

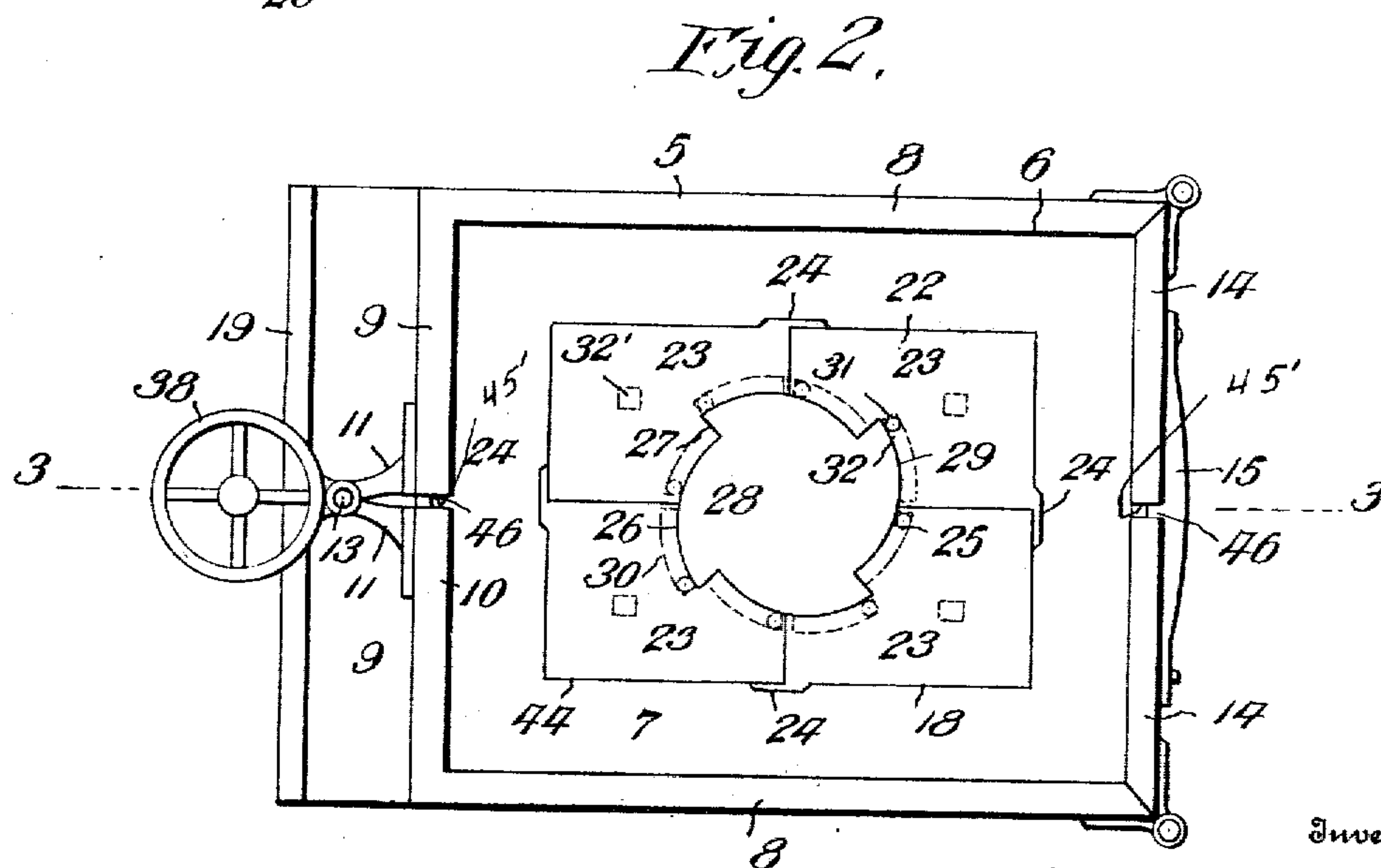
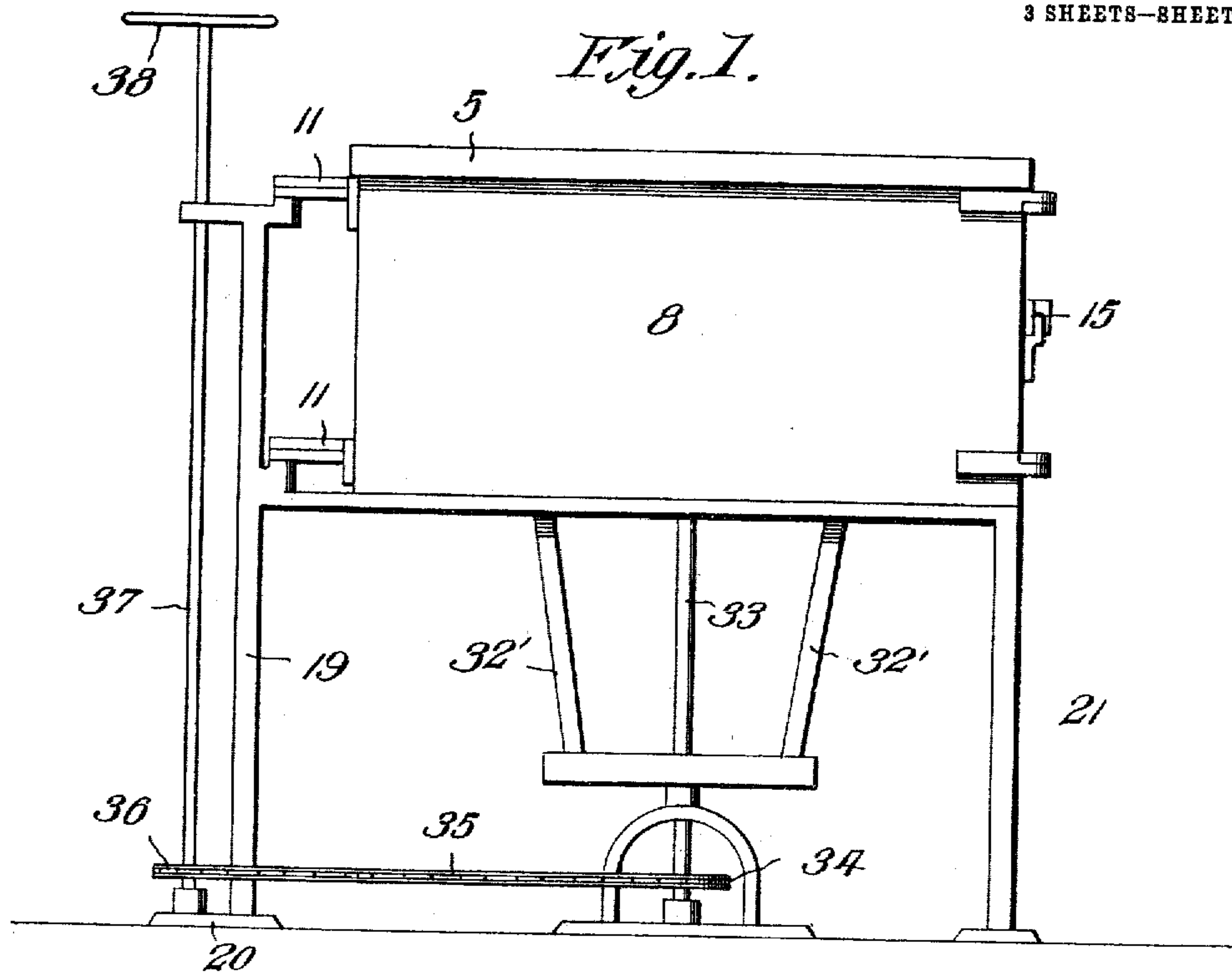
No. 814,304.

PATENTED MAR. 6, 1906.

L. LANDMANN.
MOLD.

APPLICATION FILED MAY 3, 1906.

3 SHEETS--SHEET 1.



Inventor

Louis Landmann,

Witnesses
J. W. Riley.
E. M. Dwyer.

88y *Regulus Chamela*

Attorneys

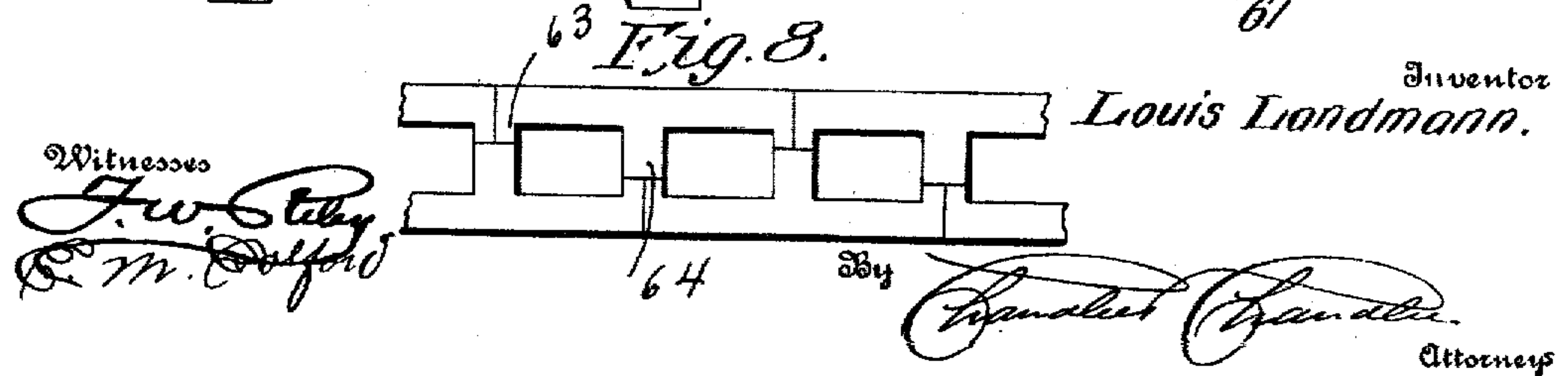
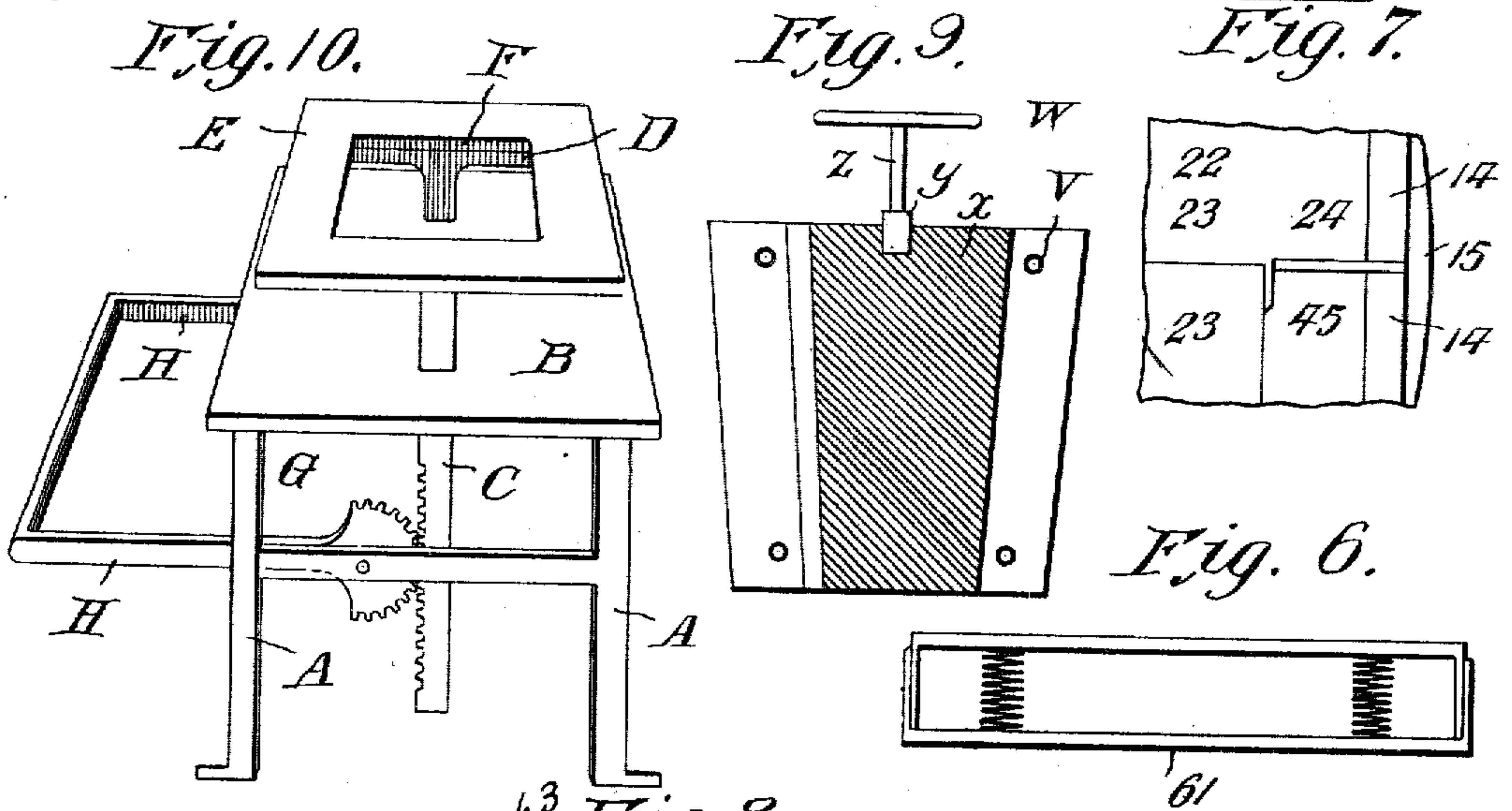
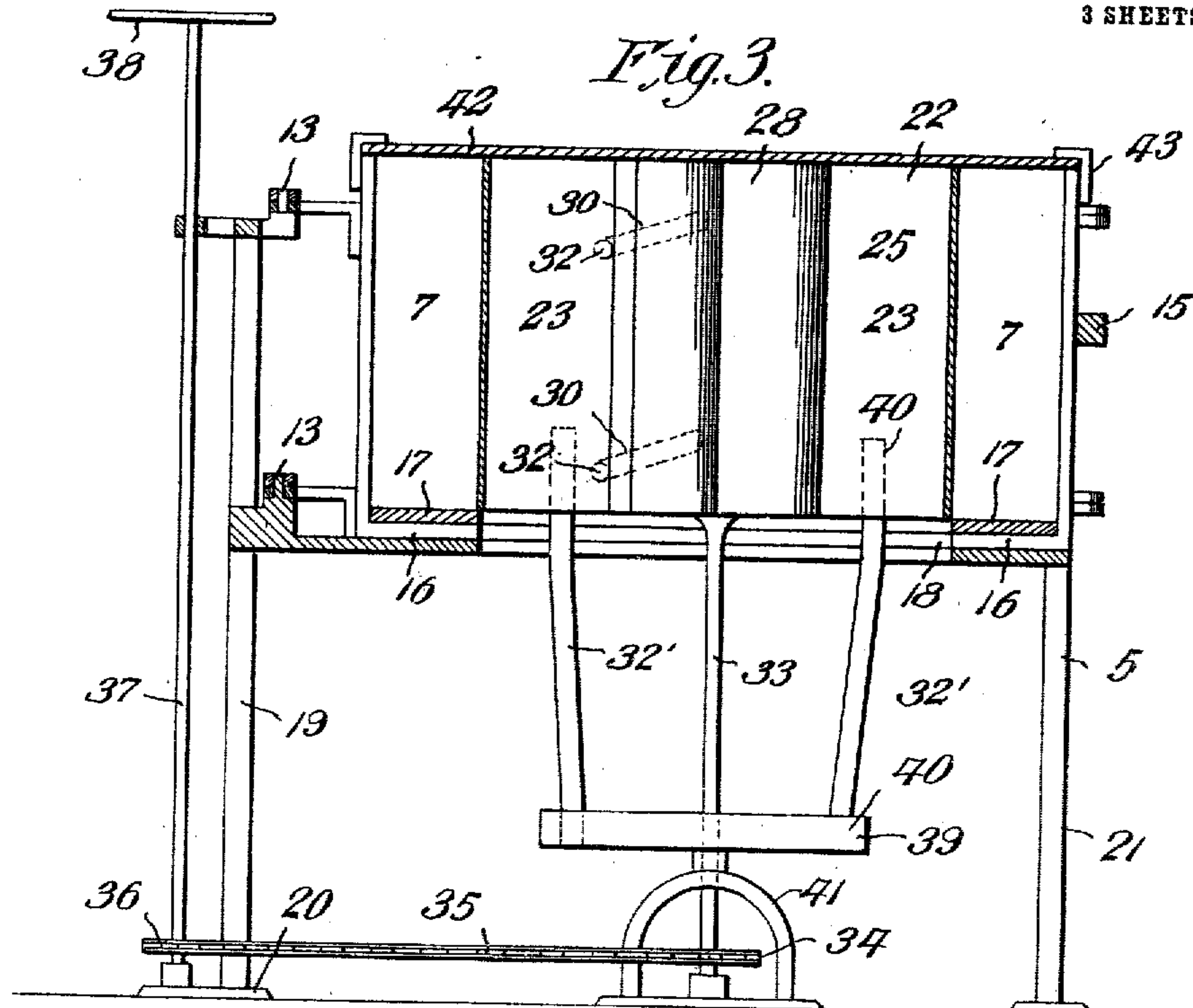
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Witnesses
J. W. Kelly
E. M. Delford

Inventor
Louis Landmann.

Charles Landmann
Attorneys

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3 SHEETS—SHEET 3.

Fig. 4.

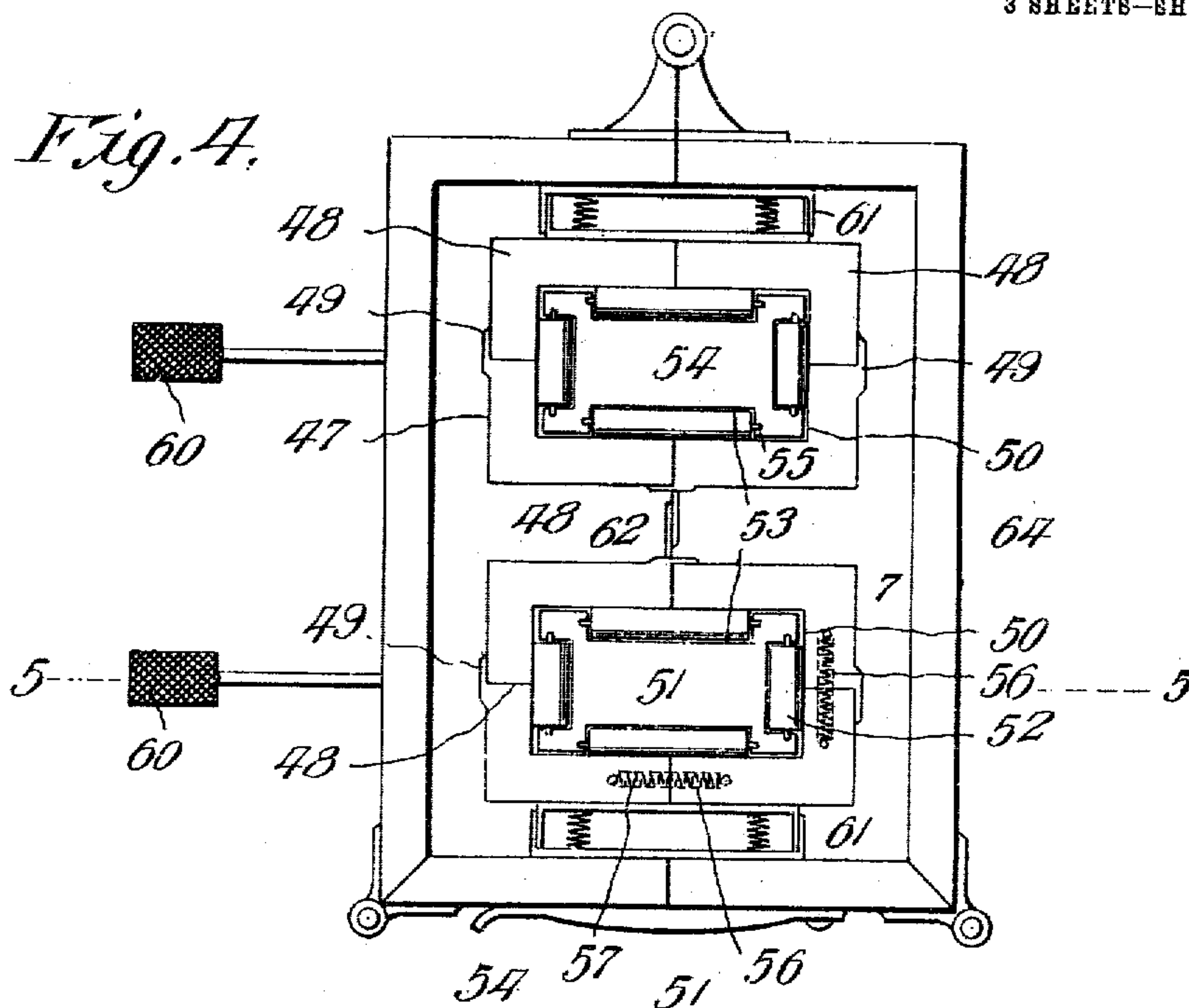
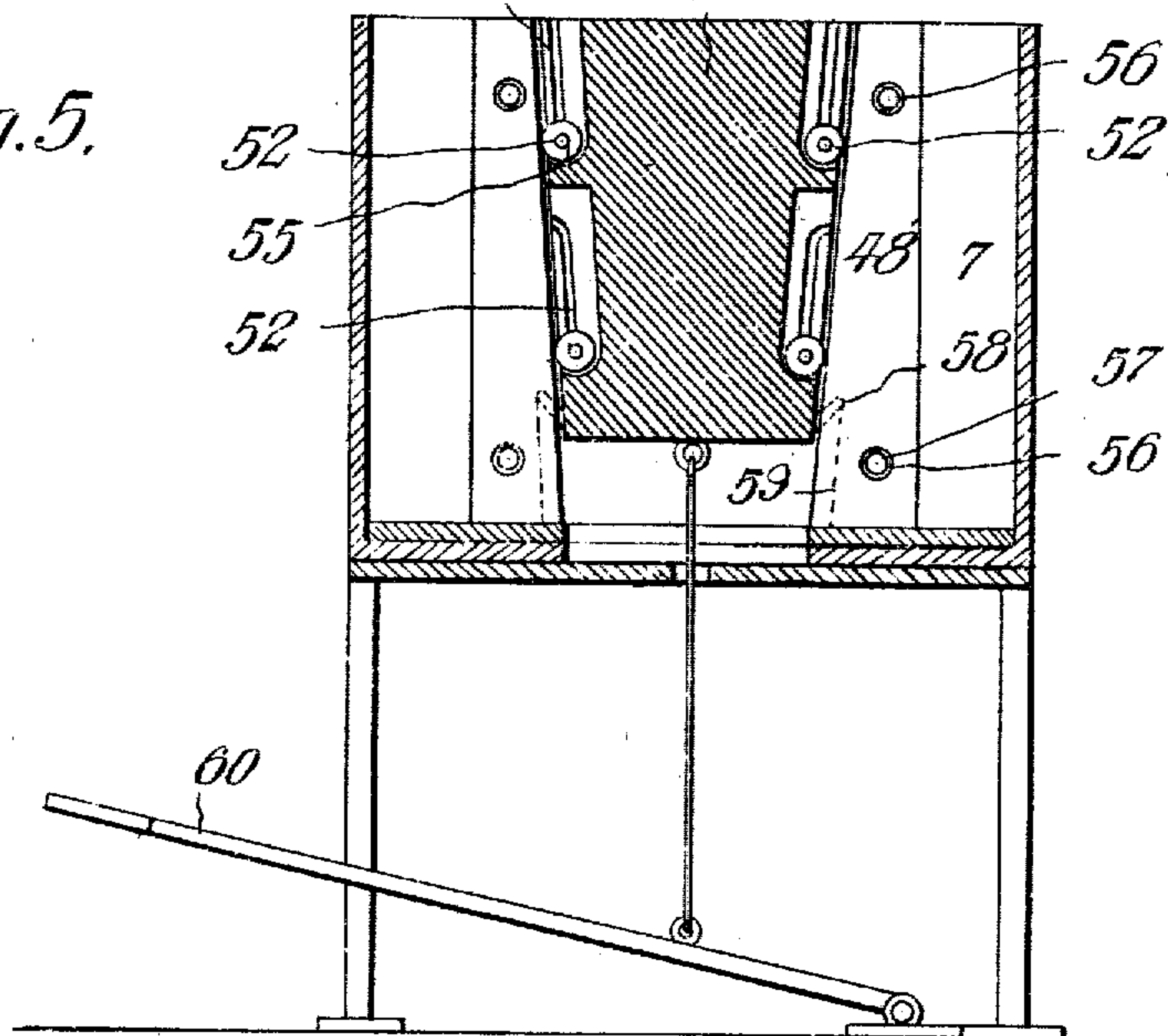


Fig. 5.



Inventor

Louis Landmann

Witnesses

J. W. C. C. C.
E. M. Delford

By

Charles C. C.

Attorneys

UNITED STATES PATENT OFFICE.

LOUIS LANDMANN, OF NEVADA, MISSOURI.

MOLD.

No. 814,304.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed May 3, 1905. Serial No. 258,673.

To all whom it may concern:

Be it known that I, LOUIS LANDMANN, a citizen of the United States, residing at Nevada, in the county of Vernon, State of Missouri, have invented certain new and useful Improvements in Molds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to molds, and more particularly to those designed for molding building-blocks, and has for its object to provide a mold so arranged that matter molded therewithin may be subjected to pressure, the arrangement being such that the pressure will be exerted within the mold, thus insuring the formation of a perfect block of the full size of the mold.

Another object is to provide a mold which will include a novel arrangement of parts and in which blocks of different types may be cast.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific construction shown and described may be made within the scope of the claims and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the present mold, showing the core-operating mechanism. Fig. 2 is a top plan view. Fig. 3 is a longitudinal section taken on line 3 3 of Fig. 2, the arrangement of the ball-slots being shown in dotted lines. Fig. 4 is a top plan view of a modified form of the invention, showing a frame adapted for the casting of compound blocks and illustrating a different form of expansible core. Fig. 5 is a section on line 5 5 of Fig. 4, showing the interior arrangement of the core. Fig. 6 is a detailed view of the filling-piece. Fig. 7 is a detailed view of a portion of the mold, showing the use of a division-plate. Fig. 8 is a sectional view of a wall formed of one variety of blocks which may be manufactured with the present invention. Fig. 9 is a sectional view of a modified form of core, and Fig. 10 is a perspective view showing the supporting-frame adapted for use in connection with the mold shown in Fig. 1.

Referring now to the drawings, the present mold comprises a skeleton frame 5, which is adapted for the reception of face-plates 6 to form a stock-receiving chamber 7. The frame 5 includes side pieces 8, having inwardly-extending pieces 9 at their rearward ends, which lie normally in a common plane to form a rearward end 10 of the frame, these pieces 9 having rearwardly-extending arms 11 formed thereupon at their meeting ends, these arms receiving a pivot-pin 13 at their outer ends to form a hinge upon which the pieces 8 and their respective pieces 9 may be moved toward and away from each other. The side pieces 8 when at the limit of their movement toward each other lie parallel, as shown, and hinged to the forward ends of the side pieces 8 there are the sections 12 of a forward wall 14, which are movable into and out of position to extend at right angles to the side pieces 8, in which position they normally lie, and a locking-bar 15 is provided to hold the several portions of the frame in their normal positions. The side pieces 8 and the pieces 9 have inwardly-extending horizontal projections 16 at their lower edges, which receive pallets 17, forming the bottom of the chamber 7, these pallets surrounding a central opening 18.

A support 19 has the pin 13 journaled therein and has a stationary base 20, and a support 21 is provided for the portions of the frame which are movable. These supports 21 may be connected with the support 19 or they may be arranged for movement into and out of position to support these portions when the frame is in its operative position.

A core 22 is disposed within the frame 5, and this core is rectangular, as shown, the faces of the core being equidistant from the adjacent faces of the plate 6. The core is divided to form four sections 23, one lying at each corner of the core. A plate 24 is secured to one outer face of each section and projects over the face of the adjacent section which lies flush therewith, these plates thus preventing the entrance of stock between the sections. The inner corners of the sections 23 are cut away to form a vertically-extending central passage 25 through the core, this passage being bounded by a plurality of identical arcs 26, disposed eccentrically to the center of the core, and these arcs are connected by straight portions 27, extending radially of the core. Disposed within the passage 25 there is an expanding member 28, having

cam-faces 29, which conform to the curvature of the arcs 26, and formed in these arcuate walls of the passage 25 there are grooves 30, which are inclined downwardly and in the direction of the point of greatest eccentricity of these arcs. Adjacent to the edges of each of the sections 23 these grooves are closed, as shown at 31, and they are also closed adjacent to the straight portions 27 of the walls. Disposed within the grooves are antifriction devices 32, which bear against the cam-faces of the expanding member 28, and it will be seen that if the member 28 be rotated in one direction the core will be expanded, the corner-sections 23 moving away from each other, as will be readily understood. The corner-sections are held yieldably against this spreading by means of spring-arms 32', arranged in a manner which will be presently described.

The expanding member 28 has a slight upward taper, and it is provided with a downwardly-extending rotating stem 33, provided with a sprocket-wheel 34 upon its lower end, and this sprocket-wheel has a chain 35 engaged therewith, which is also engaged with the sprocket 36, carried by a vertical shaft 37, which is journaled in the support 19 and carrying a hand-wheel 38, by which it may be operated. A disk 39 is mounted upon the shaft 33 for rotation of the latter therewithin, and this disk has engaged therein the lower ends of the spring-arms 32, mentioned above, the upper ends of these arms being engaged in pockets 40, formed in the under faces of the corner-sections 23, one of these arms being provided for each section. As mentioned above, the tendency of these arms is to hold the sections of the core yieldably against separation. A suitable support 41 is provided for the shaft 33, the latter supporting the core at times, as will be readily understood.

In use the parts are disposed as shown in the drawings, and the stock to be molded is disposed in the chamber 7 between the core and the face-plates 6. A top 42 is then disposed upon the frame 5 and also rests upon the core 25, this top being secured in position by attaching devices 43. The hand-wheel 38 is then operated to revolve the expanding member 28 in a direction to expand the core, and this expansion will press the stock against the face-plates 6, this expanding being continued until the stock has set. When a molded block is to be removed from the mold, the locking-bar 15 is disengaged from the latch 15', which receives it, and the hinged portions of the frame are moved upon their hinges to free the block, which may then be removed. It will be understood that blocks thus formed are provided with central apertures 44, and with these blocks hollow walls may be constructed. If desired, division-plates 45 may be disposed against the end

walls 10 and 14 of the frame, extending at right angles thereto and resting also against the adjacent faces of the core 25, as shown in Fig. 7, and when these division-pieces are used two blocks are formed having returned end portions, and which may be used in the construction of a wall of the interlocking type. The end walls 10 and 14 have openings 45' therein, which receive the plates 45 as the core 25 expands, and filling-pieces 46 are provided, which are disposed in these openings when the division-plates 45 are not used.

In Figs. 4 and 5 there is shown a different form of the invention in which the frame is somewhat elongated and in which two cores are provided, which are of a type different from that of the core 25. These cores are indicated at 47, and each includes separable corner-sections 48, corresponding to the corner-sections 23, and each provided with a plate 49, which correspond to the plates 24. The inner corner portions of the sections 48 are cut away to form a central vertical passage 50, which is rectangular in cross-section and which is tapered downwardly, and located within this passage there is a downwardly-tapered expanding member 51, having friction-reducing rollers 52, revolvably mounted in recesses 53, formed in the faces of the member and bearing against the walls of the passage 50, there being an upper and a lower roller for each face of the expanding member, and these rollers are arranged for vertical movement with respect to the expanding member, as shown, this vertical movement being permitted by grooves 54, formed in the end walls of the recesses 53, these grooves receiving the trunnions 55 of the rollers. Helical springs 56 are disposed in registering pockets 57, formed in the meeting faces 48' of the corner-sections, these helical springs being secured within the pockets and being thus arranged to hold the sections yieldably against separation. It will be readily understood that downward movement of the member 51 will cause the core to expand. Projections 58 are carried by the member 51 and lie within grooves 59 formed in the corner-sections, the grooves being slanted to permit of separation of the sections. A foot-lever 60 is provided and is connected with the member 51 for operation thereof. As mentioned above, two of these cores 47 are employed in the modified form of the invention, and they are disposed within the frame 5 in spaced relation. Compressible filling-pieces 61 are disposed between the cores and the ends of the frame, and the cores carry overlapping plates 62 upon their mutually-adjacent faces, which form a division-piece within the space between the cores. The filling-pieces 61 are slightly shorter than the adjacent faces of the cores, and it will thus be apparent that two blocks are formed at each molding operation,

each having slightly-returned end portions 63 and a laterally-extending central portion 64, which lies parallel to the end portions, these blocks being designed for use in the construction of a wall of the type shown in Fig. 8.

It will of course be understood that the filling-pieces 61 may, if desired, be used in connection with the first-described form of the invention to form blocks having but slightly-returned end portions, as will be readily understood.

In Fig. 9 there is shown a modified form of the core in which the expanding member is provided with a square socket x in its upper end for the reception of the lower squared end y of a vertical shaft z , which carries a hand-wheel w at its upper end. In this form the sections of the core are held together by helical springs v , corresponding to the springs 56 of the core shown in Fig. 4. The core has a slight downward taper to facilitate its removal from the mold, and, as will be readily observed, the core may be operated from above, this form of the invention obviating the necessity of using the sprocket-wheel, &c., shown in Fig. 1, and being especially adapted for use in smaller machines.

In Fig. 10 there is shown a modified form of the supporting-frame, which includes upright portions A, secured at their tops to a rectangular platform B. Slidably mounted in the frame for vertical movement there are rack-bars C, having secured to their upper ends the end portions D of a supplemental platform E, having an opening F in its center. Two segments G are pivoted to certain of the upright portions A and are provided with operating-handles H, by which they may be moved to raise and lower the rack-bars C, the segments having their teeth engaged with the teeth of the bars. In use, the pallet 16 of the mold rests upon a supplemental platform E, the core 22 lying within the opening F and the skeleton frame 5 resting upon the platform B. It will be remembered that the core employed in the apparatus shown in Fig. 1 has an upward taper, and in operation after the block has hardened the portions of the frame 5 are moved out of their operative position, and the segments G are

operated to raise the platform E, the pallet and the molded block being raised therewith and, as will be readily understood, to disengage the block from the core.

In operation the different portions of the invention having been placed in position stock is poured into the mold and the core is then expanded to cause the stock to fill all portions of the mold. After the stock has become set the frame of the mold is opened and the molded block is removed.

What is claimed is—

1. An expansible core for molds comprising separable sections having a passage there-within, an expanding member disposed within the passage, spring-arms fixed at their lower ends and connected at their upper ends with the sections to hold said sections yieldably against separation and an expanding member located within the passage and operable to move the section against the action of the spring-arms.

2. In an apparatus of the class described the combination with a frame, of a core located within the frame, said core comprising separable sections having a passage there-within, a revoluble expanding member located within the passage and arranged for rotation to move the sections away from each other, spring-arms connected at their upper ends with the sections, a revoluble shaft connected with the expanding member, a disk mounted upon the shaft for rotation of the latter therewithin, said arms being connected with the disk and being arranged to hold the sections yieldably against separation and means for revolving the shaft to separate the sections.

3. The combination with a molding apparatus including a frame and an expansible core located within the frame, of a compressible filling-piece disposed between the core and the frame.

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

LOUIS LANDMANN.

Witnesses:

C. C. WILLIAMS,
W. C. GALBRAITH.