

C. K. HAW.
MOLD FOR MAKING BURIAL VAULTS.
APPLICATION FILED JULY 27, 1908.

987,134.

Patented Mar. 21, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

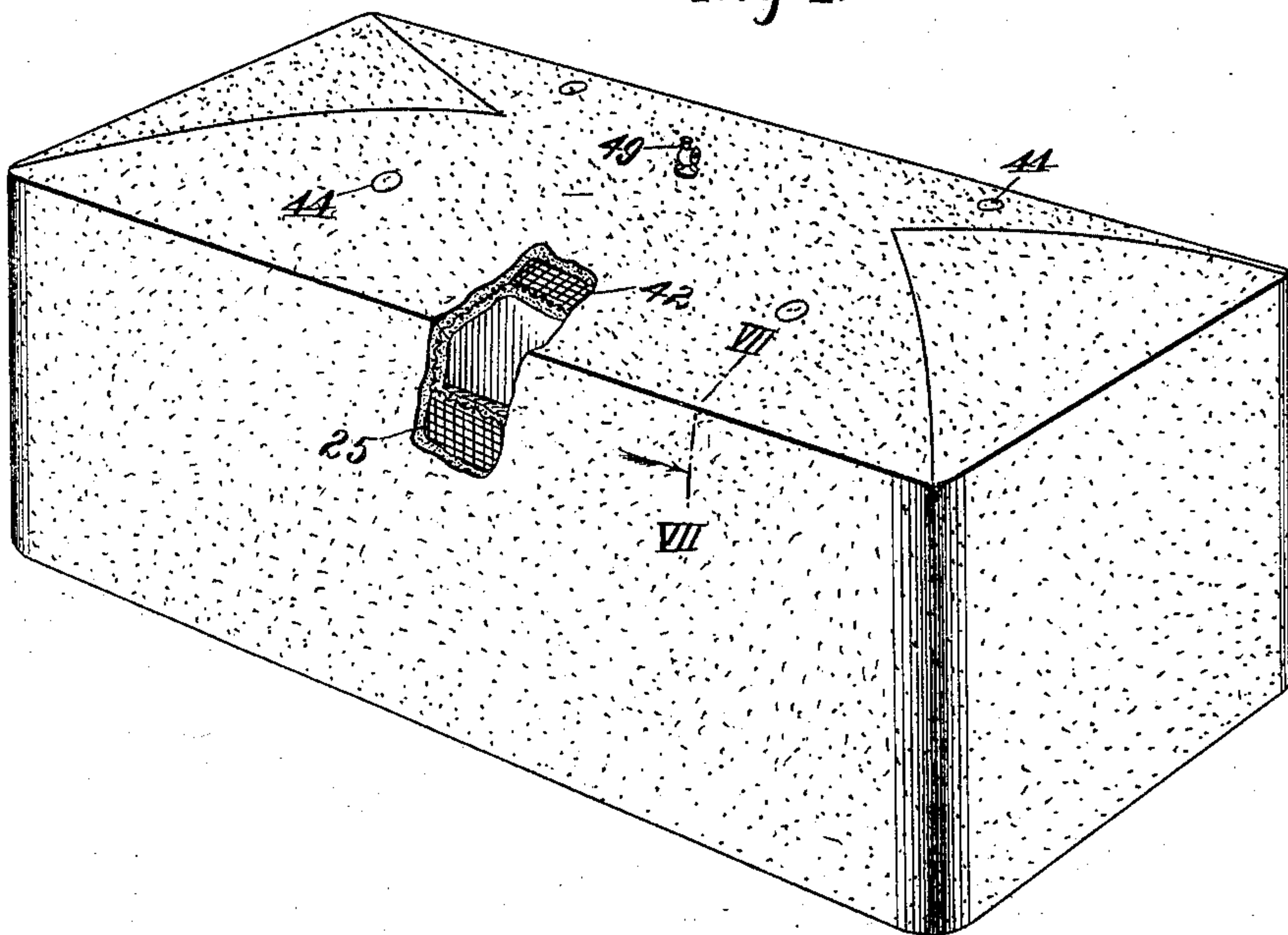


Fig. 2.

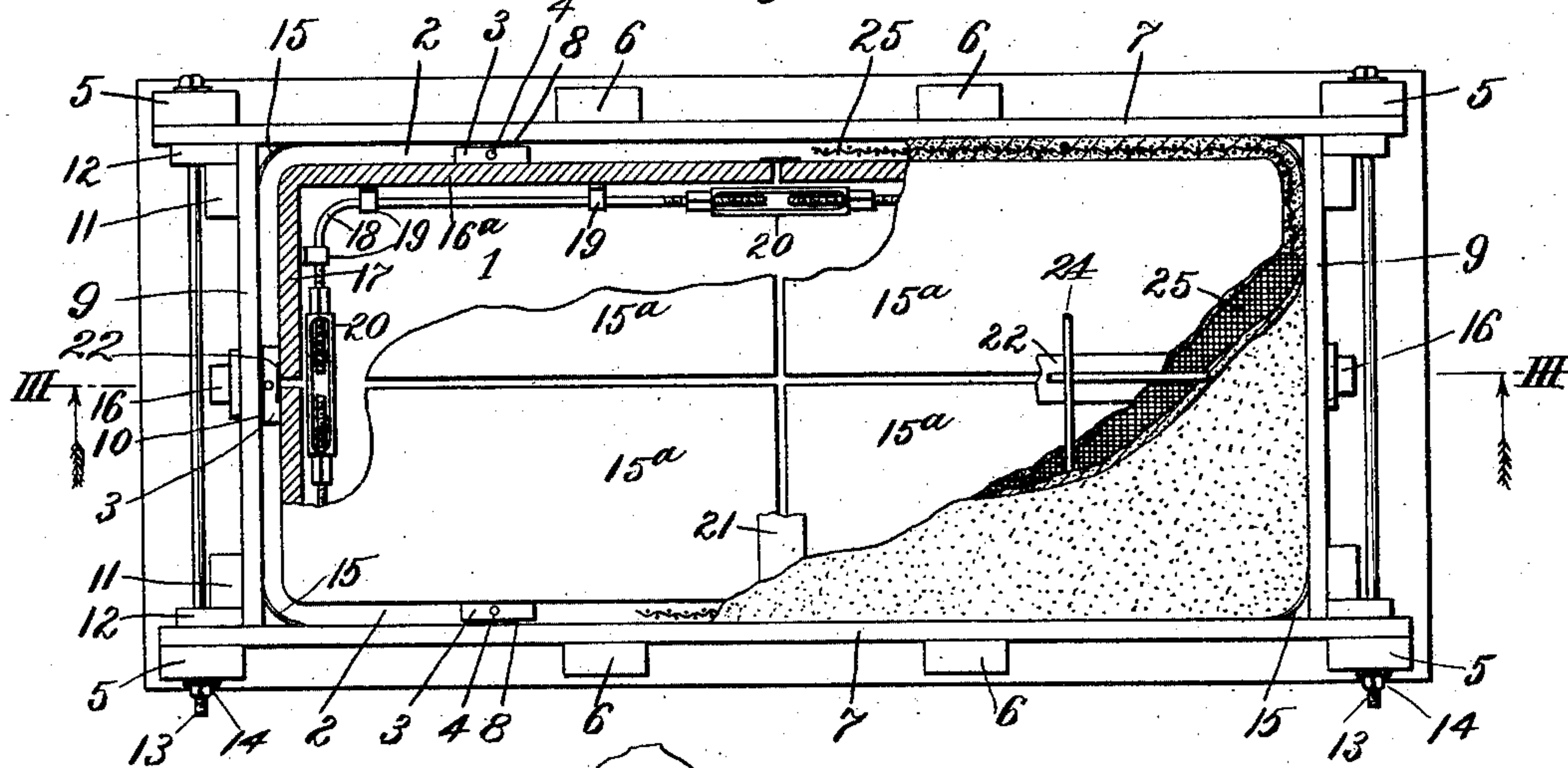
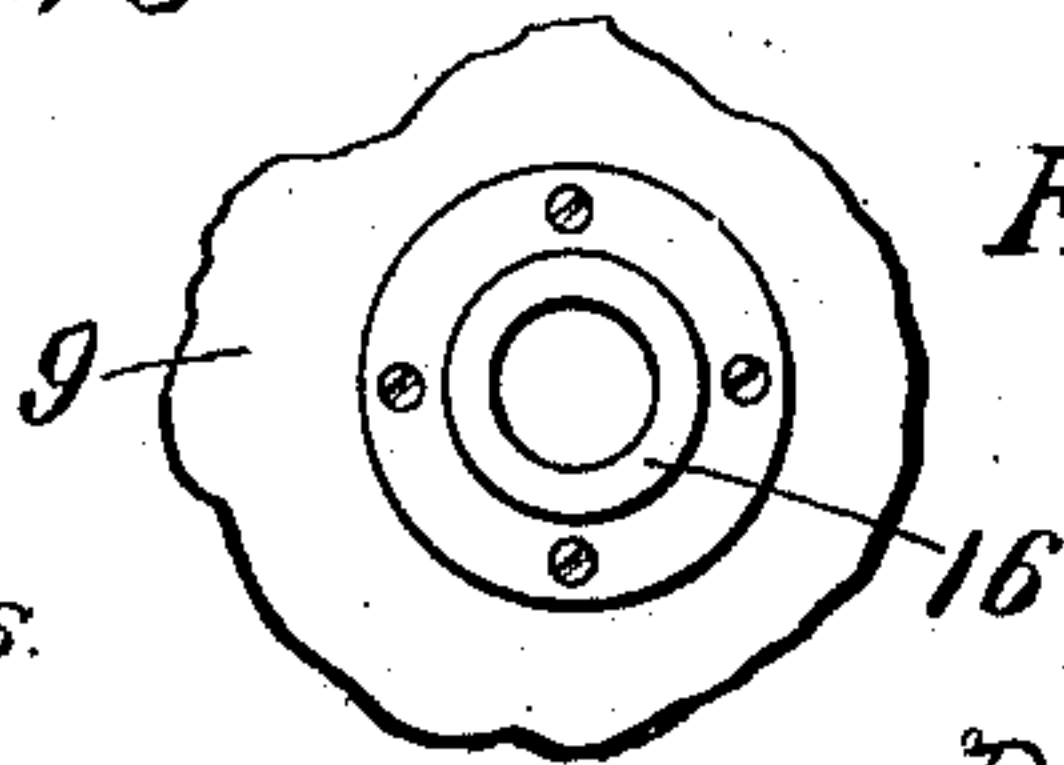


Fig. 13.



Witnesses.

E. E. Seidelman.
H. C. Rodgers

By

Inventor
C. K. Haw.
George F. Thorpe Atty.

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3 SHEETS-SHEET 2.

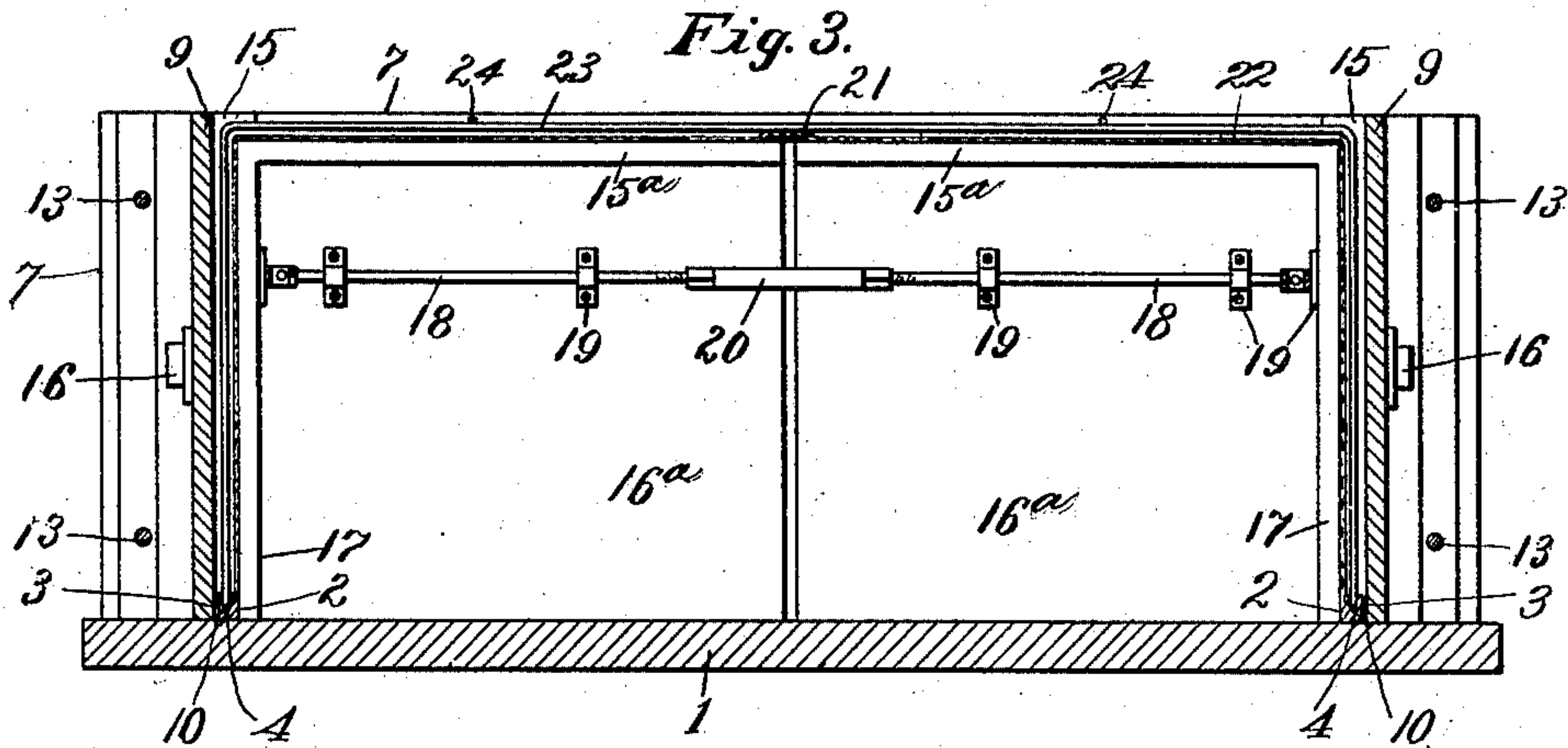


Fig. 4.

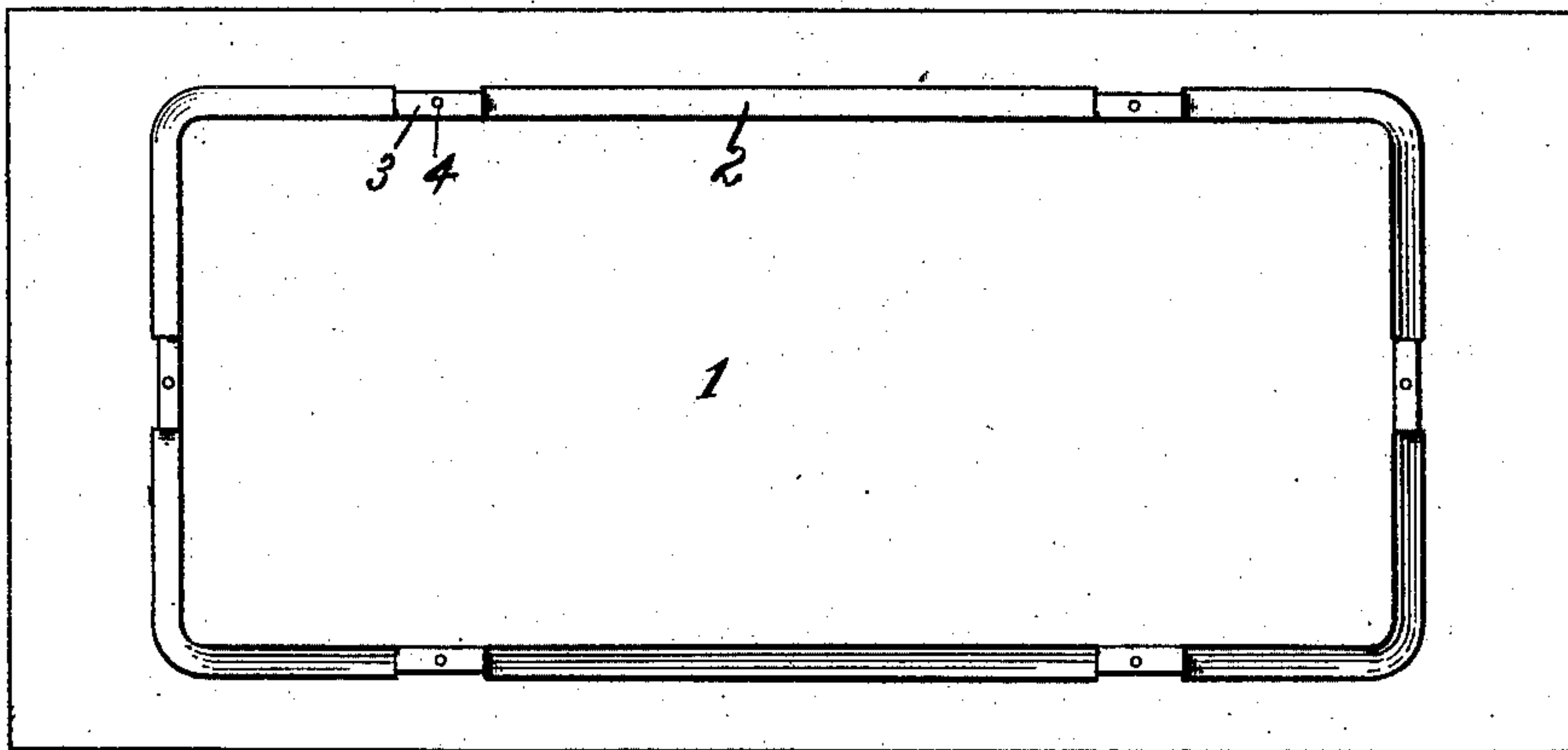
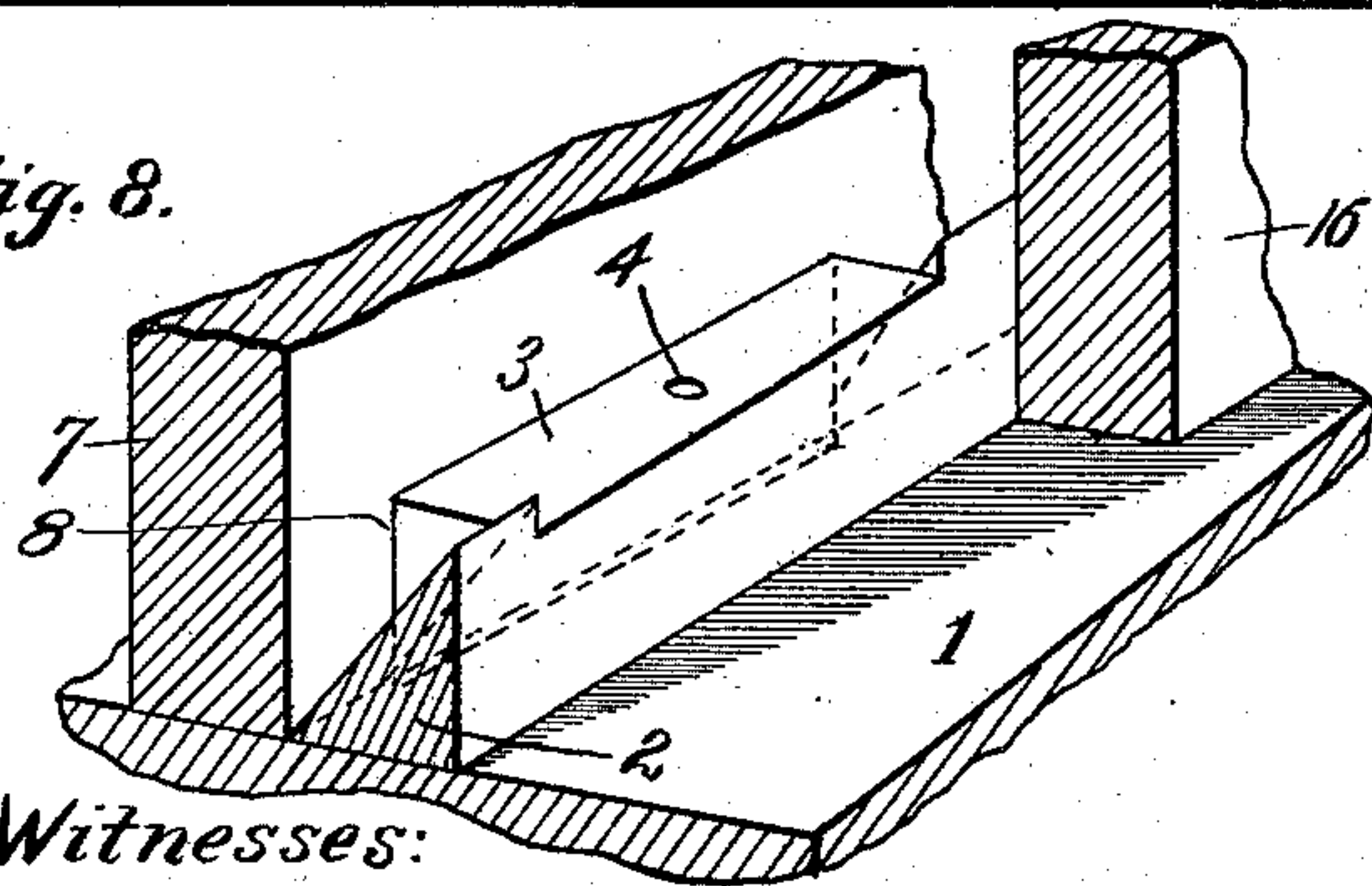


Fig. 8.



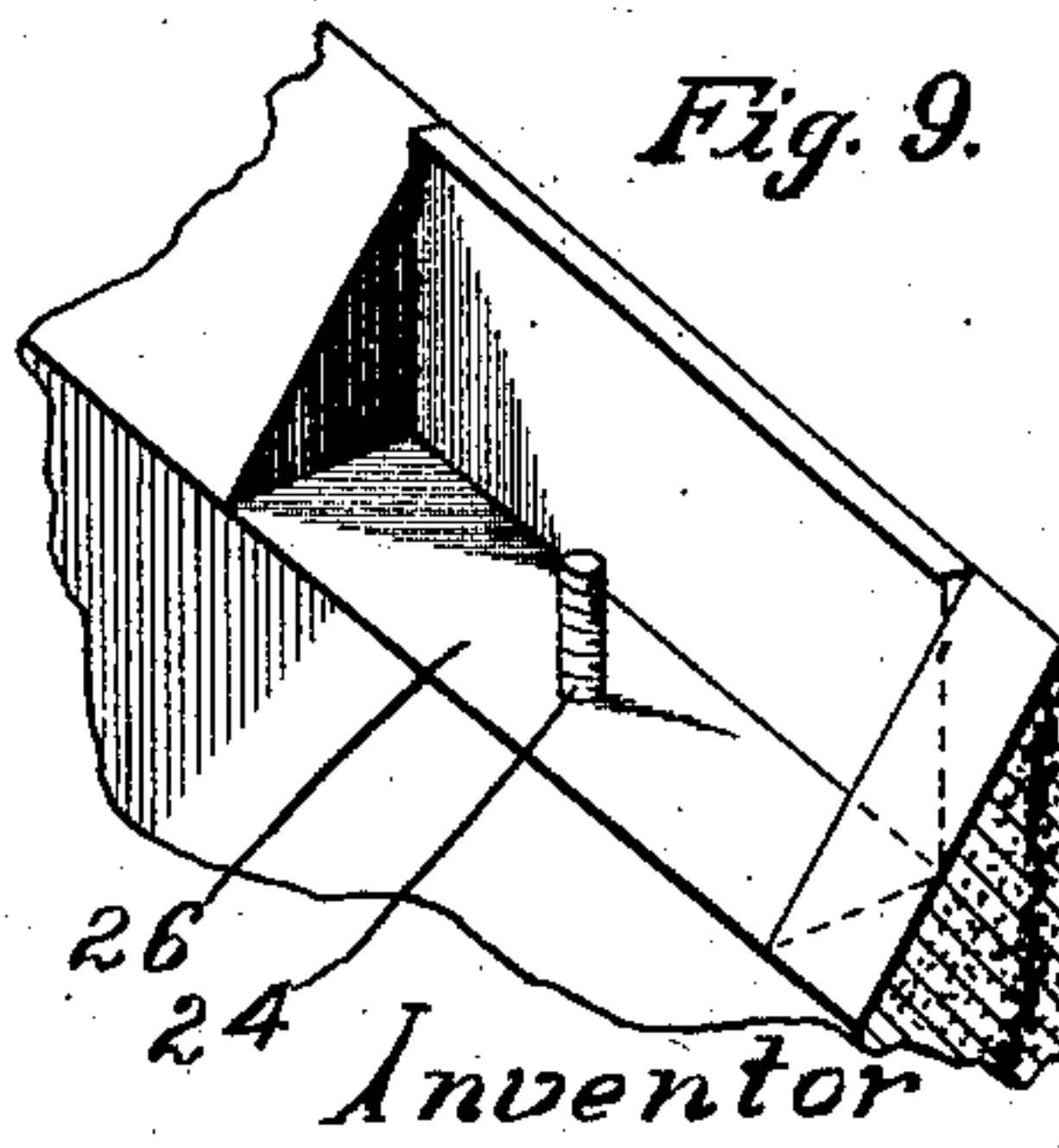
Witnesses:

E. E. Seidelman.
H. C. Rodgers.

By

George F. Hooper
Atty.

Fig. 9.



Inventor

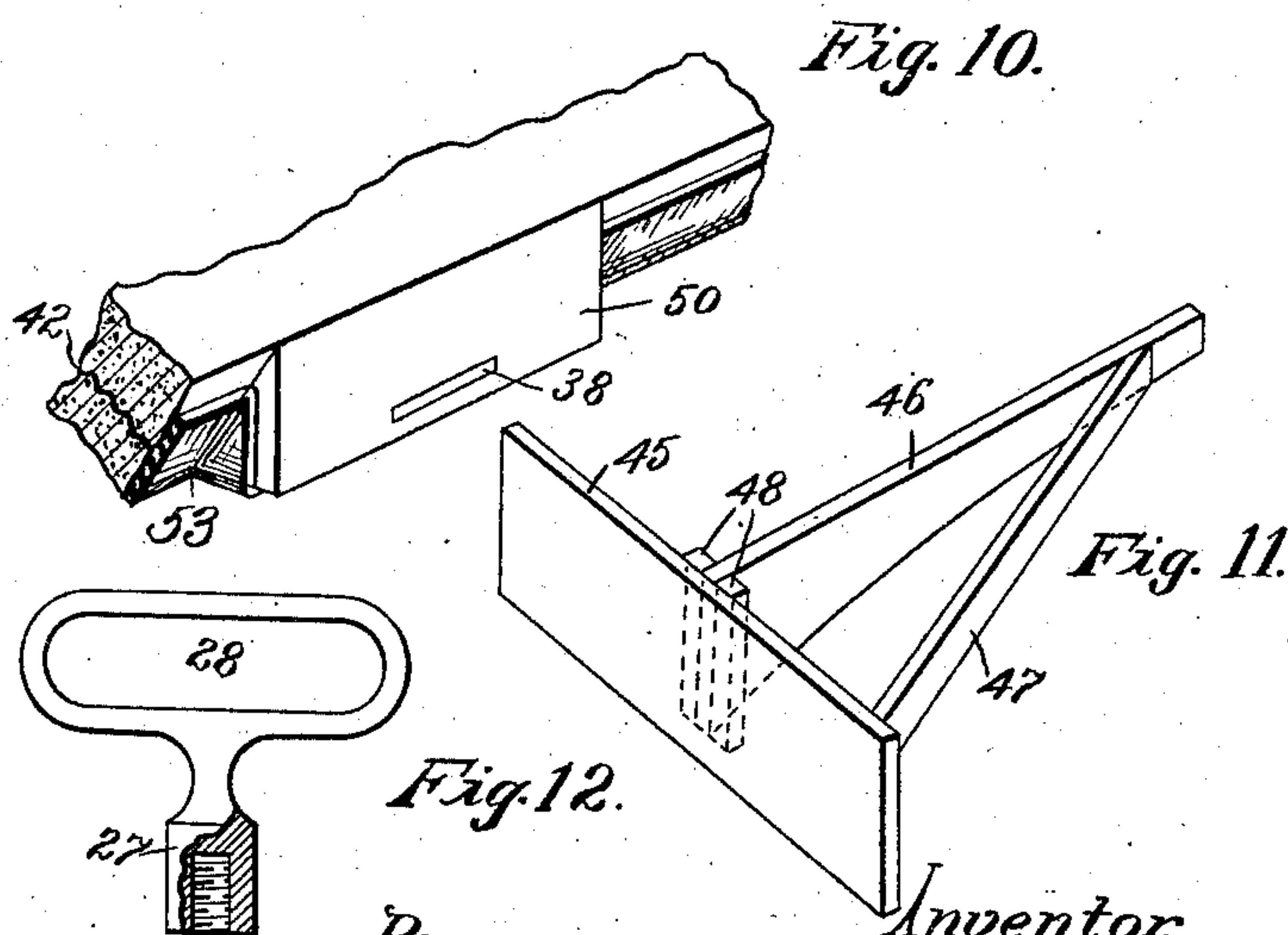
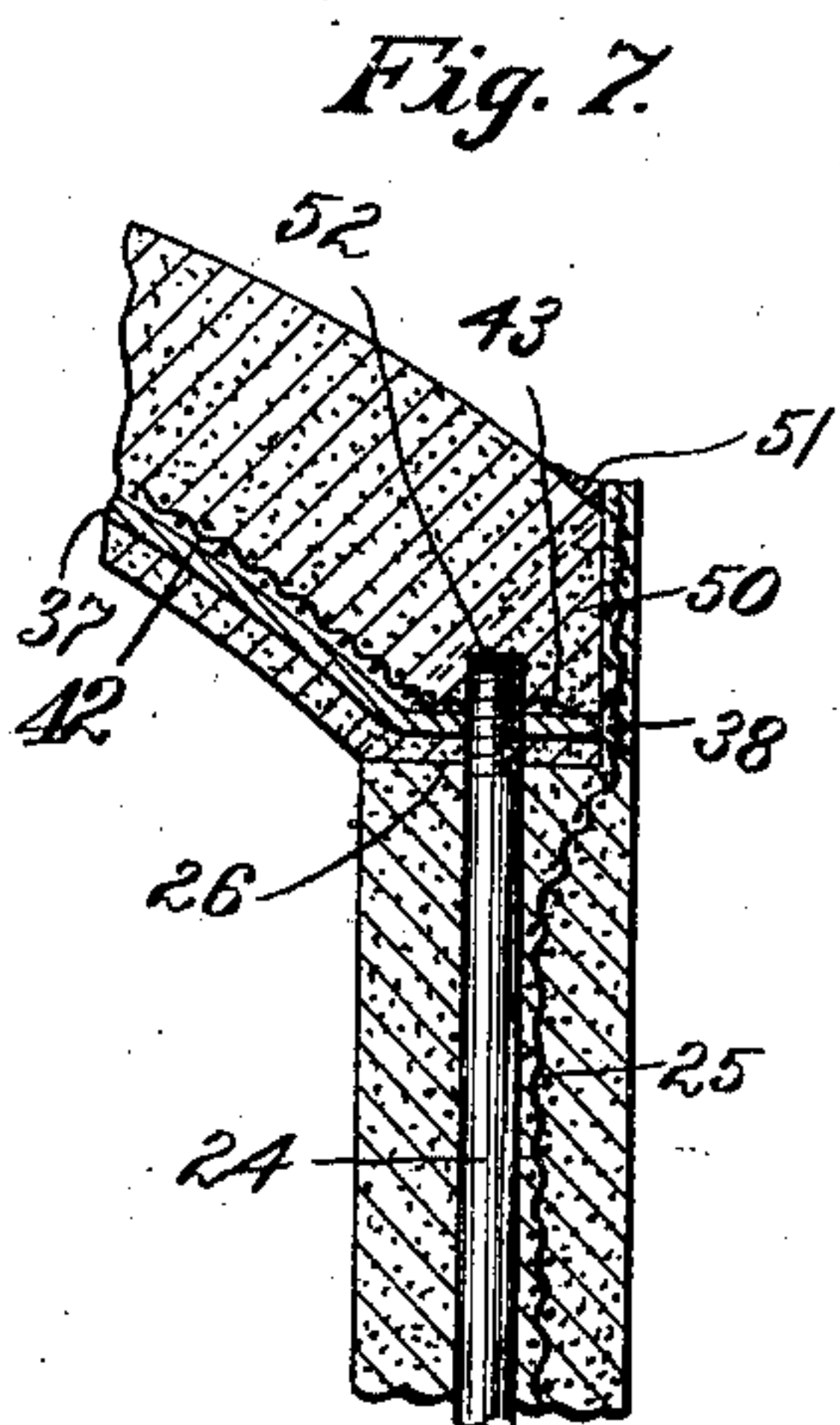
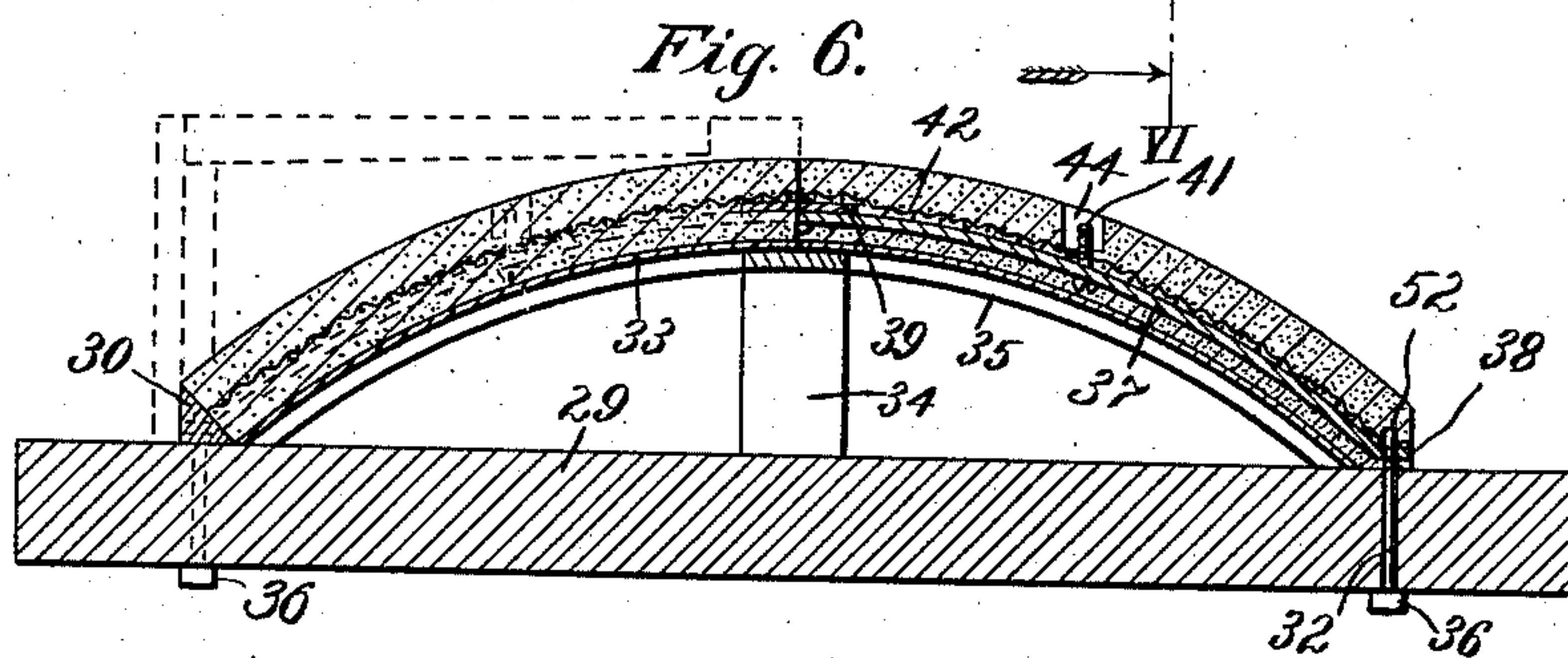
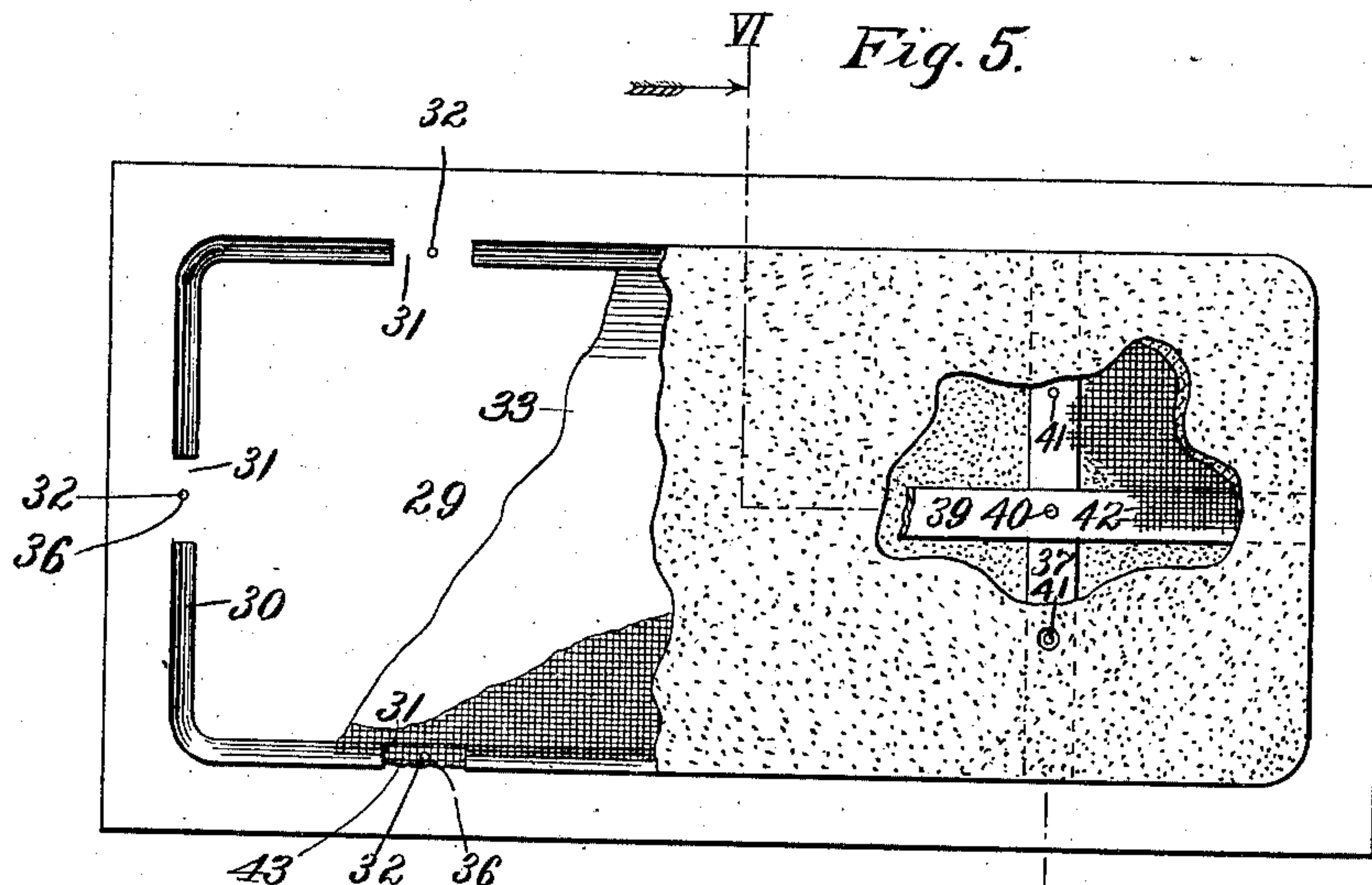
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3 SHEETS-SHEET 3.



Witnesses:

E. E. Seidelman.
H. G. Rodgers.

By

George J. Thorpe
C. K. Haw.
Atty.

UNITED STATES PATENT OFFICE.

CHARLES K. HAW, OF KANSAS CITY, KANSAS.

MOLD FOR MAKING BURIAL-VAULTS.

987,134.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed July 27, 1908. Serial No. 445,539.

To all whom it may concern:

Be it known that I, CHARLES K. HAW, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Molds for Making Burial-Vaults, of which the following is a specification.

This invention relates to burial vaults and analogous structures and more particularly to the molds for making the same, and has for its object to produce a knock-down mold of simple, strong, durable and inexpensive construction, and with which a vault can be made which is practically indestructible and impervious to air and moisture.

A further object is to produce mating or companion molds whereby the body and the cap portions of the vault can be separately constructed efficiently and economically.

A still further object is to produce a vault comprising a body portion and a cap, each of which have means to which handles may be easily and conveniently attached to facilitate the lowering of the body portion and cap in the order named into a grave.

Another object is to produce a mold whereby the incorporation of metallic reinforcements in the vault can be easily and economically effected, and vault sections be produced which can be easily, quickly and efficiently fitted together and sealed.

With these and other objects in view, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1, is a perspective view of a completed vault embodying my invention, the same being broken away to illustrate reinforcements thereof and to disclose the jointed relation between the body portion and cap. Fig. 2, is a top plan view of the body portion of the mold with a part of the inner member of such body portion in horizontal section and with a part of the body portion of the vault in plan view and a part of it in horizontal section, said figures also illustrating parts of the mold and vault, hereinafter described. Fig. 3, is a vertical section on the line III—III of Fig. 2, with the vault omitted. Fig. 4, is a top plan

view of the base of the body portion of the mold. Fig. 5, is a top plan view of the mold for the cap portion, showing a part of said mold broken away and a part of the cap molded thereon and broken away to expose reinforcements of the cap. Fig. 6, is a section on the line VI—VI of Fig. 5. Fig. 7, is an enlarged section taken on the line VII—VII of Fig. 1. Fig. 8, is an enlarged sectional perspective view of a part of the body portion of the mold. Fig. 9, is a perspective view of that portion of the body of the vault produced by that portion of the mold shown in Fig. 8. Fig. 10, is an enlarged sectional perspective view of a portion of the cap. Fig. 11, is a perspective view of a floater or tool for shaping the upper surface of the cap. Fig. 12, is a side elevation of one of a set of handles employed in lowering the vault and cap into a grave, the said handle being partly broken away. Fig. 13, is an end view of one of the tubular socket bearings and a portion of the corresponding end wall of the mold.

Referring first to the mold for the body portion of the vault, 1 indicates a base of any suitable material and proportion, and 2 a wall inclosing a substantially oblong-rectangular space having rounded corners, projecting upward from the base and of right-angle-triangle form in cross section, with its hypotenuse side pitched downward and outward, as shown most clearly in Fig. 8. Each end and side of said wall is provided with a lug 3 of inverted right angle-triangle shape, secured to or formed integral with wall 2 and disposed on the hypotenuse face of the same, it being further noted by reference to Fig. 8, that the upper side or face of the lug terminates short of the upper edge of the wall 2 and that the outer or vertical faces of lugs 3 terminate inward of the outer margins of the wall 2, as shown clearly in Figs. 2, 4 and 8 for a purpose which hereinafter appears, it being further noted by reference to said figure and Fig. 4, that vertical holes 4 are formed in lugs 3.

Erected upon the base are corner uprights 5 and intermediate uprights 6, and fitting upon the base and against the inner sides of uprights 5 and 6 are the side walls 7 of the outer member of the mold for the body portion of the vault, the inner faces of said side walls occupying the vertical plane of the outer margins of the side por-

tions of wall 2 and providing between said walls 7 and lugs 3, pockets 8 corresponding in length to said lugs.

9 indicates end walls resting upon the base and fitting at their ends against the inner faces of the side walls 7, and having their own inner faces fitting against the outer edges of the end portions of wall 2 and forming in conjunction with the lugs 3 of said end walls, pockets 10 corresponding to pockets 8. The end walls 9 are provided with vertical stiffening bars 11 and with end flanges 12, the latter fitting against the inner faces of side walls 7, and 13 indicates tie-bolts extending through the transversely alined corner posts 5, the side walls 7 and the flanges 12 of the adjacent end walls, nuts 14 engaging the threaded ends of said bolts to clamp walls 7 and 9 rigidly together and at right angles to each other. Secured to the inner faces of the end walls are curved corner plates 15 which fit snugly against the outer edges of the rounded corners of wall 2 and the inner faces of side walls 7, so that the upright corners of the body of the mold when completed, shall be rounded externally to correspond with the curvature of said corner plates 15.

16 indicates tubular socket bearings secured centrally to end walls 9 at their outer sides to receive trunnions (not shown), to facilitate turning the mold from an upright to an inverted position, it being understood in this connection that the body portion of the vault is molded in an inverted position and is brought to an upright position by the inversion of the mold.

The inner member of the body portion of the mold is in the form of a box and is placed upon the base in an inverted position with its side and end walls fitting squarely against the inner vertical faces of wall 2, said box by preference consisting of four sections each comprising a top 15^a and one side wall 16^a and end wall 17, said walls, when the box is in its initial position depending vertically from the top 15^a and resting upon base 1, it being further noticed by reference to Fig. 3, that the upper face of the top of the inner mold occupies a horizontal plane below the upper edge of walls 7 and 9 substantially equal to the width of wall 2, and in order to secure the sections of the inner member rigidly in the position described as regards endwise or lateral movement, each section is provided with a right angle-shaped rod 18 threaded at its ends and arranged horizontally and so secured by bearing-clips 19 secured to the inner faces of the walls 16^a and 17, as shown clearly in Figs. 2 and 3, the adjacent ends of the alined arms of said angle rods being connected by turn-buckles 20 whereby the sections can be adjusted longitudinally or laterally to accommodate the length and width

of the space inclosed by wall 2. In practice it is preferred that the inner member of the mold shall be slightly expanded when a vault body of the smallest size is to be made in order that after the material forming such body has become set, said member may be contracted through the proper manipulation of said turn-buckles to facilitate its removal from such body.

When the sections are arranged as shown in Figs. 2 and 3, it is necessary to partially close the cracks or slots between the inner edges of their tops 15^a to prevent the cement or analogous material of which the vault is made, from entering such cracks or slots and this I accomplish preferably by means of filler strips 21 and 22. The material of which the body portion is to be made will preferably be in semi-liquid or plastic form and in such condition is introduced in any suitable manner as by pouring, into the annular space formed by and between the outer walls 7 and 9 and the inner walls 16^a and 17. In the event, however, that the vault is to be reinforced, I first invert a U-shaped rod 23 and fit it down over the inner member with its arms in the annular space referred to and fitting in the holes 4 of the end lugs 3, and then fit over said rod a pair of narrower U-shape rods 24 with their arms depending into said space and engaging the holes 4 of the side lugs 3, it being preferred that the depending arms of all of the rods shall be of such length that their horizontal or bridge portions shall be above and out of contact with the top of the inner member and below the upper edge of walls 7 and 9. After arranging the U-shaped rods as explained, I arrange in the said annular space a foraminous reinforcement, such as wire gauze 25, and by preference dispose said gauze so that it shall extend through the pockets 8. The semi-plastic material hereinbefore referred to, is then poured into the said annular space until it completely covers the top of the inner member and attains the level of the upper edges of the walls of the outer member. After such material is set, suitably supported trunnions (not shown), are fitted in the socket-bearings 16 and any suitable means is employed for raising the mold sufficiently to permit it to be turned on said trunnions until inverted. Blocks or other devices (not shown) are then placed under the mold as a support for the body of the vault and then the operator can reach down into the inner member with a suitable tool and turn the turn-buckles so as to contract such member to permit it to be lifted out of the molded body. The bolts 13 are then removed to permit the end and side walls of the outer member of the mold to be withdrawn and the base with its standards to be drawn upward from the said body, which at its upper

edge tapers downwardly and inwardly as shown in full lines Fig. 9 and in dotted lines, Fig. 7, this tapering surface forming a flaring mouth. At the points, however, where the walls 2 are provided with lugs 3, said flaring mouth is formed with pockets 26 and projecting upward into said pockets are the threaded ends of the rods 23 and 24, which rods are adapted to receive threaded handles 27, through the slotted portions 28 of which suitable straps, (not shown), are adapted to be passed for the purpose of lowering the body of the vault into a grave, which handles are then disconnected for use in lowering the cap into the grave, as hereinafter explained.

For the purpose of molding the cap, I employ the following construction. 29 indicates a flat base of suitable proportion, provided with an upwardly projecting wall 30 corresponding in form and proportion to wall 2 except that wall 30 at the points corresponding to the lugs 3 of wall 2, is cut away as at 31, the base 29 being provided with vertical holes 32 centrally of such cut away portions of the wall, it being also noted that said wall is of triangular form in cross section, like wall 2, but has its hypotenuse face tapering downwardly and inwardly instead of downwardly and outwardly, as shown most clearly in Fig. 6. 33 is a plate which arches laterally and longitudinally and is arranged upon base 1 at the inner margin of the downwardly converging or hypotenuse face of wall 30, and said arched plate is preferably provided with underlying arched braces 34 and 35 which rest upon base 29. After the parts of the mold are thus assembled, pins 36 corresponding by preference in diameter to the rods 23 and 24, are fitted up through holes 30 of the base 29, with their ends projecting above the base a distance corresponding to that which bolts 23 and 24 project up into the pockets 26. The material of which the cap is to be made and which by preference, is in the form of plastic cement, is then plastered on top of the plate 33 to a suitable depth and also upon that portion of the base in the vertical plane of the cut-away portions 31 of wall 30. A pair of arched bars 37 is then arranged transversely upon the cement and terminate in outwardly projecting perforated ears 38 fitting over the transversely opposite pins 36. An arched bar 39 is then arranged longitudinally over the form and the cement thereon and the transversely extending arched bars 37 and terminates in similar perforated ears engaging the pins 36 projecting into the cut-away end portions of the wall 30, said bar 39, by preference, being riveted as at 40 to the transverse arched bars 37 to guard against slippage of either of the bars, it being further noticed that each transverse

arched bar is provided with a pair of bolts 41 at equal distances from its center, which bolts project upward a distance somewhat less than the width of the hypotenuse face of wall 30, as shown clearly in Fig. 6. A foraminous reinforcement 42 of wire gauze or equivalent material is then arched over the arched bars and the plastic cement underlying them, and at the points corresponding to the cut away portions 31, said foraminous material is preferably provided with extensions 43 projecting through said cut-away portions. A second coat of the plastic material is then applied upon the foraminous reinforcement and of course penetrates through the interstices of the latter to the underlying reinforce bars and first coat of such material, the molder roughly rounding off the upper surface of the second coat in a plane substantially parallel with the underlying plate 33, but leaving pockets or recesses 44 in the top coat surrounding the upwardly projecting bolts 41, such pockets being provided for the reception of the handles 27, to permit the latter to be screwed upon said bolts 41 preliminary to lowering the cap into the grave and upon the body portion therein.

To give the cap a smooth, even and symmetrical finish, I employ a tool or floater of substantially the type shown in Fig. 11, though of course, I do not restrict myself to any particular means for finishing the upper surface of the cap. This floater consists of a vertical body portion 45 to fit against the vertical or outer face of wall 30 and an inwardly projecting arm 46 having its lower edge concaved to correspond to the curvature which it is desired to impart to the upper surface of the cap, said arm being preferably braced from the body portion 45 by a brace 47 and also secured to the latter between a pair of cleats 48. In practice the floater is arranged as indicated by dotted lines, Fig. 6, and is then slid longitudinally upon the base for the full length of the mold so as to finish one side of the cap. It is then shoved transversely against one of the end portions of the wall 30 to finish the corresponding end of the cap, then along the other side portion of said wall and finally along the other end portion of the wall, these operations resulting in eventually imparting to the cap an external form and finish approximately corresponding to that shown by Fig. 1.

If desired the cap may be equipped with a valve-controlled pipe 49 through which a fluid may be introduced into the vault when completed for embalming or through which the air may be evacuated from the vault.

When the material is "set" the cap is removed from the mold and because of the wall 30 upon which it was molded, its edge is found to be pitched downwardly and in-

wardly, the inclination corresponding substantially to that of the flaring mouth of the body portion of the vault, it being further noted by reference particularly to Figs. 6, 7 and 10, that it is provided at the points corresponding to the cut-away portions 31, with lugs 50 adapted to fit in the pockets 26, which pockets preferably exceed slightly the depth of the lugs so that when the cap is fitted down upon the body portion and closes the same, a shallow channel 51 is produced which extends completely around the cap. When the cap is fitted down upon the body portion, the holes 52 formed in the lugs 50 by the pins 36, (see Fig. 6), receive the upwardly projecting ends of the bolts 23 and 24 as shown clearly in Fig. 7, the perforated ears 38 of bars 37 and 39 also receiving said bolts.

After the body portion has been lowered into the grave as explained and the casket has been deposited therein and the cap fitted down upon the body portion, a workman takes a position upon the cap and with molten brimstone, cement or a material known as petrific, fills channel 51 and the pockets 44, which material will set and thus absolutely seal the joint between the body portion and cap against air and moisture to protect the bolts 41 against corrosion.

If desired, the entire vault both internally and externally, may receive a coating of the material known to the trade as petrific and possessing many times the strength and moisture excluding properties of the best cement or cement mixtures known. In fact, if desired, the vault may be made entirely of petrific, as the latter can be worked in precisely the same manner as cement and is of a cement nature.

Brimstone is preferably used as a seal to provide for the reopening of the case or vault if desired, but if it is desired to seal the vault permanently, petrific or equivalent material will be employed. To insure an absolutely air tight joint between the cap and body portion, an asbestos or equivalent gasket 53 may be arranged between the beveled edges of said body and cap portions of the vault, the said gasket being flexible by preference, in order that it shall be capable of bending to accommodate the engagement of the lugs 3 with the pockets 26, it being, of course, understood that the gasket will be perforated to accommodate the rods 23 and 24 projecting into said pockets.

The various parts of the mold which come into contact with the material of which the vault is made, are preferably coated with petrific or an equivalent cement mixture in order that such surfaces of the mold may be smooth and even and to prevent the wood portions of the mold from absorbing moisture from the material and the latter from sticking to the mold.

From the above description it will be apparent that I have produced a mold for producing a reinforced artificial stone or equivalent vault, case, sarcophagus, or like structure which can be made absolutely impenetrable by air and moisture, and which can be readily set up or knocked down and which is obviously susceptible of modification without departing from the principle of construction involved.

Having thus described the invention what I claim as new and desire to secure by Letters Patent, is:—

1. A mold, comprising a base having holes at suitable points, a wall upon the base inclosing a rectangular space, lugs projecting outward from the wall a distance short of the vertical plane of the outer edge of the bottom of the wall, and provided with holes coinciding with those of said wall, a wall inclosing the first-named wall and resting upon the base and spaced outward from the said lugs, a core fitting on the base and against the inner side of the first-named wall and of greater height than the same and less height than the wall inclosing the said first-named wall and provided with a top, and crossed inverted-U bolts bridging the core in the plane between the same and the upper edge of the said second wall and extending downward through the perforated lugs and the holes of the base.

2. A mold comprising a base having holes at suitable points, a wall upon the base inclosing a rectangular space, lugs projecting outward from the wall a distance short of the vertical plane of the outer edge of the bottom of the wall and provided with holes coinciding with those of said wall, a wall inclosing the first-named wall and resting upon the base and spaced outward from the said lugs, a core fitting on the base and against the inner side of the first-named wall and of greater height than the same and of less height than the wall inclosing the said first-named wall and provided with a top, crossed inverted-U bolts bridging the core in the plane between the same and the upper edge of the said second wall and extending downward through the perforated lugs and the holes of the base, and a foraminous reinforcement bridging the core in the plane between the top of the same and the top of the said second wall and extending downward between the core and said wall and between the latter and the lugs of the first-named wall.

3. A mold for forming the cap portion of a vault, the same comprising a base having a series of vertical holes and pins projecting upward therefrom, a wall inclosing a substantially oblong-rectangular space, mounted upon the base with its side portions in the vertical plane of certain of said pins and its end portions in the vertical plane of the re-

maining pins, said wall being cut away to form openings around said pins, and an arched mold member resting upon the base and bearing against the inner edge of said wall.

4. A mold for forming the cap portion of a vault, the same comprising a base having a series of vertical holes and pins projecting upward therefrom, a wall inclosing a substantially oblong-rectangular space mounted upon the base with its side portions in the vertical plane of certain of said pins and its end portions in the vertical plane of the remaining pins, said wall being cut away to form openings around said pins, an arched mold member resting upon the base and bearing against the inner edge of said wall, and a pair of crossed straps bridging the arched mold member and projecting into the said openings and provided with holes receiving said pins.

5. A mold for forming the cap portion of a vault, the same comprising a base having a series of vertical holes and pins projecting upward therefrom, a wall inclosing a substantially oblong-rectangular space mounted upon the base with its side portions in the vertical plane of certain of said pins and its end portions in the vertical plane of the remaining pins, said wall being cut away to form openings around said pins, an arched mold member resting upon the base and bearing against the inner edge of said wall, a pair of cross straps bridging the arched mold member and projecting into the said openings and provided with holes receiving said pins, and bolts secured to and projecting upward from certain of said straps.

6. A mold for forming the cap portion of a vault, the same comprising a base having a series of vertical holes and pins projecting upward therefrom, a wall inclosing a substantially oblong rectangular space

mounted upon the base with its side portions in the vertical plane of certain of said pins and its end portions in the vertical plane of the remaining pins, said wall being cut away to form openings around said pins, an arched mold member resting upon the base and bearing against the inner edge of said wall, a pair of crossed straps bridging the arched mold member and projecting into the said openings and provided with holes receiving said pins, a foraminous reinforcement overlying and substantially paralleling the arched mold member, and bolts extending up through certain of said crossed straps and through said foraminous reinforcement.

7. A mold for forming the cap portion of a vault, the same comprising a base having a series of vertical holes and pins projecting upwardly therefrom, a wall inclosing a substantially oblong-rectangular space, mounted upon the base with its side portions in the vertical plane of certain of said pins and its end portions in the vertical plane of the remaining pins, said wall being cut away to form openings around said pins and having its upper face pitched downwardly and inwardly, and an arched mold member resting upon the base and bearing against the inner edge of said wall, in combination with a tool comprising a body portion adapted to slide upon the base against the outer side of its wall and an arm projecting at right angles from said body portion and over said arched member and having its lower edge curved approximately parallel to the said arched member.

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

CHARLES K. HAW.

Witnesses:

H. C. RODGERS,
G. Y. THORPE.