

H. G. MOATS.

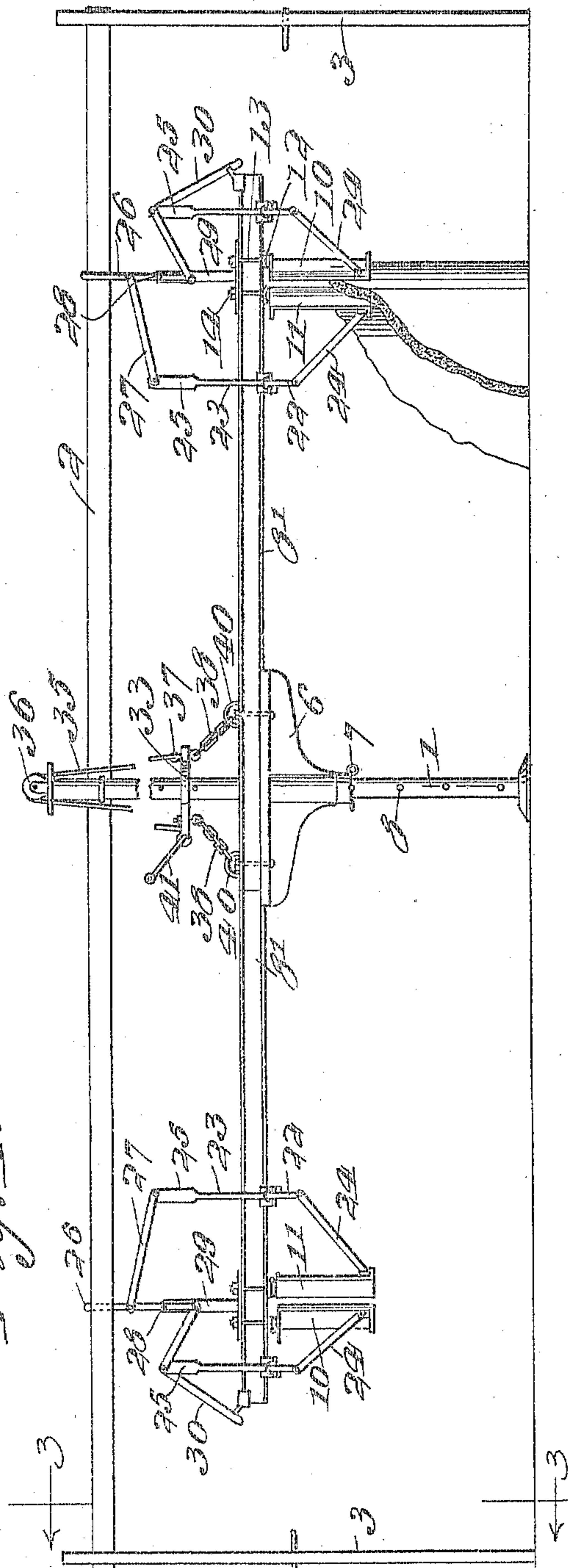
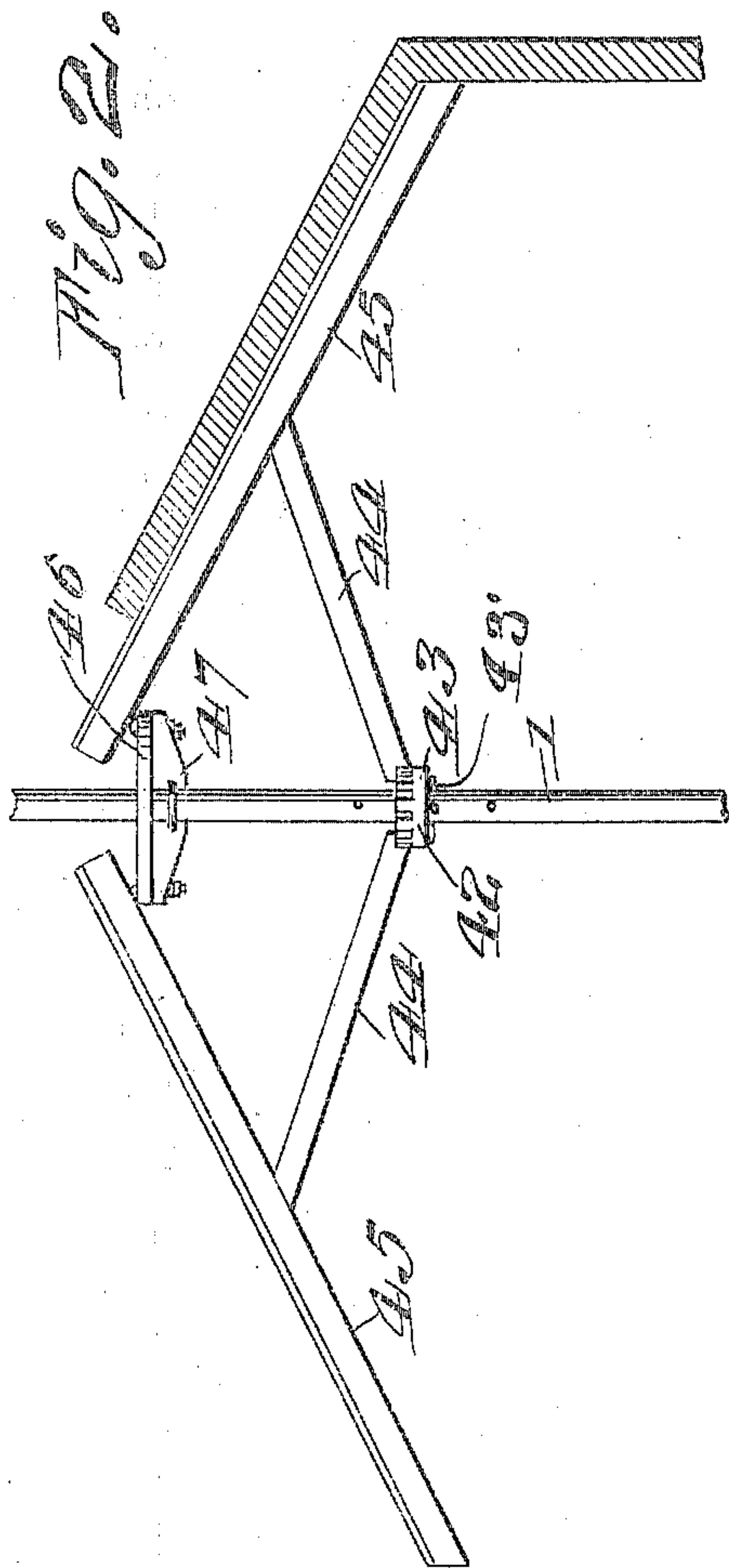
MOLDING MACHINE FOR CONCRETE TANKS, SILOS, CISTERNS, AND THE LIKE.

APPLICATION FILED DEC. 30, 1908.

947,927.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 1.



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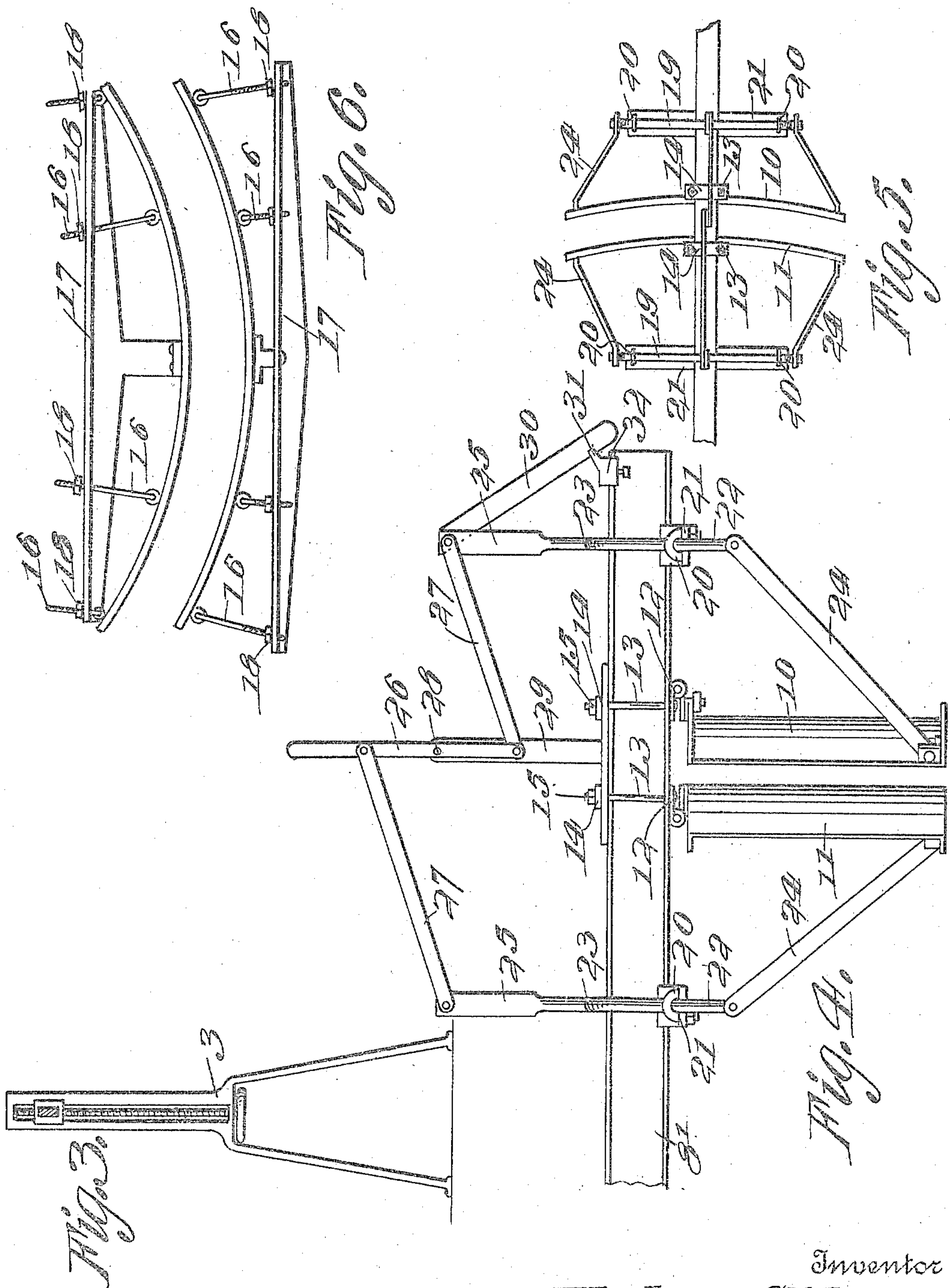
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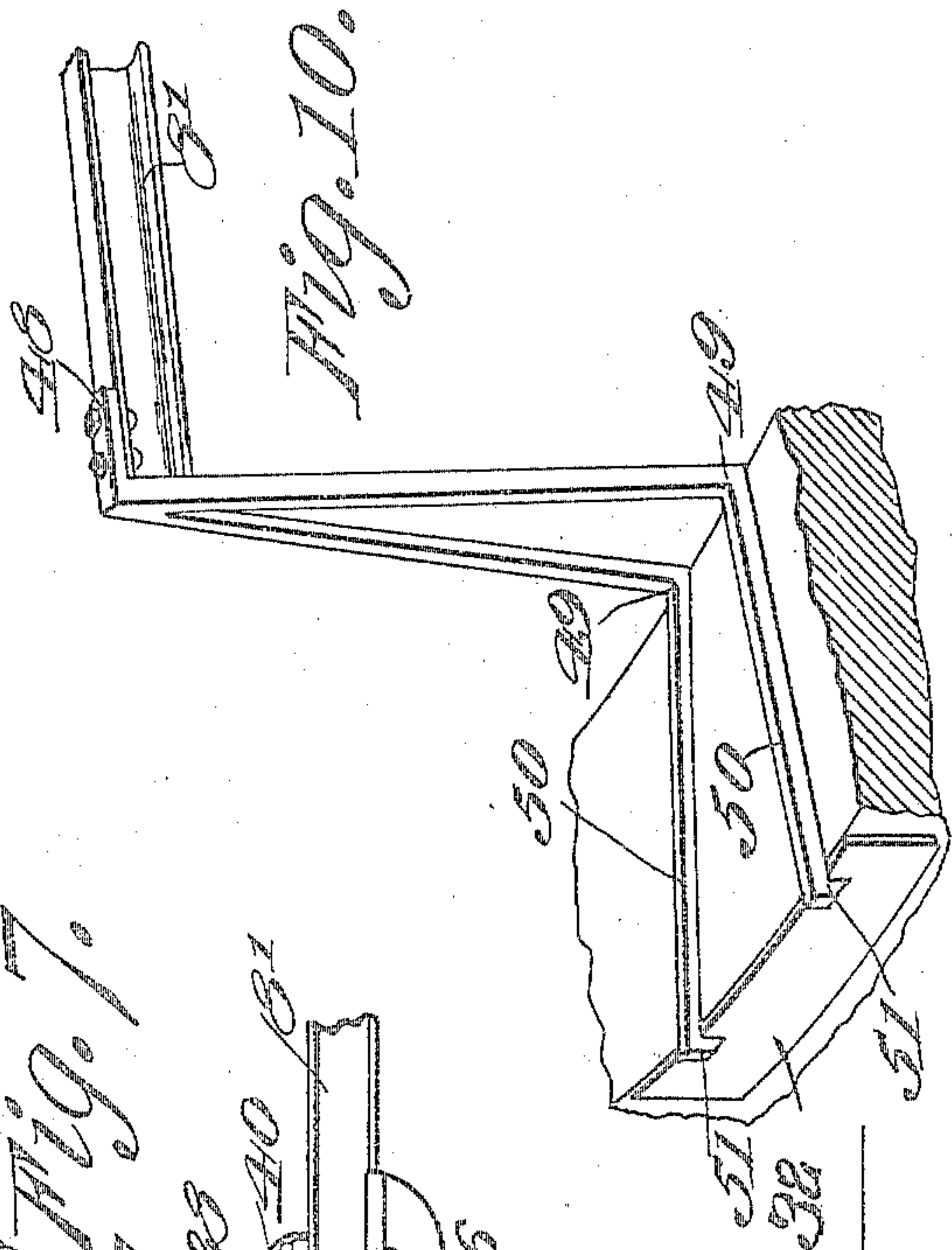
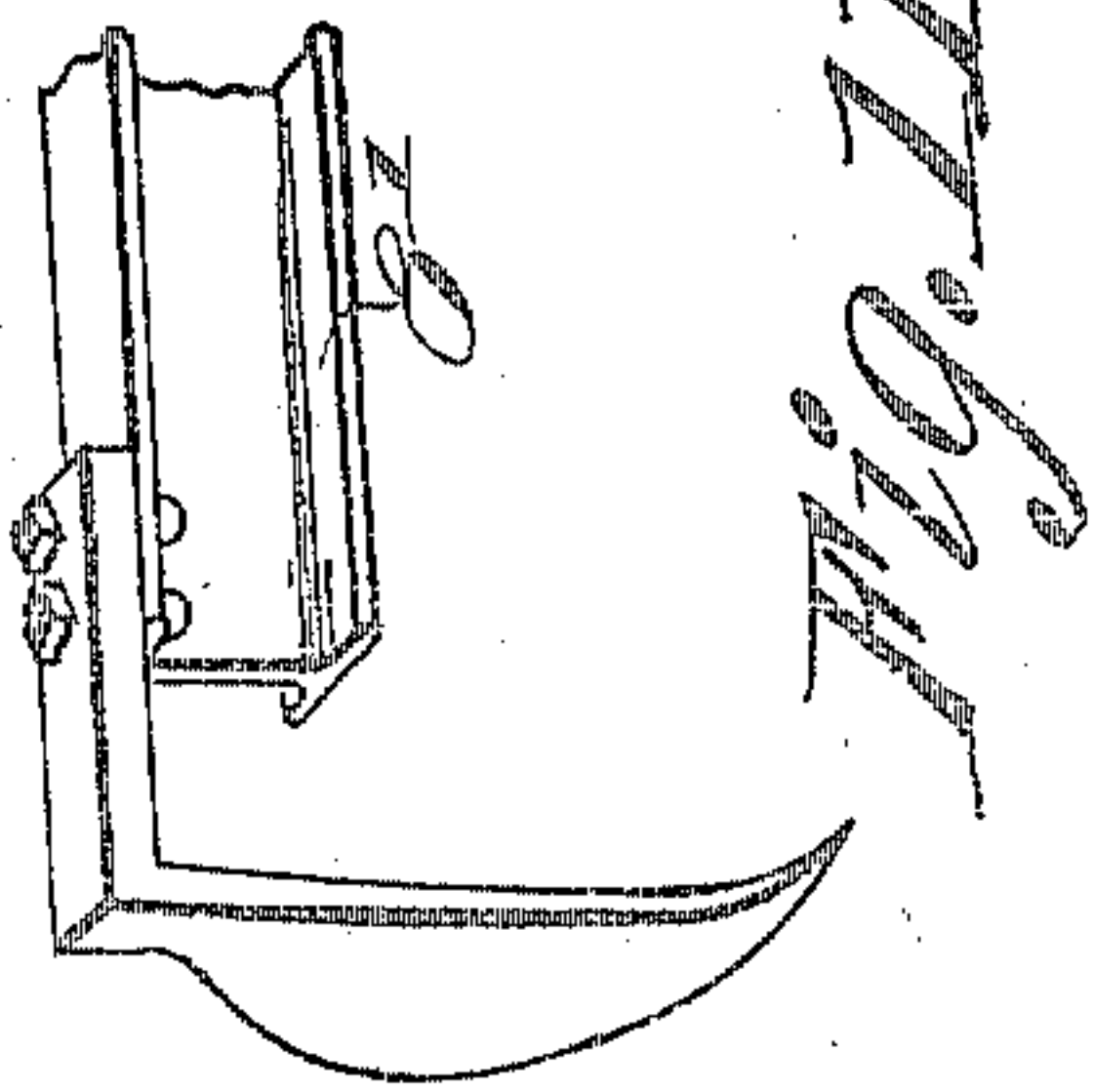
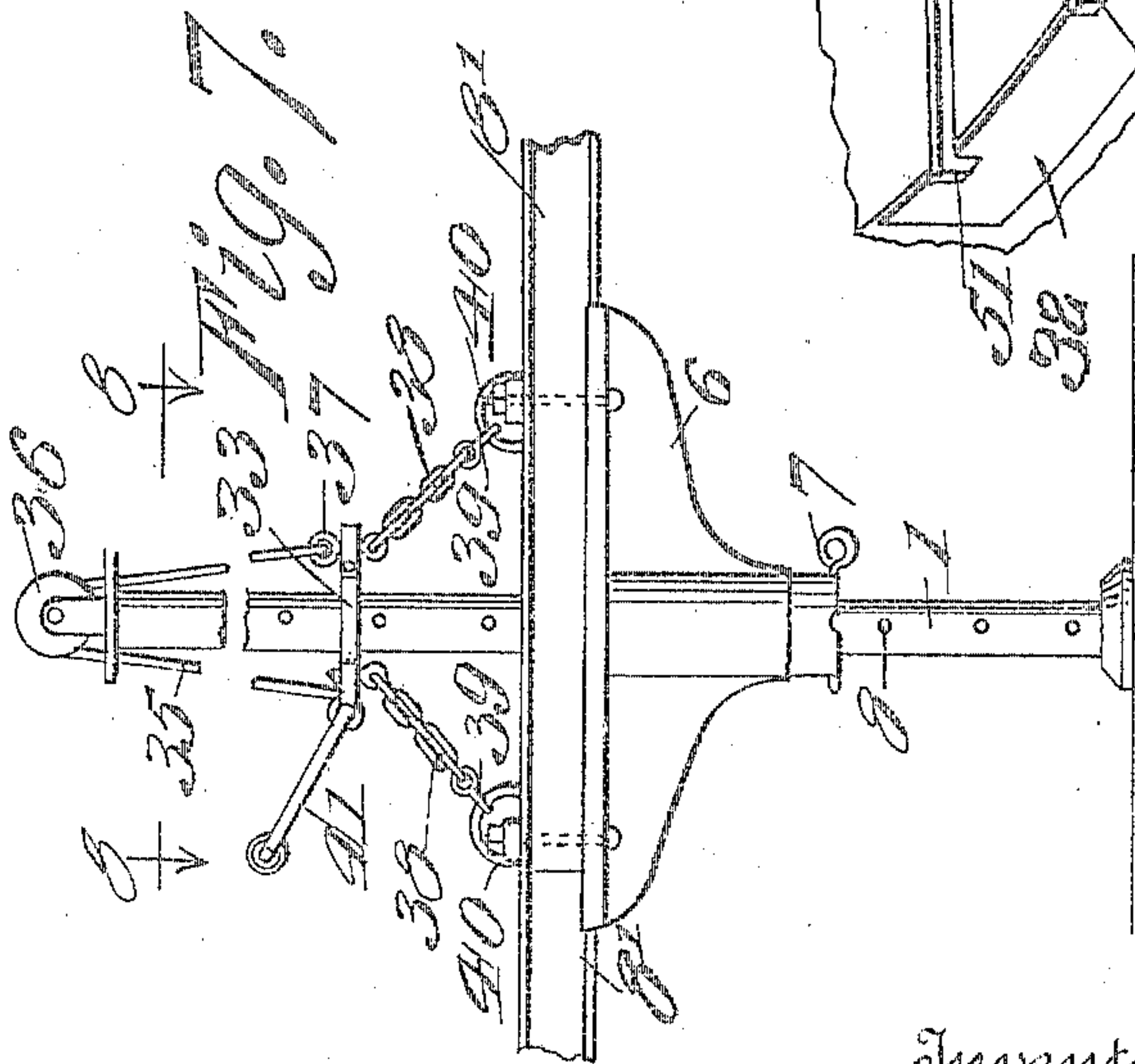
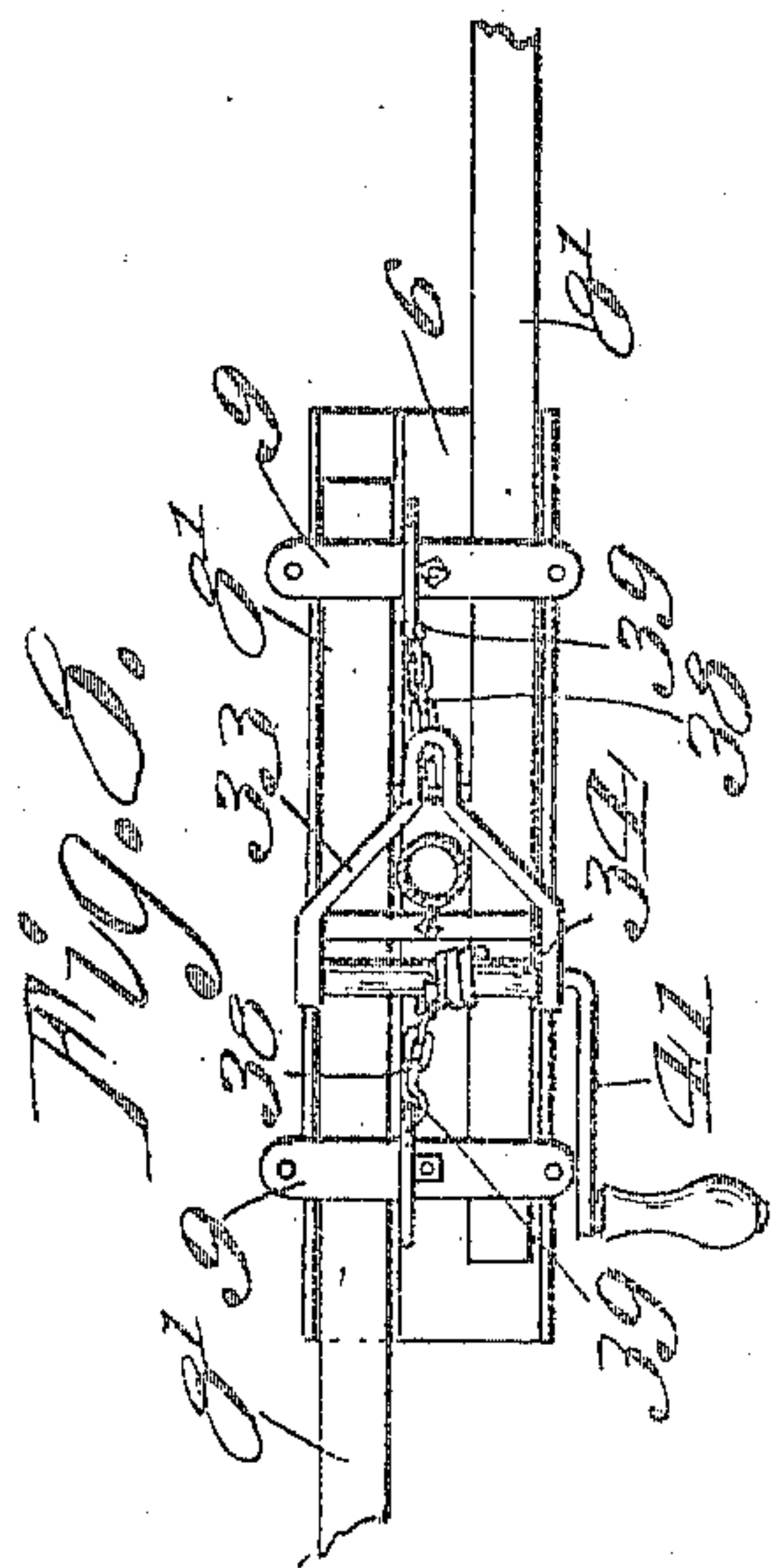
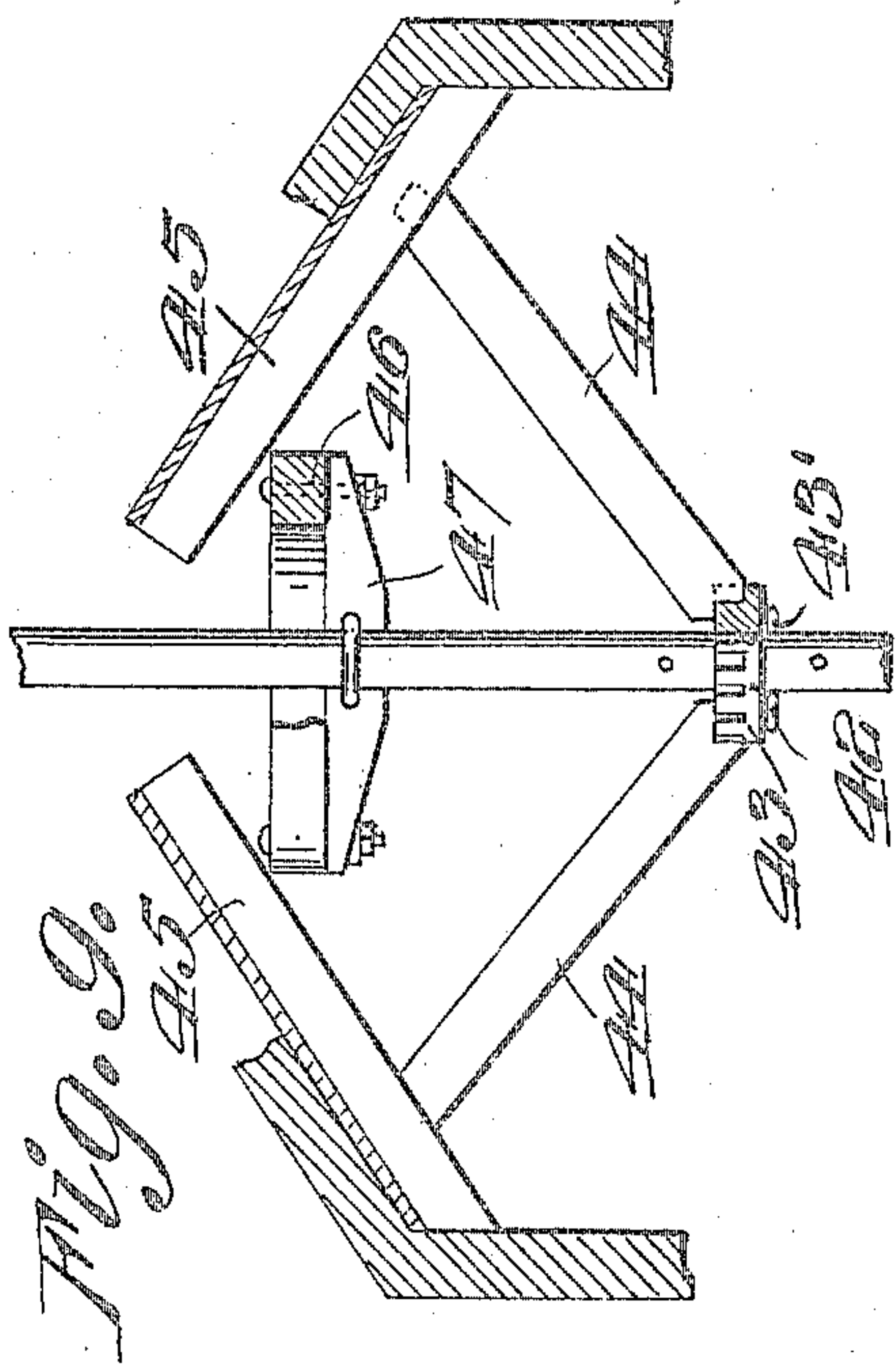
3 SHEETS—SHEET 2.



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 3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HARLAN G. MOATS, OF VILLISCA, IOWA, ASSIGNOR OF ONE-HALF TO EDWARD O. GARDNER, OF VILLISCA, IOWA.

MOLDING-MACHINE FOR CONCRETE TANKS, SILOS, CISTERNS, AND THE LIKE.

947,927.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed December 30, 1908. Serial No. 469,944.

To all whom it may concern:

Be it known that I, HARLAN G. MOATS, citizen of the United States, residing at Villisca, in the county of Montgomery and State of Iowa, have invented certain new and useful Improvements in Molding-Machines for Concrete Tanks, Silos, Cisterns, and the Like; and I do 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 an improved machine for molding concrete tanks, silos, cisterns and the like and has for its object to provide a simple machine of this character by means of which a tank silo or the like may be built in the minimum time and with the minimum labor on the part of the operator.

With this and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings Figure 1 is a view of the machine in molding position. Fig. 2 is a similar view showing the arrangement of the parts when the top of the cistern or the like is to be formed. Fig. 3 is a vertical section taken on line 3—3 of Fig. 1 looking in the direction indicated by the arrows. Fig. 4 is a side elevation of one side of molding members. Fig. 5 is a plan view thereof. Fig. 6 is a plan view of the molding members and the means for adjusting the same. Fig. 7 is a side elevation showing the means for raising the mold supporting beam and molds. Fig. 8 is a horizontal section on line 8—8 of Fig. 7. Fig. 9 is an elevation on an enlarged scale of the means for forming the top of the cistern. Fig. 10 is a detailed perspective view of an attachment for forming an extension of the bottom wall of the cistern or tank, and Fig. 11 is a similar view showing a reamer which may be used for truing the outside surface of the tank or cistern wall.

In the embodiment illustrated the numeral 1 indicates an upright support of tubular form, 2 the center piece which is arranged at the upper end of the support, 3 the supporting frames for the center piece and 4 screws for adjusting the ends of the center

piece to the proper height, the lower ends of the screws being provided with operating walls 5.

A support 6 is mounted for vertical adjustment upon the support 1 and is held at the proper adjustment by means of a pin 7 which is inserted through either of a series of apertures 8 in the support 1. Longitudinally extending supporting beams 8' are mounted for longitudinal adjustment upon the support 6. The supporting beams 8'—8' are held at the proper adjustment by clamps 9. A pair of cooperating wall forming molds 10 and 11 respectively are pivotally mounted to swing toward and from each other near the outer end of each of the supporting beams, said mold members being hinged upon supporting plates 12 supported by bolts 13 which straddle the supporting beams and which are held in position by transverse bars 14 and nuts 15 screwing upon the threaded ends of the bolts against said bars. As shown the outer mold member of each set is of concave formation to form the outer surface of the wall and the other member of convex formation to form the inner surface. The members may be adjusted longitudinally to form walls of different diameters by adjusting rods 16, a series being arranged at both the upper and lower edge of each of the members and passing through plates or bars 17 and nuts 18 screwing upon the threaded ends of the rod 16. In the operation of forming the wall the mold members are arranged in the position shown in Fig. 4 and after the concrete or other material from which the wall is to be formed is placed between the mold members and has been tamped sufficiently, the mold members are swung apart and the support 6 turned a fraction of a revolution to bring the mold members in position to form adjoining sections of the wall. The following connections are preferably used to swing the mold members apart. Transversely extending operating shafts 19 are journaled at opposite ends in bearings 20 formed near the ends of supporting members 21 and are provided at opposite ends with downwardly extending crank arms 22. The central portions of the operating shafts are curved as at 23 to receive the supporting beams. Links 24 are arranged between the crank arms 22 of the shaft and the opposite ends of the mold members. The central portions

of the operating shafts are provided with upstanding arms 25, the upper ends of which are connected at different points to an operating lever 26 by means of links 27, the operating lever being pivoted near its lower end as at 28 upon the supporting beams. A locking bar 30 is pivoted at its upper end to the upstanding portion 25 of the operating shaft for the outer of each of the sets of the mold members, the lower ends of the locking bars 30 being formed with recesses to receive extensions 31 of clamps 32 mounted upon the supporting beams.

From the foregoing description it will be seen that by disengaging the locking bars 30 from the extensions of the clamps 32 that the mold members may be swung apart by pulling upon the operating lever 26. After one complete section of the wall of the tank has been formed, the supporting beams are raised upon a support 1 to form the next section of the wall. This is accomplished by the following connections. A windlass supporting frame 33 receives the upper end of the support 1 and is provided with the horizontally disposed windlass 34 upon which may wind or unwind the flexible element 35 which passes over the guide pulley 36 mounted at the top of the support and is connected with the opposite side, as at 37, of the windlass supporting frame. Chains 38 depend from the windlass supporting frame and are provided at the lower ends with hooks 39 to engage staples 40 suitably fixed to the beam supporting frame 6.

From the foregoing description it will be seen that by turning the windlass 34 by means of its handle 41 after the hooks 39 of the chains have been engaged with the ring 40, the supporting beams may be raised at any desired height.

After the wall of the cistern or tank has been arranged to form the top, a supporting ring 42 provided with a series of peripheral notches 43 is held at the proper height upon the support 1 by a coupling pin 43, and a series of obliquely disposed brace bars 44 engaged at their lower ends with the notched portions of said ring. Obliquely disposed false rafters 45 are mounted at their outer ends upon the outer ends of the brace bars 44, the inner ends of the rafters 45 being supported by a supporting ring 46 secured to a cross bar 47 mounted to slide upon the post 1. After these parts have been placed in this position, sheets of metal may be arranged over the false rafters and the concrete which is to form the top placed upon the metal sheets. The top having been formed the rafters 45, braces 44 and other connections heretofore described and which are used in forming the wall may be disassembled or removed from the support 1 and

lifted out of the central opening left in the wall. This opening may be afterward covered by a door or in any other suitable manner. In Fig. 10 means are shown whereby a circular extension of the bottom or floor of the tank may be made. To form this extension irons or bars 48 are attached to the outer ends of the mold supporting beams and are bent outwardly at right angles at points flush with the level of the floor as at 49 to form horizontal portions 50, the outer ends of which terminate in downwardly extending portions 51 to which are bolted metallic shapers or molds 52 in the form of curved spring metal plates, these shapers or molds forming the edge of the extension. In Fig. 11 a reaming plate is shown which may be attached to the ends of the beams, the purpose of which is to true the earth wall of the cistern.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described and ascertained the nature of my invention, what I claim as new and desire to secure by Letters-Patent, is

1. In a machine of the class described, a central support, a pair of mold supporting beams mounted for vertical and longitudinal adjustment thereon, means for raising the mold supporting beams, sets of oppositely formed coöperating wall forming members hinged to each of the supporting beams, means under the control of the operator for swinging the mold members toward and away from each other and means for forming the top of the cistern or tank.

2. In a machine of the class described, a support, a pair of longitudinally adjustable mold supporting members mounted thereon, a pair of oppositely formed wall forming members hingedly mounted with the outer end of each mold supporting member, and means for adjusting the mold members longitudinally to different degrees of curvature, said means comprising threaded links connected with the mold members and nuts screwing upon the threaded ends of said links.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARLAN G. MOATS.

Witnesses:

E. O. GARDNER,

CHARLOTTE McCULLOUGH.