

No. 655,000.

Patented July 31, 1900.

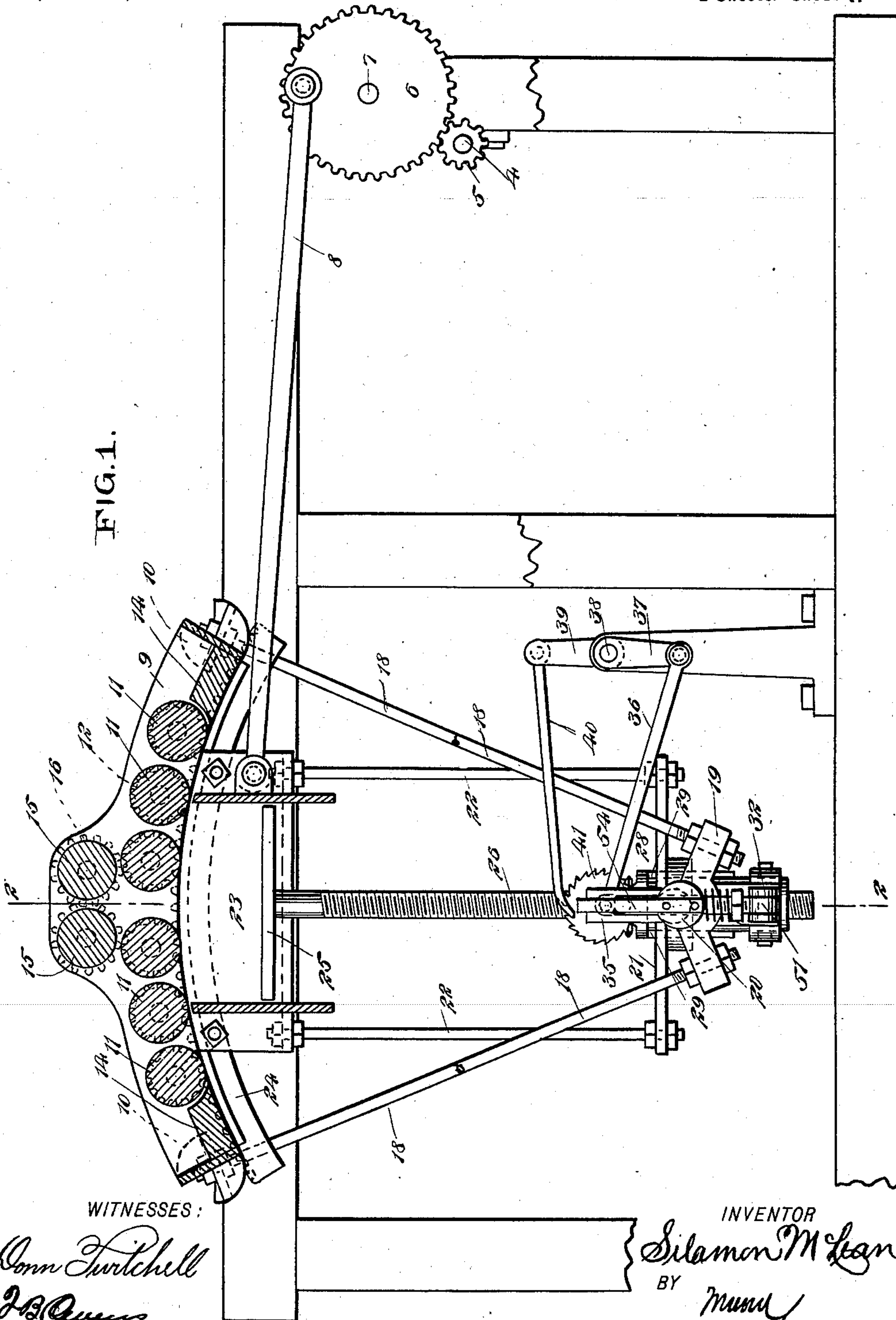
S. McLEAN.  
COTTON PRESS.

(Application filed Feb. 3, 1900.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.



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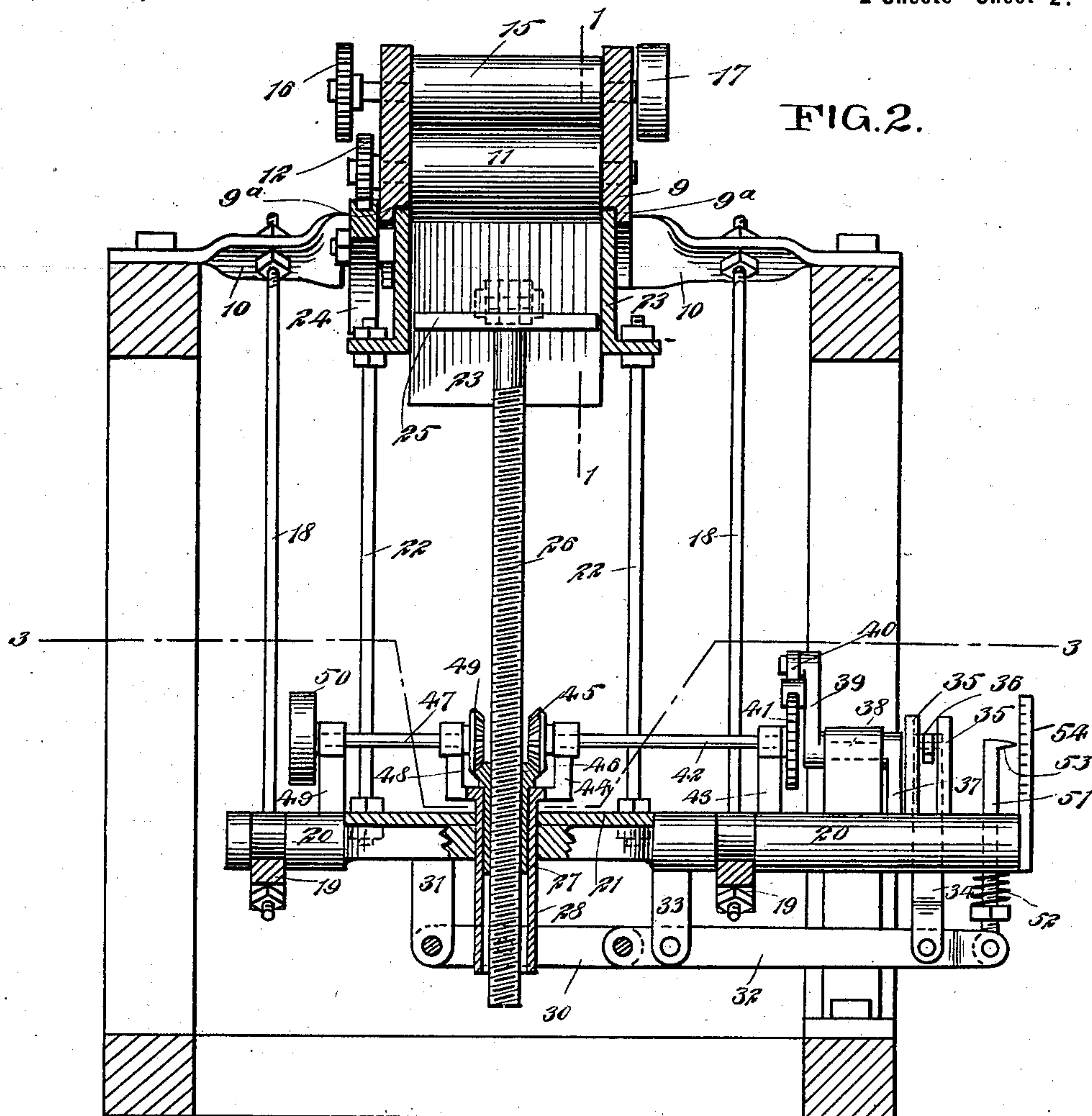
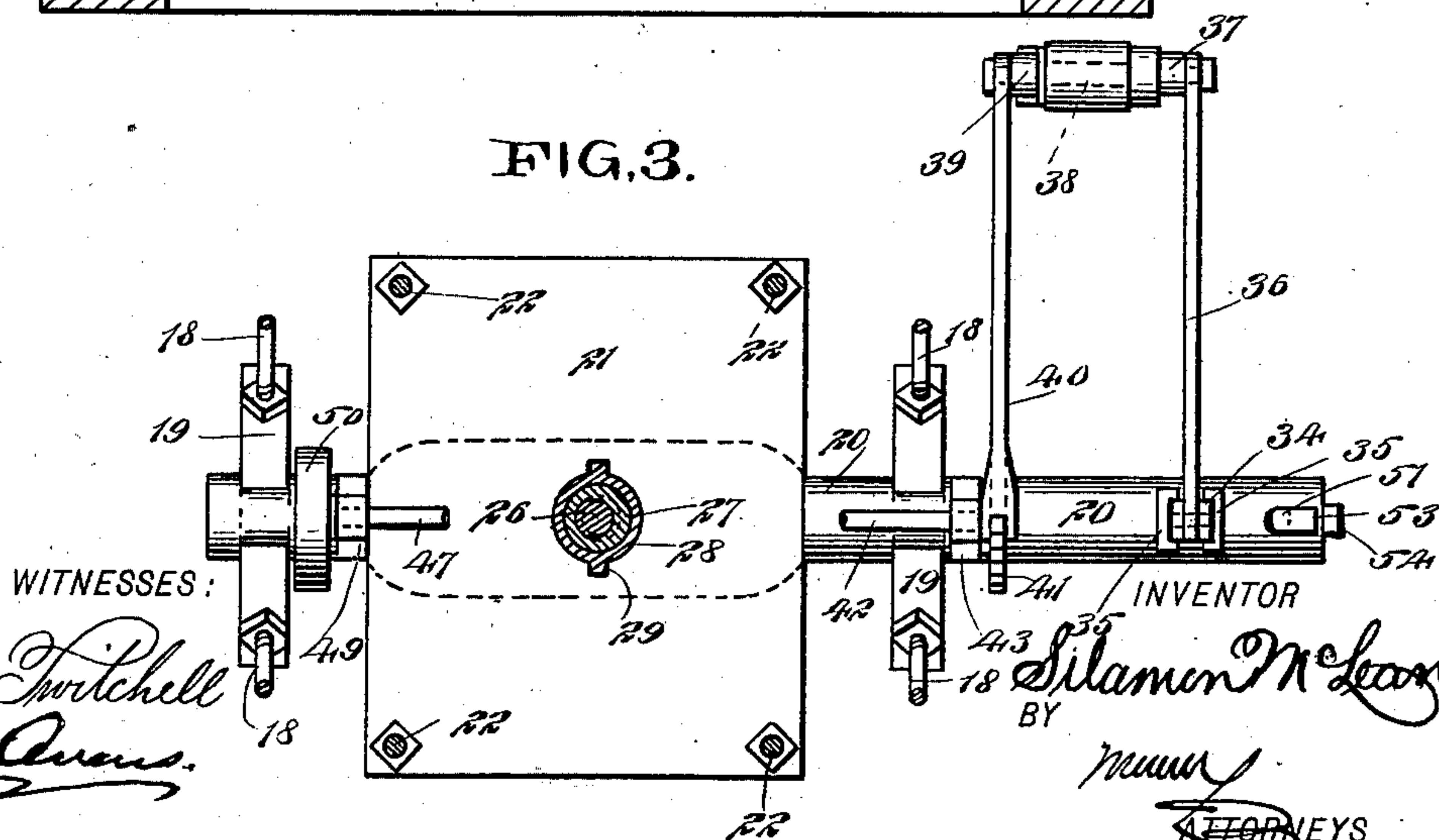


FIG. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 655,000, dated July 31, 1900.

Application filed February 3, 1900. Serial No. 3,833. (No model.)

*To all whom it may concern:*

Be it known that I, SILAMON McLEAN, a citizen of the United States, and a resident of Bingham, in the county of Marion and State of South Carolina, have invented a new and Improved Cotton-Press, of which the following is a full, clear, and exact description.

The purpose of this invention is to compress cotton into approximately square or rectangular bales, to which end I utilize an oscillating baling-box, with a follower working against compressing-rolls, so that as the baling-box oscillates the batting is compressed therein in superimposed layers, forming as compact a mass as it is possible practically to produce.

This specification is the disclosure of one form of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the device, with parts in section, on the line 11 of Fig. 2. Fig. 2 is a cross-section on the line 22 of Fig. 1, and Fig. 3 is a sectional plan on the line 33 of Fig. 2.

The press is constructed with a suitable framing, in which is mounted a prime mover or drive-shaft 4, having a pinion 5 thereon meshing with a spur-gear 6. The spur-gear is carried loosely on a stub-shaft 7, held by the frame, and drives a connecting-rod 8, by which the operative parts of the apparatus are driven. Sustained on the upper part of the frame of the press is a housing 9, fastened rigidly in place by arms 10, extending between the housing and the frame of the apparatus. In this housing are mounted rolls 11, arranged in the arc of a circle and each provided with gears 12, fastened to their respective axes. The end portions of the housing 9 are provided with cover-plates 14, respectively located at the sides of the group of rolls 11 and forming means for preventing the displacement of the cotton in the bale when the bale is moved beneath the cover-plates, as will be fully described hereinafter. The

cotton in a continuous batting is fed below the rolls 11 by two feed-rolls 15, mounted in the housing 9 and geared to turn with each other by means of spur-gears 16. One of the rolls 15 is provided with a pulley 17, which may be suitably driven from the shaft 4, thus driving the rolls 15 independently of the rolls 11.

Attached to the arms 10 are four sling-rods 18, which extend downward at each side of the press in pairs, such pairs respectively carrying bearings 19. In these bearings is mounted to rock a shaft 20, a portion of which intermediate the bearings is flattened out to receive a table 21, which is fastened rigidly to the shaft 20 to rock therewith. This table 21, as best shown in Fig. 3, has its four corners each provided with frame-rods 22, fastened rigidly to the table and extending upward to a point just below the housing 9, where they are rigidly fastened to the baling-box 23. This box has its side walls fitted in rabbets 9<sup>a</sup>, formed in the side walls of the housing 9, so as to make snug connection therewith, permitting the baling-box, however, to swing freely below the housing 9 in an arc concentric with the arc described by the rolls 11 and also concentric with the axis of the shaft 20. To the baling-box 23 is attached the connecting-rod 8, and by these means movement is imparted thereto. The rocking of the baling-box is transmitted by the rods 22 to the shaft 20, which is rocked in time therewith. The baling-box 23 carries rigidly a toothed sector 24, which meshes with the gears 12 to drive the rolls 11 first in one direction and then in the other, as will be understood.

In the baling-box 23 works a follower 25, attached to a screw 26, passing downward through a nut 27, which is fitted loosely in a sleeve 28, provided with gibs 29, (see Fig. 3,) enabling the sleeve to be mounted to move longitudinally, but not to turn in the table 21 and flattened portion of the shaft 20 beneath the table. To this sleeve 28 is connected the member 30 of a compound lever. This lever member 30 is fulcrumed on an arm 31, projecting radially from the under side of the



shaft 20, and is connected with the other member 32 of the compound lever at the free end of the member 30. This member 32 is fulcrumed on a projection 33 similarly to the member 31. The compound lever composed of the members 30 and 32 extends longitudinally of the shaft 20 and is carried to rock therewith. The free portion of the lever member 32 has connected pivotally therewith an arm 34, which slides through a transverse opening in the shaft 20, the upper portion of the arm 34 being guided between channel-iron standards 35, carried rigidly by the shaft 20, and this upper portion of the arm 34 has pivotally attached thereto a connecting-rod 36. This arm 34 forms, essentially, a lever the fulcrum of which is the shaft 20, and such fulcrum is therefore variable, owing to the sliding of the arm. This rod 36 passes transversely to and is connected with a crank 37 on a shaft 38, suitably mounted in the framing of the machine. The other end of the shaft 38 has a crank 39 attached, and this latter crank drives a pawl 40, which works with a ratchet-wheel 41, fastened to a shaft 42, carried revolubly in bearings 43 and 44, respectively, on the shaft 20 and the sleeve 28. The inner end of the shaft 42 carries fast thereto a miter-gear 45, which meshes with a corresponding gear 46, formed on the nut 27. The rocking of the shaft 20 therefore imparts a like movement to the shaft 38, and this shaft, through the medium of the pawl 40 and ratchet-wheel 41, drives the shaft 42 with an intermittent or step-by-step rotary motion, thus turning the nut 27 and (the thread thereof and of the screw 26 being so adjusted) lowering the screw 26 with the follower. It is by these means that the follower is gradually lowered to accommodate itself to the gradually-increasing size of the bale. For the purpose of quickly returning the screw 26, with its follower, I provide a shaft 47, revolubly mounted in bearings 48 and 49, carried, respectively, by the shaft 20 and by the sleeve 28. This shaft 47 has a miter-gear 49 fast thereto, which meshes with the gear 46 to turn the nut 27 in a direction opposite to that in which the nut is turned by the gear 45. The shaft 47 carries a band-pulley 50, by which the shaft may be driven from any suitable source. When the screw 26 is being returned to its upward position, the pawl 40 may be disengaged from the ratchet-wheel 41 by swinging the pawl on the pivot connecting it with the arm 39. The shafts 42 and 47 are mounted so as to have slight swinging movement in their boxes 43 and 49, or, if desired, the boxes themselves may be allowed to rock slightly, the purpose of which is to accommodate the shafts to the movement of the sleeve 28.

In connection with the means for gradually returning the screw 26 and its follower 25 it will be observed that these means permit the descent of the screw in accord with the varying pressure upon the follower. As the

pressure of the bale becomes greater the force on the screw 26 is correspondingly increased, and this depresses the free end of the lever member 30, throwing upward the free end of the lever member 32, and thus raising the arm 34, which varies the throw of the connecting-rod 36 in such a manner as to increase the rocking speed of the shaft 38, and consequently to increase the movement of the shaft 42 and nut 27. This causes the screw 26 to be drawn down more quickly and relieves the strain previously existing. When this strain is relieved, the pressure of the screw on the lever members 30 and 32 is partly relaxed, and thus the arm 34 is drawn down, so as to decrease the speed of the parts 38 and 42 and those concerned therewith. Movable transversely in the end of the shaft 20, adjacent to the arm 34, is a bar 51, connected with the free end of the lever member 32 and having coiled thereon a spring 52, bearing between the shaft 20 and a nut or collar on the bar 51 and resisting the downward pressure of the screw 26, by means of which spring the lever members 30 and 32 and the arm 34 are caused to return to their normal positions upon the relaxation of the pressure of the screw. The bar 51 is formed with an indicator 53, moving therewith along a scale 54, fastened to the shaft 20, and by these means the exact pressure exercised on the bale may be determined.

In the operation of the apparatus the follower, with its screw, is moved up into close proximity to the rolls 11 and the parts set in motion. The batting will now be fed into the baling-press, and as this oscillates beneath the rolls 11 and the cover-plates 14 the batting will be laid in superimposed folds on the follower and compressed in this manner, the follower being gradually lowered as the bale increases. When the bale has been formed, it is secured by any suitable means, and the follower is then lowered, permitting the removal of the bale and the wiring thereof, as will be understood.

Owing to the arc-shaped disposition of the rollers 11, the top side of the bale may be slightly arched in form; but this will not affect the general contour of the bale.

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

1. The combination of an oscillating baling-box, means adjacent to the box against which the material is compressed, a follower working in the baling-box, a rock-shaft on which the baling-box is supported, the rock-shaft being driven with the baling-box, and means actuated by the rock-shaft and permitting the gradual retraction of the follower.

2. The combination of a baling-box, means adjacent thereto against which the cotton is compressed, a rock-shaft connected with the baling-box and moving in time therewith, a follower working in the baling-box, a screw attached to the follower, means for moving



the screw to actuate the follower, and driving-gear for such means, the driving-gear transmitting movement from the rock-shaft and having connection with the screw to be  
5 controlled by the pressure thereof.

3. The combination of an oscillatory baling-box, a follower working therein, a rock-shaft moving in time with the baling-box, and means actuated from the rock-shaft by which  
10 to permit the gradual retraction of the follower, the said means having connection with the follower, to be controlled by the pressure thereof.

4. The combination of a baling-box, a follower working therein, a rock-shaft, and means driven thereby, to permit the gradual retraction of the follower, such means having connection with the follower to be controlled by the pressure thereof.

5. The combination of a mounted rock-shaft, a baling-box carried thereby and reciprocating in time with the rock-shaft, a follower working in the baling-box, a screw attached to the follower, a nut carried by the  
25 rock-shaft and engaged with the screw to drive the same, and means driven by the rock-shaft, by which means to drive the nut, the said means comprising a movable part having connection with the screw to be actuated by the  
30 pressure thereon, and by which part the movement of the follower is regulated.

6. The combination of an oscillatory baling-box, a follower working therein, a rock-shaft connected to move in time with the baling-box, a screw attached to the follower, a nut  
35 mounted to turn in the rock-shaft and engage the screw, a sliding arm carried by the rock-shaft, a connection between the screw and the sliding arm, to move the arm according to the pressure of the screw, and means driven from  
40 the sliding arm by which to drive the nut and move the screw.

7. The combination of an oscillatory baling-box, a follower working therein, a rock-shaft driven in time with the baling-box, a follower  
45 mounted in the baling-box, a screw attached to the follower, a nut engaging the screw, a slidable arm carried by the rock-shaft, means for driving the nut from said arm, and a lever carried by the rock-shaft and connected with  
50 the arm and with the screw, so as to actuate the arm from the pressure of the screw.

8. The combination with a framing, of a housing supported thereon, pressing-rolls carried by the housing, sling-rods depending  
55 from the housing, bearings carried by the sling-rods, a rock-shaft mounted in the bearings, a baling-box suspended on the rock-shaft and reciprocal in time therewith, and a follower working with the baling-box.

9. In a press, the combination with a fram-

ing, of means against which the material is engaged when under pressure, bearings supported by the framing, a rock-shaft mounted in the bearings, an oscillatory baling-box  
65 carried by the rock-shaft to move in time therewith in proximity to the said means against which the material is pressed, and a follower working in the baling-box.

10. A baling-press having an oscillatory  
70 baling-box, means for oscillating the box, means on which the box is carried, such latter means rocking in time with the movement of the box, a follower working in the baling-box, and mechanism permitting the gradual  
75 retraction of the follower, such mechanism being connected with and actuated by the said means on which the baling-box is mounted.

11. A baling-press having a baling-box, a follower working therein, and means geared  
80 with and driven by the press for gradually retracting the follower, such means comprising a movement-transmitting arm or lever slidable to vary its fulcrum, the said arm or lever being connected with the follower and  
85 having its sliding movement controlled by the pressure of the bale on the follower, for the purpose specified.

12. A baling-press having an oscillatory baling-box, means on which the box is carried, such means rocking in time with the movement of the baling-box, a follower working in the baling-box, a screw attached to the follower, a nut working with the screw to gradually retract the follower, and mechanism  
95 actuated by the movement of the said means for carrying the baling-box, such mechanism driving the nut and comprising a movement-transmitting arm or lever slidable to vary its fulcrum, the said arm or lever being  
100 in connection with the follower and having its sliding movement controlled by the pressure of the bale on the follower, for the purpose specified.

13. A baling-press having a follower or  
105 other mobile part receiving the pressure of the bale, a mobile member in connection with the follower and actuated by the pressure thereof, a spring yieldingly sustaining the said mobile member against the pressure of  
110 the follower, an indicator carried by and moving with said mobile member, and a relatively-stationary scale against which the indicator reads.

In testimony whereof I have signed my  
115 name to this specification in the presence of two subscribing witnesses.

SILAMON MCLEAN.

Witnesses:

H. L. MCCALL,  
J. W. SMITH.