

Aug. 20, 1935.

C. L. LYTTON ET AL

2,011,770

CLEANER FOR TEXTILE MACHINES

Original Filed March 12, 1929 3 Sheets-Sheet 1

Fig. 1.

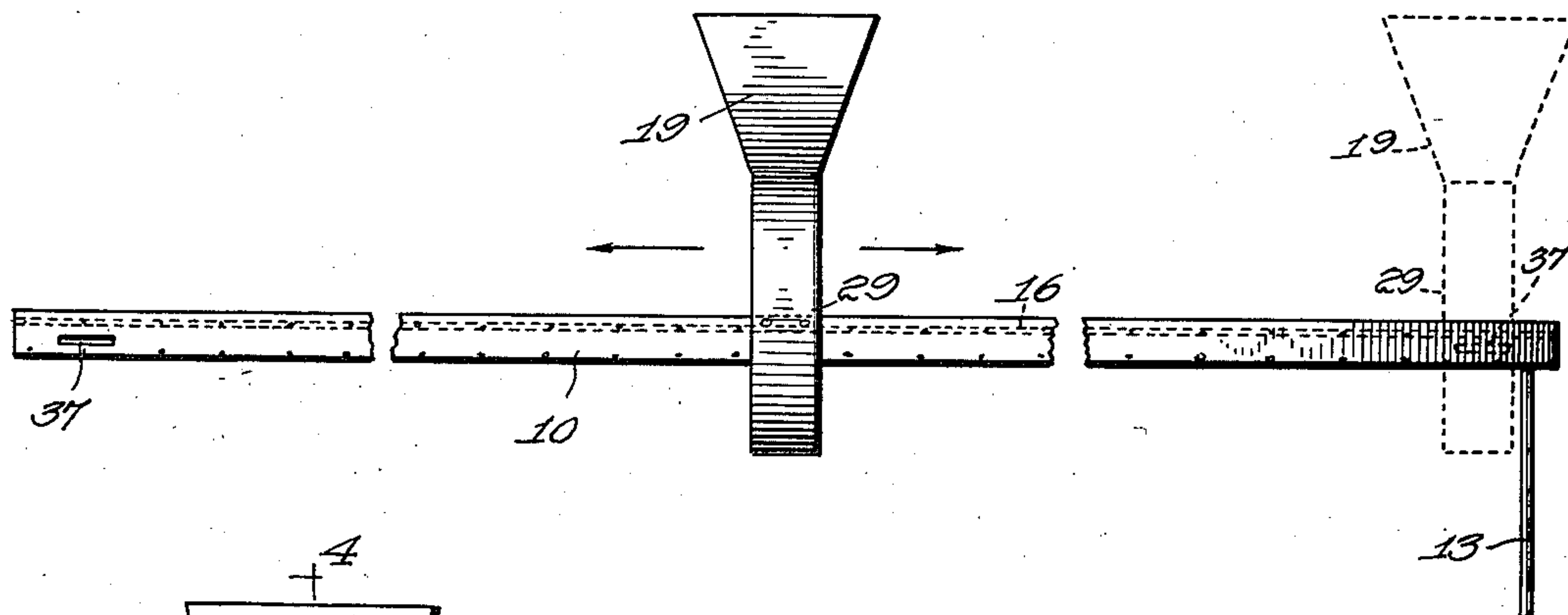


Fig. 2.

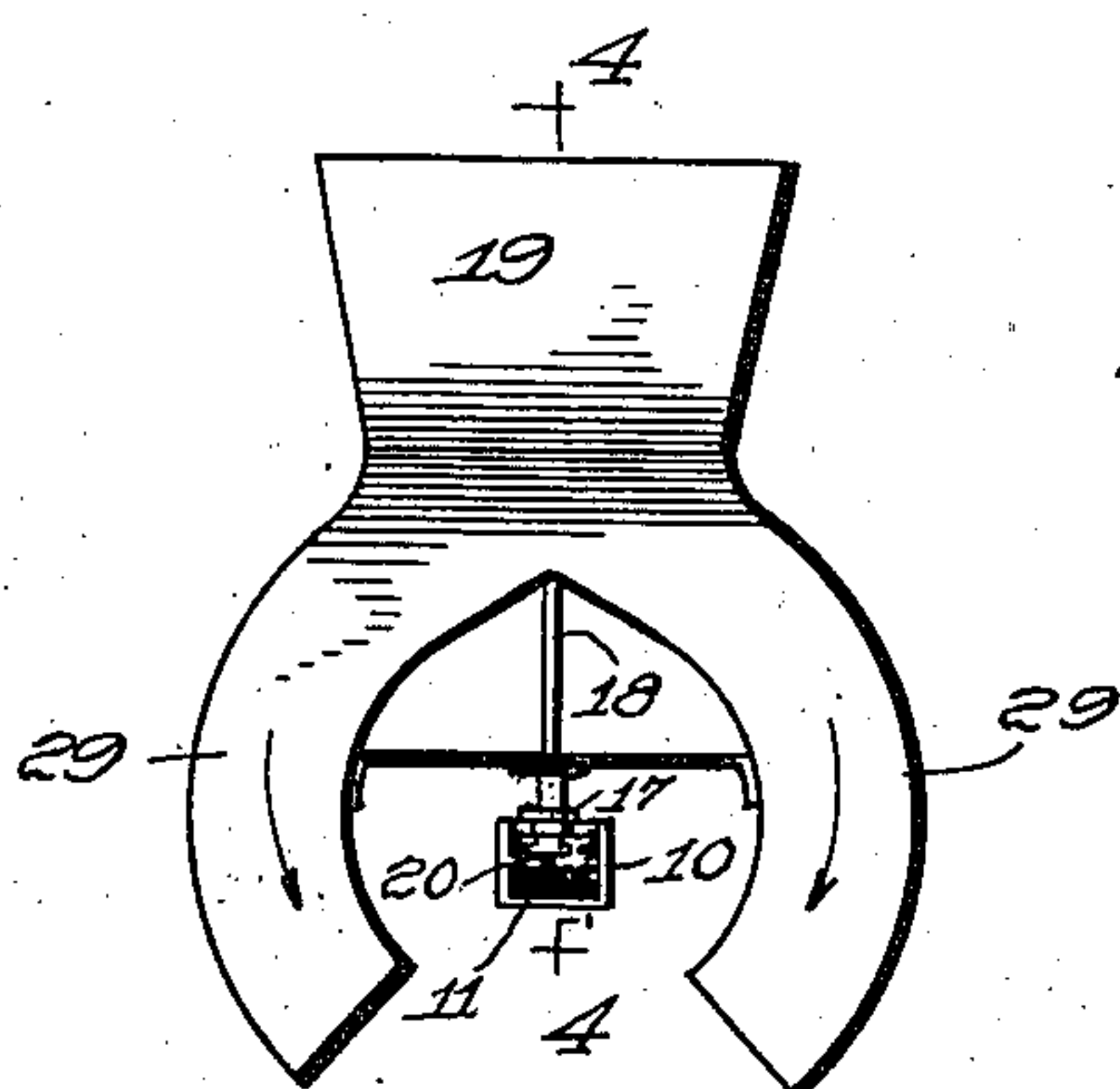
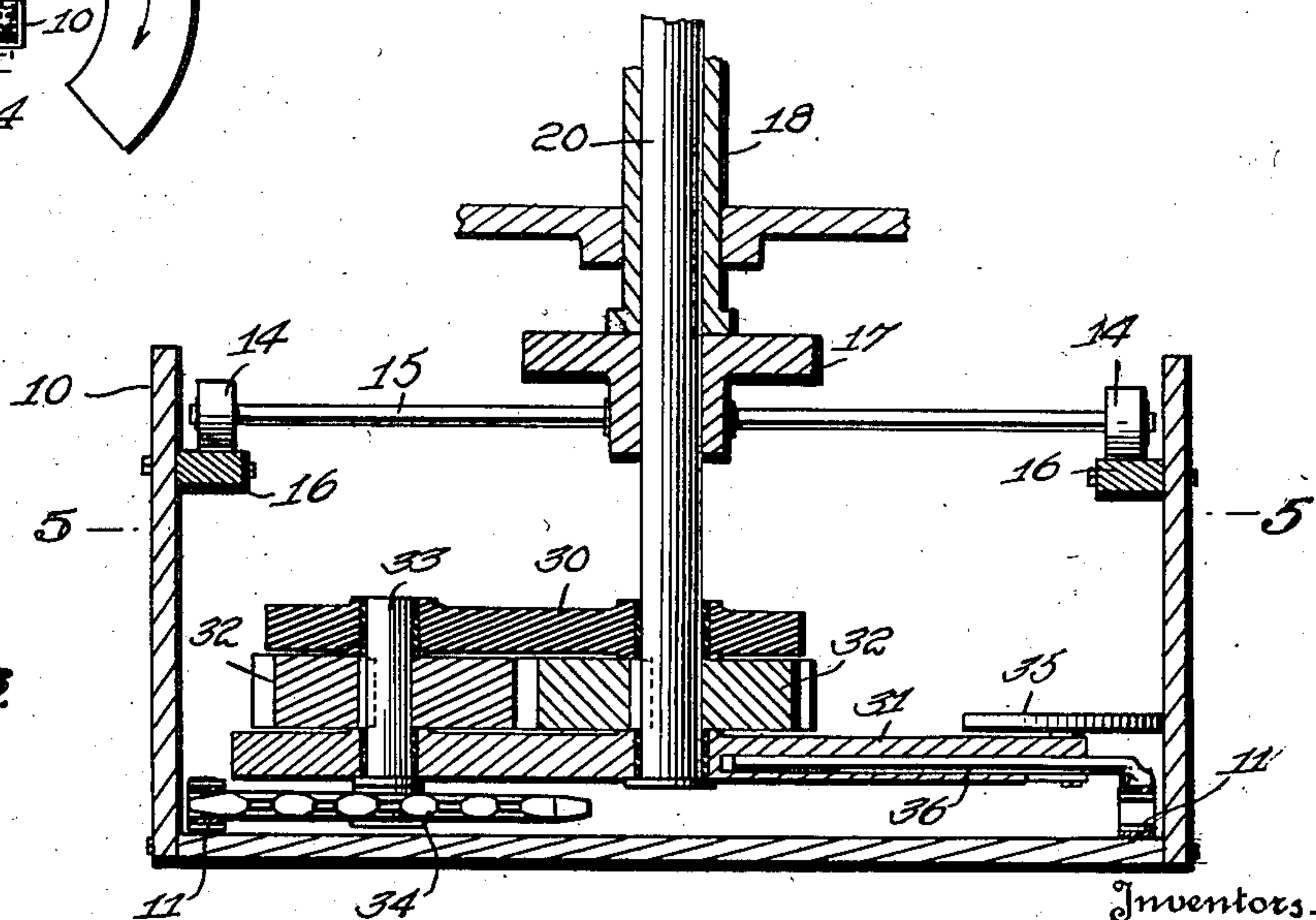


Fig. 3.



Inventors-

Cullen L. Lytton
H. A. Stufflecker
Minor R. Adams

By

Davis & Davis.

Attorneys-

Aug. 20, 1935.

C. L. LYTTON ET AL

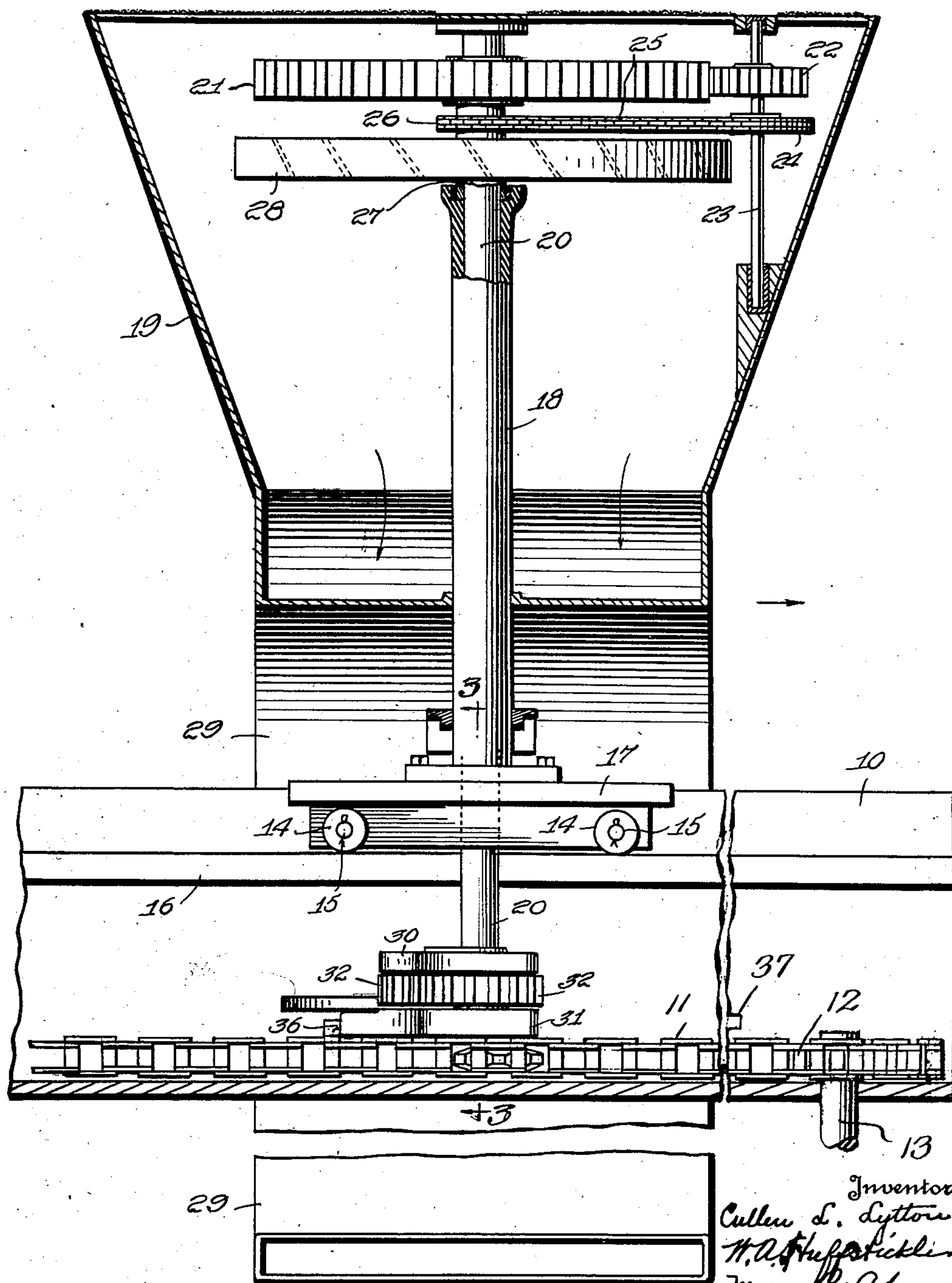
2,011,770

CLEANER FOR TEXTILE MACHINES

Original Filed March 12, 1929

3 Sheets-Sheet 2

Fig. 4.



Inventors.
Cullen L. Lytton,
H. A. Huffstickler,
Minor C. Adams,

By Davis & Davis,

Attorneys

Aug. 20, 1935.

C. L. LYTTON ET AL

2,011,770

CLEANER FOR TEXTILE MACHINES

Original Filed March 12, 1929 3 Sheets-Sheet 3

Fig. 5.

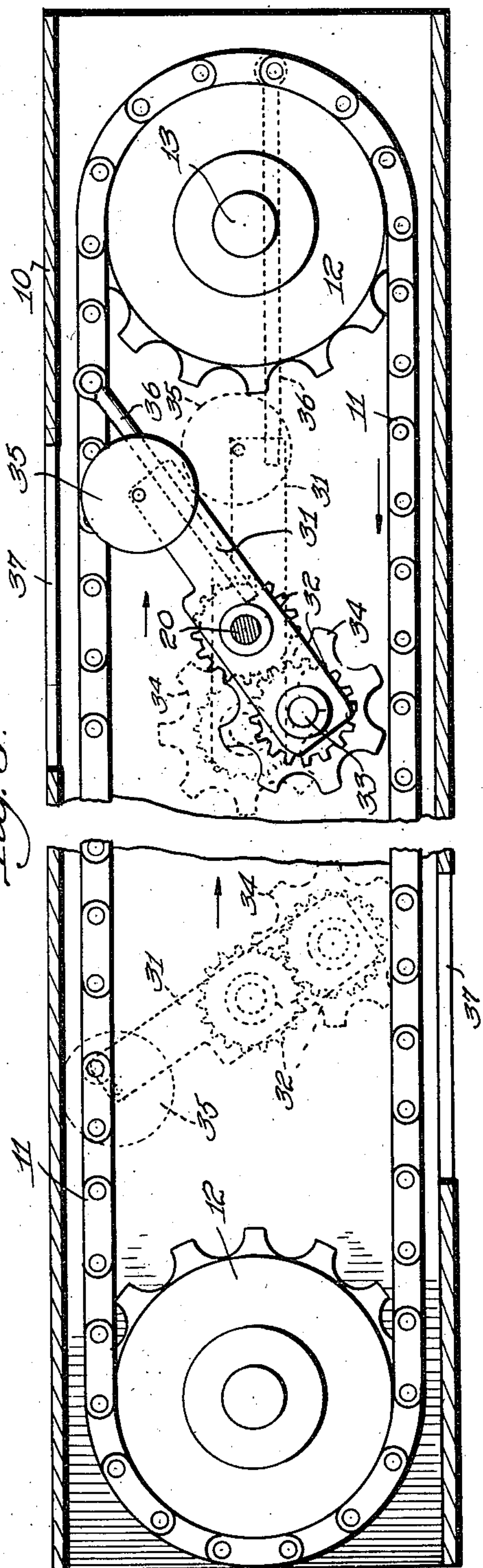


Fig. 6.

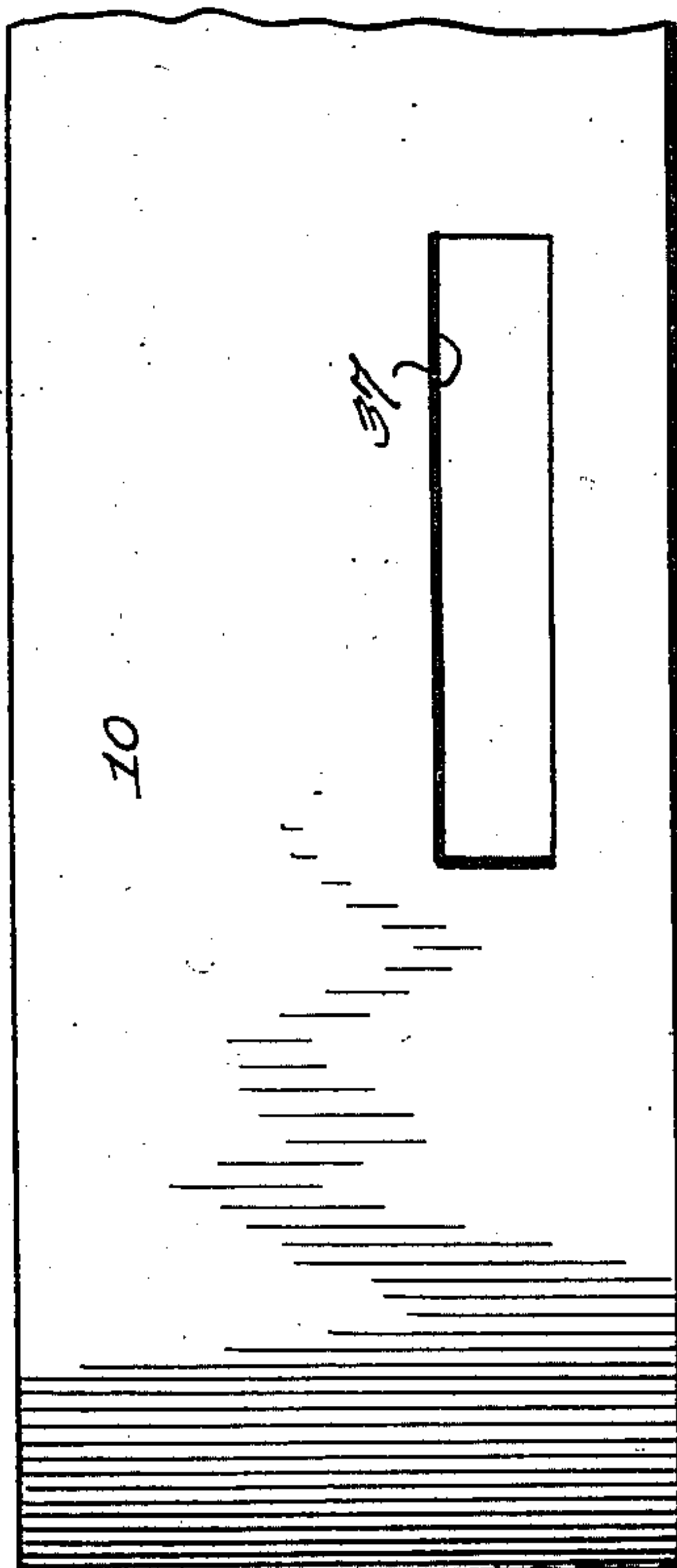
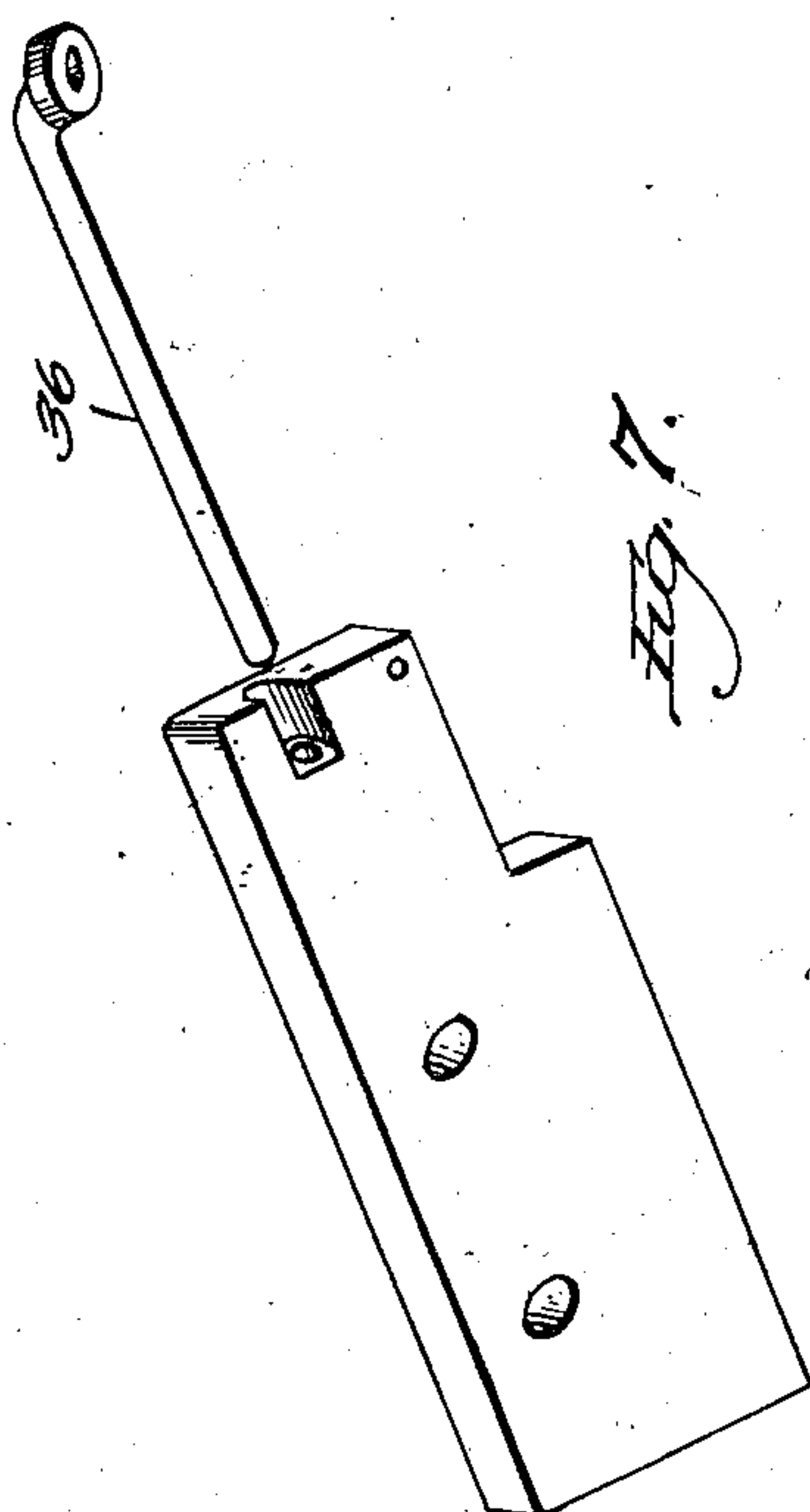


Fig. 7.



Inventors
C. L. Lytton
H. A. Huffsticker
M. K. Adams
By Davis & Davis,
Attorneys

UNITED STATES PATENT OFFICE

2,011,770

CLEANER FOR TEXTILE MACHINES

Cullen L. Lytton, William A. Huffstickler, and
Minor R. Adams, Gastonia, N. C., assignors, by
direct and mesne assignments, to Parks-Cramer
Company, Fitchburg, Mass., a corporation of
Massachusetts

Application March 12, 1929, Serial No. 346,371
Renewed August 11, 1932

15 Claims. (Cl. 15—20)

The object of this invention is to provide a simple pneumatic cleaning apparatus adapted to be suspended or supported above a textile machine, such, for instance, as a spinning frame, and to travel back and forth over the top of the same while delivering a blast or blasts of air downwardly upon the machine to blow away the accumulations of lint and dust while the textile machine is in operation, as more fully hereinafter set forth.

In the drawings—

Fig. 1 is a side elevation of our apparatus;

Fig. 2 is an end elevation thereof;

Fig. 3 is a vertical cross-section on the line 3—3 of Fig. 4;

Fig. 4 is a vertical cross-section on the line 4—4 of Fig. 2;

Fig. 5 is a horizontal sectional view taken through the trackway trough;

Fig. 6 is a side elevation of one end of the trough; and Fig. 7 is a bottom perspective view of the reversing bar.

Referring to the drawings annexed by reference-characters, 10 designates a trough-like frame adapted to be suspended or supported in any suitable manner (by means not shown) above the machine to be kept clean. Within the trough is mounted an endless chain 11 which runs on sprocket-wheels 12, the shaft 13 of one of which extends downwardly and is adapted to be continuously driven by means not shown, preferably by a suitable gear connection with a part of the machine to which the cleaner is attached, altho it is within our invention to drive this shaft by an independent motor.

Adapted to travel back and forth on the trough is a carriage which carries four wheels 14 mounted on transverse shafts 15, the wheels running on tracks 16 mounted on the inside of the side walls of the trough. The body of the carriage consists of a bar 17 in which the shafts 15 are supported or journaled, and to the top face of this bar 17 is rigidly bolted a vertical sleeve 18 which extends up into a fan-casing 19 of suitable shape. A fan-shaft 20 extends up through the carriage-frame 17 and the sleeve 18 and is provided at its upper end with a large gear 21 which meshes with a pinion 22 affixed to a counter-shaft 23 journaled in the fan-casing and carrying a sprocket-wheel 24. This sprocket-wheel 24 is connected by a sprocket-chain 25 with a sprocket-wheel 26 affixed to a short sleeve-shaft 27 supported on top of the stationary sleeve 18 and surrounding the fan-driving-shaft 20. A fan 28 of any suitable construction is affixed to the afore-

said sleeve-shaft 27. With this construction, it will be obvious that rotation of the upright shaft 20 will cause a rapid rotation of the fan 28 to thus cause a downward draft within the fan-casing. At the bottom, the fan-casing is shown divided into two spouts 29 which depend from the fan-casing and are curved around to bring their exit-ends to a point below the trough 10, so that said blast will be delivered directly against the parts of the textile machine to be kept clean. A suitable air-inlet is provided at the upper end of the fan-casing.

Means are provided for moving the aforesaid blast-producing apparatus back and forth on the track 16 while the textile machine is in operation, this reciprocatory motion of the carriage being derived from the continuous operation of the aforesaid chain 11. To accomplish this movement of the carriage, we swivelly mount on the lower end of the shaft 20 a frame consisting of an upper bar 30 and a lower bar 31, between which is arranged a pair of meshing gears 32, one of which is affixed to the shaft 20 and the other of which is affixed to a short shaft 33 whose depending end carries a sprocket-wheel 34 positioned to mesh with one or the other of the legs of the chain. The end of the bar 31 opposite the sprocket-wheel 34 furnishes a support for a wheel 35 which is adapted to roll against the adjacent side of the trough. Telescoping into the same end of the bar 31 is a rod 36 whose outer end is pivotally connected to the chain. In each side wall of the trough, in the path of the wheel 35, is provided a slot 37, this slot being arranged at a point adjacent one of the sprocket-wheels 12. It will be observed that the travelling of the chain 11 will rotate the sprocket-wheel 34 and thus communicate a rotary motion to the fan-driving shaft 20, and that at the same time the connection of the rod 36 with the chain will cause the carriage to travel the length of the trough.

At each end of the travel, a reversal takes place and the carriage is caused to move to the other end of the trough, while at the same time the fan-shaft continues to receive a driving action in the same direction as before the reversal. This reversal takes place as follows: The position of the parts when the carriage is travelling toward the left is shown in dotted lines at the left-hand end of Fig. 5, the bar 31 standing at an oblique angle to the chain-legs and the wheel 35 resting against the side wall of the trough. The parts travel in this position until the wheel 35 reaches the slot 37, whereupon the wheel 35 is projected through the slot, to thus cause the bar

31 to swing over center and thus take an inclination in the opposite direction. At the time of thus reversing the bar 31, the carriage stops, but the bar 31 continues its pivotal movement (on the shaft 20 as a pivot) until the sprocket-wheel 34 is swung over to the other side of the trough and put into engagement with the other leg of the chain, this being brought about by reason of the fact that the pivotal end of the rod 36 is carried around the adjacent sprocket-wheel by the chain. This action is shown in dotted lines at the right-hand end of Fig. 5. It will thus be seen that at each end of the travel of the carriage, the carriage will first come to a dwell and then the sprocket-wheel 34 will be shifted over from one leg of the chain to the other, and then, after the pivotal end of the rod 36 passes around the center of the sprocket-wheel, the reverse travel of the carriage will take place, by which time the sprocket-wheel 34 has been engaged with the opposite leg of the chain and is causing the fan-driving shaft 20 to continue the rotation which might have been momentarily stopped during the shifting action of the sprocket-wheel 34. If the speed of the apparatus is sufficiently great, it will be observed that there will be practically no stoppage of the fan during the reversal of the carriage travel, as this reversal takes place very quickly and it is probable that the momentum of the driving-wheels will be sufficient to continue the action of the fan during the shifting of the sprocket-wheel 34. In thus swinging the sprocket-wheel 34 from one side of the shaft 20 to the other, which as described takes place when the guide-wheel 35 passes out through the slot 37, the leg of the chain with which the sprocket happens to be engaged at that time will flex outwardly sufficiently far to enable this action to take place, a sufficient clearance between the chain and the side of the trough being provided for this purpose. It will be observed that the fan we use is of the disk type and that it is so arranged that it drives the air directly downwardly toward the bottom of the casing. This enables us to place the inlets of the two outlets 29 at the bottom of the casing, so that the air is delivered at the machine below with the least possible friction. This arrangement makes it advantageous to have the driving mechanism of the fan located above the fan so that this driving mechanism will not interfere with the air blast.

In accordance with the provisions of the patent statutes, we have herein described the principle of operation of our invention, together with the apparatus which we now consider to represent the best embodiments thereof, but we desire to have it understood that the apparatus disclosed is only illustrative and that the invention can be carried out by other means. Also, while it is designed to use the various features and elements in the combinations and relations described, some of these may be altered and others omitted and some of the features of each modification may be embodied in the others without interfering with the more general results outlined, and the invention extends to such use.

What we claim as new is:

1. In a machine of the class set forth, a trackway-structure, a carriage adapted to run back and forth on said trackway-structure, a fan-casing mounted on said carriage, a fan in said casing, mechanism for driving the fan, an endless chain having two parallel legs supported on said trackway-structure for driving said fan-driving

mechanism and for running said carriage back and forth on trackway-structure, devices for driving said chain, and means engaging the chain for actuating the fan-driving mechanism, said means embodying devices whereby the chain-engaging means is shifted from one leg of the chain to the other leg of the chain at the end of each travel of the carriage.

2. In a machine of the class set forth, a trackway-structure, a carriage adapted to run back and forth on said trackway-structure, a fan-casing mounted on said carriage, a fan in said casing, mechanism for driving the fan, an endless chain having two parallel legs supported on said trackway-structure for driving said fan-driving mechanism and for running said carriage back and forth on trackway-structure, devices for driving said chain, and means engaging the chain for actuating the fan-driving mechanism, said means embodying a sprocket-wheel adapted to engage the inside of either leg of the chain and devices for shifting said sprocket-wheel from one leg to the other leg at the end of each travel of the carriage.

3. In a machine of the class set forth, a trackway-structure, a carriage adapted to run back and forth on said trackway-structure, a fan-casing mounted on said carriage, a fan in said casing, mechanism for driving the fan, an endless chain having two parallel legs supported on said trackway-structure for driving said fan-driving mechanism and for running said carriage back and forth on trackway-structure, devices for driving said chain, and means engaging the chain for actuating the fan-driving mechanism, said means embodying a rockable bar carrying a sprocket-wheel and means for laterally shifting said bar at the end of each travel of the carriage, for the purpose set forth.

4. In a machine of the class set forth, a trackway-structure having side-walls provided with openings, a carriage adapted to run back and forth on said trackway-structure, a fan-casing mounted on said carriage, a fan in said casing, mechanism for driving the fan, an endless chain having two parallel legs supported on said trackway-structure for driving said fan-driving mechanism and for running said carriage back and forth on trackway-structure, devices for driving said chain, and means engaging the chain for actuating the fan-driving mechanism, said means embodying a rockable bar swivelly mounted on the lower end of the fan-driving shaft, a pair of gears one of which is mounted on said rockable bar and the other of which is mounted on the fan-driving shaft, a sprocket-wheel mounted on the shaft of the first gear, a guide-wheel mounted on said rockable bar and running along the trackway-structure and adapted to enter said openings, and a rod pivotally connected to the chain and having telescopic connection with said bar.

5. Apparatus for cleaning machines comprising a track mounted above the machine, a disk fan rotatable about a substantially vertical axis and arranged to drive air downwardly, said fan being mounted above the track for travel back and forth along said track, a box surrounding the fan and having a plurality of separated apertures in the bottom thereof through which a plurality of air blasts from said fan are directed past each side of the track and onto the machine.

6. Apparatus for cleaning machines comprising a track mounted above the machines, a disk fan rotatable about a substantially vertical axis

and arranged to drive air downwardly and mounted above said track for travel along the track, a box surrounding the fan and having a bottom provided with two apertures on opposed sides thereof and conduits covering said apertures and being inclined at their lower open end toward the machines for directing blasts of air past each side of the track and inwardly and downwardly on to the machines.

7. Apparatus for cleaning machines comprising a track mounted above the machines, a disk fan rotatable about a substantially vertical axis and arranged to drive air downwardly, and mounted above said track for travel along said track, a casing surrounding said fan and having outwardly and downwardly and inwardly directed ducts connected to the bottom of the casing for directing separated blasts of air from said fan downwardly past each side of the track and inwardly toward the machines.

8. Apparatus for cleaning machines comprising a track mounted above the machine, a disk fan rotatable about a substantially vertical axis and arranged to drive air downwardly, means for driving the fan, means for mounting said fan above said track for travel on said track, a casing surrounding the fan and having its upper end open for ingress of air and having two separated ducts communicating with the bottom of said casing, said ducts being directed downwardly and inwardly toward each other for directing blasts of air from the lower open ends of said ducts downwardly past each side of the track and inwardly toward each other to strike the machine.

9. In an apparatus for cleaning machinery, a track disposed above the machine to be cleaned, a carriage mounted on said track, a casing supported on said carriage through the medium of a tubular standard extending up into the casing, said casing having openings in its bottom and depending air conduits connected therewith, a shaft journaled in said standard, a disk fan carried by said shaft at a point above said standard and adapted to drive the air directly downwardly through the aforesaid openings and their respective connecting conduits, and means for driving said fan.

10. Means for removing lint and the like from a machine which comprises a trackway disposed above the machine, a traveler mounted for travel on said trackway, said traveler having blast producing and diverting means disposed above the trackway and extending laterally beyond the trackway for producing and directing blasts of air laterally of the trackway and downwardly onto said machine.

11. Means for removing lint and the like from a machine which comprises a trackway disposed above the machine, a traveler mounted for travel on said trackway, said traveler having blast producing and directing means disposed above the trackway, the directing means being disposed outside a vertical plane passing through the outer edge of the trackway for directing blasts of air downwardly onto the machine.

12. Means for removing lint and the like from machinery which comprises a trackway extending above the machinery, a traveler mounted for travel on said trackway having blast-producing means, blast-diverting means disposed above the trackway for producing and directing blasts of air past the side of the trackway and on to the machinery.

13. Means for removing lint and the like from machinery which comprises a trackway located at a higher level than the top of the machinery, a traveler mounted to travel above and on said trackway, said traveler having blast-producing means and blast-directing means disposed above the trackway for directing blasts of air past the side of the trackway and downwardly on to the machinery.

14. Means for removing lint and the like from machinery which comprises a trackway located at a higher level than the top of the machinery, a traveler mounted for travel on said trackway, said traveler having blast-producing means disposed above the trackway and blast-directing means associated with said blast-producing means and extending laterally beyond the trackway and thence downwardly for directing blasts of air from the blast-producing means downwardly past the side of the trackway and on to the machinery.

15. Means for removing lint and the like from machinery which comprises a trackway located at a higher level than the top of the machinery, and extending longitudinally thereof, a traveler mounted for travel on said trackway, said traveler having blast-producing means disposed above said trackway, blast-directing means associated with said blast-producing means to extend laterally in opposite directions beyond said trackway and to direct blasts of air from said blast-producing means downwardly past the sides of said trackway and on to the machinery.

CULLEN L. LYTTON.
WILLIAM A. HUFFSTICKLER.
MINOR R. ADAMS.