

No. 811,300.

PATENTED JAN. 30, 1906.

H. Z. KLINE.  
MACHINE FOR MAKING ARTIFICIAL STONE.

APPLICATION FILED MAR. 11, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

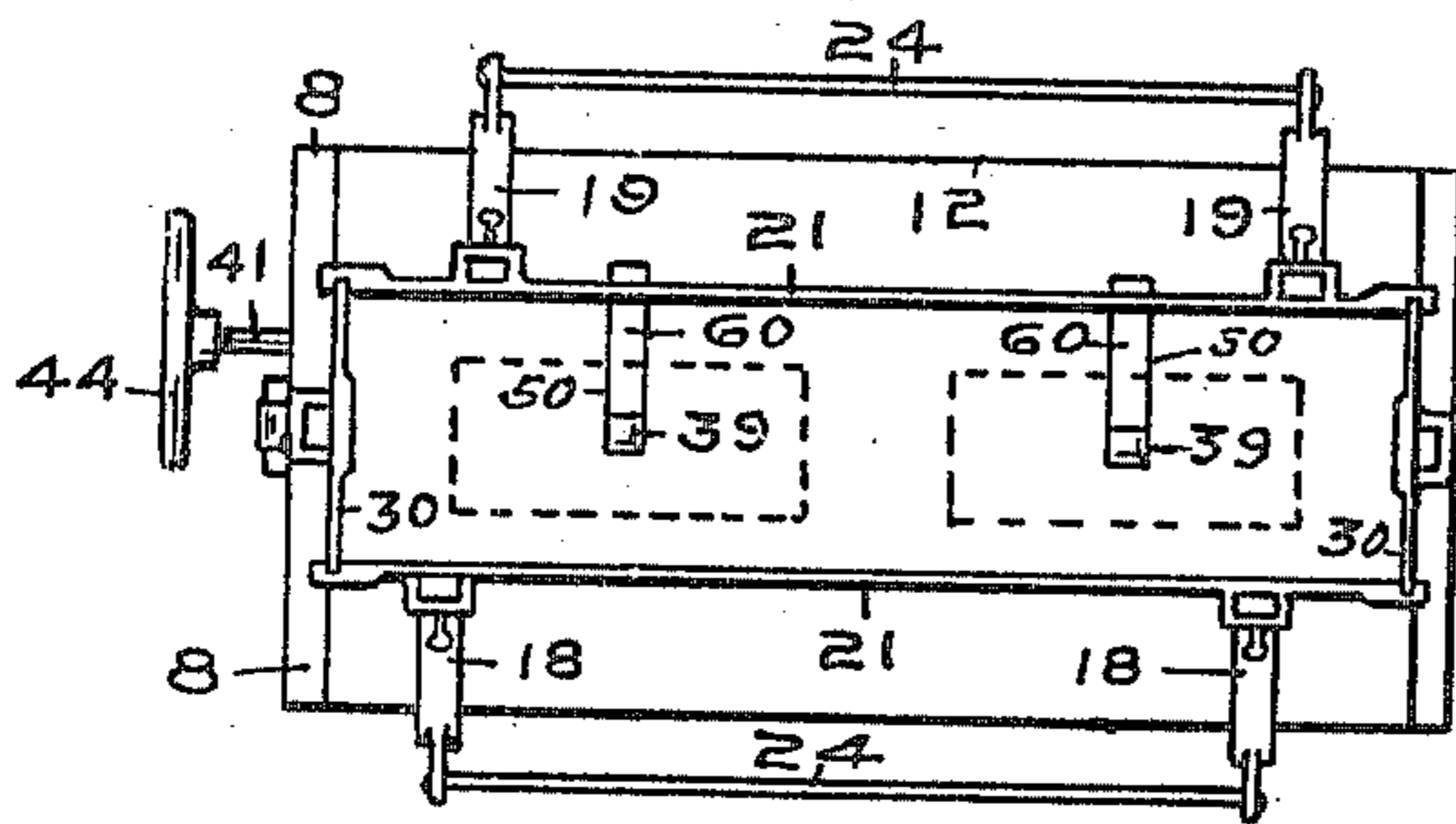


Fig. 3.

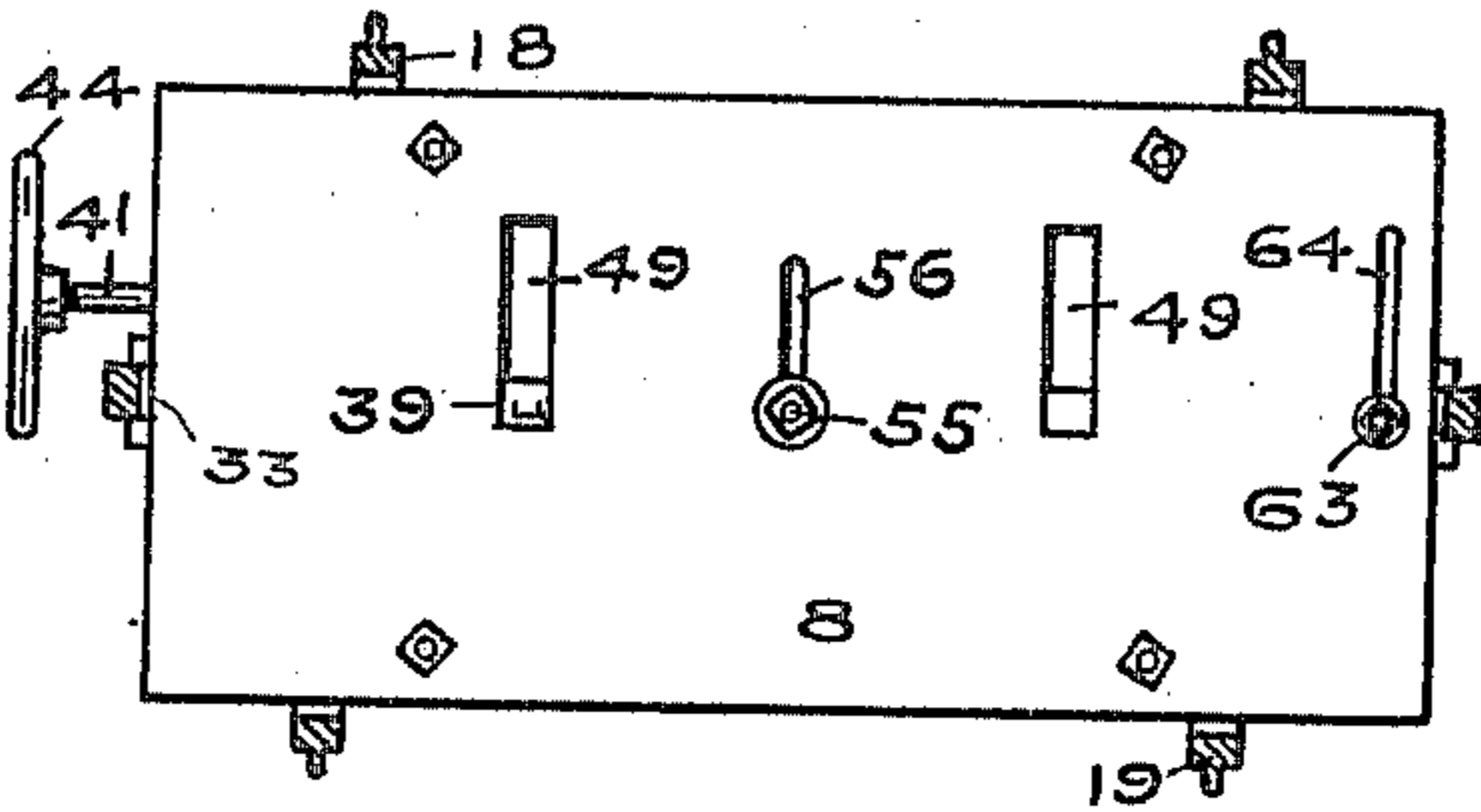


Fig. 2.

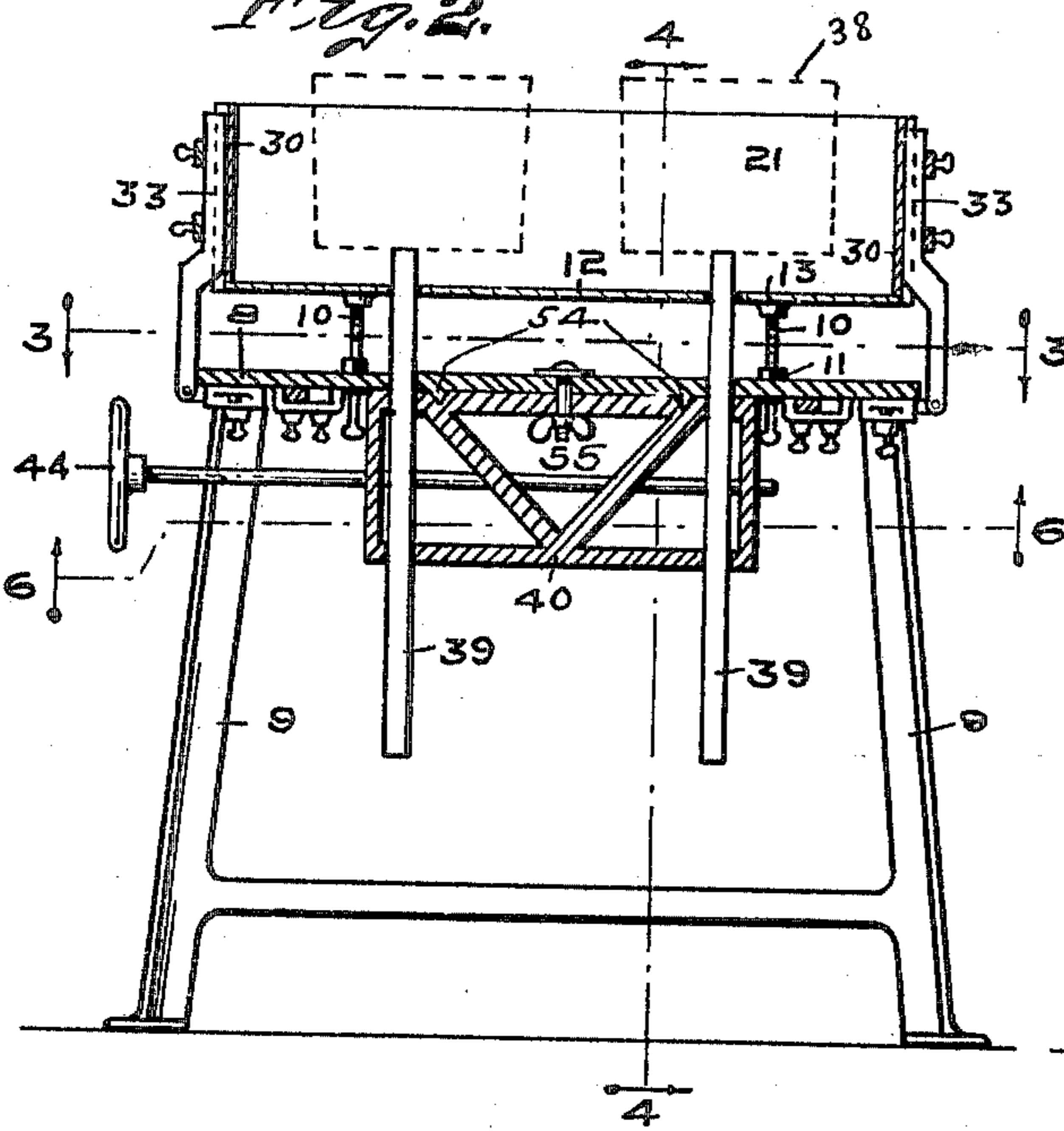
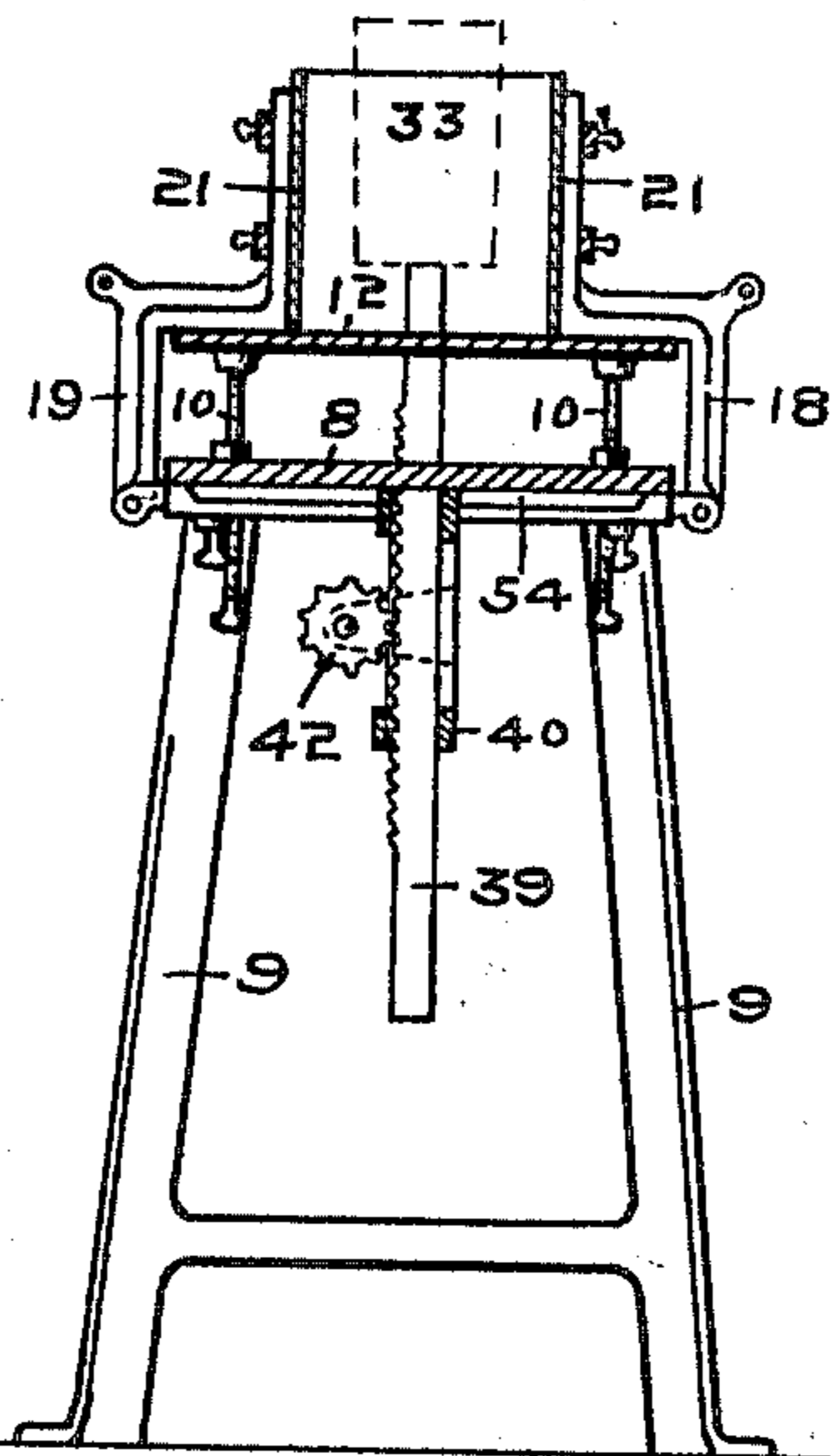


Fig. 4.



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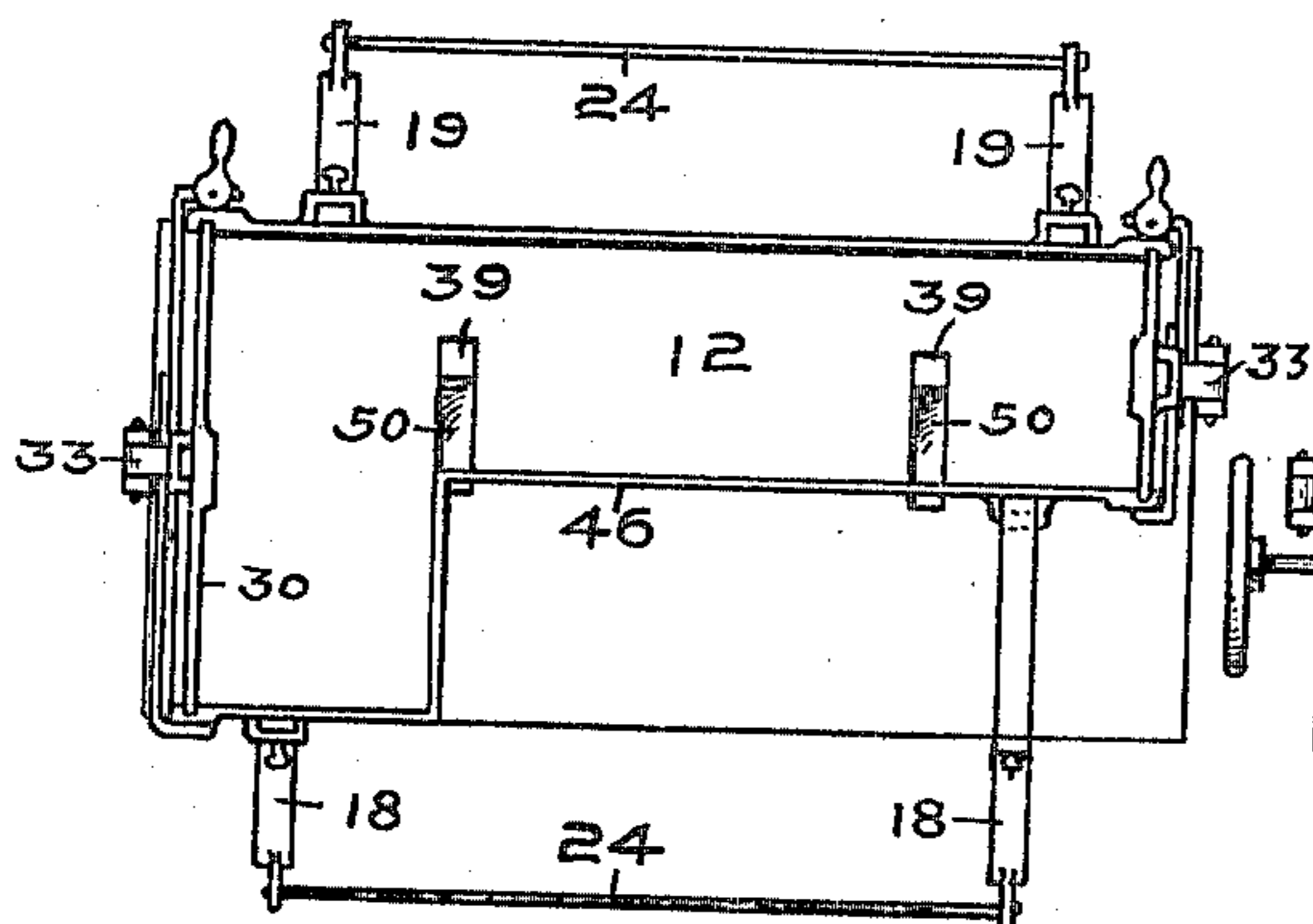
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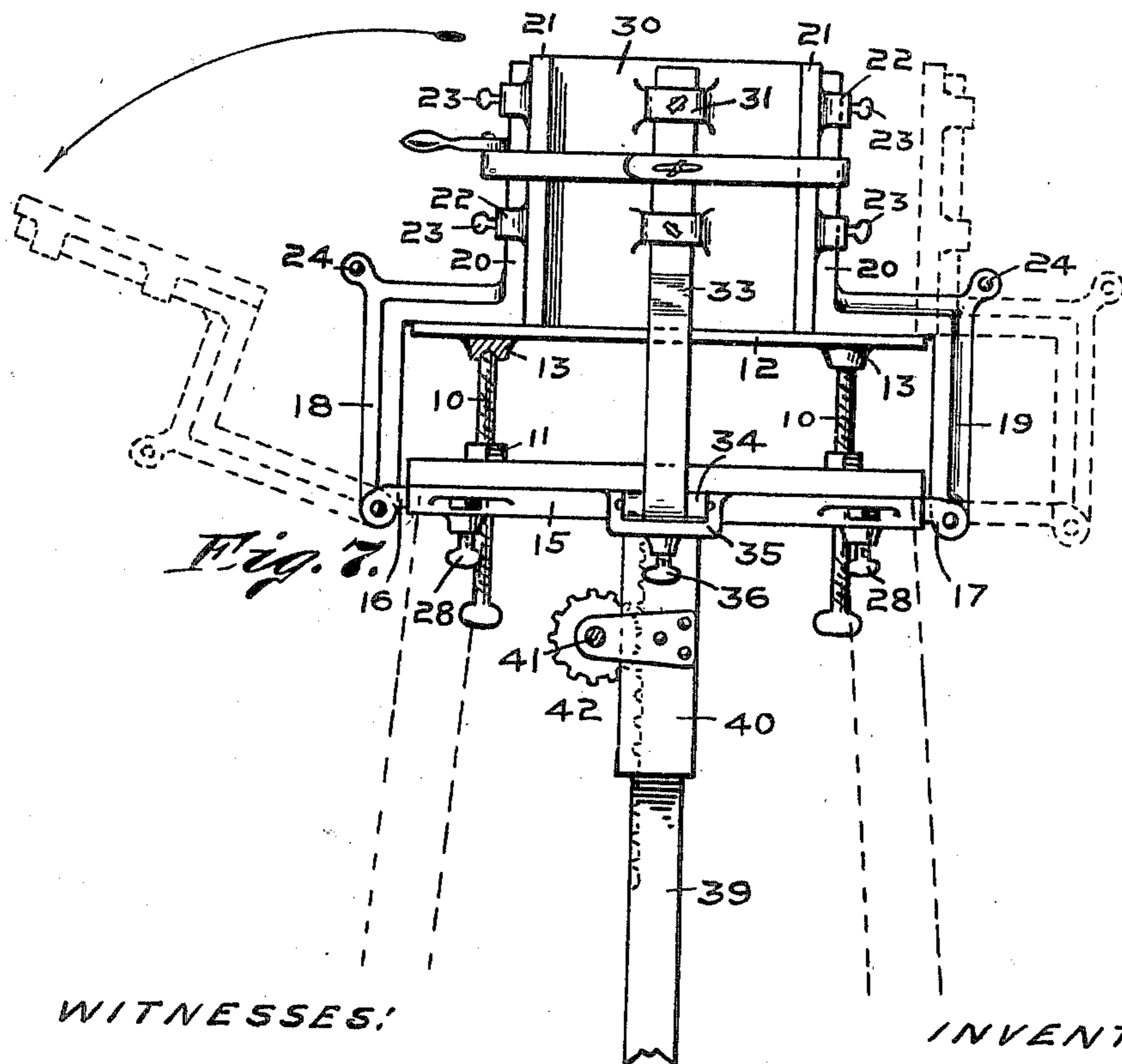
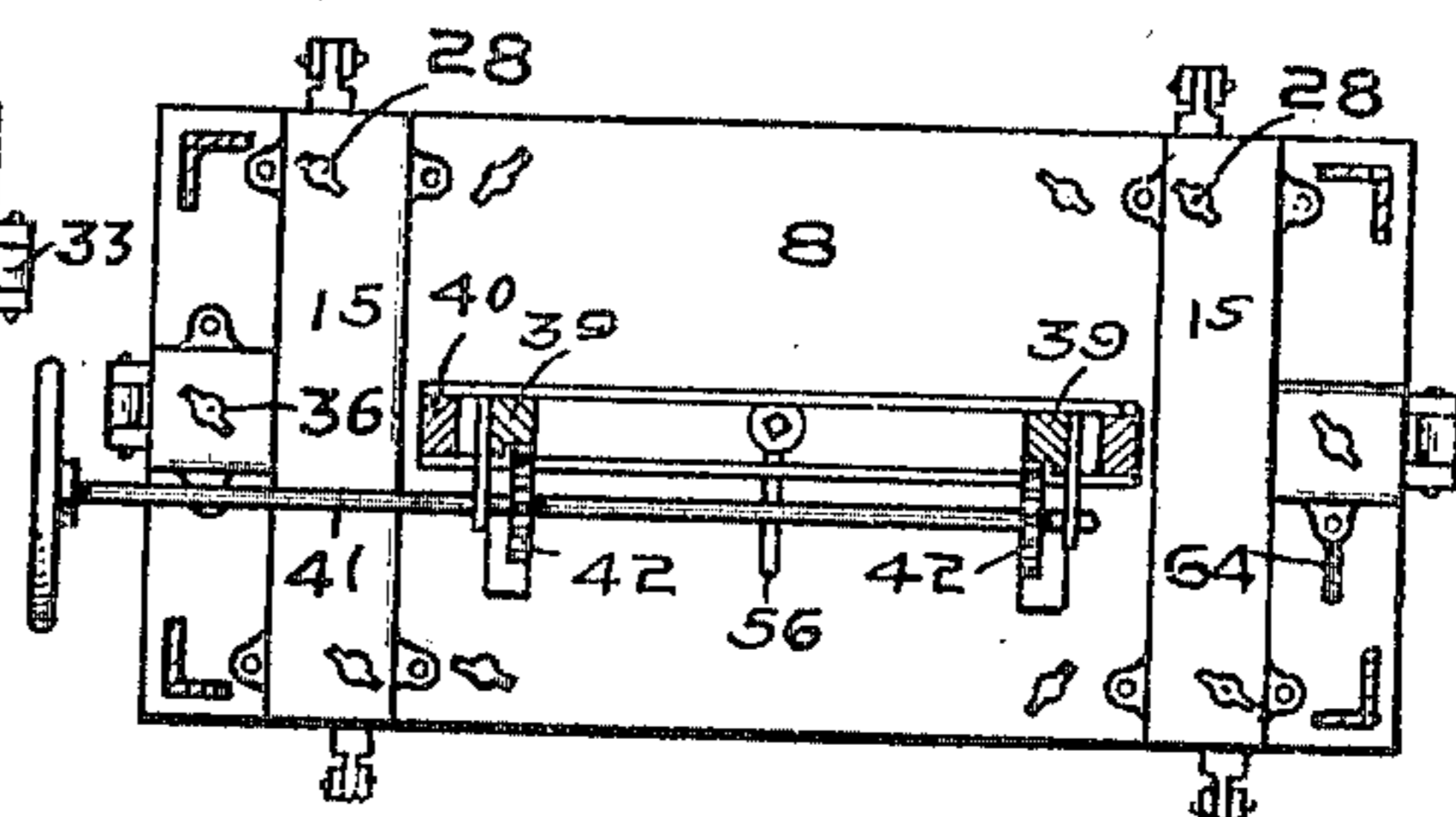
APPLICATION FILED MAR. 11, 1905.

2 SHEETS—SHEET 2.

*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR MAKING ARTIFICIAL STONE.

No. 811,300.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed March 11, 1905. Serial No. 249,598.

*To all whom it may concern:*

Be it known that I, HARVEY Z. KLINE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Machines for Making Artificial Stone, of which the following is a specification.

This invention relates to improvements in molds for forming concrete brick and building material.

The object of the invention is to provide a mold in which a pallet is used of such dimensions as to be capable of holding the largest material commonly manufactured in molds of this class, so as to avoid the necessity for a multiplicity of pallets of different sizes.

The object also is to make the sides and ends of the mold adjustable in their distances from each other, so as to vary the dimensions of the manufactured material and to hinge said sides and ends in a manner such that when the mold is opened by the movement of said parts on their hinges the said sides and ends will move out free and clear of the product, so as not to break off or mar the latter.

The object also is to simplify and cheapen the mold, making it more efficient in its work and quicker and more easily operated, by means such as will be hereinafter fully described, and pointed out in the claims.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of my invention for molding a rectangular concrete block. Fig. 2 is a longitudinal central section of same in a vertical plane. Fig. 3 is a section on the line 3 3 of Fig. 2 looking in the direction of the arrows. Fig. 4 is a vertical transverse section on the line 4 4 of Fig. 2 looking in the direction of the arrows. Fig. 5 is a plan view of the mold set to form a corner-block of concrete material. Fig. 6 is a horizontal section on the line 6 6 of Fig. 2 looking in an upward direction, as indicated by the arrows, and Fig. 7 is an end view of the mold and table, showing the legs in dotted line and showing one of the sides of the mold in dotted lines in partially-opened position, and the figure also shows the opposite side of the mold in dotted lines in one of its outer adjustments.

Like characters of reference indicate like

parts throughout the several views of the drawings.

The table or plate 8 and its legs or standards 9 constitute the framework of the machine. Passing through the table 8 are the bolts 10, (here shown as four in number.) These bolts are screw-threaded to engage corresponding threads in the openings of the table, whereby their extension above the table is regulated by screwing the bolts up or down to suit the occasion. The lower ends of the bolts will preferably have wings to facilitate the turning of the bolts by hand, and lock-nuts 11 will be provided to hold a given position of said bolts.

12 is the pallet on which the concrete product is formed. It is supported above the table 8 by means of the bolts 10, which bolts will preferably enter sockets formed in suitable bosses 13, as shown in Fig. 7, whereby the pallet can be readily lifted off of said bolts when it is desired to remove it with the molded product for the further operation of the manufacturer. The pallet can be leveled by means of the bolts 10, as above described.

Located on the under side of table 8 and extending transversely thereof are the slideways 15, within which are the two slides 16 and 17, having ends which project at opposite ends of said slideway. Hinged to these projecting ends are the respective arms 18 and 19, each of which extend upwardly above the pallet and are then bent inwardly and continued for a suitable distance and terminate with vertical standards 20.

21 represents the sides of the mold and rest upon the pallet 12 and are held in vertical position by means of the straps 22, through which the standards 20 pass in the manner as clearly shown in the drawings. The straps will have the set-screws 23, by means of which the straps are fastened to the standard in a removable manner, which will permit of changing same for different thicknesses of product or for different patterns of said product. Thus a smooth-faced block can be made, or if it is desired to produce a block with a rock-face finish or with a special design or pattern the same can be imparted to the product by making a corresponding change in the sides of the mold, which gives shape to the article made.

The arms 19 will preferably be at least two in number on each side of the table, and they

will be connected with each other on the same side by means of the rod 24.

Where it is desired to change the width of the concrete product, the sides 21 will be changed in their relative positions to suit the required dimensions by a longitudinal adjustment of the slides 16 and 17, and the desired positions will be retained by means of set-screws 28, which pass through the slide-ways into contact with said slides.

It will be noted that because of the bends in the arm 19 the sides 21 of the mold are located in vertical planes which are considerably nearer the center of the mold than are the vertical planes in which the hinges are placed. Because of this construction when the mold is opened by the swinging of the sides out on their hinges the latter immediately leave the product in a manner to prevent marring or injury to the latter.

The ends 30 of the mold have straps 31, by means of which said ends are removably secured to the standards 33 of arms bent similarly to those described for the sides of the mold, and these end arms are hinged to plates 34. The plates 34 are adjustable in slideways 35, and the adjustments are held by means of set-screws 36.

Concrete building-blocks of a size larger than brick are commonly made hollow, requiring the use of a core to form this hollow portion, and I will now describe the mechanism by which in my invention the core is supported during the filling of the mold and removed at the completion of the molding operation. The core, which is shown by dotted lines 38, has indents or sockets to receive the upper ends of the vertically-adjustable bars 39. The bars 39 are located in slideways formed in the frame 40, which is fastened to and depends from the under side of the table 8. The frame 40 has suitable brackets, in which is mounted a shaft 41. The shaft 41 has the cog-wheels 42, the teeth of which engage with cog-teeth on the bars 39, whereby when the shaft 41 is rotated the bars 39 will be moved longitudinally. It will thus be seen that by rotating the shaft 41 in the proper direction the rack-bars 39 will be moved longitudinally in a vertical direction, whereby a core resting and carried by said bars will be elevated and can readily be lifted out of the mold. This will be done after the article has been formed, and when the core has been raised out of the mold it will be lifted off and out of the way for removing the concrete product from the mold. The shaft 41 will be provided with suitable means for rotating it, (here shown as the hand-wheel 44.)

The apparatus thus far described is for the molding of rectangular articles. When it is desired to mold L-shaped blocks, such as are used in constructing the corners of buildings, it becomes necessary to remove one of the sides 21 of the mold and substitute therefor

the side 46, such as shown in Fig. 5, which has the angular bends as a part thereof, to give shape to the corners of the L-shaped product. In the molding of this kind of material the main body portion of the product will be at one side of the middle of the pallet, which will necessitate the moving over to that side of the rack-bars 39 for the support of the core. This change in the position of said rack-bars 39 is provided for by making suitable slots 49 in the table 8 and slots 50 in the pallet 12, registering with the underlying slots 49. The table 8, as shown in Fig. 2, has on the under side parallel transverse ribs 54 to enter corresponding grooves in the frame 40 to form guides for directing and securing said frame 40, and the attachment of the frame to the table is completed by means of the bolt 55. The bolt 55 passes through the top of the frame and through the table 8, and the latter has a transverse slot 56 (see Fig. 3) for the passage of the bolt and by means of which the lateral adjustment of the frame when it is desired to adjust the rack-bars 39 laterally is permitted and held.

In order that the pallets will present an unbroken surface in the formation of the cement blocks, the slots 50 through said pallets will contain slides 60, just enough shorter than their respective slots to permit of the passage of the rack-bars. These slides will be moved from one end of their respective slots to the other to suit the change in position of the rack-bars.

The standard 33 at the small end of the L-shaped block will be secured to a plate that is held in an adjustable slideway. This adjustable slideway is attached to the table 8 by means of a bolt 63, which passes through the slot 64 in said plate. The standard at the opposite end of the mold will not need to be laterally adjustable.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. In a mold for forming concrete and other articles, a pallet forming the bottom of the mold, said pallet being large enough to receive the largest-sized articles, said pallet having perforations for the passage of core-supporting bars, said openings being long enough to permit of the adjustment of the core-bars for all sizes of the product, slides mounted in said openings and movable therein, said slides being just enough shorter than the slot to permit of the passage of a rack-bar, sides and ends of the mold placed upon said pallet, and means for adjusting their distances from each other to vary the size of the mold.

2. In a mold for forming building-blocks, a pallet large enough to form the base of the mold for blocks of maximum dimensions, sides and ends for a mold placed upon said pallets, means for supporting said sides and

ends, and means hinged under the pallet for varying the distances between said sides and ends, thereby varying the dimensions of the mold.

5 3. In a machine for molding concrete building-blocks, brick and the like, a pallet, mold sides and mold ends, located upon said pallet, and arms hinged below said pallet having standards to which said sides and  
10 ends are fastened, said arms extending from their hinges to the top of the pallet and extending thence inwardly of the pallet approximately parallel therewith and above the pallet and terminating in standards at right an-  
15 gles to said pallet.

4. In a machine for forming blocks, brick and other building material out of concrete and the like, a table, a pallet removably supported above the table, mold ends and sides  
20 located upon the pallet, bars secured to the table in a manner to permit of their longitudinal adjustment, bars hinged to said longitudinally-adjustable bars, said second bars extending from the hinges to the top of the  
25 pallet and bent inwardly of the pallet and terminating in standards approximately at right angles to the pallet and means for securing sides and ends of the mold to said standard.

30 5. In a machine for forming building-blocks, brick and the like out of concrete and other material, a table, bolts passing through said table and extending above same and adjustable in the lengths of said extended por-  
35 tions, a pallet resting upon and supported by said bolt extensions and removably secured thereto, longitudinally-sliding bars secured to said table, other bars hinged to said sliding bars, said other bars extending to the top of  
40 the pallet and then inwardly of the pallet and terminating with standards approximately at right angles to the pallet, and mold sides and mold ends supported by said standards.

45 6. A mold for forming blocks, bricks and the like building material, said mold having sides and ends hinged under the mold-bottom, a bottom having openings changeable in position and a core, bars extending through the bottom, a core removably secured to said bars  
50 and means for moving the bars longitudinally so as to raise the core out of the mold after the molding operation.

7. In a molding-machine, a table having longitudinally-adjustable bolts extending  
55 therethrough, a pallet with under side sockets to receive the ends of said bolts, slideways under said table, longitudinally-adjustable

bars in said slideways, means for holding a given adjustment of said bars, mold ends and mold sides located upon said pallet, arms  
60 hinged to the adjustable bars and extending to the top of the pallet and thence inwardly out of the pallet and terminating with standards, means for removably securing the mold ends and mold sides to their respective stand-  
65 ards, vertical rack-bars extending through the table and through the pallet to support the mold-core, a shaft, and cog-wheels thereon engaging said rack-bars for the longitudinal adjustment of the latter by the rotation of said  
70 shaft.

8. In a mold for the purposes specified, a pallet having slots for the passage of core-supporting bars and slides to change the opening in said slot, said slide having no por-  
75 tions extending above the top face of the pallet and said slides being just enough shorter than their respective slots to permit of the passage of a rack-bar.

9. In a machine for the purposes specified, 80 a table supported on legs, a plurality of bolts passing through said table, means for adjusting the extension of said bolts above the table, a pallet with underside sockets said pal-  
85 let being located above the table with the ends of the bolts entering said sockets, said table having underside slideways, bars longitudinally adjustable in said slideway, set-screws to hold a given adjustment of said bar, mold ends and mold sides located upon and  
90 above said pallet, arms hinged to said adjustable bars, said arms extending to the top of the pallet and thence inwardly above the pallet and terminating with standards, which are fastened to the respective mold ends and  
95 mold sides, metal straps from said ends and sides passing around said standard, a frame secured to the under side of the table and adjustable transversely of the table, vertical rack-bars carried by said frame, said rack-  
100 bars passing through slots in the table and in the pallet, and forming a support for a core which is removably secured to the ends of said rack-bars, a shaft carried by said frame, said shaft having toothed wheels to engage  
105 with and operate said rack-bars.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 21st day of February, A. D. 1905.

HARVEY Z. KLINE. [L. s.]

Witnesses:

ALVA F. VAN OSTRAM.  
F. W. WOERNER.