

(No Model.)

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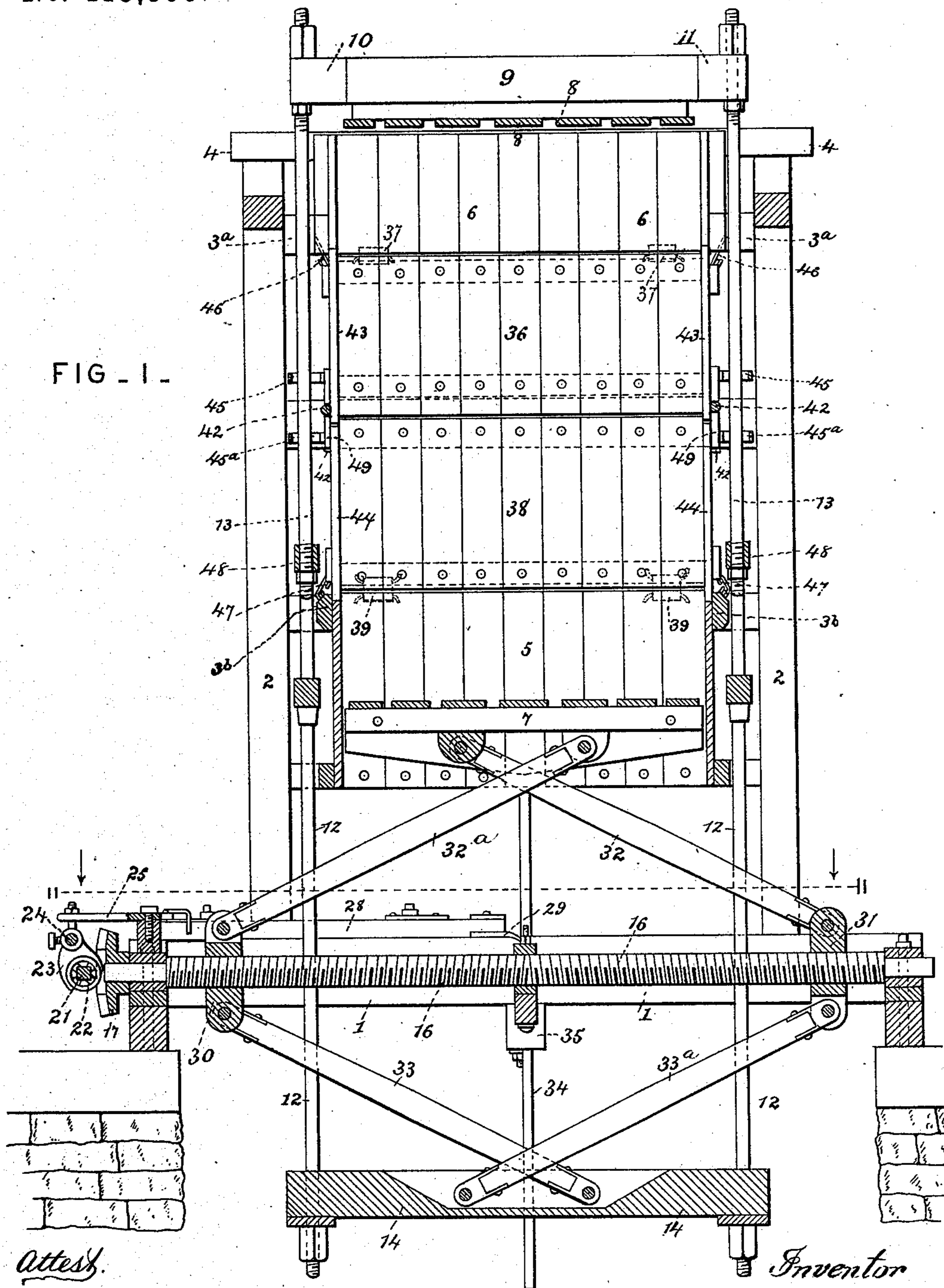
C. G. WILSON.

BALING PRESS.

No. 413,595.

Patented Oct. 22, 1889.

FIG. 1.



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(No Model.)

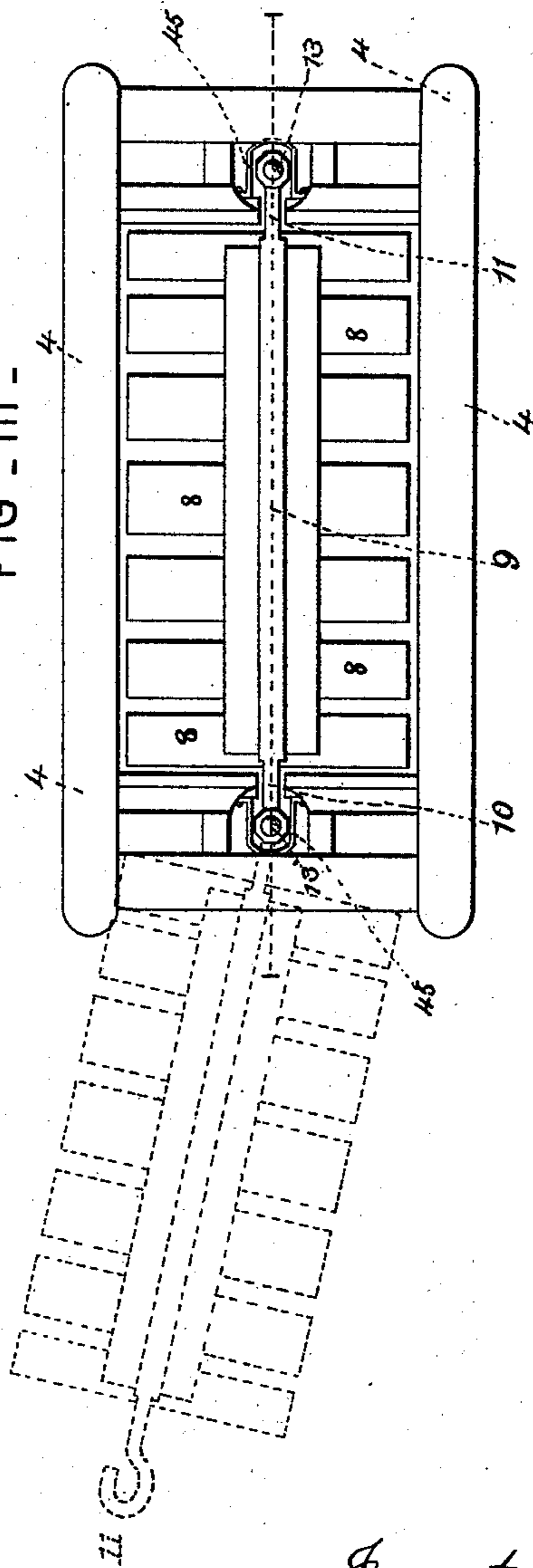
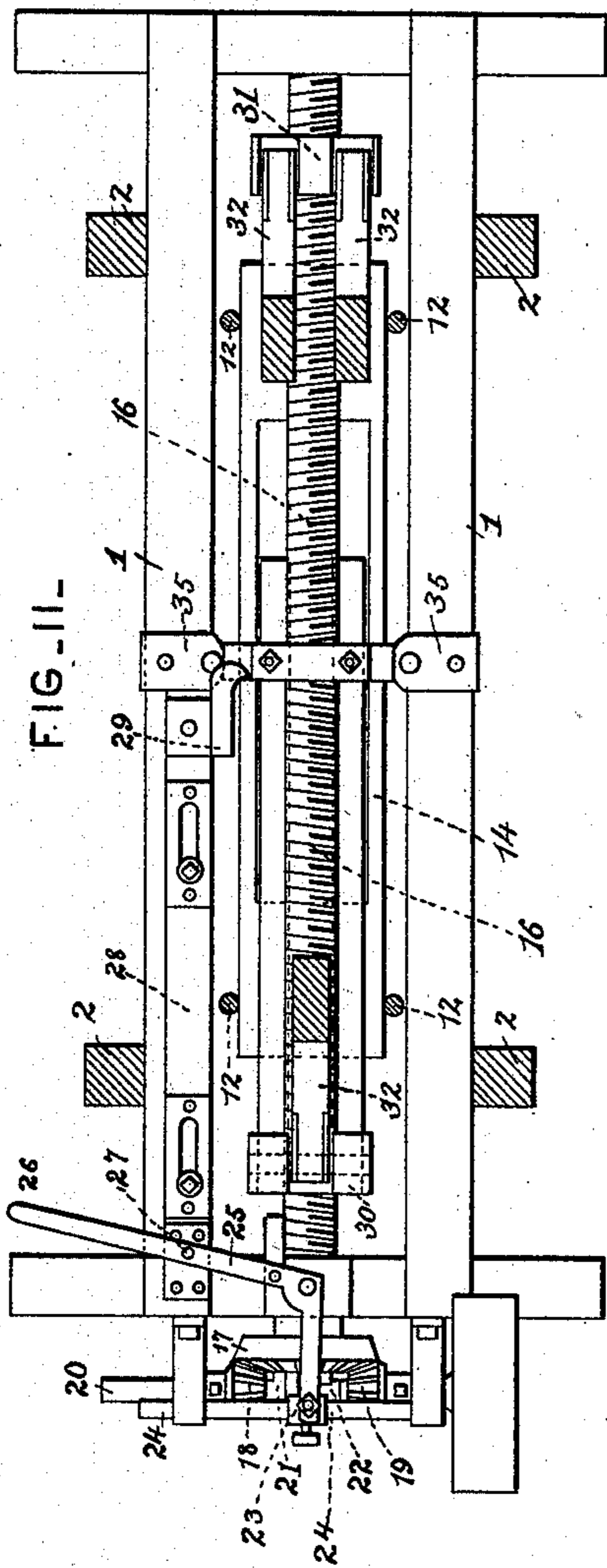
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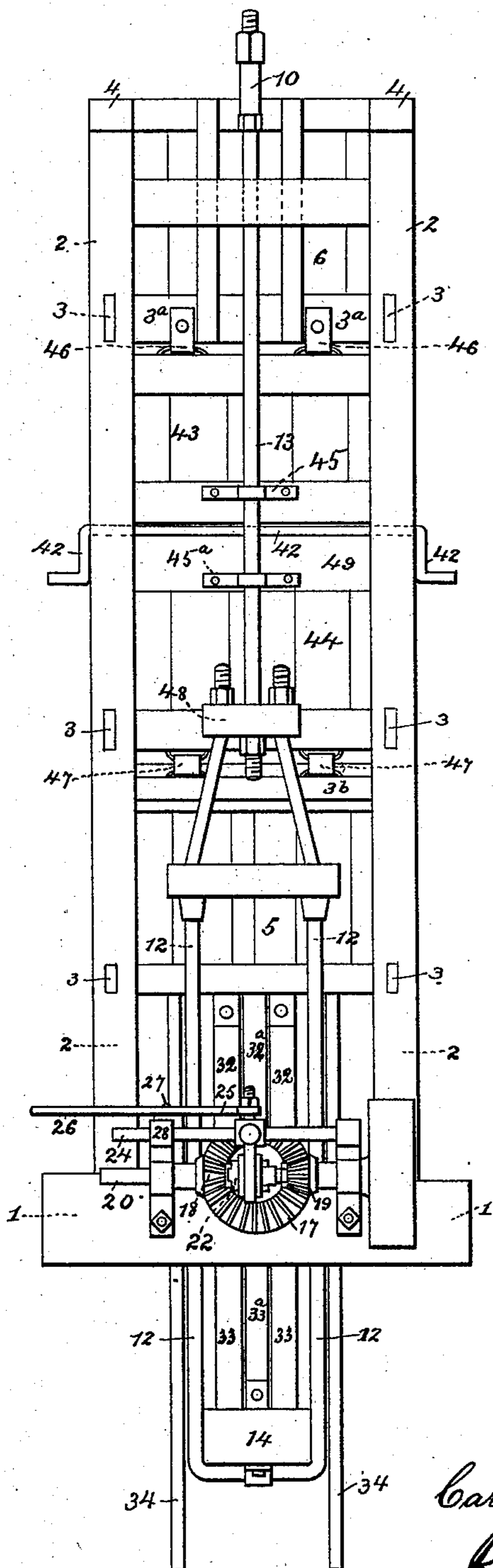
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FIG. IV.



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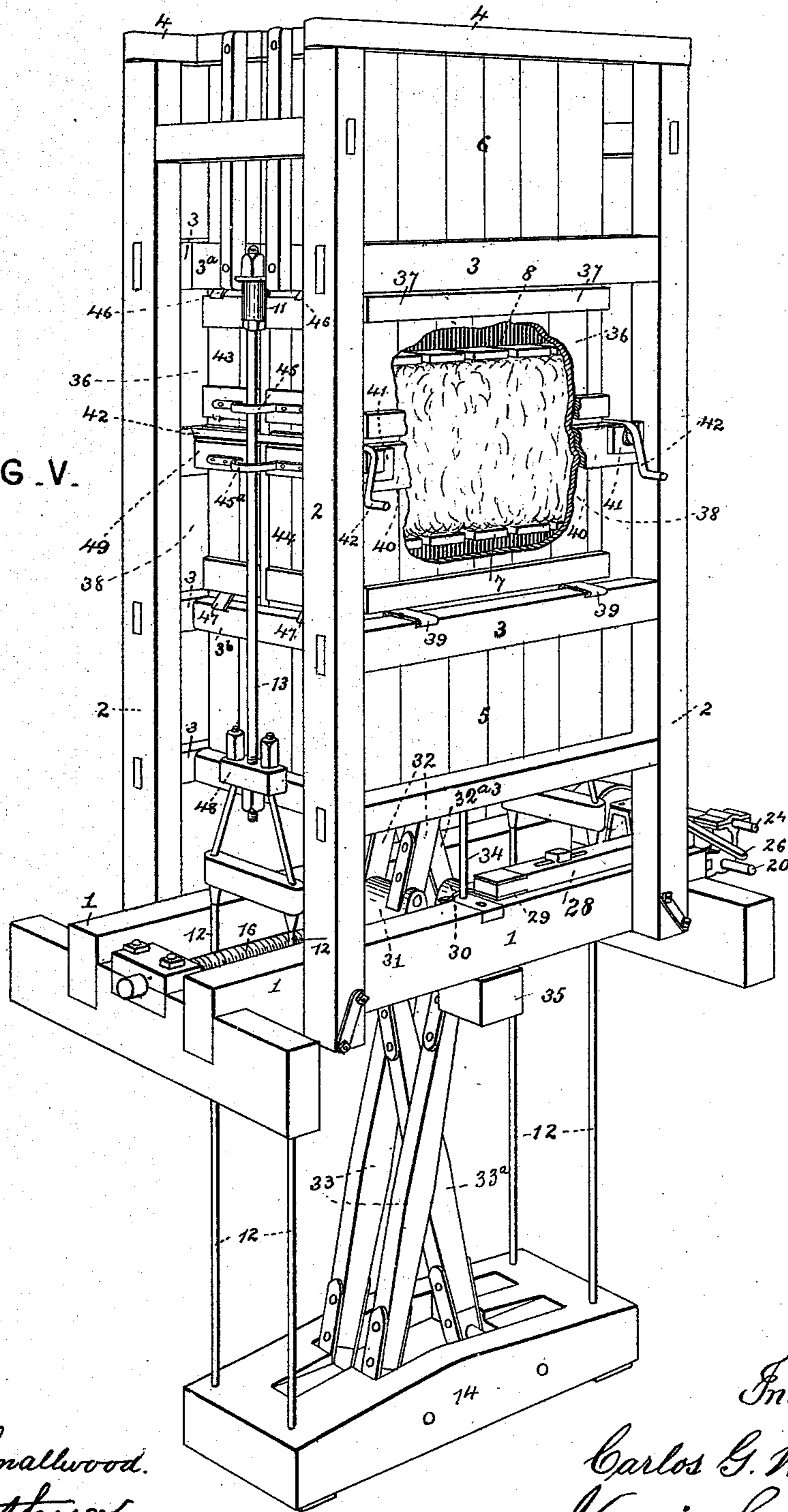
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FIG. V.



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FIG. VI.

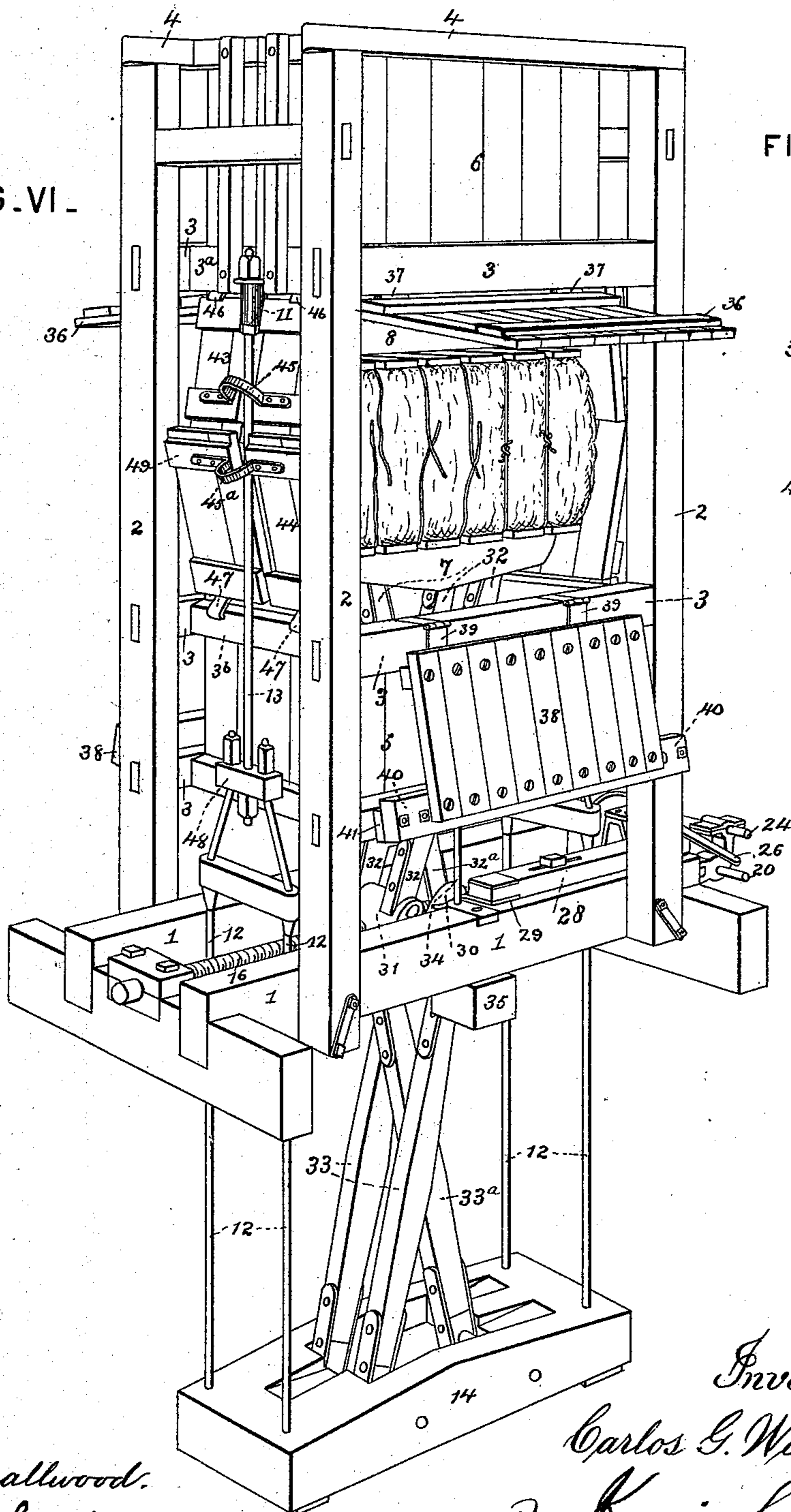
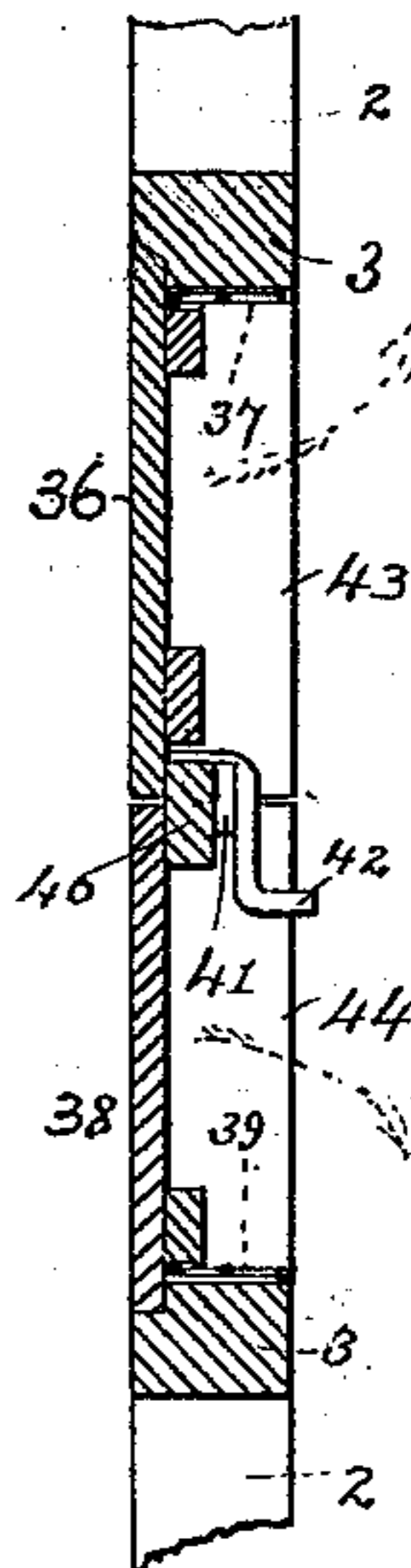


FIG. VII.



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UNITED STATES PATENT OFFICE.

CARLOS G. WILSON, OF MILLEDGEVILLE, GEORGIA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 413,595, dated October 22, 1889.

Application filed May 9, 1888. Serial No. 273,275. (No model.)

To all whom it may concern:

Be it known that I, CARLOS G. WILSON, a citizen of the United States, residing at Milledgeville, in the county of Baldwin and State of Georgia, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

The object of my invention is to produce a baling-press of simple and effective construction and one of great strength, which is adapted to compress the material with a quick movement at the beginning of the stroke and increasing the power as the movement progresses.

To this end I employ a lower follower and an upper follower at the bottom and top of the press-box, respectively, which followers are drawn toward each other by an equal and simultaneous movement imparted by paired toggle-bars, one exerting a direct upward thrust of the lower follower and the other a downward thrust on a cross-head, which is connected by tie-rods to the follower at the top of the press-box. These toggle-bars are actuated by a right-and-left screw acting upon nuts, in which the extremities of the toggle-bars are stepped. The movement compresses the cotton or other material into the required dimensions at or near the vertical center of the press-box, said box being here provided with doors for the tying and removal of the bale.

For simplicity of description I will refer to the doors at the front and back of the press-box as "side" doors and the lateral doors as "end" doors, with reference to the bale which is compressed within the space surrounded by these doors. The doors are arranged in pairs, each pair of side doors folding one over the other, the outer one being provided with a batten which carries oblique or cam-shaped keepers, by means of which the clamp-bars, by which the doors are secured, compress them tightly together, and when the press-box is to be opened release the bale by a gradual movement, as hereinafter explained. The end doors also fold one over the other, and are provided with battens on which the clamp-bars bear laterally to confine the said end doors. The end doors are each made in two parts, with a vertical slot between them, the two parts being connected by a yoke passing over or around the tie-rods which connect the

lower cross-head to the upper follower-beam, so as to permit the end doors to be opened. The follower-beam, with follower attached at the top of the press, is swiveled on one of the tie-rods and connected to the other by a latch, so that when the follower is elevated above the press-box it may be readily swung around from over the same for filling the press. The lower follower is guided by rods projecting downward through suitable sockets in the base-frame of the press. The operating-screw is driven by a counter-shaft, on which are two loose beveled pinions, either one of which receives the rotation of the shaft by means of a clutch, so as to drive the screw in either direction, the clutch being moved either by hand or automatically at the termination of the stroke by a bell-crank lever. A partial movement of the clutch when the pressing is completed will arrest the movement of the followers and leave them locked in the position they have reached, and a further movement, throwing the clutch into gear with the opposite pinion, will impart a reverse movement of the screw, so as to withdraw the followers preparatory to the next operation.

In the accompanying drawings, Figure I is a vertical section of the press on the line I I, Fig. III. Fig. II is a horizontal section on the line II II, Fig. I, showing a plan view of the operating mechanism at the bottom of the press. Fig. III is a plan or top view thereof, showing in dotted lines the upper follower swung around. Fig. IV is an end elevation. Fig. V is a perspective view showing the position of the parts when the pressing is completed. Fig. VI is a perspective view showing the doors opened for the tying and removal of the bale. Fig. VII is a detail section of one side of the press-box, showing the doors closed.

1 represents the horizontal base-frame of the press, on which are mounted standards 2 2, connected at suitable intervals by horizontal beams 3 and at the top by the upper horizontal beams 4 4.

5 6 represent, respectively, the lower and upper portions of the press-box within which the lower follower 7 and the upper follower 8 move vertically. The upper follower 8 is attached to a horizontal follower block or beam 9, constructed at one end with a swivel

10 and at the other with an open socket 11, by which the follower-block is secured to tie-rods 12 13, which connect it to a cross-head 14 at the bottom of the press. The upper
 5 end of the tie-rod 13 is secured within the open socket 11 in the follower-block, so as to permit the ready separation of this end of the upper follower from the tie-rod when the
 10 upper follower is to be turned around, as represented in dotted lines in Fig. III, to open the top of the press-box.

16 represents a right-and-left screw extending horizontally under the bottom of the press and rotated by a bevel-gear 17 by means of
 15 either one of a pair of opposed pinions 18 19, within which the counter-shaft 20 is arranged to turn loosely. The center of the counter-shaft 20 is formed square, as shown at 21 in
 20 Figs. I and II, to impart rotation to the clutch member 22, which slides on the said shaft, and is thereby made to engage with either of the pinions 18 19, so as to turn the driving-screw
 25 16 in either direction by a continuous rotation of the counter-shaft 20. If the clutch be left in an intermediate position, as illustrated in Fig. II, the rotation of the counter-shaft 20 imparts no motion to the driving-screw. The sliding motion is imparted to
 30 the clutch member 22 by a shipper 23, mounted on a rod 24, which slides in suitable guides, and is operated by a bell-crank 25, having a projecting handle 26 for moving the said bell-crank shipper and clutch by hand when required. The bell-crank is piv-
 35 oted at 27 to a sliding bar 28, carrying a tappet 29, which is engaged at the termination of the stroke by some part of the moving mechanism, so as to automatically arrest the pressing action at any determined point and
 40 hold the followers at that point.

On the right and left threads, respectively, of the driving-screw 16 are two nuts 30 31, in which are stepped or articulated toggle-bars. The upper toggle-bars consist of a pair of
 45 links 32, connected to the nut 31, and a single link 32^a, connected to the nut 30 and working between the paired links, the links crossing at their upper ends and being jointed or stepped underneath the follower 7, and the
 50 lower toggle-bars consist of a pair of links 33, connected to the nut 30, and a single link 33^a, connected to the nut 31 and working between the paired links 33, these links being crossed at their lower ends and stepped or
 55 jointed in the cross-head 14, which is connected to and actuates the block or beam 9, carrying the follower 8. This arrangement of the toggle-bars imparts an extended movement to the followers.

60 34 represent guide-rods projecting rigidly from the lower follower 7 and working in sockets 35 in the base of the press, so as to hold the lower follower 7 in horizontal position. The
 65 upper side doors 36 are connected to the horizontal beams 3 by hinges 37, permitting the said doors to be turned upward into horizontal position for tying and removing the bale.

The lower side doors 38 are connected to the horizontal beams 3 by double hinges 39, permitting these doors to drop outward into ver-
 70 tical position completely out of the way to give better access to the compressed bale for tying the same and facilitating its removal. The upper edges of the side doors 38 are provided with horizontal battens 40, projecting
 75 over the lower edges of the pendent upper doors 36, so as to confine the same, and provided on the outer faces of their projecting ends with oblique-faced keepers 41 for the
 80 reception of clamp-bars 42, which extend across the ends of the press-box, and by their downturned ends engage over the oblique faces of the keepers 41, so as to draw the side doors tightly together. The ends of the
 85 press-box are also constructed with doors 43 44, each made in two parts separated by a vertical slot and connected together by a yoke 45 and 45^a, respectively, which pass around the tie-rods 13, so as to permit the
 90 said end doors 43 44 to pass the tie-rods in opening and closing. The pendent upper end doors 43 are hinged to the horizontal upper beams 3^a by hinges 46, and the lower
 95 doors 44 are hinged to the lower horizontal beams 3^b by double hinges 47, permitting the more free movement of the said lower doors.

It will be noted by reference to Figs. I and IV that the tie-rods 12, which are made double to permit the toggle-bars 32 33 to work be-
 100 tween them, are connected by couplings 48 to single rods 13, which extend upward to the follower-beam 9.

The perspective view, Fig. V, shows the relative positions of the parts when the bale is compressed, the tie-rods 13 being at this
 105 time drawn down sufficiently to take the couplings 48, which connect the double tie-rods 12 with the single rods 13, down out of the way of the end doors 44. The upper edges of the lower end doors 44 are provided with battens
 110 49, to which their connecting-yokes 45^a are attached, and which project over the lower edges of the upper doors 43 to confine the same. The battens 49 are grooved to receive
 115 the clamp-bars 42, which thus bear laterally against the end doors, securely holding these when the said clamp-bars are locked in the keepers 41 of the doors 38.

Figs. I and IV show the position of the parts when the followers are separated preparatory
 120 to the filling of the press. When the doors are closed, the edges by which they are hinged engage in rabbets in the horizontal beams 3 3^a 3^b, so as to relieve the hinges of pressure.

The engagement of the end doors 43 44 with
 125 the beams 3^a 3^b is shown in Fig. I, and the engagement of the side doors 36 38 with the beams 3 3 is illustrated in the detail section, Fig. VII.

Operation: The parts being in the position
 130 shown in Figs. I and IV, but with the upper follower swung around, as indicated by dotted lines in Fig. III, the press is ready for filling. This done and the upper follower

closed movement is imparted to the driving-screw, which, acting through the toggle-bars 32 33, causes the follower-blocks to travel very fast at the start while the cotton is loose and gradually to slow down as the cotton condenses, the engine moving at a constant and uniform speed and toward the end of the stroke exerting enormous pressure on the cotton.

10 By this simple mechanism I provide a plantation press which will pack a bale on the plantation into very small dimensions, effecting a great saving in transportation from the interior to the sea ports or to the compressors.

15 Wherever the pressing action is arrested by shifting the clutch from the forward driving-pinion the effect of the screw 16, nuts 31, and toggle-bars 32 33 is to lock the followers in any position which they have reached, and after a bale is tied it is quickly released by a further movement of the clutch 22, throwing it into gear with the opposite driving-pinion, which imparts a reversed movement to the screws from the same continuous movement of the engine and counter-shaft 20.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of the press-box, the upper and lower followers, a beam carrying the upper follower, the cross-head beneath the press-box, rods connecting said beam with said cross-head, a right-and-left screw, the nuts 30 and 31, the upper paired links 32 and single link 32^a, crossed at their upper ends, and the lower paired links 33 and single link 33^a, crossed at their lower ends, substantially as described.

2. The combination of the press-box consisting of upper portion 6, having vertical slots in the ends thereof, the lower portion 5, and a central portion having upper and lower side doors, the upper follower 8, having a supporting-beam 9, formed with contracted necks working in the vertical slots, the lower follower 7, the cross-head 14 beneath the press-box, toggle mechanism between the lower fol-

lower and the cross-head, and the rods connecting the said beam with the said cross-head, the beam being hinged to one rod, so as to move in a horizontal plane, substantially as described.

3. The press-box having a central part provided with rabbeted side and end frames, the side doors 36 and 38, having double hinges 37 and 39, respectively, and fitting in the side frames, the end doors 43 and 44, having double hinges 46 and 47, respectively, and fitting in the end frames, and suitable fastenings for the doors, substantially as described.

4. The combination of the press-box, followers working therein, the doors 38 and 44, connected to the frame by double hinges 39 and 47, adapting said doors to engage with the frame of the press when closed and to drop into vertical position out of the way when open, and suitable fastenings for the doors, as herein explained.

5. The end doors 43 44, made in separate parts connected by yokes 45 45^a, permitting said doors to pass the tie-rods in opening, as explained.

6. The combination of the side doors 36 38 and end doors 43 44 with the clamp-bars 42 to fasten said doors together, as explained.

7. The combination of the side doors 36 38, fitting one over the other, the inclined keepers 41 on the outer doors, and the clamp-bars 42, bent at right angles and engaging with the inclined keepers to force and retain the doors in their closed position, as explained.

8. The combination of the side doors 36 38, shutting one over the other, the end doors 43 44, shutting one over the other, the battens 40 and 49 on the side and end doors, respectively, and the clamp-bars 42, bearing laterally against the end-door battens and engaging over keepers on the side-door battens, substantially as and for the purposes set forth.

CARLOS G. WILSON.

Witnesses:

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WALTER PAINE.