

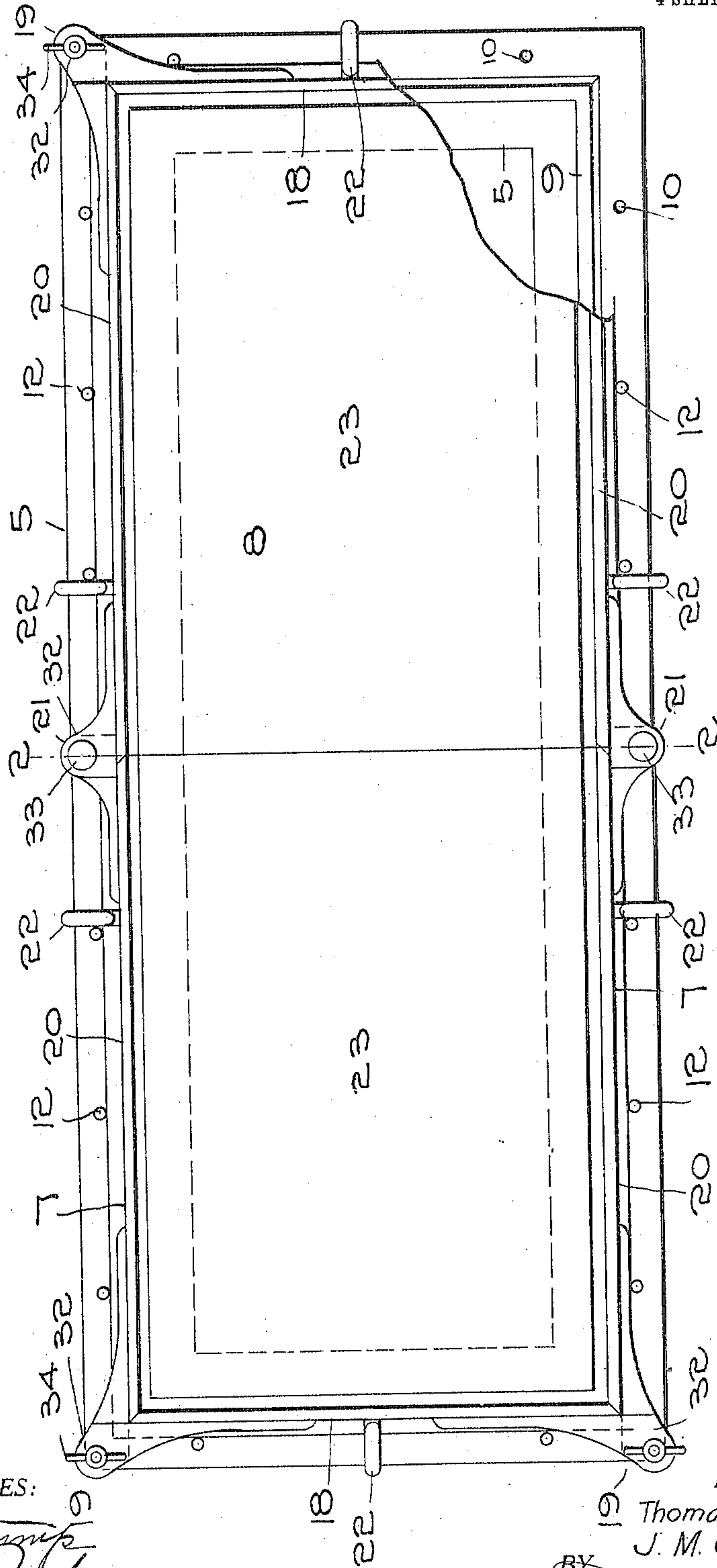
T. MACDOUGAL & J. McK. CHAMBERS.
MOLD.

APPLICATION FILED SEPT. 23, 1908.

950,724.

Patented Mar. 1, 1910.

4 SHEETS—SHEET 1.



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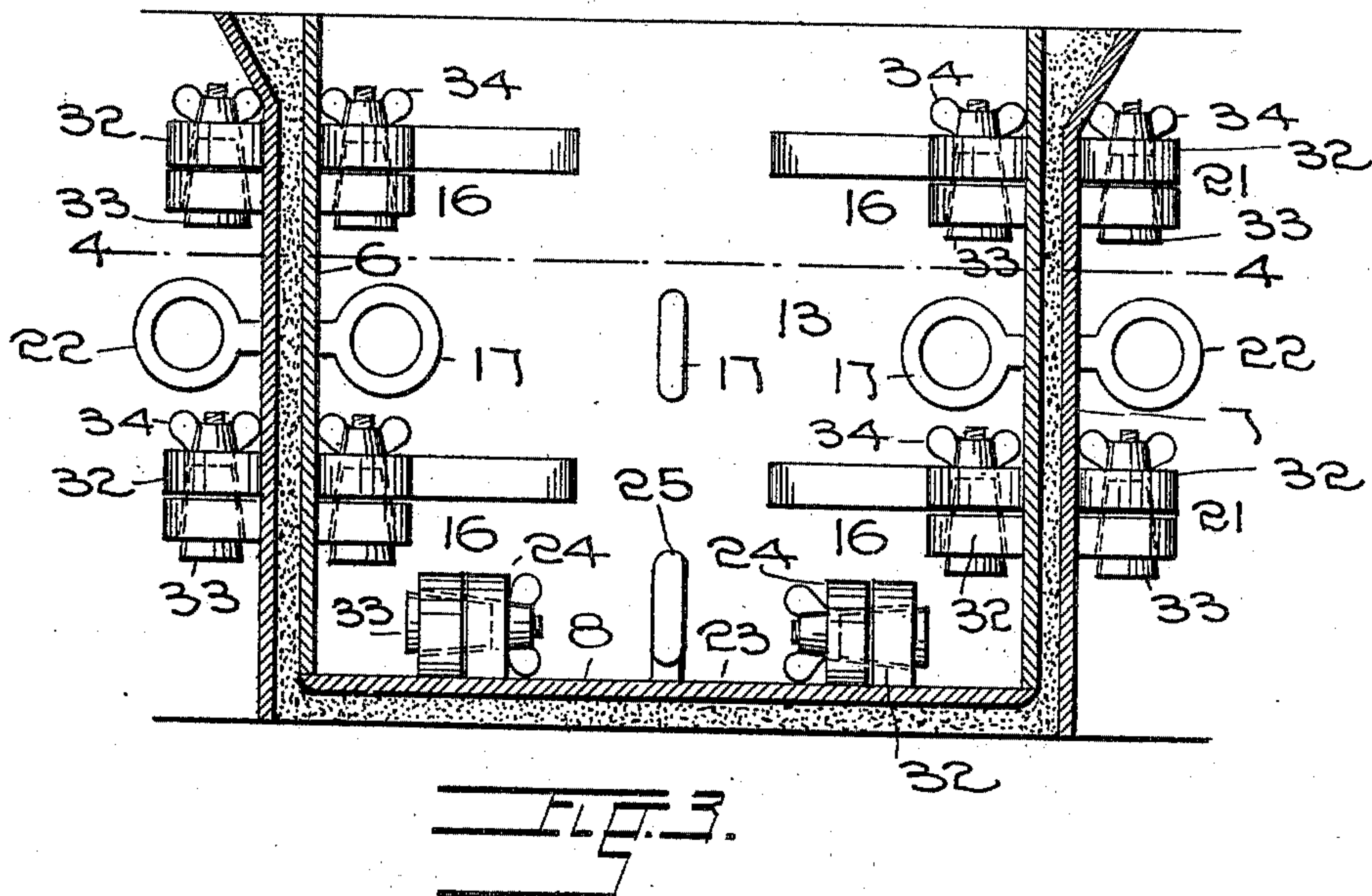
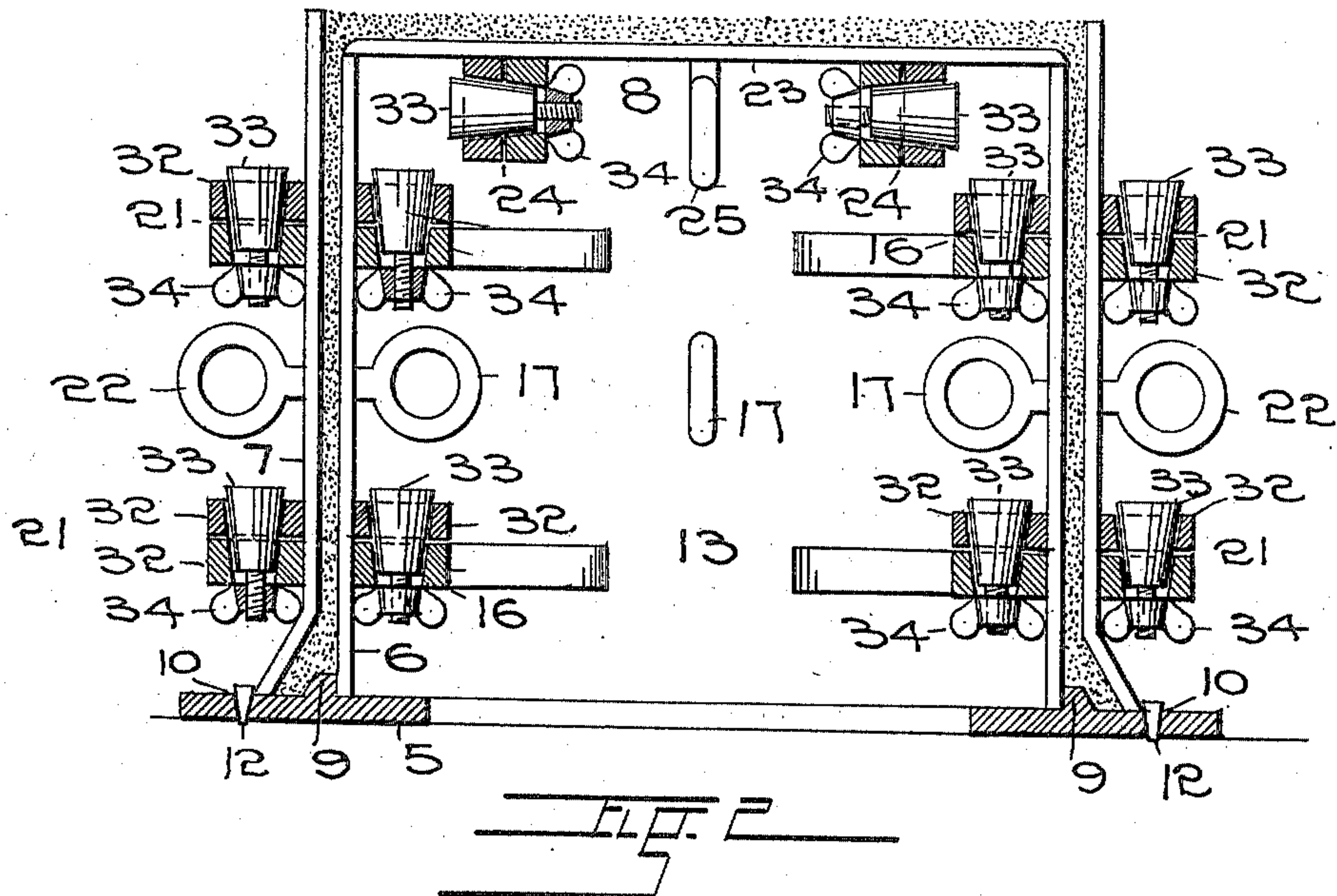
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4 SHEETS—SHEET 2.



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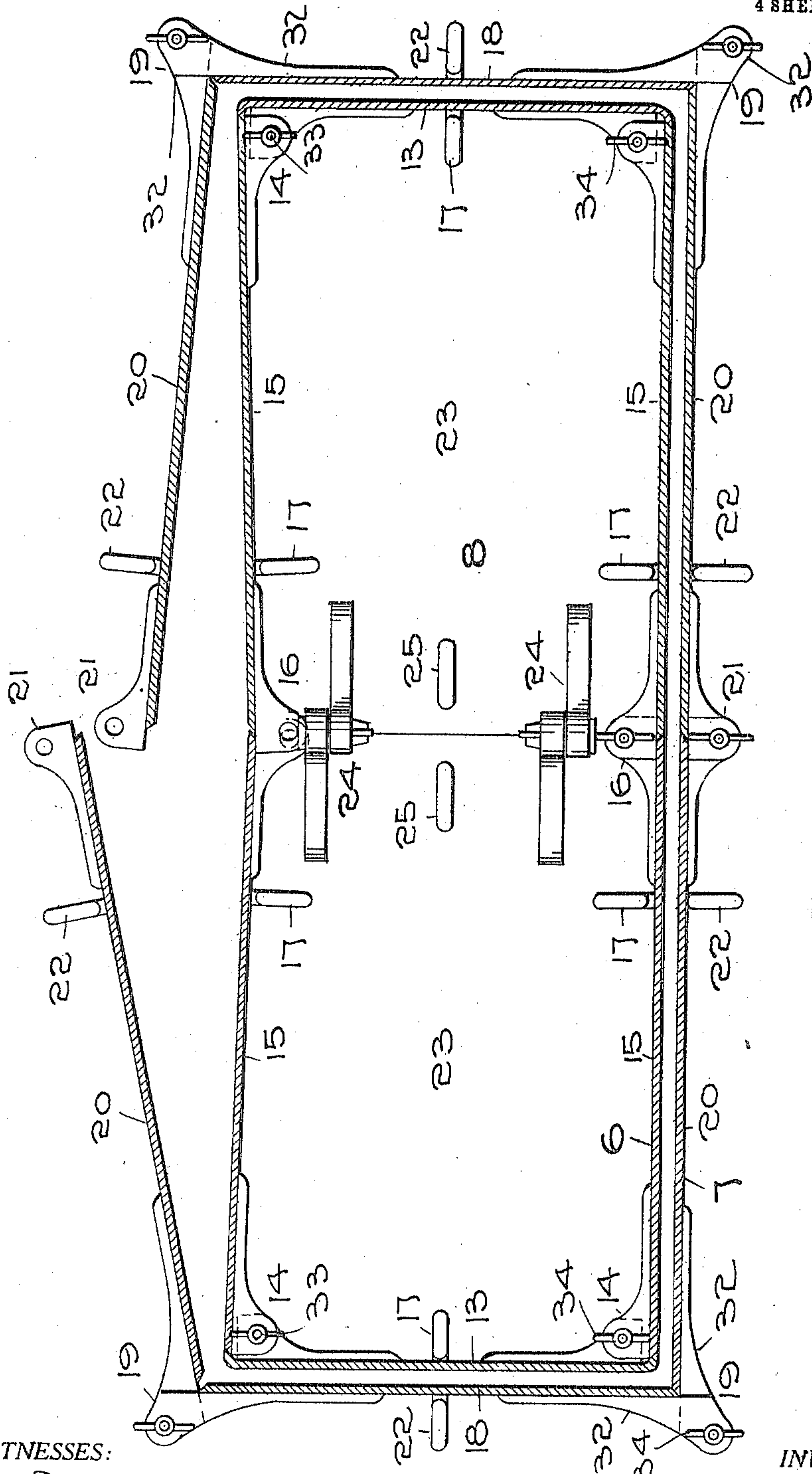
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4 SHEETS—SHEET 3.



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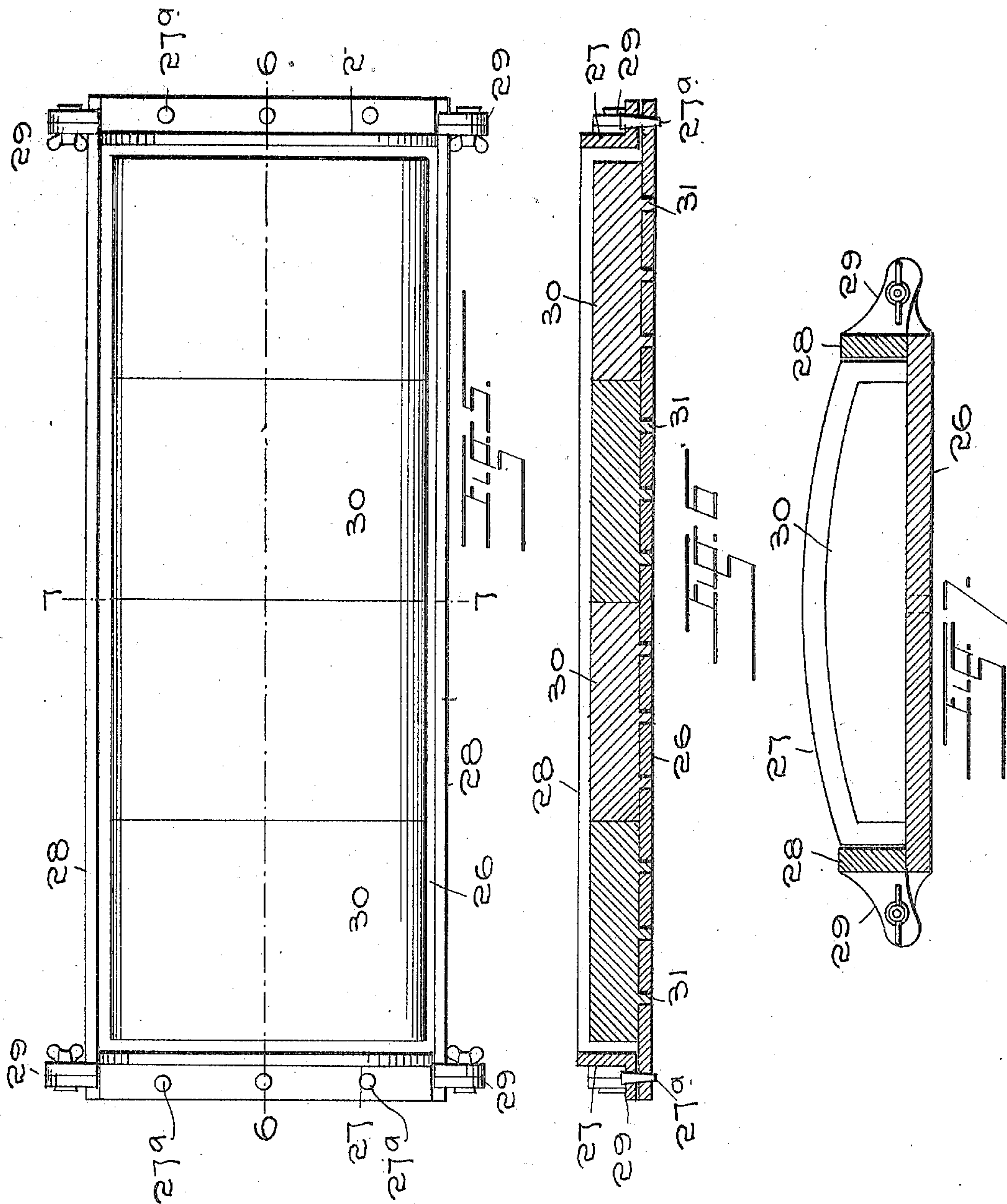
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

THOMAS MACDOUGAL AND JAMES MCKINNON CHAMBERS, OF BOULDER, COLORADO,
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MOLD.

950,724.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed September 23, 1908. Serial No. 454,338.

To all whom it may concern:

Be it known that we, THOMAS MACDOUGAL and JAMES MCKINNON CHAMBERS, citizens of the United States of America, residing at Boulder, in the county of Boulder and State of Colorado, have invented certain new and useful Improvements in Molds, of which the following is a specification.

This invention relates to improvements in molds and more particularly in the class of structures employed in manufacturing burial vaults, bath tubs, troughs, cisterns and similar articles, of concrete or other plastic material.

The object of our invention is to provide a device of the class named in which simplicity of construction is combined with practicability in use, which, being composed of few parts, may be erected ready for use or taken apart after the molding operation is completed in a minimum of time, and which, when the members of which it is composed are assembled, will be of rigid and durable construction.

A further object of the invention resides in the provision of means whereby the members of which the mold is composed, will be brought in the same relative position each time they are assembled, so as to insure a product of which one will be an exact duplicate of the other.

We attain these objects by the mechanism shown in the accompanying drawings in the various views of which like reference characters denote corresponding parts and in which—

Figure 1—represents a plan view of the assembled structure in readiness for the molding process, Fig. 2—a central, transverse section therethrough, taken along the plane 2—2, Fig. 1, Fig. 3—a transverse sectional view of the device in the inverted position in which it is placed after the molding process is completed, Fig. 4—a longitudinal, horizontal section taken along the line 4—4, Fig. 3, the members of one side of the structure having been shown in the disconnected condition, Fig. 5—a plan view of the structure designed for molding the cover of the vault, Fig. 6—a longitudinal section taken along the line 6—6, Fig. 5, and Fig. 7—an enlarged transverse section on the plane 7—7, Fig. 5.

The structure illustrated in Figs. 1 to 4

inclusive, is employed in constructing the body of a vault and consists of a base 5, an inner shell 6 whose exterior surface conforms to the inner vertical faces of the molded body, an outer shell 7 which is spaced from the inner shell and which interiorly conforms to the outer surface of the said body, and a top plate 8 which is supported upon the inner shell and whose outer surface conforms with the interior bottom face of the molded device.

The various elements which, assembled, constitute the mold, may be composed of cast, rolled or wrought metal, their working faces being finished so as to impart a smooth surface to the molded structure. The base 5 which, in practice, supports the other elements, is composed of a rectangular frame, formed upon its upper surface with a continuous rib 9 constituting the matrix which forms a channel in the rim of the molded body to receive the cover member of a vault and whose vertical inner surface serves as an abutment for the inner shell 6.

It will be understood that the matrix 9 may be made of different form to produce an ornamental rim at the top of a bath tub, a rounding edge on a trough or any other desired finish in accordance with the character of the article to be produced.

The base is furthermore provided with a series of apertures 10 spaced equidistantly from the rib 9 and designed for the reception of dowel pins 12, which engage the outermost edge of the outer shell and serve to retain the latter in its position relative to the inner one.

The inner shell 6 is composed of two end members 13 which are detachably connected with the sides by means of inwardly extending hinges 14 the construction of which will hereinafter be described.

The sides of the shell are composed of two members 15 whose free edges adjoin in the center of the structure at an angle which permits the moving of one portion without disturbing the other and which are connected by inwardly projecting hinges 16. Eye bolts 17 secured in the members 13 and 15, extend inwardly to facilitate the removal of the parts after the molding operation is completed.

The outer shell 7 is constructed similarly to the inner shell 6, being composed of end

members 18 which are connected by hinges 19, with the sides which are formed by the members 20 whose adjoining ends are united by means of hinges 21.

5 The hinges comprised in the construction of the outer shell as well as the eye bolts 22 by means of which its parts are raised and lowered, project, for obvious reasons, outwardly and the lower portions of the various members flare outwardly to increase the thickness of the molded body at its upper edge.

10 The plate 8 which constitutes the fourth element of the structure, conforms in contour with the inner shell 6 upon which it is supported and is composed of two equiform sections 23 which are united at their adjoining edges by hinges 24. Eye bolts 25 are applied to the same purpose as those of the shells 6 and 7.

20 The cover mold illustrated in Figs. 5 to 7 inclusive is composed of a base plate 26 provided in proximity to its ends with parallel, upright plates 27 which are removably secured thereto by means of dowel pins 27^a. The distance between the plates 27 equals the exterior longitudinal dimension of the cover member while they conform in contour with that of the exterior end surface of the same. 30 The base plate 26 is furthermore provided with two parallel sides 28 which are pivotally connected therewith at their ends, by means of hinges 29 and which in area conform with the vertical exterior side faces of the cover of the vault.

35 The distance between the sides 28, when in an upright position, equals the exterior width of the cover. A core 30 whose perimeter conforms with the interior of the cover, is composed of a plurality of sections which are detachably secured in the proper position relative to the end plates 27 and the sides 28, by means of dowel pins 31 adapted to occupy corresponding apertures in the base plate 26.

45 The hinges, by means of which the adjoining sections of the various elements comprised in our improved mold are connected, are composed of overlapping knuckles 32, the straps of which may be secured to the respective plates by rivets or they may be cast integral therewith as in the construction shown in the drawings.

55 The knuckles are provided with registering tapering apertures for the reception of the correspondingly shaped pintles 33 which are held in place by means of wing nuts 34 screwed upon a threaded extension thereof.

60 It will be observed that, by manipulation of the nuts 34, the hingedly connected members of the elements which compose the mold, may be rigidly joined and that the tapering pintles in cooperation with the correspondingly apertured knuckles, will accurately adjust the members in their proper

relative positions and are self adjustable to compensate for wear of the various parts.

In the operation of molding the body of a vault, the shells 6 and 7 are placed upon the base 5 as is illustrated in Fig. 2 of the drawings, the inner shell engaging the vertical, inner faces of the rib 9 while the position of the outer shell is determined by the dowel pins 12. The top plate 8 is now disposed in position upon the edges of the inner shell 6 after which the plastic material is poured into the space between the shells and over the plate 8, flush with the upper edges of the outer shell 7. The exposed surface of the material, which forms the bottom of the vault, is subsequently smoothed by troweling the same with a straight edged instrument resting upon the longitudinal edges of the outer shell. After the material has set or hardened sufficiently to prevent its flowing, the structure is raised and inverted into the position shown in Fig. 3, by the use of a suitable mechanism which, not forming part of the present invention has not been illustrated in the drawings. The base plate 5 is now removed after which the nuts, which secure the pintles of the hinges 14 at the corners of the inner shell, are loosened, and the pintles are dropped to allow the sections 15 of which the sides are composed, to move laterally, after the nuts and pintles are removed from the hinges 16 by which they are connected. The sections 15 are now moved inwardly as is illustrated in Fig. 4 of the drawings, and the ends 13 are tapped with a hammer or other instrument to loosen them from the molded structure. When all the sections of the inner shell have thus been detached, the latter is raised and removed by means of a tripod-bail or analogous instrument, the hooked extremities of which are inserted in the eyes 17. The next step consists in removing the pintles which connect the two sections of the plate 8 and loosening the latter by tapping them with the hammer, after which they are moved by means of eyebolts 25. To finally remove the outer shell, the pintles of the hinges 21, which connect the sections 20 of which the sides are composed, are removed and those of the corner hinges loosened, after which the said sections are turned outwardly and the end plates 18 detached from the molded structure as hereinbefore described. A rigid tripod hook is now inserted in the eyes 22, which retains the sections 20 in their adjusted position and furthermore affords means to raise the half of the shell to which it is applied.

It will be observed that the hollow base frame permits the operator to reach the hinges of the inner sections at any time during the operation of molding.

The cover member of the vault is made by pouring the plastic material into the

space between the core 30 and the end plates 27 and the sides 28 of the mold shown in Figs. 5 to 7 inclusive.

The curved upper surface is smoothed by passing a correspondingly shaped trowel along the upper edges of the two parallel end plates 27 and the molded structure is removed by inverting the mold, loosening the pintles of the hinges 29, swinging the sides 28 outwardly and removing the end plates 27.

Having thus described our invention what we claim is:—

1. In a mold of the class described, a shell comprising end members, side members adjoining the same along vertical lines and each composed of two detachably connected sections, and hinges connecting said side members with said end members and each composed of knuckles having axially alined tapering apertures, a tapering pintle projecting therethrough and having a threaded extension, and a nut upon said extension engaging one of said knuckles.

2. In a mold of the class described, a shell comprising end members, side members adjoining the same along vertical lines and each composed of two detachably connected sections, and hinges connecting said side members with said end members and each composed of knuckles having axially alined tapering apertures, a tapering pintle projecting therethrough and means whereby the latter may be held against vertical displacement and the knuckles locked against rotation.

3. In a mold of the class described, a shell comprising end members, side members adjoining the same, along vertical lines and each composed of two sections, hinges connecting the sections of each of said side members to each other, and hinges con-

necting the sections of the side-members to the respective end members, each of said hinges comprising knuckles having axially alined tapering apertures, a tapering pintle projecting therethrough and means associated with said pintle to move it longitudinally and hold it against vertical displacement.

4. In a mold of the class described, a shell comprising end members, side members adjoining the same along vertical lines and each composed of two sections, hinges connecting the sections of each of said side members to each other and hinges connecting the sections of the side members to the respective end members, each of said hinges comprising knuckles having axially alined tapering apertures, a tapering pintle projecting therethrough and having a threaded extension, and a nut upon said extension engaging one of said knuckles.

5. In a mold of the class described, an inner shell and an outer shell spaced therefrom, each of said shells comprising end-members, side members adjoining the same along vertical lines and each composed of two sections, hinges connecting the sections of each side member to each other and hinges connecting the sections of the side members to the respective end members, each hinge being composed of knuckles having axially alined tapering apertures, a tapering pintle projecting therethrough and means associated with said pintle to move it longitudinally and hold it against displacement.

In testimony whereof we have affixed our signatures in presence of two witnesses.

THOMAS MacDOUGAL.

JAMES McKINNON CHAMBERS.

Witnesses:

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R. W. LEECH.