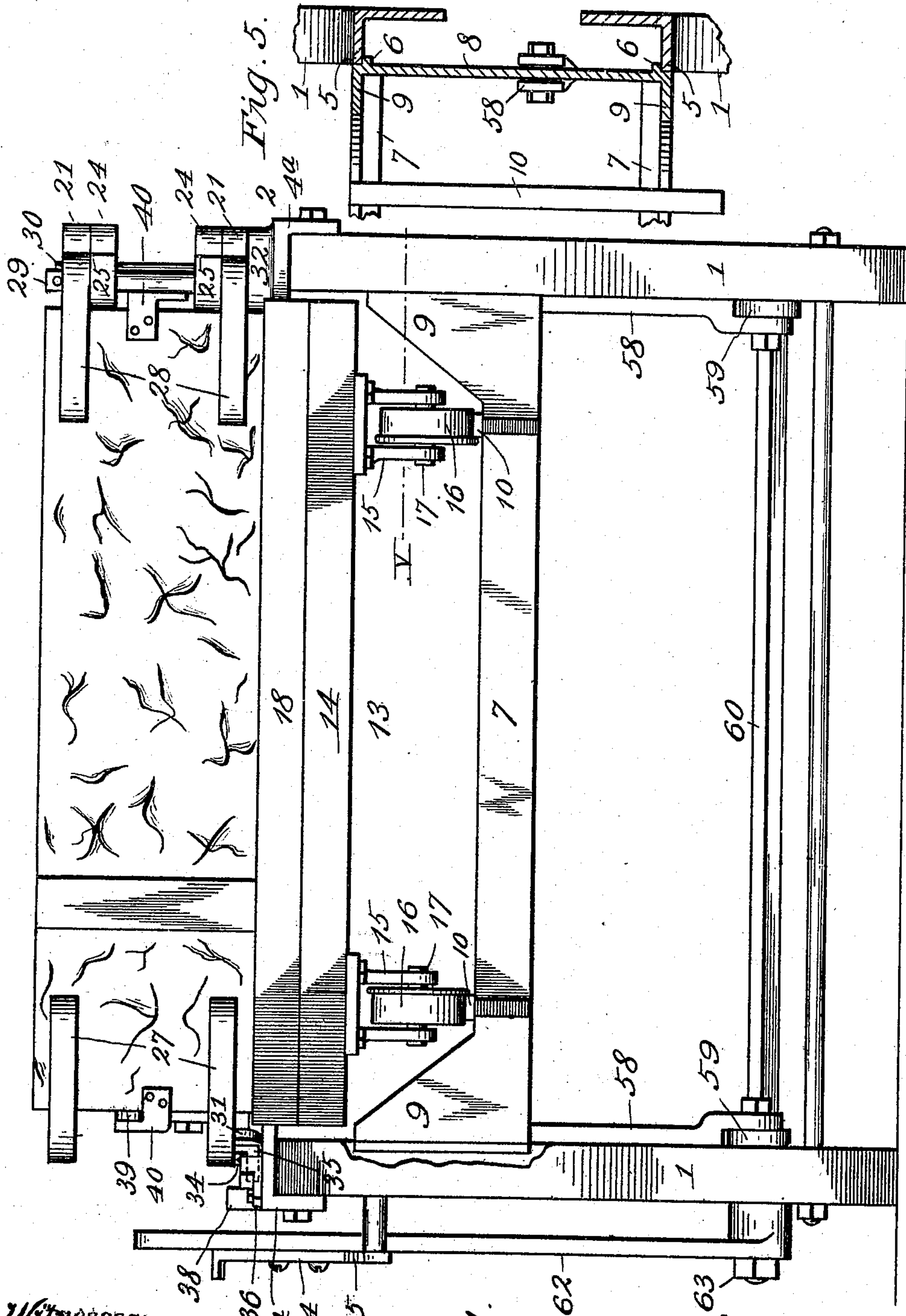


915,863.

T. G. JOHNSON.  
ADJUSTABLE MOLD.  
APPLICATION FILED FEB. 28, 1907.

Patented Mar. 23, 1909.  
4 SHEETS—SHEET 1.



Witnesses:  
E. Seidelman.  
M. Cox

Fig. 1.

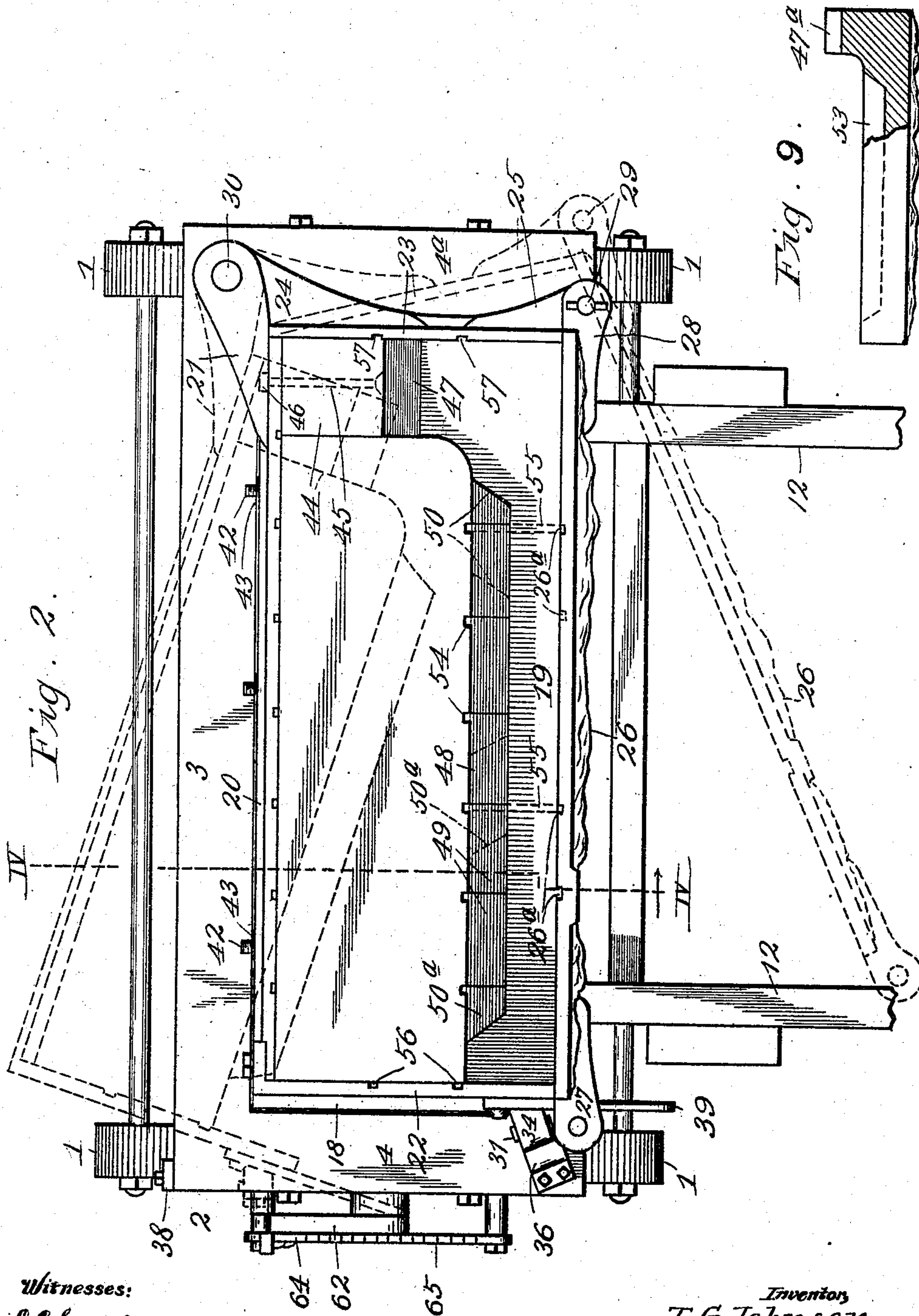
Inventor,  
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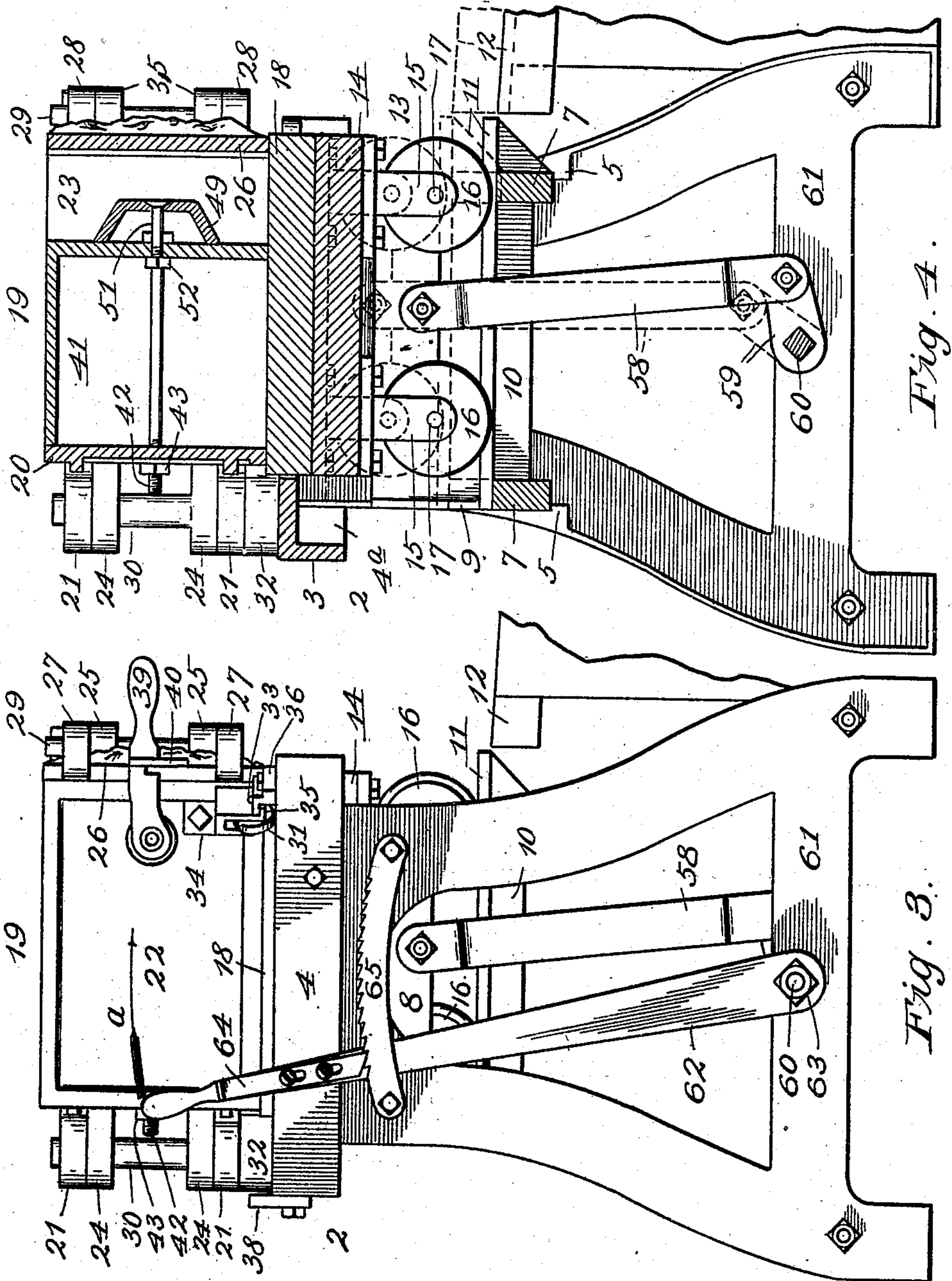
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 7.

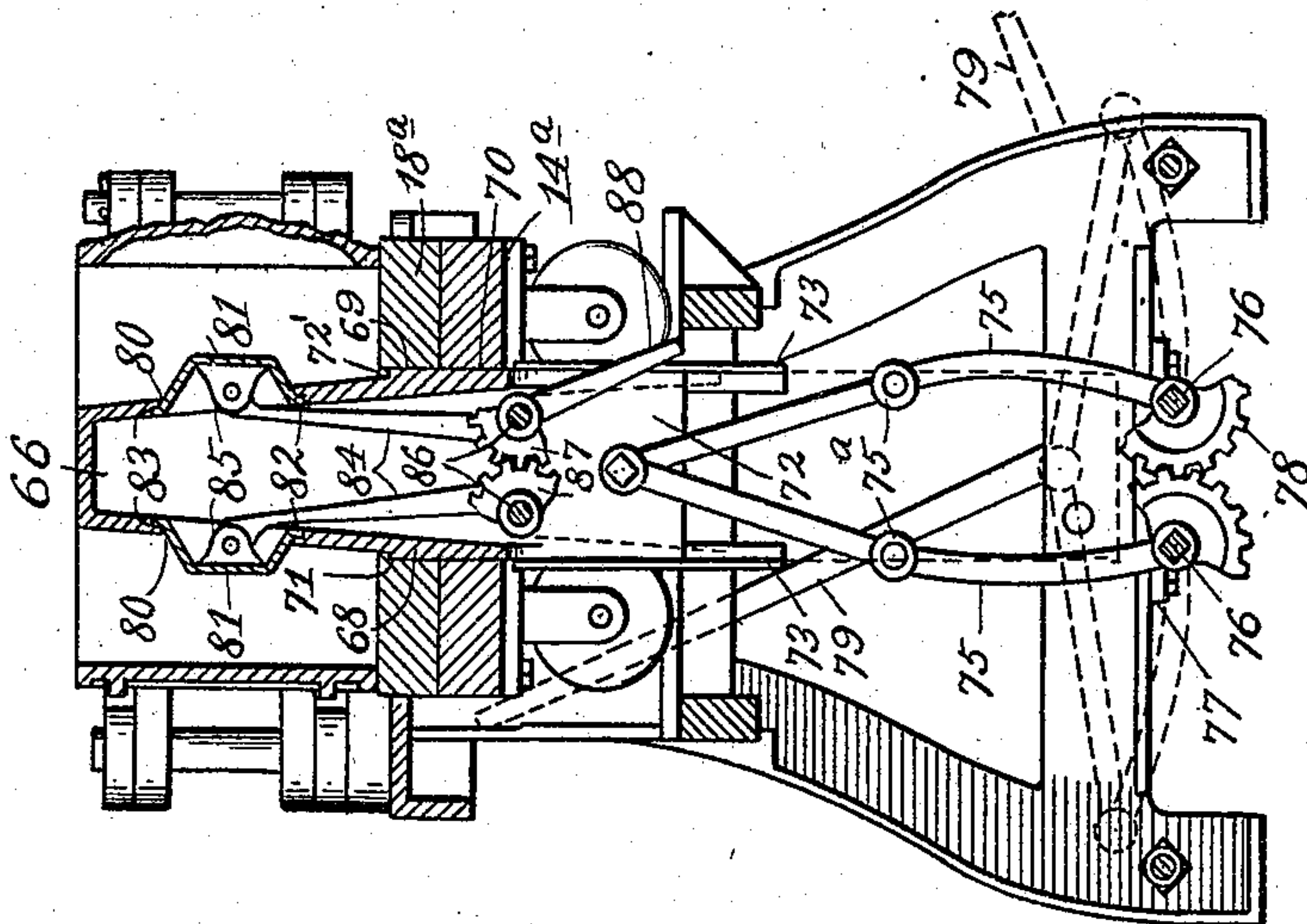


Fig. 8.

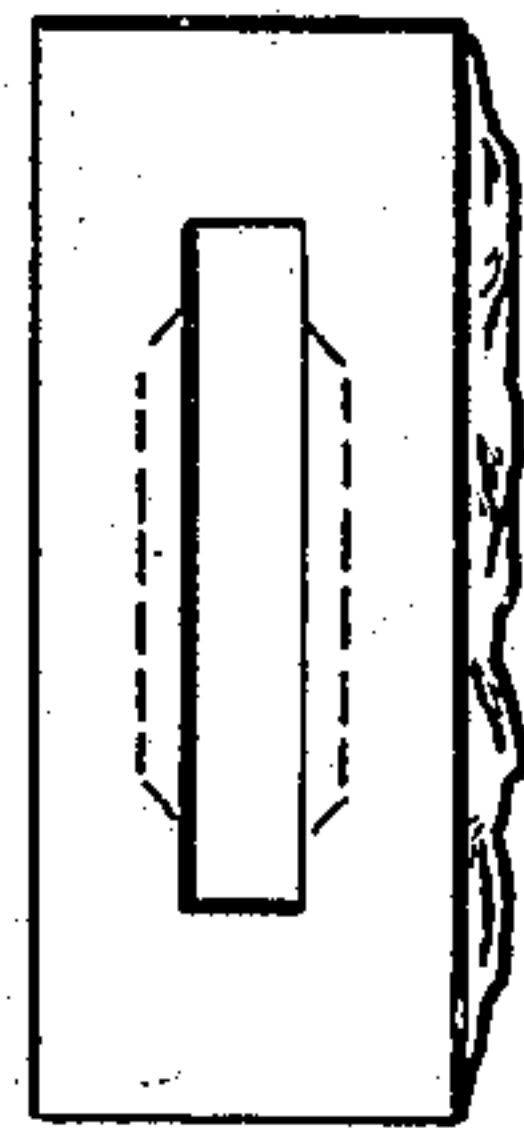
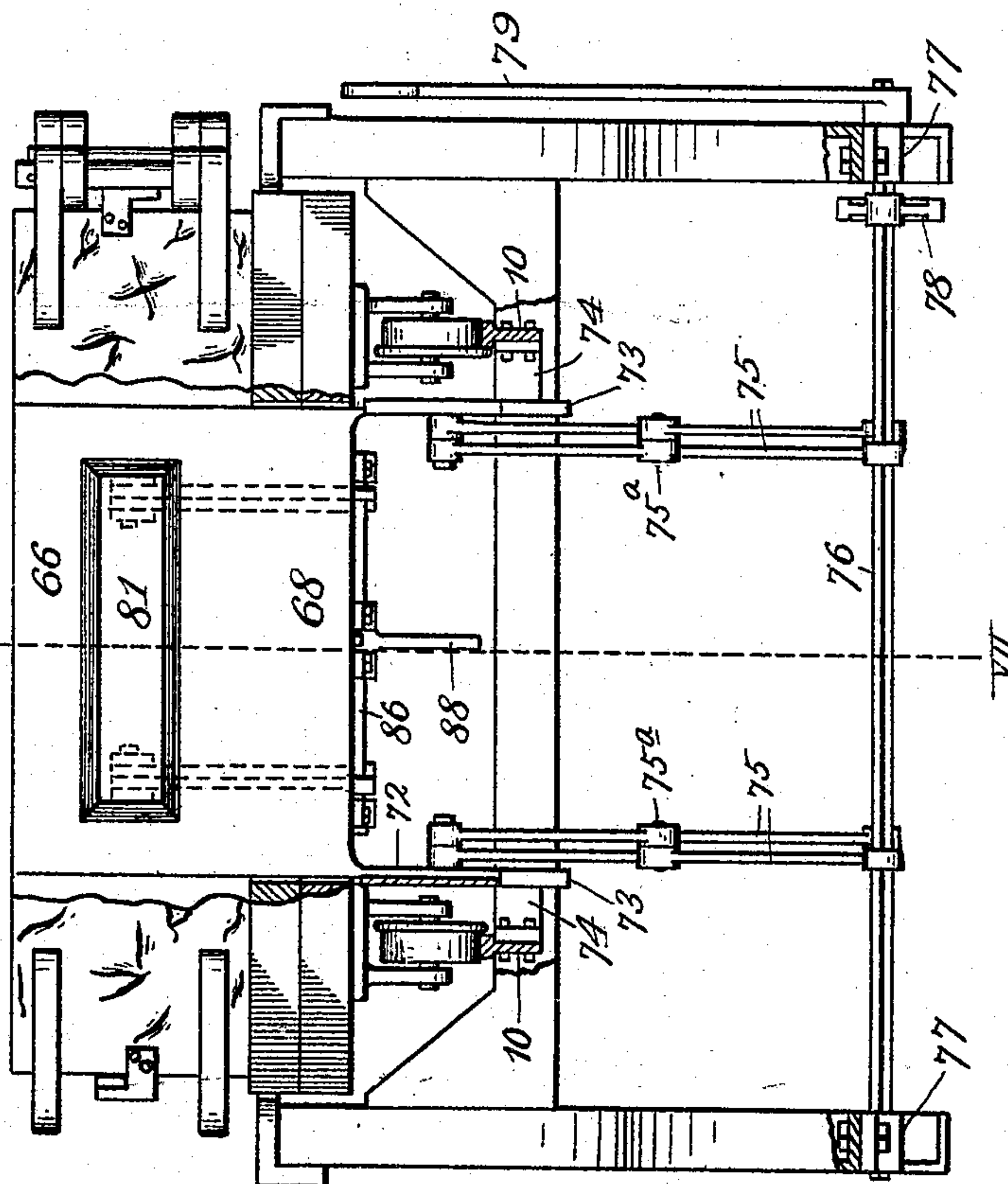


Fig. 6.



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*Att'y.*



# UNITED STATES PATENT OFFICE.

THEODORE G. JOHNSON, OF KANSAS CITY, MISSOURI.

## ADJUSTABLE MOLD.

No. 915,863.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed February 28, 1907. Serial No. 359,837.

*To all whom it may concern:*

Be it known that I, THEODORE G. JOHNSON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Adjustable Molds, of which the following is a specification.

My invention relates to improvements in adjustable molds employed in the production of building blocks; and consists in the novel construction, combination and arrangement of parts hereinafter described, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 represents a front elevation of the invention. Fig. 2 is a plan view of same. Fig. 3 is a side elevation of same. Fig. 4 is a vertical section of same taken on line IV—IV of Fig. 2. Fig. 5 is a broken sectional plan view of a vertically adjustable frame employed in carrying out the invention, taken on line V of Fig. 1. Fig. 6 is a broken front elevation of the invention provided with a modified form of core. Fig. 7 is a vertical section of same, taken on line VII—VII of Fig. 6. Fig. 8 represents a hollow rectangular building-block; and Fig. 9 represents an L-shaped building-block formed by my invention.

In carrying out the invention I employ a stand consisting of supporting legs 1 and a top portion 2 which latter is open at its front side and consists of a rear plate 3 and two end plates 4 4<sup>a</sup> extending forwardly at right-angles therefrom. Supporting legs 1 are provided with vertical guides 5 with which companion guides 6 on a vertically adjusted frame slidably engage. Said adjustable track frame is rectangular in plan view and consists of front and rear bars 7 united by end bars 8. Bars 7 are of less height than bars 8, but are provided at their ends with webs 9 which extend to the top of bars 8 and thus reinforce the latter.

10 designates a pair of rails communicating bars 7 and provided with forward extensions 11 arranged in alinement with a pair of inclined rails 12, the latter being also vertically adjustable by any suitable means.

13 designates a truck consisting of a platform 14, bearings 15 depending therefrom, and four flanged rollers 16 mounted upon axles 17 journaled in the bearings, said rollers being arranged to travel upon the rails 10 12.

18 designates an off-bearing plate of the same size as platform 14 upon which it rests.

19 designates the adjustable mold which consists of a back wall 20 provided at one end with hinge-members 21, an end wall 22 rigidly secured to the opposite end of the back-plate, another end wall 23 provided with hinge-members 24 25, and a reversible front wall 26 provided at its opposite ends with hinge members 27 28 either of which may be pivotally secured to hinges 25 by means of a pintle 29. Mold 19 is supported a short distance above the top of the stand by means of a pintle 30, to which hinge-members 21 24 are pivotally secured, and an anti-friction roller 31 adapted to travel upon plate 4. Pintle 30 is rigidly secured to a boss 32 formed integral with the top of the stand at the juncture of plates 3 and 4<sup>a</sup>. Roller 31 is mounted upon a pin 33 journaled in a bracket 34 secured to the forward end of wall 22 and provided at its lower portion with an outwardly extending lip 35 adapted to engage the underside of a lug 36 and thus assist pintle 30 in resisting the upward pressure of the off-bearing plate against the underside of the mold. Lug 36 is secured to plate 4 and provided at its front side with a web 37 to limit the forward movement of roller 31 when walls 3 and 22 are swung forward to the position shown by full lines, Fig. 2. The rearward movement of said roller is limited by means of a stop 38 projecting upwardly from plate 3 at its juncture with plate 4.

The mold is securely locked in a closed position by means of a latch 39, pivotally secured to wall 22, and one of keepers 40 secured in reversed positions at the opposite ends of wall 26 as shown in Fig. 1.

41 designates a main core detachably secured to wall 20 by means of bolts and nuts 42, 43 respectively.

44 designates a supplemental core arranged between wall 23 and the adjacent end of core 41, said core being detachably secured to wall 20 by a bolt and nut 45, 46, respectively. Core 44 is provided at its front side with a filling-block 47 for forming an air-channel 47<sup>a</sup> in one end of each building-block.

48 designates a filling block consisting of a plurality of intermediate sections 49 and two beveled end sections 50 50<sup>a</sup> all of which are detachably secured to the face of the main core by bolts and nuts 51, 52, respectively. Said filling-block is provided for the purpose of forming a recess 53 in the inner



side of each building-block, and the abutting ends of its sections register with vertical grooves 54 in the face of the main core so that when it is desired to make building-blocks of different lengths the sections may be adjusted accordingly. For instance, when it is desired to make building-blocks of less length than the inside of the mold a detachable partition 55 is slipped downwardly between the front wall and the face of the core, see dotted lines, Fig. 2, said partition being held in position by one of grooves 54 and one of grooves 26<sup>a</sup>. Preparatory to placing partition 55 in position the three adjacent intermediate sections are removed and the section 50<sup>a</sup> is transferred to the position shown by dotted lines, Fig. 2.

When it is desired to make a corner-block, supplemental core 44 is removed, and when it is desired to make a veneering block the front wall 26 is reversed as shown by dotted lines Fig. 2; the partition 55 is then slipped downwardly into groove 26<sup>a</sup>, in the front wall, and the opposite groove 54. Preparatory to placing partition 55 in the last-mentioned position, the adjacent section 49 is removed and section 50 is transferred to the position shown by dotted lines Fig. 2. Material is then placed in the space bounded by partition 55, side wall 22, front wall 26 and the face of the main core.

When it is desired to make two building-blocks before opening the mold the main and supplemental cores are removed and a core similar to that shown in my application filed April 11, 1905, #254,959, is substituted therefor, vertical grooves 56 57 being provided in wall 22 23, respectively, for that purpose.

When the mold is locked preparatory to making a building-block the vertically adjustable track frame is pushed upwardly by a pair of links 58 until the off-bearing plate is brought tightly into contact with the underside of the mold so that it will be impossible while tamping the material to force it outwardly beneath the lower edge of said mold. Links 58 are pivotally secured at their upper ends to end-bars 8 and at their lower ends to crank-arms 59 which latter are rigidly mounted upon a shaft 60 mounted in transverse bars 61 connecting the front and rear supporting legs. Shaft 60 is operated by a hand-lever 62 adjustably secured upon one end of said shaft by a nut 63 and provided near its upper end with a sliding pawl 64 adapted to engage any of the teeth of a segment 65 secured to the upper portions of the adjacent supporting legs.

After the building-block has been formed the mold is thrown open as indicated by dotted lines, Fig. 2; lever 62 is then drawn forwardly in the direction indicated by arrow *a* in order to lower the truck and the vertically-adjustable frame until rails 10 are on a level with the upper ends of inclined rails 12. The

truck is then run to the lower end of the inclined track and the off-bearing plate containing the "green" building-block is removed therefrom and set in a convenient place to dry, another off-bearing plate is then placed upon the truck which latter is pushed backwardly beneath the mold preparatory to forming another building-block.

When only a few building-blocks are to be made the off-bearing plates may be dispensed with by employing a number of trucks and raising the platforms of the latter through a higher path and into contact with the lower edge of the mold. To accomplish this result, however, the track frame is adjusted to the position indicated by dotted lines, Fig. 4, by adjusting the cranks 59 to the dotted position. Nut 63 is loosened preparatory to adjusting the frame and the cranks so that lever 62 may remain in the position shown in Fig. 3; then after said adjustment has been effected the lever is again locked upon the end of the shaft by tightening nut 63 so that said lever may continue to operate within the limits of segment 65 to raise and lower the frame and trucks through said higher path. Rails 12 are then also adjusted to the dotted position shown in Fig. 4.

When it is desired to form building-blocks like that shown in Fig. 8 I substitute a disappearing core, shown in Figs. 6 and 7, for those above described. The introduction of this core does not require any changes in the stand, the vertically adjustable frame or the mold, consequently further description of these parts is deemed unnecessary. Said disappearing core consists of a rectangular casting 66, tapering toward its top portion and provided with an integral base 68 having parallel sides arranged to enter openings 69 70, in off-bearing plate 18<sup>a</sup> and the truck platform 14<sup>a</sup>, respectively. Said base is slightly wider than the adjoining portion of the core in order to form shoulders 71 which contact with over-lapping lips 72' on the off-bearing plate and thus limit the upward movement of the core. The lower portion of base 68 is provided with depending end plates 72 slidably arranged in angle-iron guides 73 supported by brackets 74 extending inwardly from rails 10. The core is raised and lowered by two pairs of toggles 75 pivotally secured at their upper ends to plate 72 and rigidly secured at their lower ends to shafts 76 journaled in bearings 77. Shafts 76 are provided with and rocked in opposite directions by two rigidly mounted intermeshing segmental gears 78 operated by a hand-lever 79 secured to one of said shafts. Toggles 75 have pivotal joints 75<sup>a</sup> at their central portions which permit them to fold to the dotted position, as shown in Fig. 7, when it is desired to withdraw the core from the building-block, the off-bearing plate and the truck platform.



The longitudinal sides of the core are provided with centrally-disposed openings 80 for the reception of filling-blocks 81 provided with flanges 82 which contact with overlapping lips 83, surrounding openings 80, and thus limit the outward movement of said filling-blocks. Said filling-blocks are drawn into the core, preparatory to lowering the latter, by means of arms 84 pivotally secured at their upper ends to ears 85 and rigidly mounted at their lower ends upon shafts 86, provided with intermeshing segmental gears 87, operated by a lever 88 rigidly secured to the central portion of one of the shafts 86.

Having thus described my invention, what I claim and desire to secure by Letters-Patent, is:—

1. In an apparatus of the character described, a mold, a disappearing core, means for raising and lowering said core into and out of the mold, filling blocks projecting through openings in the disappearing core, and means for drawing said filling-blocks within said core.

2. In an apparatus of the character described, a mold, a disappearing hollow core having side openings, depending end plates on said core, means for raising and lowering it into and out of the mold, filling blocks loosely fitting said openings, and independent means mounted on said plates for drawing the filling blocks inward.

3. In an apparatus of the character described, a mold, a disappearing hollow core having side openings with surrounding lips, depending end plates on said core, means for raising and lowering it into and out of the

mold, filling blocks loosely fitting said openings and having flanges contacting with said lips when the blocks are projected, and independent means mounted on said plates for drawing the filling blocks inward.

4. In an apparatus of the character described, the combination with a mold, and an off bearing plate having an opening; of a disappearing core having a rectangular base adapted to fit said opening, toggle levers connected at one end with the core, intermeshing segments fast on their other ends, and a lever for rocking one segment.

5. In an apparatus of the character described, the combination with a mold, and an off bearing plate having an opening provided with surrounding lips; of a disappearing core tapering toward its top and having a rectangular base adapted to fit said opening, shoulders on said base adapted to contact with said lips when the core is raised, said core having side openings with surrounding lips, filling blocks loosely fitting said openings and having flanges contacting with said lips when the blocks are projected, plates depending from said core and suitably guided, means for raising and lowering the plates to move the core into and out of the mold, and independent means mounted on said plates for projecting and retracting said filling blocks.

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

THEODORE G. JOHNSON.

Witnesses:

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M. Cox.