

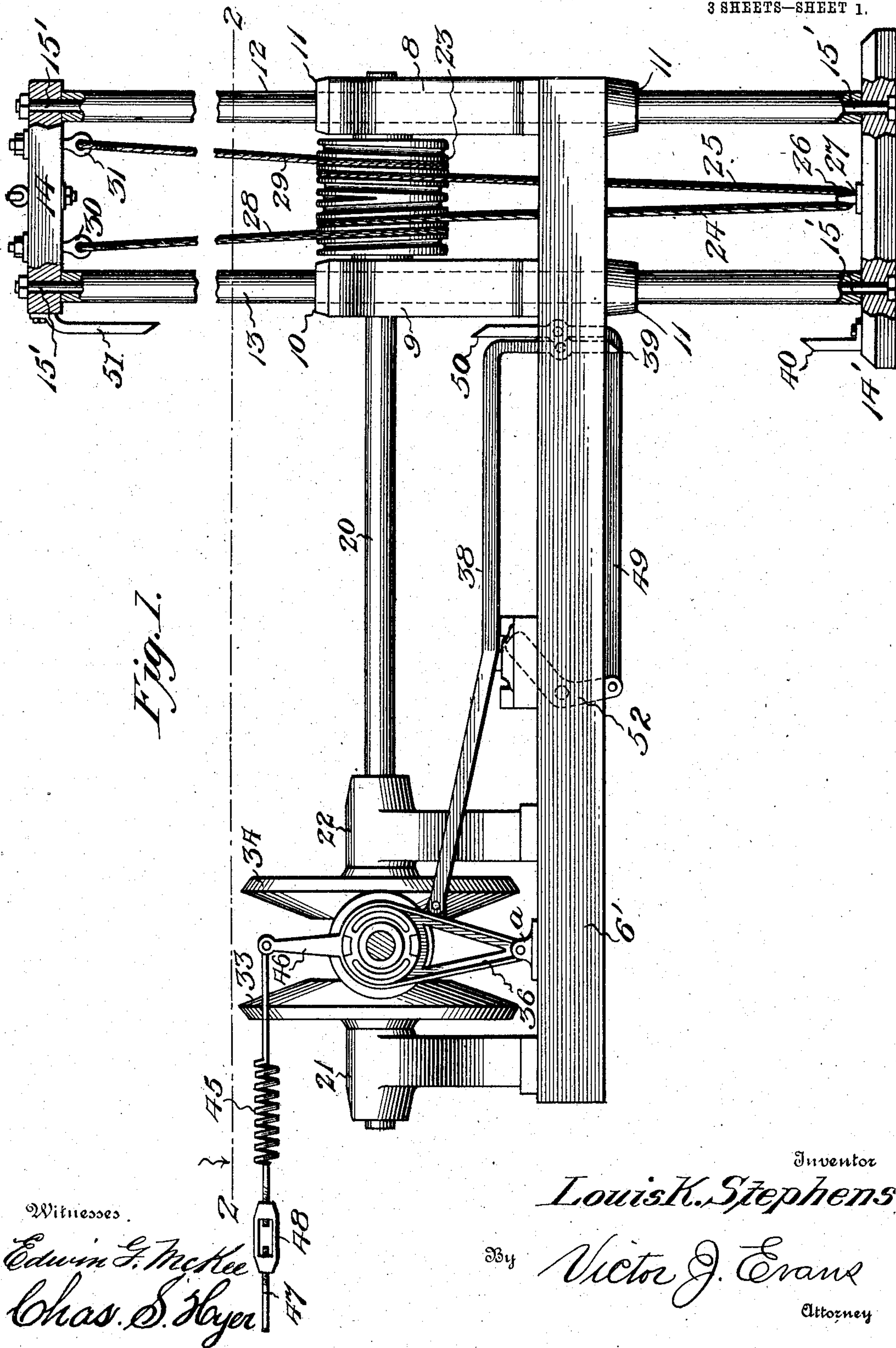
No. 791,378.

PATENTED MAY 30, 1905.

L. K. STEPHENS.
COTTON PRESS.

APPLICATION FILED OCT. 7, 1903.

3 SHEETS—SHEET 1.



Witnesses
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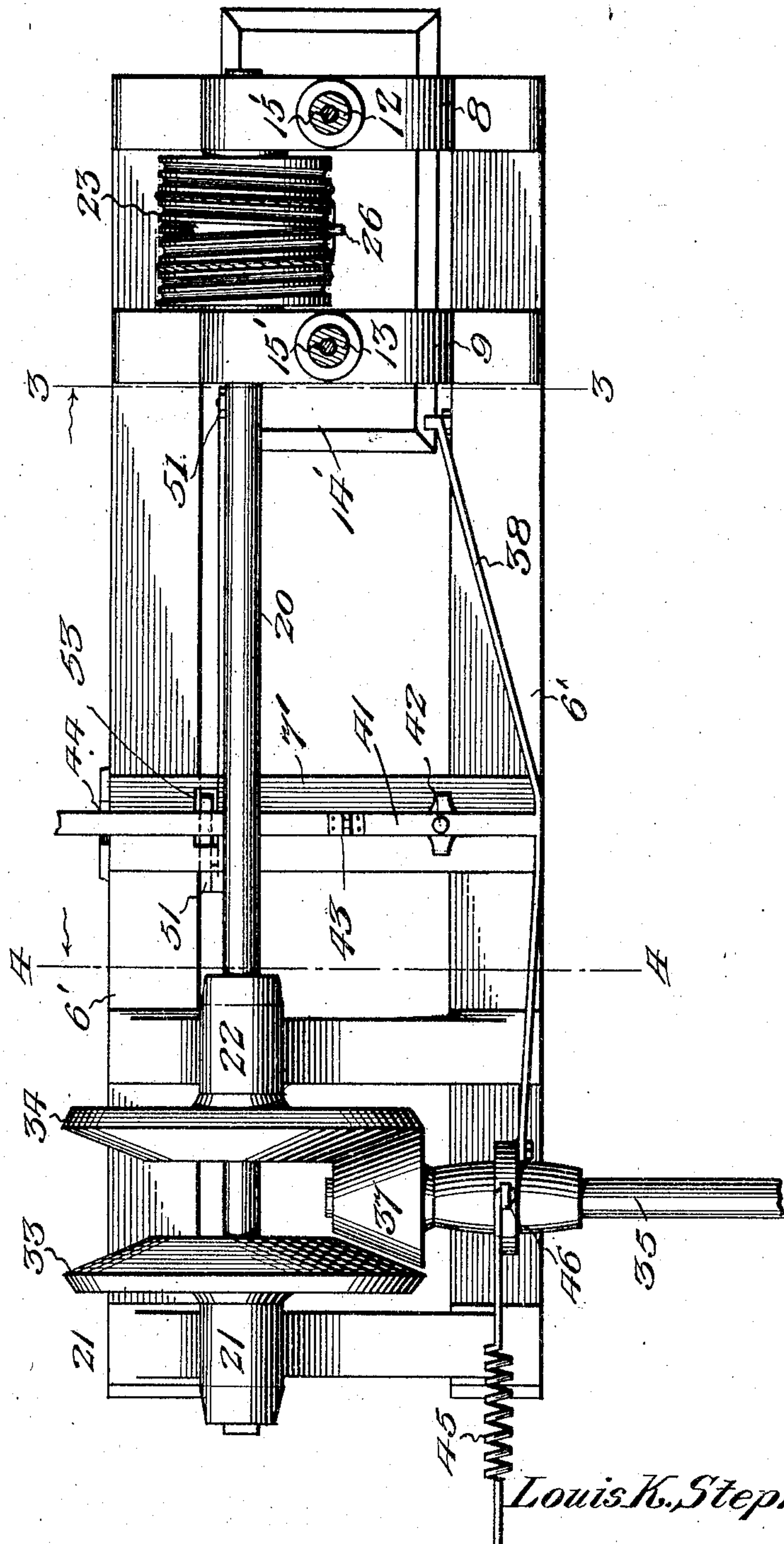
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Fig. 2.



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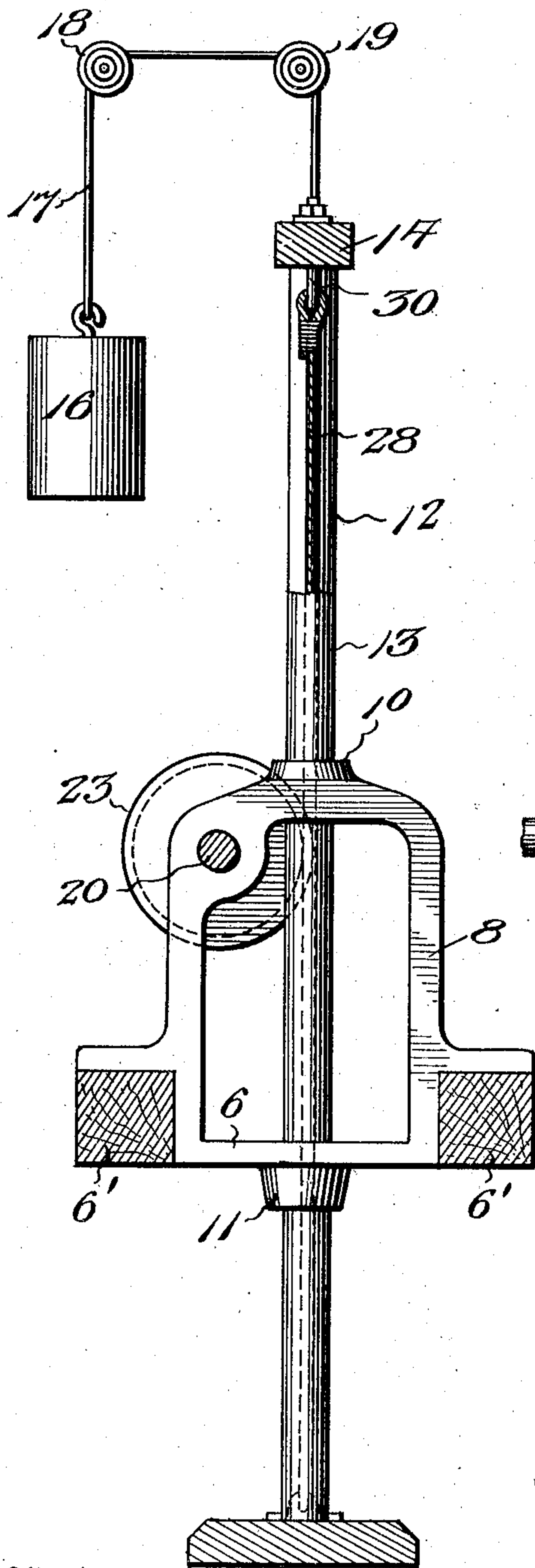
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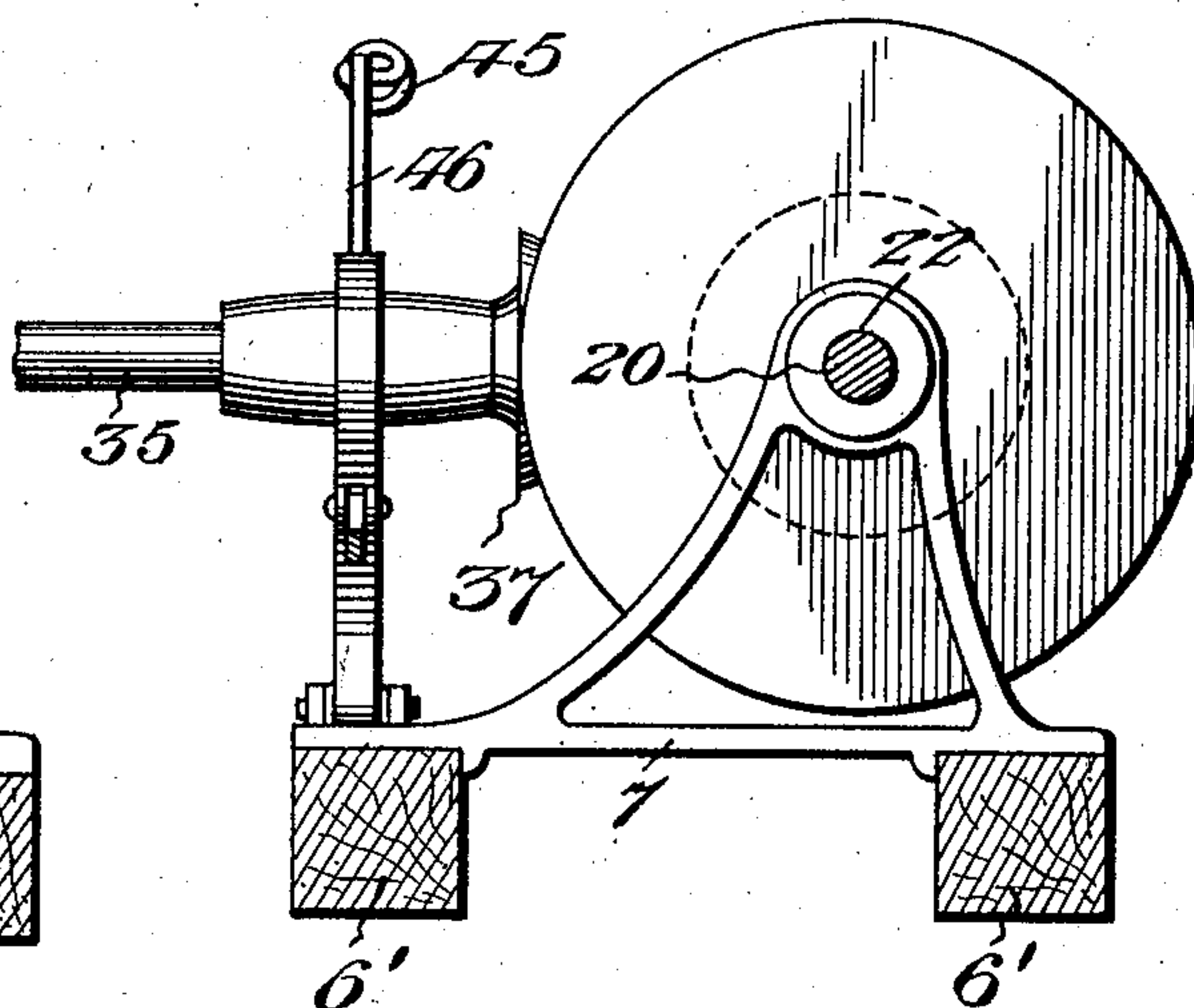
Fig. 3.



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Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS K. STEPHENS, OF DALLAS, TEXAS.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 791,378, dated May 30, 1905.

Application filed October 7, 1903. Serial No. 176,104.

To all whom it may concern:

Be it known that I, LOUIS K. STEPHENS, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Cotton-Presses, of which the following is a specification.

My invention relates to a cotton-tamper to be used in connection with a cotton-press for preparing and baling lint-cotton for market.

The object of my invention is to provide a machine that will give to the presser or packer a positive up-and-down motion and that will prevent sticking or hanging of the same in the box.

A further object of my invention is to provide an automatic reverse and stop motion for said packer.

The novelty of my invention consists in the combination and subcombination of the parts of my machine, as will be hereinafter set forth, and specifically pointed out in the claims.

The practical embodiment of my invention is shown by reference to the accompanying drawings, in which—

Figure 1 shows a side elevation of the machine complete. Fig. 2 represents a plan view taken on line 2 2, Fig. 1. Fig. 3 shows a transverse sectional view taken upon line 3 3, Fig. 2. Fig. 4 represents a cross-section taken upon line 4 4, Fig. 2.

Like characters indicate corresponding parts in the several figures.

Referring to the drawings, 6 represents a base-frame which is preferably constructed of sills 6', that are arranged parallel to each other and which are united centrally by the cross-piece 7' and at one end by the reciprocating frame-supporting brackets 8 and 9, mounted as shown. These brackets are provided with vertical guide-openings 10 and 11, that are alined with each other and that are adapted to receive the tubular uprights or draft-bars 12 and 13, which are intended for vertical reciprocation therein and which are united at their upper ends by the cross-beam 14 and at their lower ends by the packer or presser plate 14' and that are rigidly secured thereto by the centrally-extending bolt-rods 15', thereby constituting a vertically-recipro-

cating frame. The frame thus constructed and disposed is counterbalanced by a weight 16, that is suspended from the end of the rope 17, which latter is carried over the small pulleys 18 and 19 and which is attached by its other end to the cross-beam 14. The means for vertically reciprocating said frame and attached presser or packer plate will now be described.

20 designates a horizontally-disposed driven shaft that is journaled at one end in the brackets 8 and 9, above referred to, and at its opposite end portion in the brackets 21 and 22, which latter are rigidly secured in spaced parallelism to the sills 6'. The shaft thus arranged is driven by power means to hereinafter be described.

The power from the shaft 20 is applied to reciprocate the packer or presser plate through the following means: Mounted on the enlarged portion of the shaft that extends between the brackets 8 and 9, and that is sustained in bearings thereon, is a winding-drum 23, that is of a given diameter throughout its length and that is provided between its peripheral center and one end with right-handed screw-threads or grooves and on its opposite end portion with left-handed screw-threads or grooves of the same pitch. The drum thus sectionally divided on its periphery has coiled or looped on its respective left and right handed grooves the separated strands 24 and 25 of the power-cable 26, that extends in a loop from the eye-plate 27, located centrally on the upper face of the presser-plate 14' and which when coiled on said drum form each one complete turn thereon to obtain a complete arc of contact and which extends from said drum in separated strands 28 and 29 to the head or cross-beam 14, where they are secured, respectively; to the adjusting eyebolts 30 and 31, positioned as shown. In this manner there is provided a transmission cable means that is coiled about the drum in the grooves 32 in a manner to prevent lateral displacement and to obtain thereon, by reason of the complete arc of contacts of the respective strands arranged thereon at a suitable angle, the best gripping action. By such an arrangement when the power

is applied to rotate the drum in one direction the latter will cause the descent of the reciprocating frame and packer by reason of paying out and lengthening of the strands 28 and 29 and correspondingly shortening of the strands 24 and 25, and vice versa in hoisting the packer by the opposite rotation of the winding-drum. A similar arrangement with chains instead of ropes may be employed to obtain the reciprocatory movement.

33 and 34 designate metal friction bevel-gears which are mounted, as shown, on driven shaft 20 in separation between brackets 21 and 22 and which are provided with corresponding but oppositely-arranged or opposed peripheral faces.

35 indicates a counter driving-shaft that is journaled at right angles to the driven shaft 20 on its inner end in the bracket 36, which latter is pivotally mounted on the sill 6', as shown at *a*. Mounted on the extreme end of said counter-shaft is a paper or wooden gear or cone 37, which is normally positioned midway between the gears 33 and 34, but which is adapted to alternately engage frictionally therewith to drive the shaft 20 in opposite directions. By the employment of such gearing the starting of the machine and the reversing of same are attained with as little shock as with belting and are fully as positive. The counter-shaft thus mounted and arranged may be connected with any suitable power.

The means present in this machine for controlling the alternate engagement and disengagement of the cone 37 with the gears 33 and 34 and retaining same in a given position will now be described.

38 indicates a shifting-lever that is pivotally connected at one end to the bracket 36 and at its opposite end portion to the sill 6' to provide at its latter end a trip portion 39. The trip 39 thus disposed is ranged in the pathway of the gib 40, that is carried on the upper inner end of the packer-plate 14'. Shifting-lever 38 is also provided with a retaining or locking arm 41, that projects at right angles at a point intermediate of its ends in a manner to extend crosswise of the machine and which is pivoted at 42, as shown. The arm 41 is provided with a hinged joint 43 at a point between its fulcrum and free end, which joint allows said lever to drop into a plane coincident with that of the notch 44, formed in the cross-piece 7, with which it is adapted to socket when it registers therewith. Arranged in opposition to said shifting-lever 38 is the tension-spring 45, that connects with one end to the arm extension 46, that projects from the bracket 36, and that is connected at its opposite end to a rod 47 by an adjusting-turnbuckle 48.

The following means is provided for releasing the shifting lever when it is locked in the notch 44 against the tension of the spring 45.

49 designates a lever that is pivoted on the

sill 6', as shown, to provide a free end 50, that is ranged in the pathway of the gib 51, which latter is mounted on the inner end of the cross-beam or head 14 at the top of the reciprocating frame. Pivoted at the opposite end of said lever 49 is a bell-crank-shaped disengaging or tripping lever 52, which is fulcrumed, as shown, to swing its free end through the recess 53, extending through the cross-piece 7', which lever when swung therein is adapted to raise the arm 41 out of the notch 44 when seated therein, and thereby allow of the shifting of the friction-cone by reason of the spring force exerted thereon.

With the parts constructed as shown and described the operation thereof is obvious. In Fig. 1 the shifting-lever is shown as thrown to a locked position to cause the engagement of the cone with the bevel-gear 34 to drive the shaft and winding-drum in a direction to cause the descent of the presser-plate, which when it reaches its downward limit of movement causes the engagement of the gib 51 with the free end 50 of the lever 49, thereby releasing the shifting-lever 38, through the swinging of the tripping-lever 52, to dislodge the arm 41 from its notch 44, as hereinbefore described, whereupon the spring 45 exerts its tension to pull the cone in contact with the friction-bevel 33 and cause the presser-plate and its frame to ascend by virtue of the reversal of the movement of the winding-drum. Upon the presser-frame reaching the upward limit of its movement the gib 40, located on the presser end of the frame, will come in contact with the free end of the shifting-lever, operating thereon to produce a pulling action on the cone and move it against the action of the spring to a neutral position between the bevel-gears, thus bringing the presser-frame to a stop, where it is maintained by reason of the counterbalancing-weight. The operation may be repeated by again bringing the shifting-lever to its locked position.

Having thus described the invention, what I claim as new is—

1. In a press, a supporting-frame, guides carried by said supporting-frame, a shaft journaled in said guides, a winding-drum on the shaft between the guides having opposite winding portions, a packer comprising bars sliding in said guides and connected by cross members at their ends, the lower cross members serving as a packing-head, a counterbalancing-weight connected to the cross members, ropes or cables connected with the opposite winding portions of the drum and the said cross members, means for rotating the shaft, and means for alternately reversing the direction of rotation of the shaft to rotate the drum in opposite directions, substantially as described.

2. In a press, the combination of a vertically-reciprocating packer, means for reciprocating the same, a shaft for operating the said reciprocating means, reversible driving-

gearing for operating said shaft, a movable shifting element connected with said drive-gearing, means for locking said shifting element in one position, a second movable element for releasing said locking means, and devices upon the reciprocating packer for alternately operating said shifting element.

3. In a press, a reciprocating packer-frame, a power-driven shaft, a winding-drum mounted on said shaft in line with the path of travel of said packer-frame and having peripheral right and left hand grooves, and a double power-cable connecting the ends of said frame, each member of the cable being coiled about the drum and retained upon the respective grooved portions thereof and terminating in an adjustable loop connection with the packer-frame, the opposite ends of the packer-frame being movable toward and from the drum, substantially as described.

4. In a press, a reciprocating packer-frame, a guide therefor, a weight arranged in counterbalancing relation to said packer, a power-driven shaft, a winding-drum mounted centrally on said shaft, a power-cable connected with the respective ends of said packer-frame and coiling about said drum in contacting loops, and terminating in an adjustable loop connection with the packer, and means for automatically changing the direction of rotation of said shaft and drum, substantially as described.

5. In a press, a reciprocating packer-frame, a power-driven shaft, a winding-drum mounted on said shaft in line with the path of travel of said packer-frame and having peripheral left and right hand screw-threads or grooves, and a double power-cable for the reception of the screw-threaded portions of the winding-drum and having its ends connected to one end of the said frame and slidably attached at its looped end centrally of the packer, substantially as and for the purpose set forth.

6. In a press, a reciprocating frame carrying a packer, a guide therefor, a driven shaft having driven gears thereon, means operated by said shaft for imparting a reciprocatory movement to said frame, a driving-gear mounted for alternate engagement with the driven gears, pressure means for holding said driving-gears in engagement with one of the driven gears, shifting means for said driving-gear adapted to be manually operated to move said driving-gear into engagement with the other driven gear, means for locking said shifting means to hold said gears in manually-adjusted engagement, and means for releasing said shifting means automatically at a predetermined point in the downward movement of the packer.

7. In a press, a reciprocating frame carrying a packer, a guide therefor, a driven shaft having driven gears thereon, means operated

by said shaft for imparting a reciprocatory movement to said frame, a driving-gear mounted for alternate engagement with the driven gears, shifting means for said driving-gear, and means for cooperating with said shifting means, whereby the driving-gear is automatically moved to a neutral position at a predetermined point in the rising movement of the packer, substantially as and for the purpose set forth.

8. In a press, a reciprocating frame, a guide therefor carrying a winding-drum, and cable for said drum, a driven shaft and gears carried thereby, a movable shaft arranged at an angle to the driven shaft having a gear mounted for alternate engagement with the gears on said driven shaft, a movable element for shifting said second shaft, a spring which is put under tension by the movement of said element, and means for releasably holding said movable element and gear in operative relation to said driven shaft and against the tension of said spring, substantially as and for the purpose set forth.

9. In a press, a reciprocating frame, a guide therefor carrying a winding-drum and a power-cable, a driven shaft and gears carried thereby, a driving-shaft having a gear mounted for alternate engagement with the gears on said driven shaft, a movable element for shifting said driving-shaft, a spring which is put under tension by the movement of said element, means for locking said movable element in predetermined position, and means for unlocking the said element, which latter means is actuated by the reciprocating frame when it reaches a predetermined position, substantially as and for the purpose set forth.

10. In a press, the reciprocating frame, a guide-frame therefor, a shaft and gears carried thereby, a winding-drum mounted on said shaft, a power-cable connecting said drum and reciprocating frame, a driving-shaft having a gear mounted for alternate engagement with the gears on said first-named shaft, a shifting-lever that is pivotally mounted and that is provided with a locking-arm, retaining means for the reception of said arm, a spring arranged in opposition to said shifting-lever, a tripping-lever that is adapted for engagement with the locking-arm of said shifting-lever that is pivotally mounted, and means arranged on the reciprocating frame for engaging respectively with the shifting-lever and tripping-lever to alternately operate said levers when said frame reaches predetermined positions, substantially as described.

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

LOUIS K. STEPHENS.

Witnesses:

W. F. FERRIS,

O. E. CHISTENSEN.