

No. 763,333.

PATENTED JUNE 21, 1904.

M. T. STEVENS.
MOLD.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

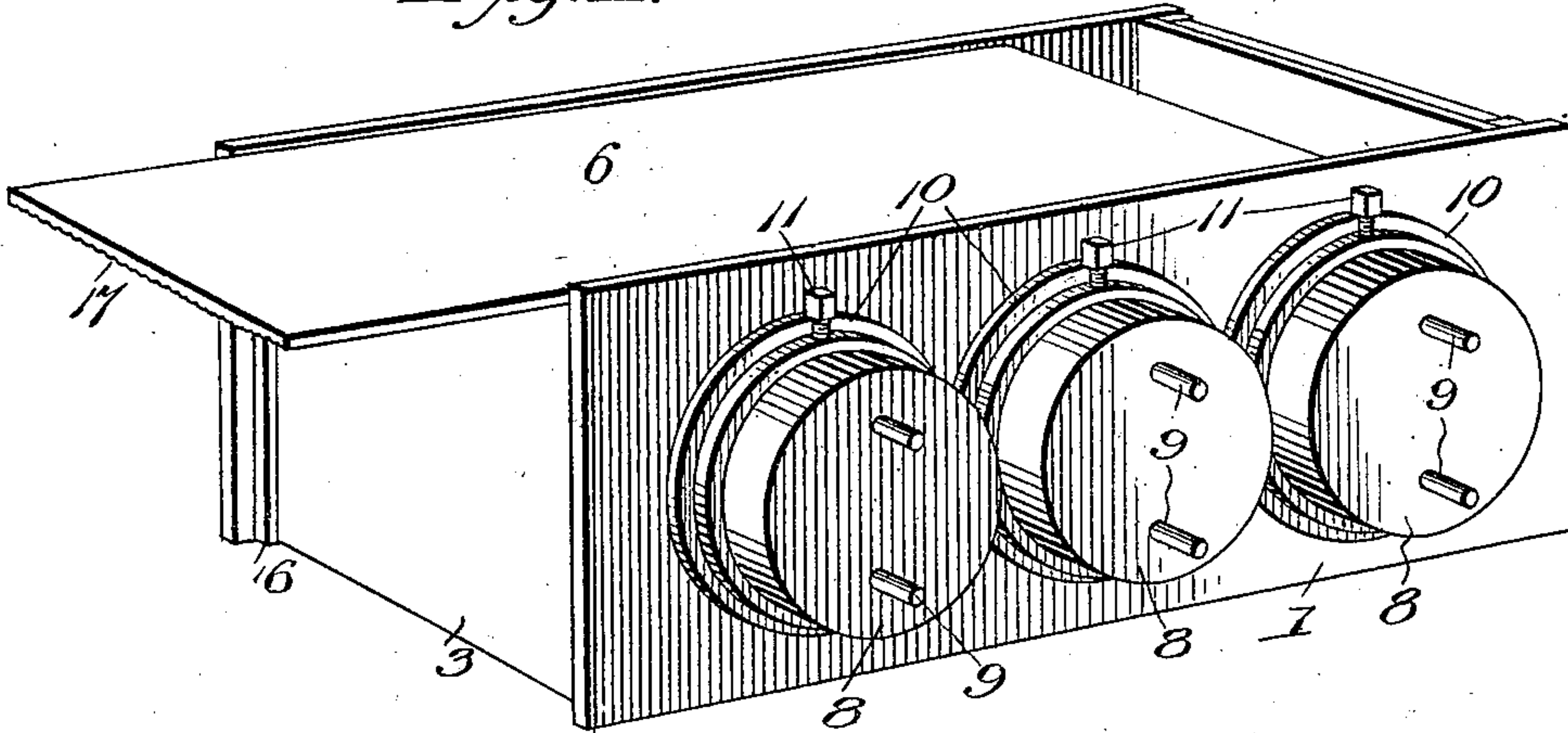


Fig. 2.

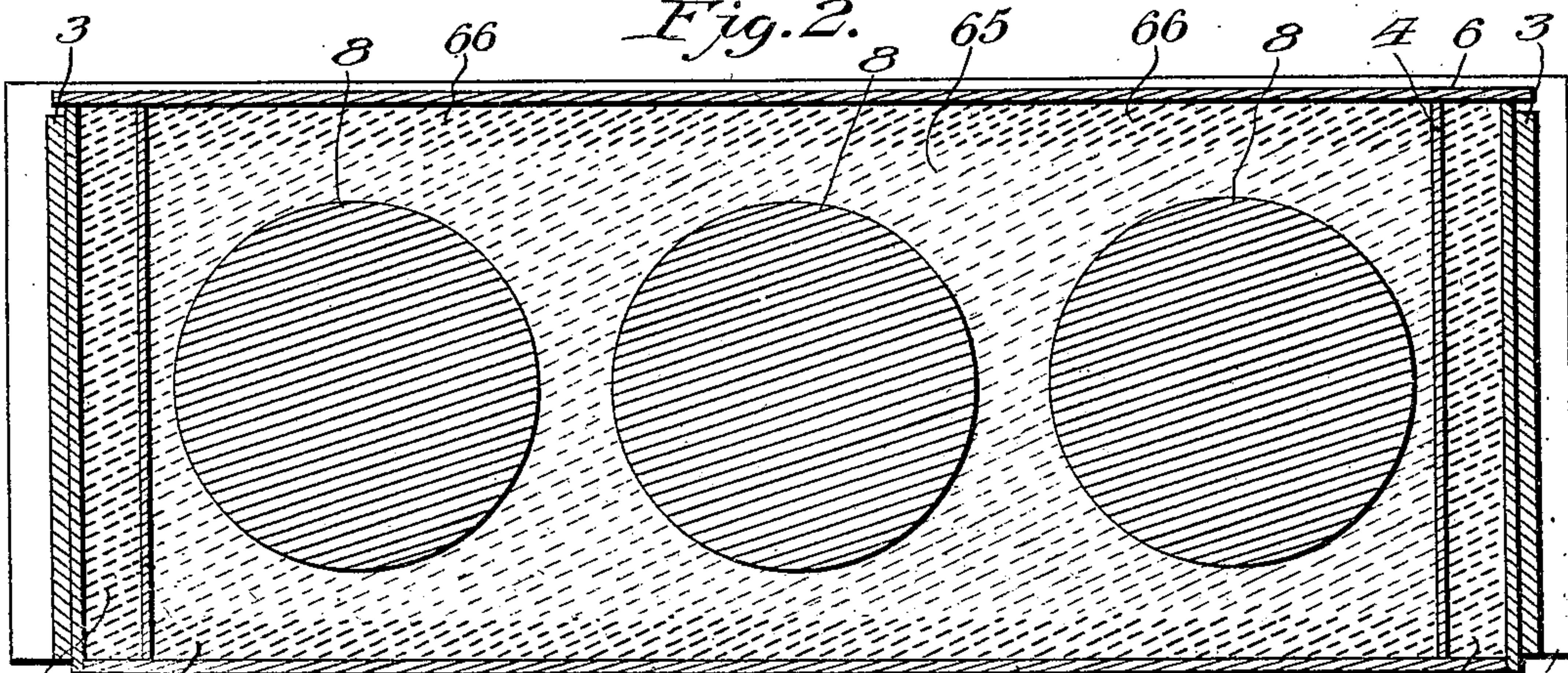


Fig. 3.

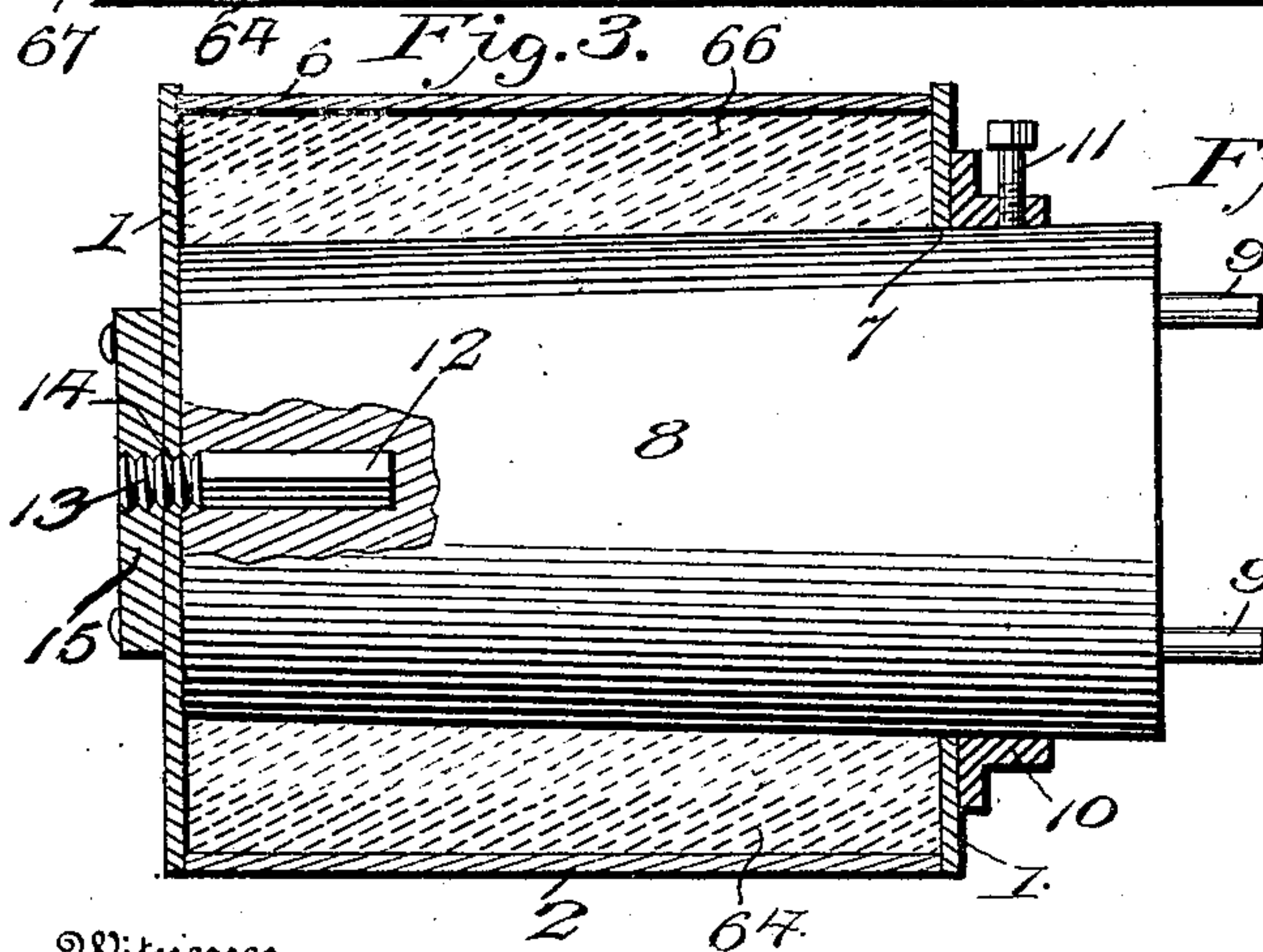
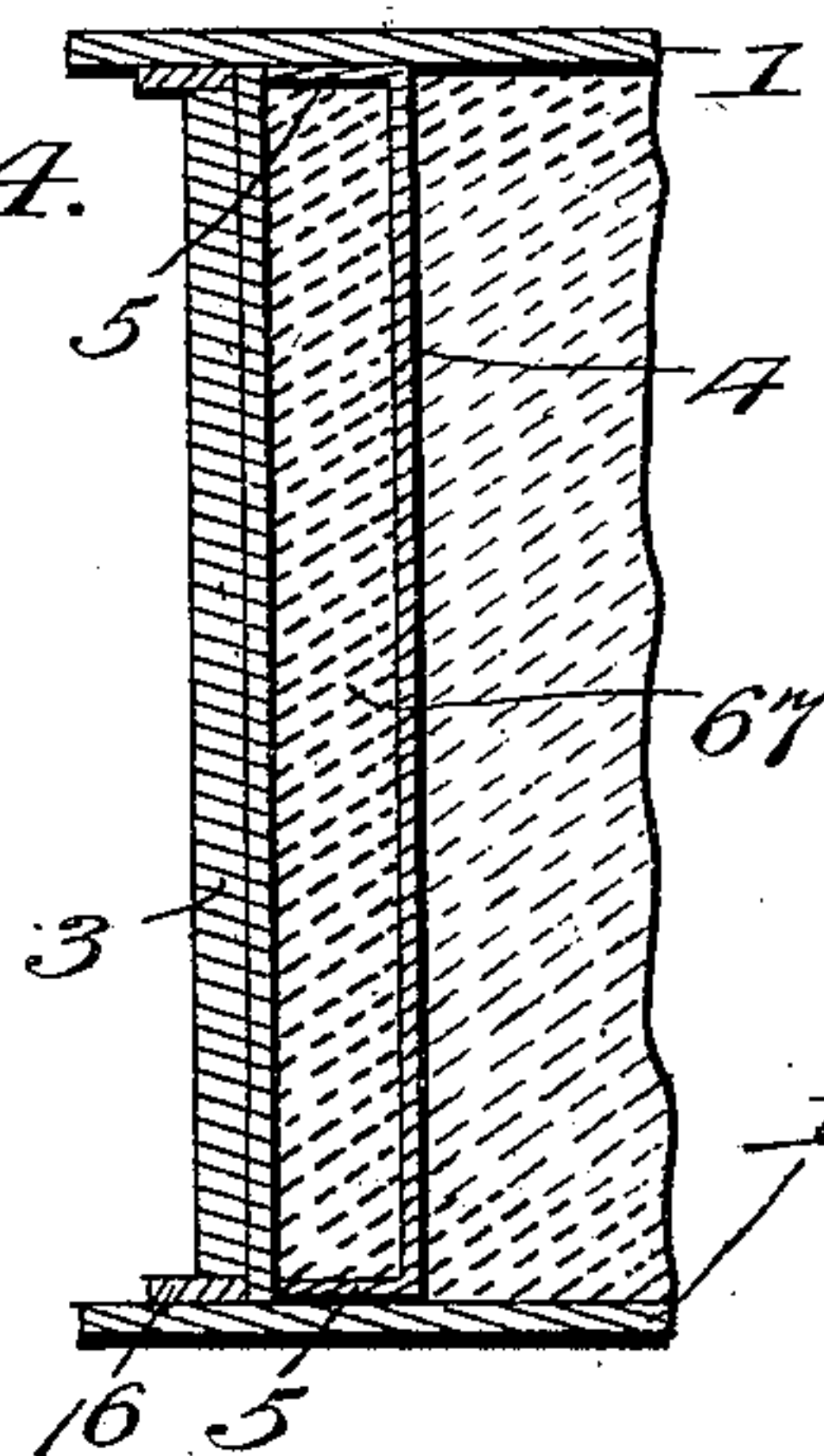


Fig. 4.



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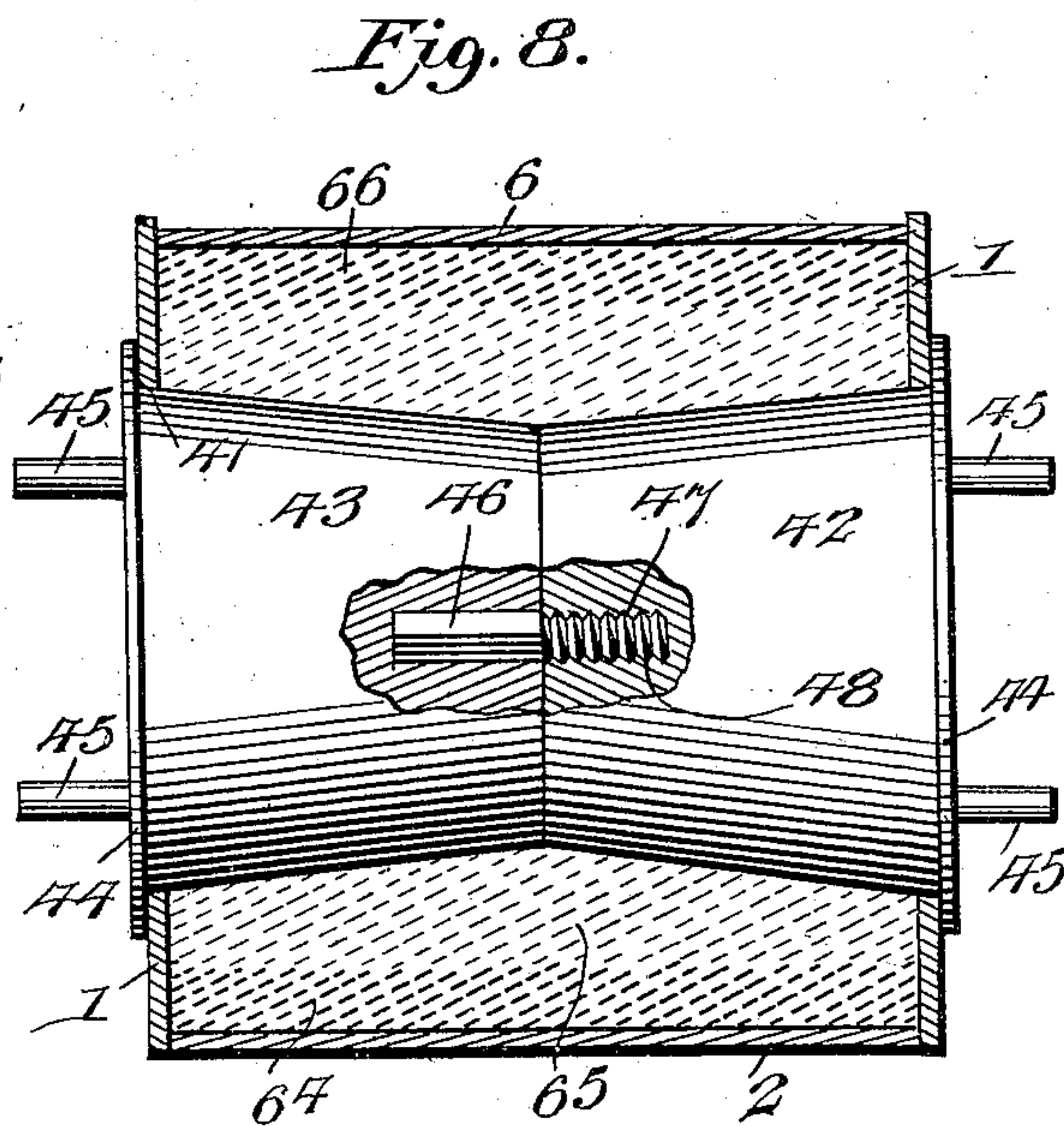
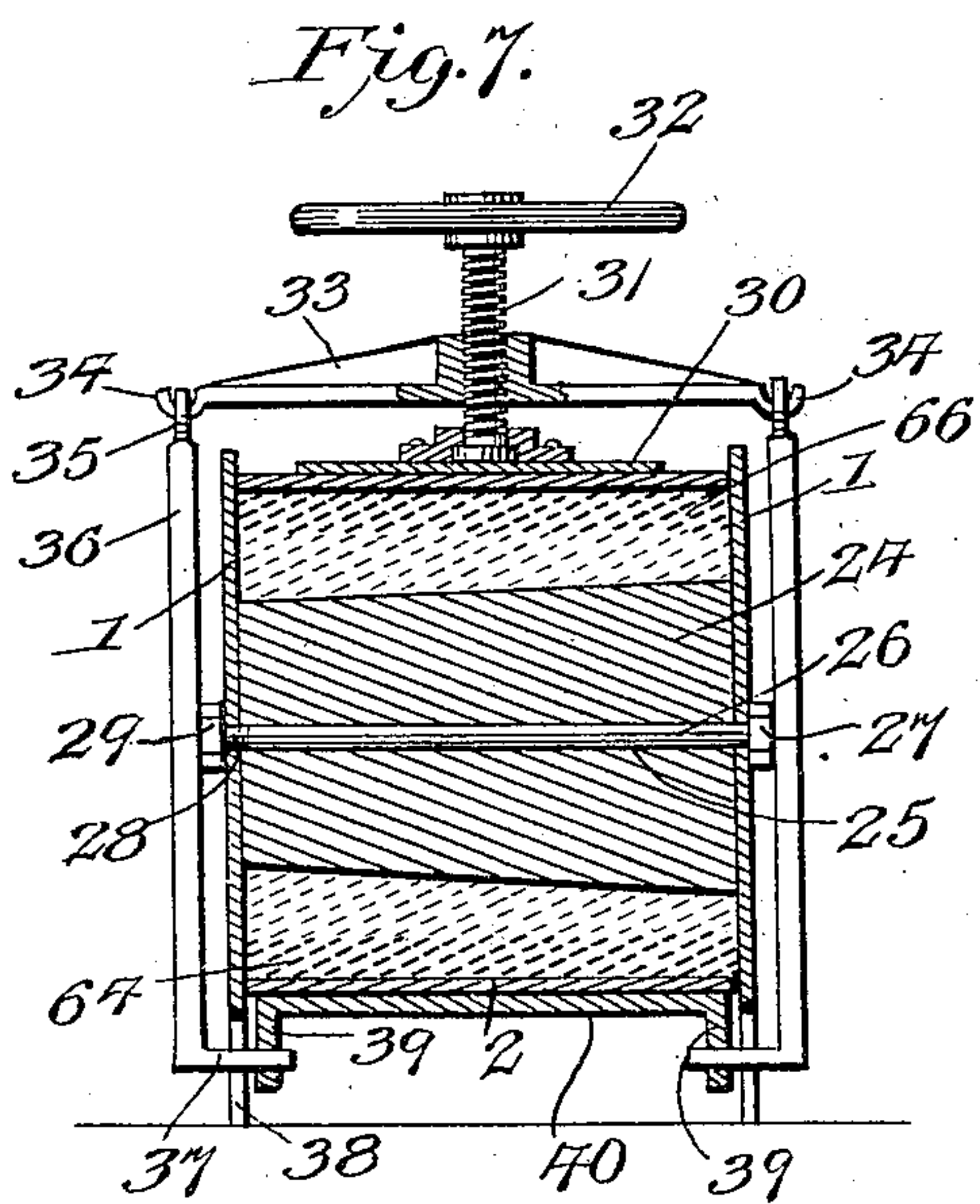
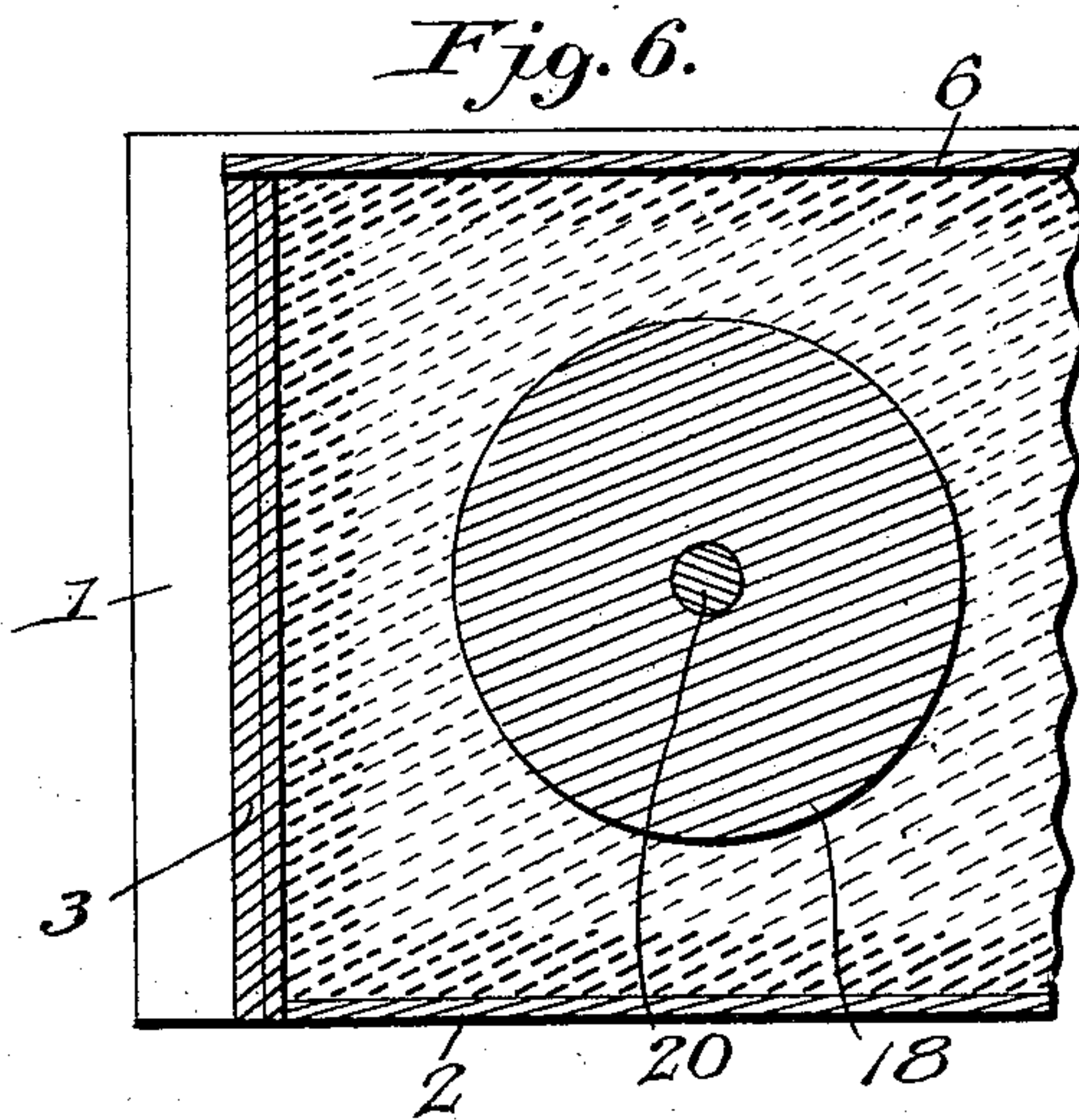
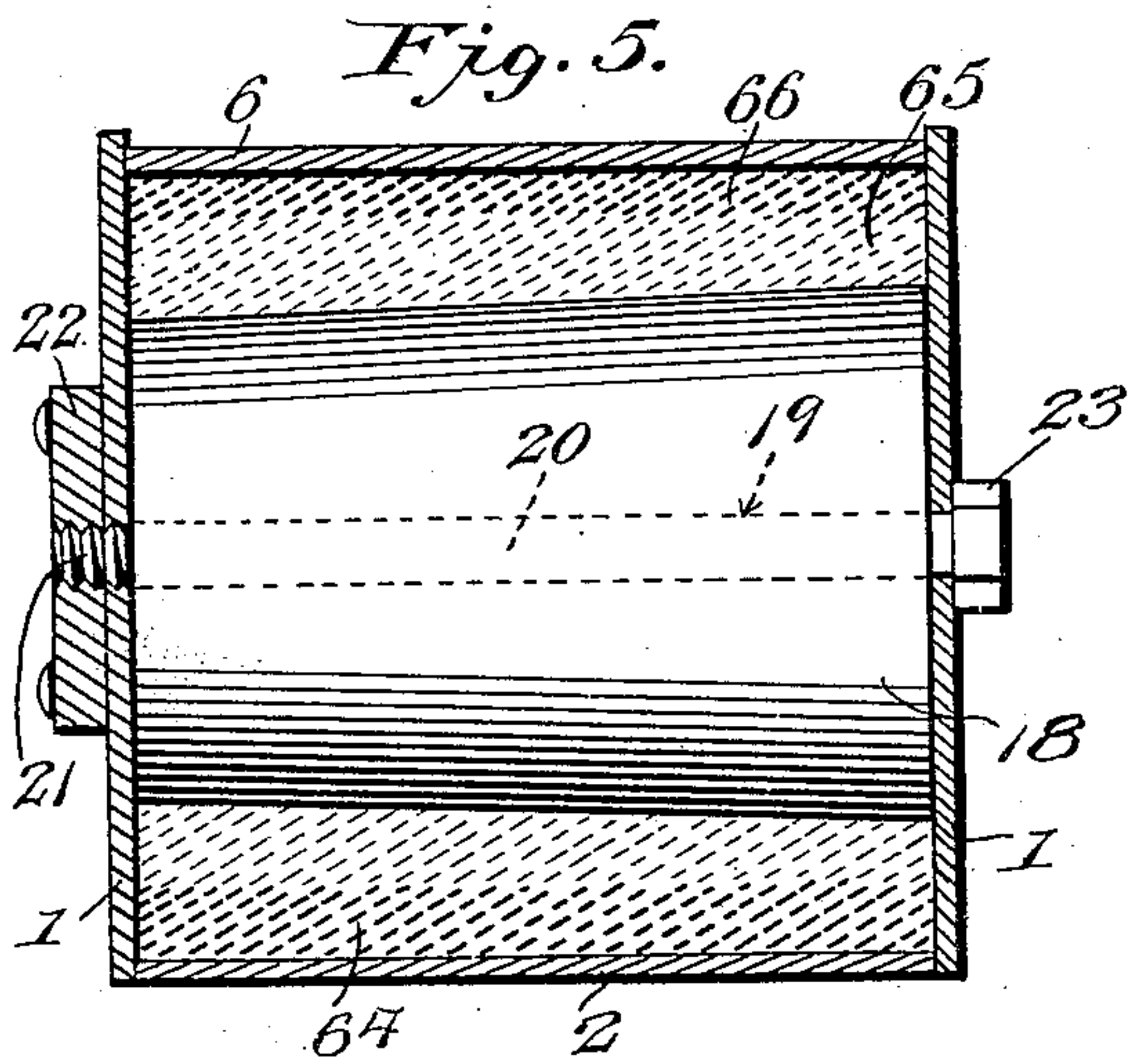
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

MAURICE T. STEVENS, OF HARVEY, ILLINOIS.

MOLD.

SPECIFICATION forming part of Letters Patent No. 763,333, dated June 21, 1904.

Application filed May 20, 1902. Serial No. 108,190. (No model.)

To all whom it may concern:

Be it known that I, MAURICE T. STEVENS, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented new and useful Improvements in Molds, of which the following is a specification.

This invention relates to molds for forming building-blocks or artificial stone and other analogous devices; and the purpose of the same is to provide a simple and effective organization of elements whereby the molding operation may be expeditiously pursued and building-blocks or artificial stone may be produced with ease and facility.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed, and subject to a wide range of modification in the form, proportions, dimensions, and minor details of construction.

In the drawings, Figure 1 is a perspective view of a mold embodying a plurality of cores. Fig. 2 is a longitudinal vertical section of the mold shown by Fig. 1. Fig. 3 is a transverse vertical section taken through the plane of one of the cores. Fig. 4 is a horizontal section of a portion of one end of the mold. Fig. 5 is a transverse vertical section of the mold, illustrating a modification. Fig. 6 is a partially longitudinal vertical section of the mold shown by Fig. 5. Fig. 7 is a transverse vertical section of a mold embodying a further modification whereby pressure is applied to both the bottom and top. Fig. 8 is a transverse vertical section of a mold embodying a still further modification in the construction of the core.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

Referring particularly to Figs. 1, 2, 3, and 4, the mold comprises suitable thin sheet-metal sides 1, a bottom 2, ends 3, removable end partitions 4, having terminal angular flanges 5, and a pressure-top 6, which is free to be moved or vibrated longitudinally for a purpose which will be presently explained. The one side 1 has a series of enlarged apertures 7 therethrough for the removable re-

ception of tapering cores 8, which are of greater length than the width of the entire mold and are provided at their enlarged ends with gripping-pins 9 for engagement by a spanner or similar device to remove or apply the said cores. On each of the cores is a flanged sleeve 10, provided with a set-screw 11, whereby the cores will be held in proper projected position in relation to the mold as an entirety and by means of which also the width of the mold may be accommodated. The opposite end of each of the cores has a squared or angular shank 12 embedded therein and formed with a projecting screw-threaded terminal 13, which engages a screw-threaded opening 14 in the opposite side and a stationary screw-plate 15 over the said aperture 14. By the use of the ends 3, varying in length, molds having different widths can be produced, and the cores 8 are constructed to accommodate this transverse adjustment. When the transverse extent of the mold is varied or changed, the sleeves 10 are correspondingly shifted on the cores, so that the flanges thereof will bear against the outer surface of one of the sides 1 or that having the opening 7 therein. The ends 3 are held in place during the assemblage of the sides, bottom, and ends by suitable stop-strips 16 on the inner opposing faces or surfaces on the opposite sides 1 adjacent to the ends of the latter. The end partitions 4 are held inwardly a distance within the mold from the ends 3 by the flanges 5, and at a certain time the said partitions are withdrawn from the mold. The top 6, as before indicated, is adapted to be vibrated longitudinally and also to exert downward pressure on the plastic material or cement disposed within the mold. The under side of the said top is corrugated or otherwise shaped, as at 17, to cause an ornamental surface to be formed on the molded block. In applying pressure to the top 6 for the purpose of rendering the material within the mold homogeneous and equally dense many different methods can be employed; but the simplest mode of doing this would be to apply weights to the said top, and thereby force the latter closely down on the material within the mold which is used in the formation of the build-

ing-block. It will be seen that the mold is held in shape, or rather the parts are connected by the cores extending transversely therethrough, and the purpose of these cores is to produce a building-block having ventilating-openings therethrough, which become aligned when the blocks are superimposed in erecting a wall. This construction of block also increases its strength and durability, and in the initial method of forming the same the removal of the cores will facilitate the drying out of the blocks, as air will be permitted to circulate through the openings. The tapered form of the cores also assists in the removal of the same, as it will be understood that the gradually-reducing diameter of the said cores will be pulled through the gradually-enlarged portion of the openings in the molded block.

The form of the mold shown by Figs. 5 and 6 is similar mainly in all respects to that just described, and like numerals are applied to corresponding parts. The difference in construction in this form of the mold resides in the means for securing the core. In this instance the cores 18 are tapered similarly to the cores 8, heretofore set forth, but are shorter and wholly confined between the inner opposing surfaces of the opposite sides 1 of the mold. Through the center of each core 18 and extending the full length thereof is an angular opening 19 to receive the angular intermediate body portion of a tie-rod 20, having opposite screw-threaded extremities 21, which are engaged by nuts 22 and 23. The nuts 22 and 23 are applied against the outer faces or surfaces of the sides 1, and after the cores 18 are placed in their proper positions in the mold, with the rod 20 therein, the nuts 22 and 23 are applied to the opposite screw-threaded extremities of the said rod, and all the parts of the mold are held intact or in firm assembled relation. In this construction of core the rod 20 may be either removable from or fastened in each core. In removing the cores from the mold in this form of the latter the nuts are removed and the mold turned so as to bring the enlarged ends of the cores toward the bottom to shake out said cores or cause them to fall from the molded block.

The form of the mold shown by Fig. 7 is of the same construction as that illustrated by Fig. 1, with the exception that the top and bottom are adapted to be forced toward each other between the opposite sides. The core 24 in this instance is of tapered form and has an opening 25 extending longitudinally through the center thereof to receive a tie-rod 26, having a head 27 to bear against the outer face of one side 1 and an opposite screw-threaded extremity 28 to removably receive a nut 29 to bear against the opposite side 1. A number of these cores will be used, and it will be seen that in removing each one the nut 29 is detached from the screw-threaded extremity of the rod 26, this operation being

effected after the molded block is dried. The pressure devices comprise an upper pressure-head 30, which may be secured to the top, and has the lower end of a screw 31 swiveled therein and provided at its upper end with a hand-wheel 32. The screw operates through the center of a yoke 33, which has hooked terminals 34. Said hooked terminals are detachably engaged by eyes 35 on the upper end of pressure rods or bars 36, depending to a point near the lower edges of the sides 1 and having inturned angular ends 37, which extend through slots 38 in the sides 1 and engage angular flanges 39 at the opposite ends of a lower pressure-head 40. After the cement or other plastic material is placed within the mold, as shown by Fig. 7, the hand-wheel 32 is rotated to turn the screw 31, and through the medium of the connections set forth the upper and lower pressure-heads 30 and 40 are gradually drawn toward each other and compress the material to be molded. When the material being molded has been sufficiently pressed, the pressure rods or bars 36 are disconnected by first releasing or loosening the screw 31, and the yoke 33, together with said screw and its hand-wheel 32, as well as the pressure-heads 30 and 40, is withdrawn from the mold proper, and after the molded block has dried out the cores will be removed, as before explained.

In Fig. 8 a still further modification of the mold is shown, wherein the bottom, top, sides, and ends are similar to those shown by Figs. 1 and 2. In this instance each of the sides is formed with an opening or a series of the latter, as at 41, and the cores are constructed in two sections, 42 and 43, which taper inwardly toward their inner extremities and have outer flanges 44 to bear against the outer surfaces of the sides 1, and are also provided with pins 45 for engagement by a spanner or other implement adapted for use in separating and withdrawing the core-sections. The core-section 43 has an angular shank 46 embedded in the center of the inner extremity thereof, which has a screw-stem 47 to engage a screw-socket 48 in the center of the inner extremity of the section 42. In assembling each of the cores, as shown by Fig. 8, the two sections are drawn toward each other by the screw-stem 47 engaging the screw-socket 48, and in removing the said core-sections the section 42 will be detached from the stem 47 and drawn outwardly and the section 43 afterward similarly withdrawn. It will be seen that the opening formed by the sectional cores 42 and 43 through the molded block will be of substantially hour-glass form, and as the reduced extremities of the said sections are pulled outwardly toward the enlarged openings in the sides normally occupied by the outer ends or extremities of the said sections injury to the molded block will be obviated and the walls of the openings will be free from fracture.

The method pursued in each of the molds set forth is substantially similar in the essential steps, and consists mainly in disposing a layer or portion 64 of relatively dry cement or other plastic material on the bottoms of the molds shown by Figs. 1 to 8, inclusive. Again, if cores are not used in the forms of molds shown by Figs. 1 and 2, for instance, the whole interior of the mold will be free for the reception of the cement or plastic material. It will be understood, however, that the cores may be positioned previous to the introduction of the cement or plastic material in the molds disclosed by Figs. 1 to 8, inclusive, and it will be obvious that so far as the practical effect of the steps of the method are concerned it is immaterial whether the cores be placed in position before the layers or portions of cement or other plastic material are introduced or not. After the lower layer or portion 64 of the cement is disposed in either one of the molds shown a moist intermediate filling 65 of similar cement or plastic material is placed on the lower relatively dry layer or portion 64 of such material and closely packed against the latter up to the openings for the cores in the molds shown by Figs. 1 to 8, inclusive. The cores are then inserted and the parts of the mold firmly secured, and the filling 65 is gradually introduced between the cores and packed over the latter, and finally a top layer or portion 66 of relatively dry cement or plastic material is disposed over the filling 65, and pressure is then applied to the whole mass to cause the moisture from the filling 65 to be absorbed by the layers or portions 64 and 66 and facilitate the drying out of the molded block, for example, and cause the plastic material as an entirety to closely adhere and become tenaciously homogeneous when dry and practically of the same degree of hardness and density throughout the entire block.

As has been set forth, the pressure can be applied to the top of the mold or both to the top and bottom extremities, and after the mass of cement or plastic material has been thoroughly pressed the forms of the molds having the cores therein will be relieved of said cores when the blocks have become sufficiently dry, or at times said cores may be removed while the blocks are loose or still hard enough to retain their shape in order to permit the air to circulate through the openings

provided in the blocks by the removal of the cores. When the cores are left in the molds until the blocks are dry, very little obstruction will be present to resist their removal in view of the tapered form of the cores, and after the cores are removed the sides and ends may be separated and the block is free from the inclosing portions of the mold.

The general method has been explained wherein the salient features are present; but in addition to the steps pursued in forming the blocks the end partitions 4 are used and produce compartments at the opposite ends of the mold, which are also filled with quantities or end layers 67 of relatively dry cement or other plastic material of a nature similar to that used in the formation of the block. After the mold is filled with the plastic material in its two conditions these partitions 4 are withdrawn and the relatively dry layers 67 at the end become united and press against the upper and lower relatively dry layers and the intermediate filling and also facilitate the absorption of the excess of moisture in the said filling when the pressure is applied to the mold in the different ways set forth.

The improved method herein disclosed is economical, and a building-block of practical form can be readily produced.

Having thus fully described the invention, what is claimed as new is—

1. In a mold for forming devices from plastic material, the combination of an inclosure, a series of cores removably mounted in the inclosure, collars adjustably held on the cores, and devices to hold the collars in adjusted position.

2. In a mold for forming devices from plastic material, the combination of a surrounding inclosure composed of freely-separable parts, a core extending transversely through the said inclosure, means carried by one end of the core and coacting with means on the inclosure for holding the parts of said inclosure together, and a collar adjustably mounted on the core and a set-screw to hold the collar in adjusted position.

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

MAURICE T. STEVENS.

Witnesses:

P. H. CAREY,
C. W. STEVENS.