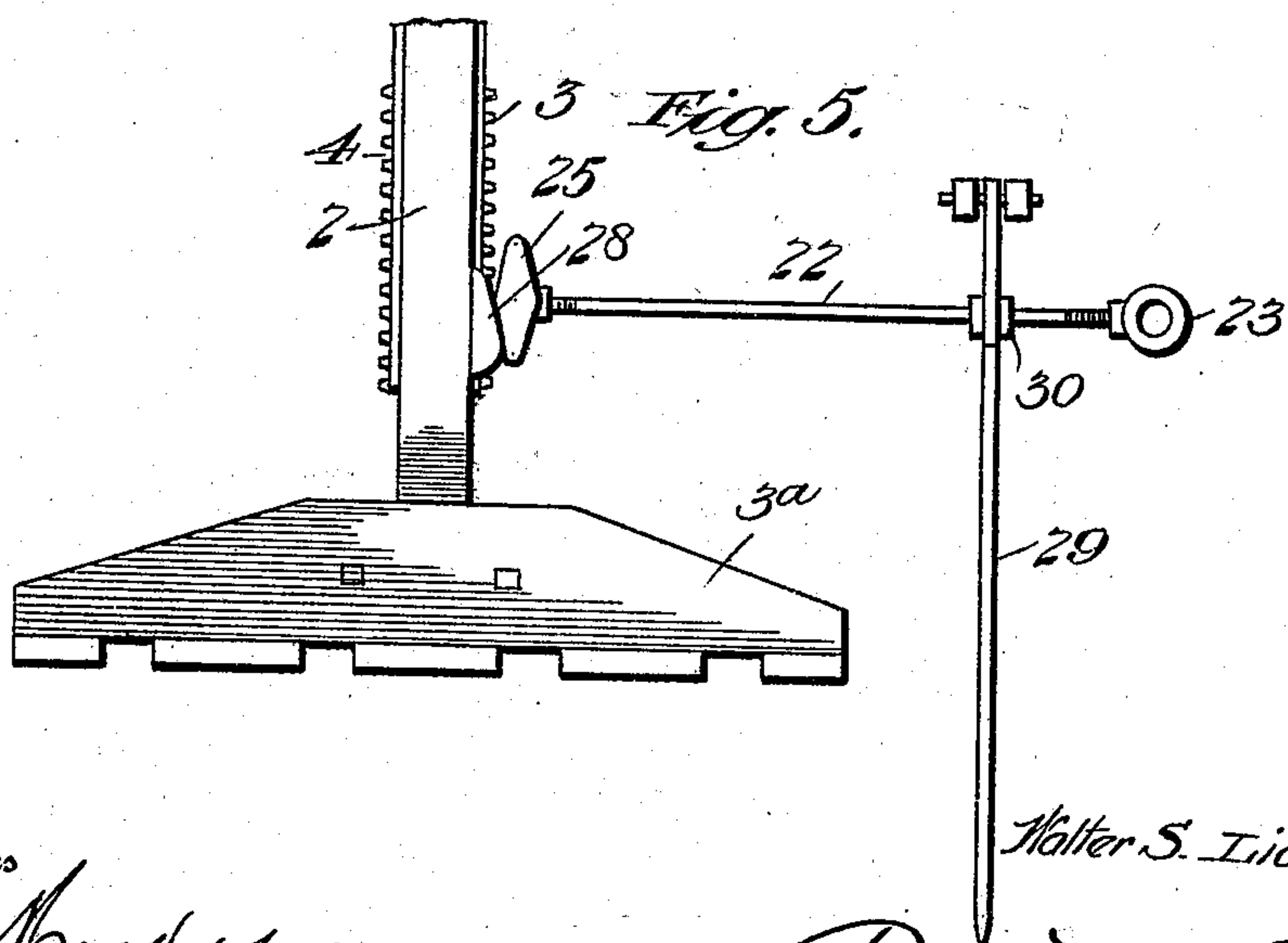
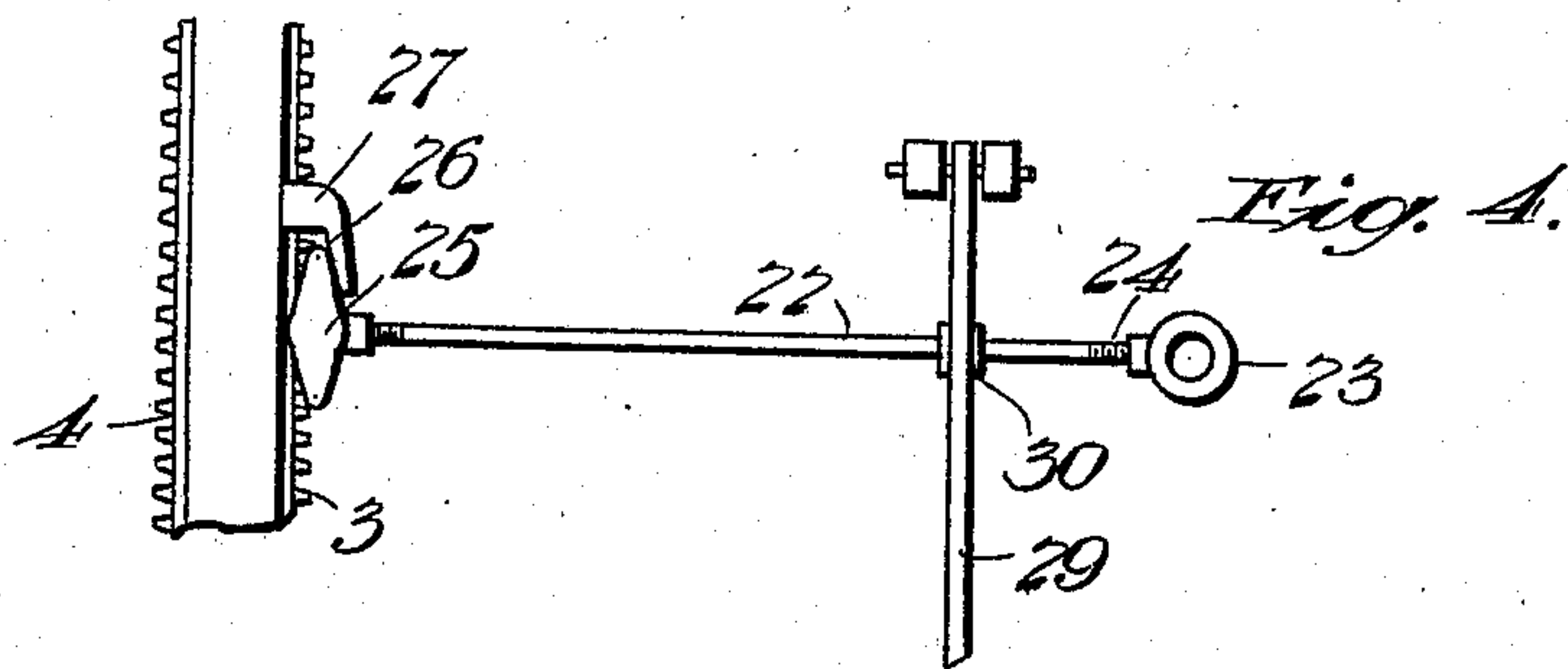
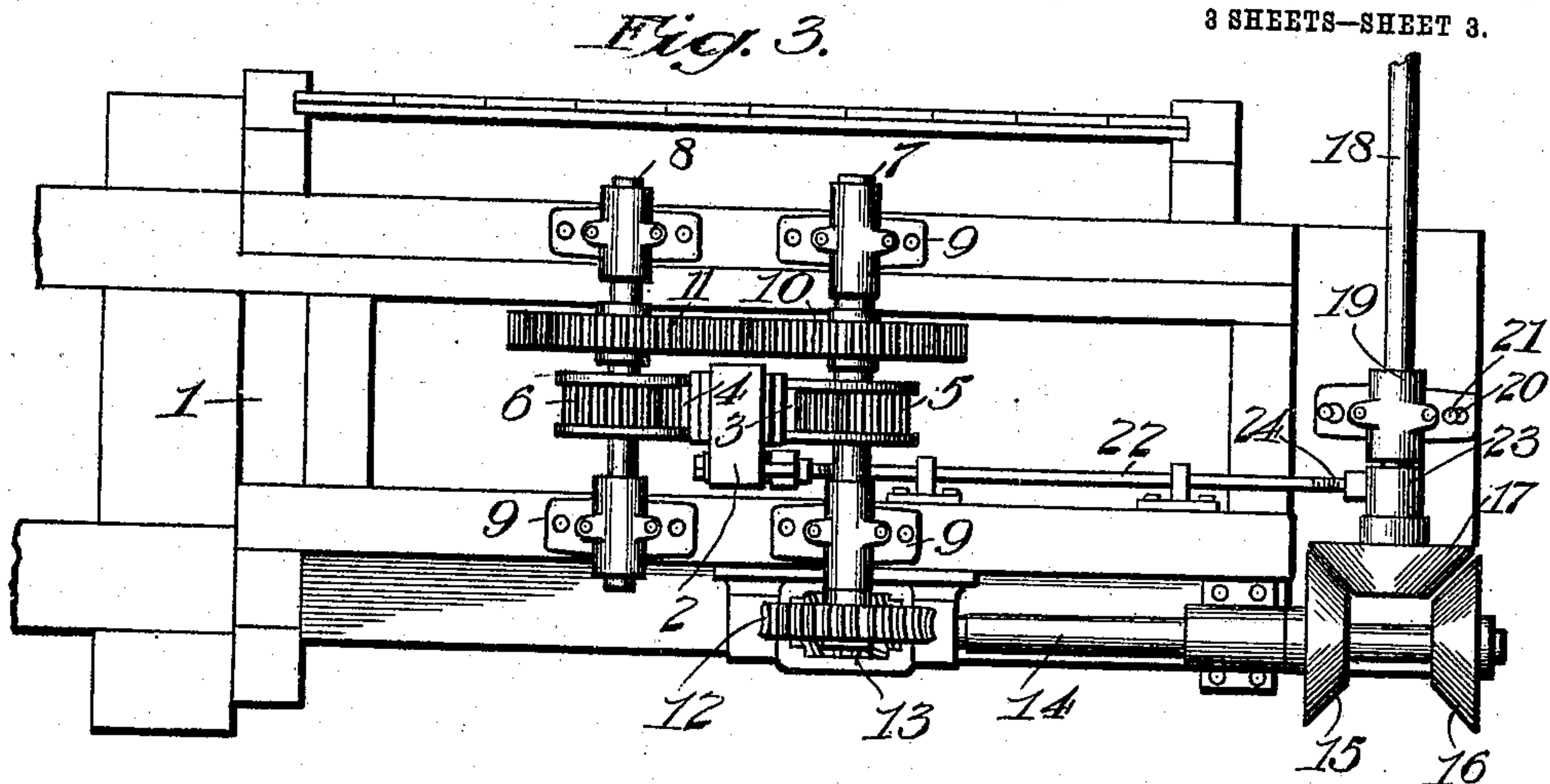
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

WALTER S. LIDDELL, OF CHARLOTTE, NORTH CAROLINA.

## COTTON-TRAMPER.

No. 924,363.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed February 16, 1909. Serial No. 478,275.

*To all whom it may concern:*

Be it known that I, WALTER S. LIDDELL, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented a certain new and useful Cotton-Tramper, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to cotton trammers, the object of the invention being to provide a mechanically operated and controlled substitute for the steam tramper now commonly employed for compressing and tramping cotton preparatory to forming the same into bales.

A further object of the invention is to provide means for rendering the plunger head or tramper automatically reversing and, furthermore, to provide in connection with such reversing mechanism, hand-controlled means for reversing the direction of movement of the plunger at the desired point in the movement thereof, irrespective of the automatic reversing means, thus placing the tramper thoroughly under the control of the attendant.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as herein fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a view in elevation of a sufficient portion of a baling press to illustrate the nature of the present invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view thereof. Fig. 4 is a detail elevation, showing the upper trip shoulder and the trip rod. Fig. 5 is a similar view, showing the lower trip shoulder and the plunger head. Fig. 6 is a detail view, showing the friction gears and the trip rod in its relation to the gears and the plunger.

Referring to the drawings, 1 designates the superstructure of a tramper which is provided with suitable bearings which admit of the vertical reciprocatory movements of a plunger 2 carrying at its lower end a plunger head 3<sup>a</sup> of suitable type.

In carrying out the present invention, the plunger 2 is provided with a double rack face, or in other words, toothed racks 3 and 4 are secured to the opposite faces of the plunger and in connection with such oppositely arranged racks, I employ a pair of oppositely

arranged pinions 5 and 6, which mesh with the racks, as clearly shown in Fig. 3. The pinion 5 is mounted on a primary pinion shaft 7, while the pinion 6 is mounted on the secondary pinion shaft 8, the said shafts being mounted in bearings 9 secured to the machine frame. The shafts 7 and 8 are also geared together so as to operate simultaneously in opposite directions by means of spur gears 10 and 11 fastened respectively to the shafts 7 and 8; thus the pinions 5 and 6 are simultaneously revolved in opposite directions and act simultaneously on opposite sides of the plunger 2 and elevate and depress the latter and with it the plunger or tramper head 3<sup>a</sup>.

The shaft 7 is projected beyond the bearing at one end and provided with a worm wheel 12 which meshes with and is driven by a worm 13 fast on a transmission shaft 14 and mounted in suitable bearings on the machine frame beyond which it projects at one end. On such projecting end of the shaft 14 there is mounted a pair of reversely disposed bevel friction wheels 15 and 16. Between the working faces of the wheels 15 and 16 is a friction bevel drive wheel 17 which lies close to the working faces of the wheels 15 and 16 but out of actual driving contact therewith. The wheel 17 is mounted fast on one end of a power shaft 18 to which power may be applied in any suitable manner, the shaft 18 being mounted in a bearing bracket 19 provided with slots 20 through which pass fasteners or bolts 21, the construction described admitting of the necessary lateral movement of the shaft 18 and the wheel 17 to throw the latter into driving contact with one or the other of the wheels 15 and 16.

The lateral movement of the wheel 17 is effected by means of a trip rod 22, one end of which carries a collar 23 embracing the shaft 18. For the purpose of adjustment, the rod 22 is threaded as shown at 24 and screwed into an extension of the collar 23, as shown in Fig. 3. The opposite end of the head 22 is also threaded and screwed into a trip or head piece 25 which is substantially diamond-shaped or provided with reversely inclined cam faces, one of which is designed to cooperate with an inclined trip shoulder 26 formed on a finger or projection 27 on the upper portion of the plunger 2, while another face of said trip is designed to cooperate with the inclined face of a lower trip shoulder 28



secured to the plunger 2 at a lower point, as shown in Fig. 5.

It will now be understood that as the plunger reaches the upper limit of its movement, the shoulder 28 acts against the trip 5 25 and through the rod 22 to thrust the wheel 17 outward into engagement with the wheel 16, causing motion to be imparted through the shaft 14 and gears to the plunger 2, driving the same downward. When 10 the plunger has proceeded its full distance downward, the upper trip shoulder 26 comes in contact with the tripping head 25 and shifts the wheel 17 back into contact with 15 the wheel 15, thereby automatically reversing the direction of movement of the plunger and carrying the same downward again. In this way, the plunger is automatically reversed at the opposite limits of its reciprocatory movement. 20

In order to control the up and down movements of the plunger, irrespective of the automatic tripping mechanism, I employ a hand-reversing lever 29 which is fulcrumed 25 at one end, as shown in Figs. 4 and 5 and which engages the collar 30 on the trip rod 22. The operator usually stands with his hand on the lever 29 and when he observes that the tramper head has moved downward 30 as far as it will go, he moves the lever 29 a sufficient distance to reverse the shaft 14 and thereby reverses the plunger 2, allowing the same to be carried upward.

Parts of the machine not hereinabove particularly described may be constructed in 35 any desired manner.

I claim:—

1. In a cotton tramper, the combination 40 with the machine frame, of a longitudinally movable plunger, a tramper head carried thereby, racks secured to opposite faces of said plunger, pinion shafts mounted at op-

posite sides of the plane of movement of the plunger, pinions on said shafts meshing with the racks on the plunger, means for causing 45 said shafts to rotate simultaneously in opposite directions, a transmission shaft geared to one of the pinion shafts, reversely disposed bevel friction wheels fast on said transmission shaft, a power shaft, a friction bevel 50 drive wheel fast on the power shaft, a trip rod connected with said drive wheel, and trip shoulders on the plunger cooperating with a trip on said rod for moving said rod to shift the friction drive wheel into and out of en- 55 gagement with the reversely disposed bevel friction wheels, one at a time, substantially as described.

2. In a cotton tramper, the combination with the machine frame, of a plunger having 60 rack faces at opposite sides thereof, pinions meshing with said rack faces, pinion shafts mounted at opposite sides of the plane of movement of the plunger, a transmission shaft geared to one of the pinion shafts and 65 provided with reversely disposed bevel friction wheels, a power shaft, a bevel friction drive wheel fast on the power shaft, a trip rod provided at one end with a collar embracing the power shaft and provided at the 70 other end with a trip, trip shoulders on the plunger arranged at distant points and adapted to cooperate with said trip to shift the trip rod at predetermined points in the throw of the plunger, and a hand-reversing 75 lever for shifting the trip rod independently of said trip shoulders.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER S. LIDDELL.

Witnesses:

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