

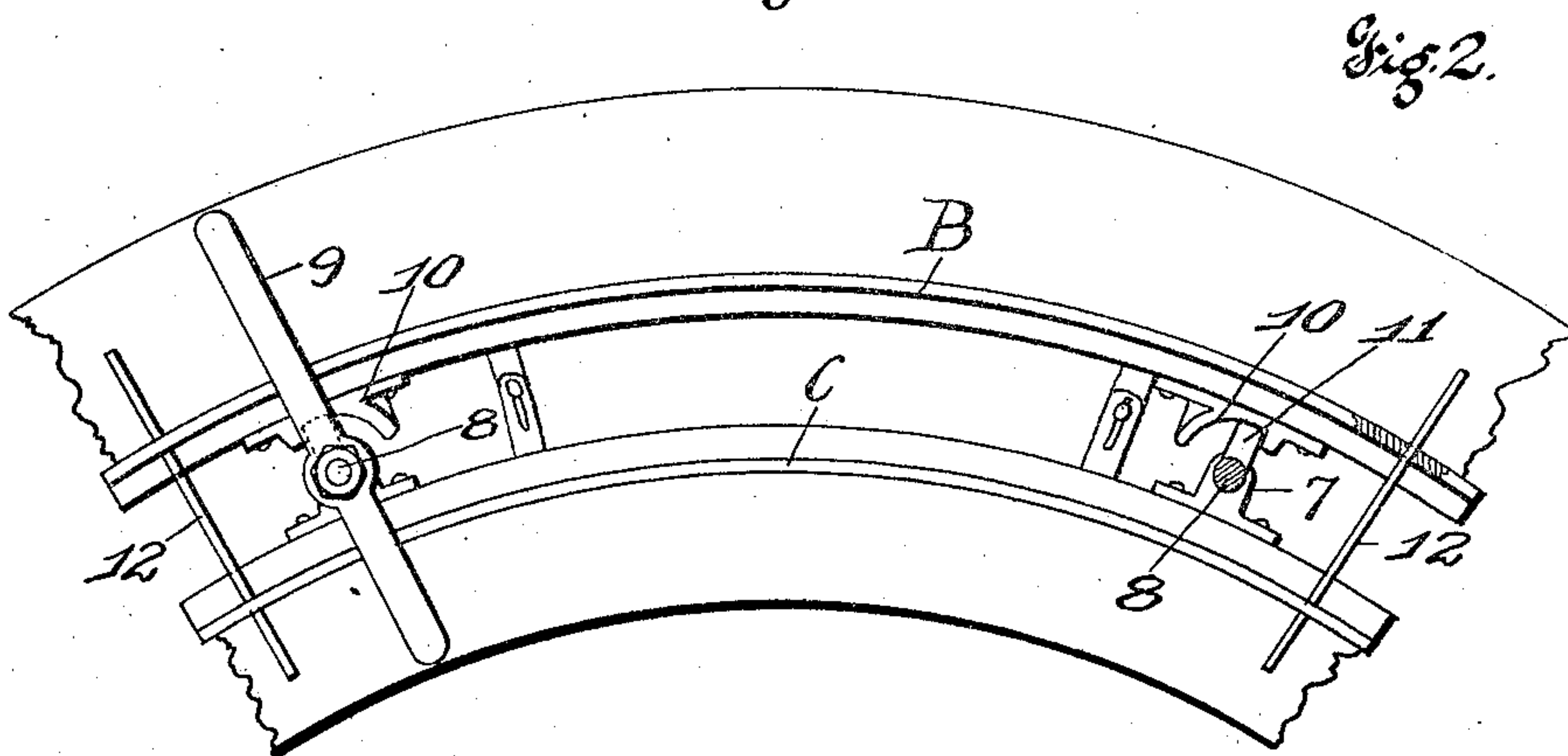
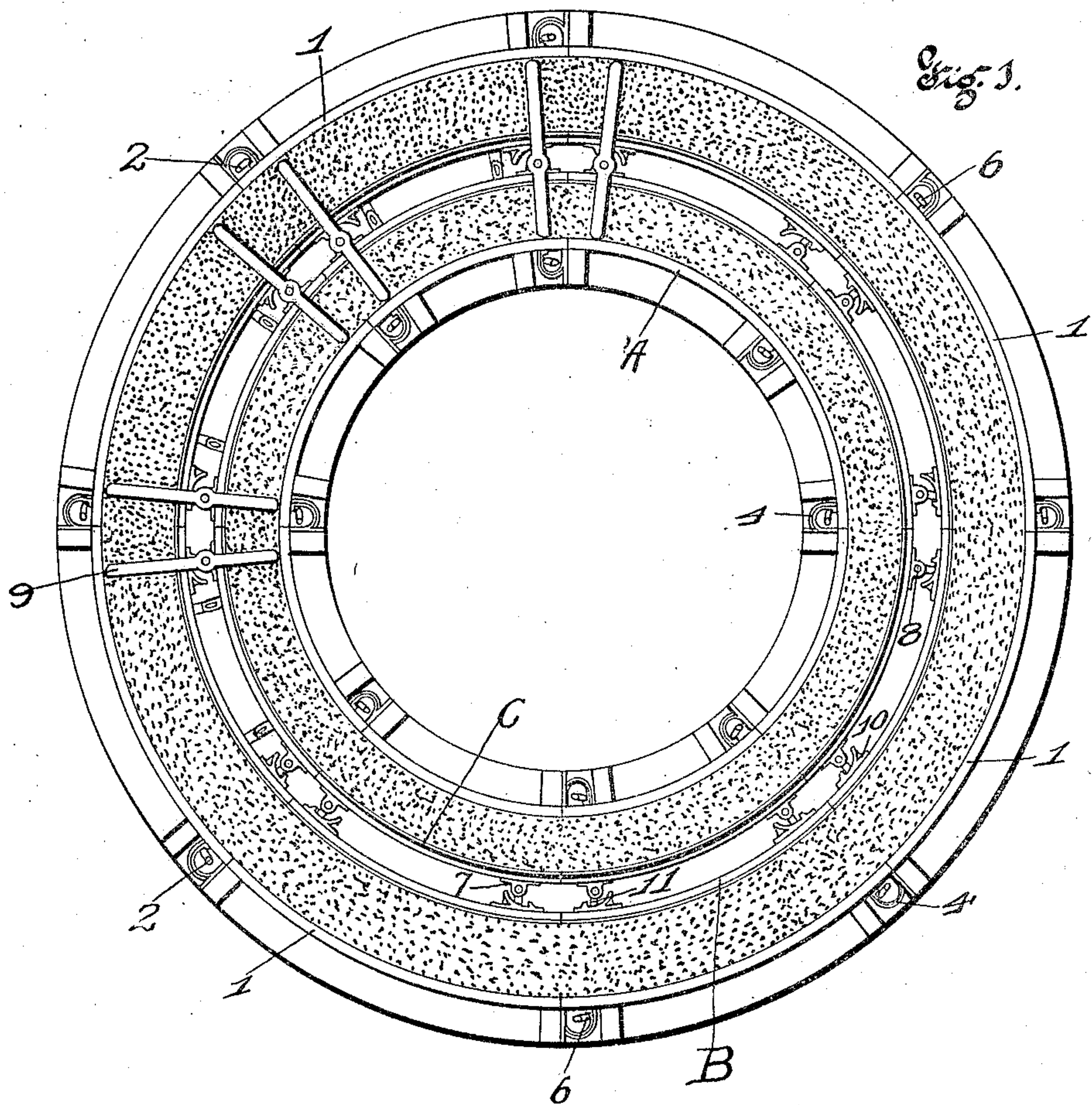
No. 844,298.

PATENTED FEB. 12, 1907.

J. V. BOLAND.
MOLD.

APPLICATION FILED FEB. 26, 1906.

2 SHEETS—SHEET 1.



Witnesses
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H. S. Drost

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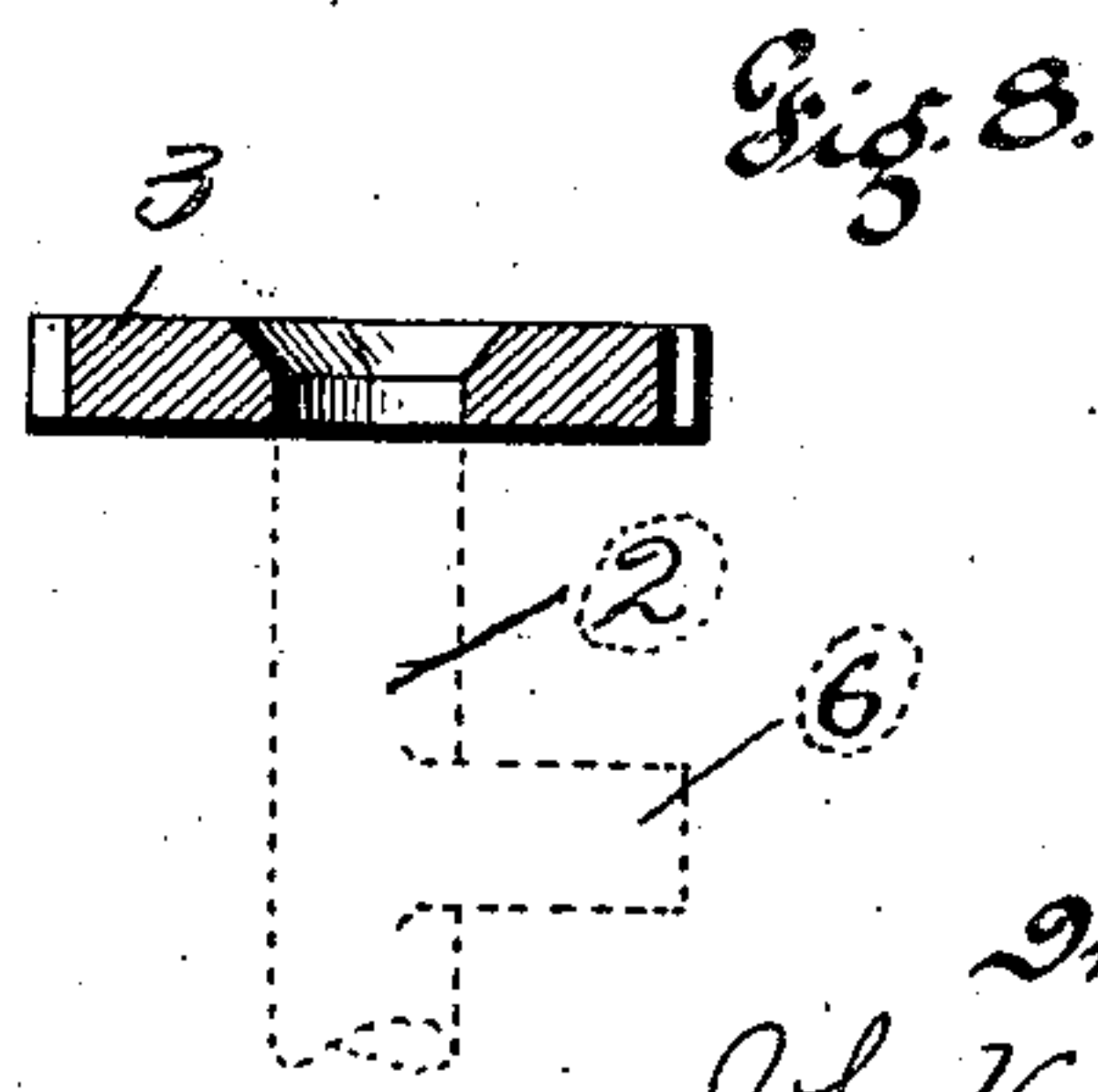
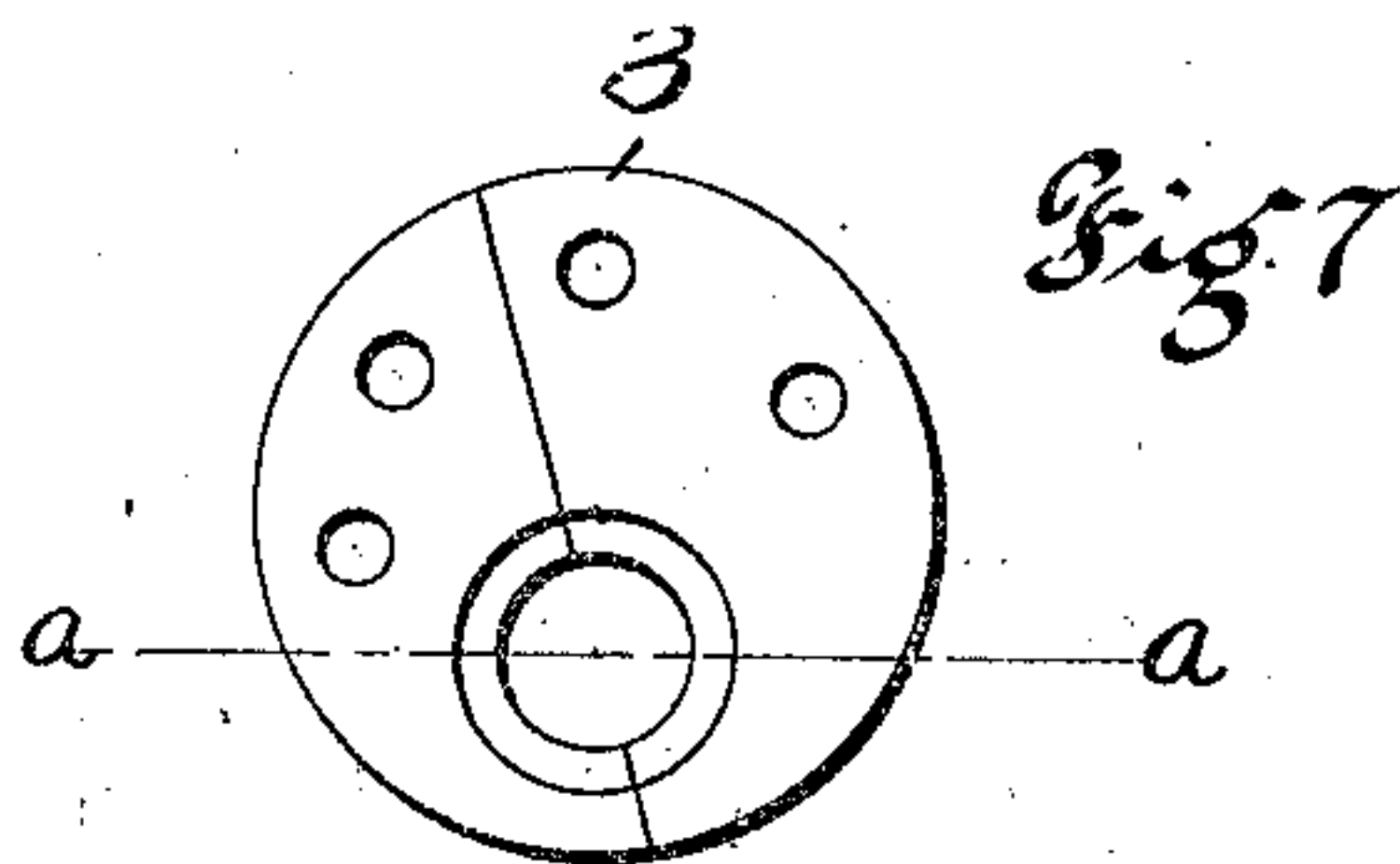
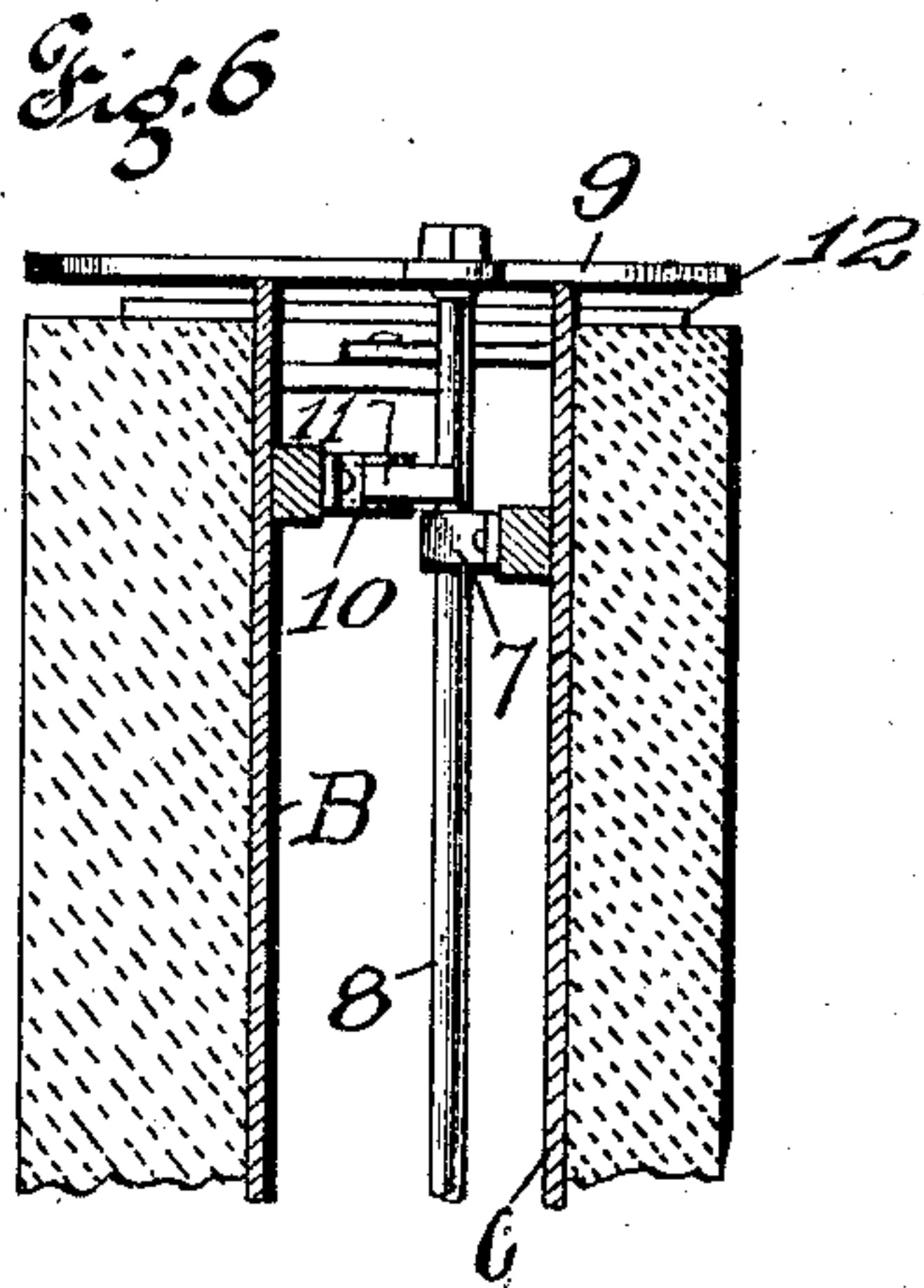
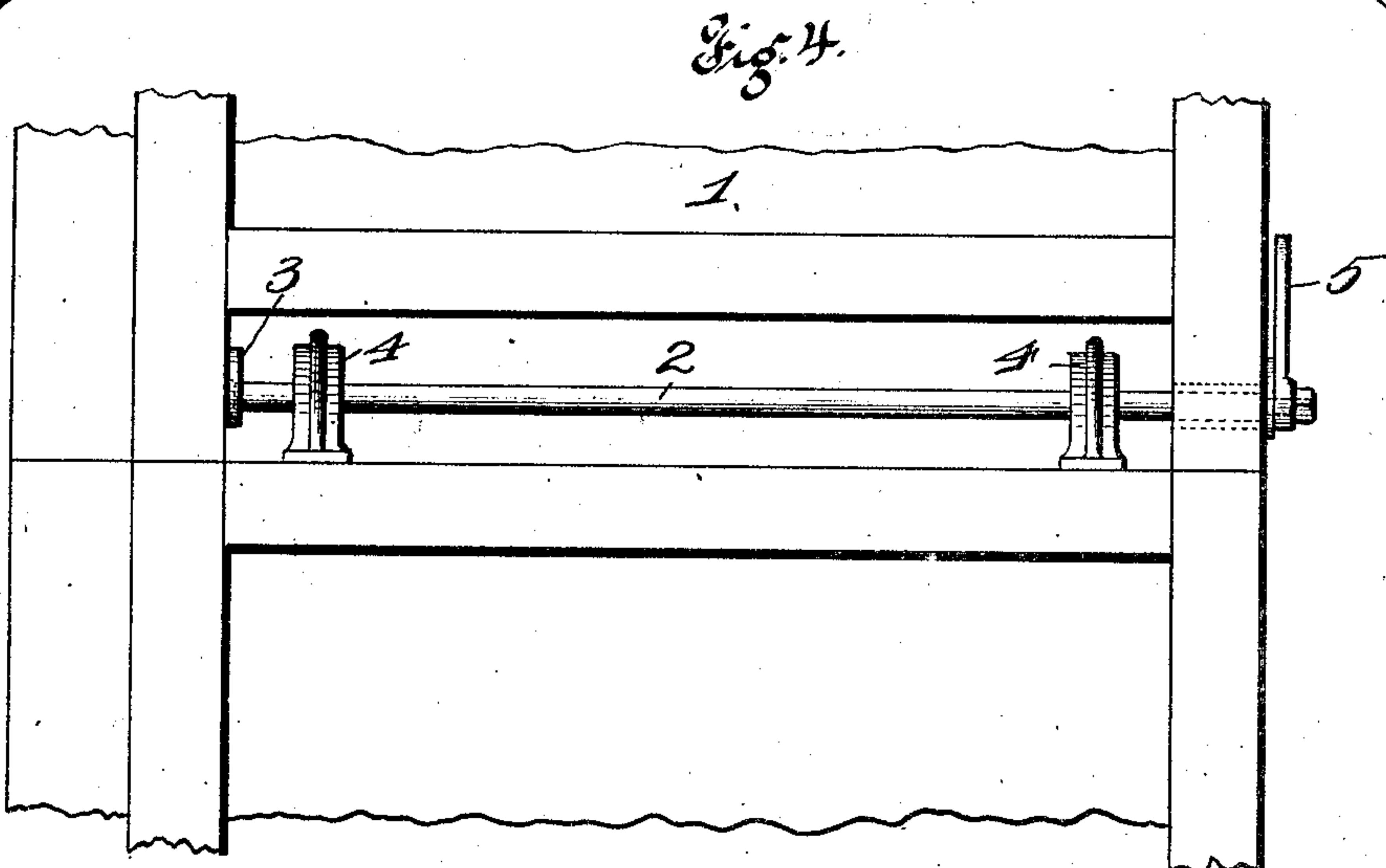
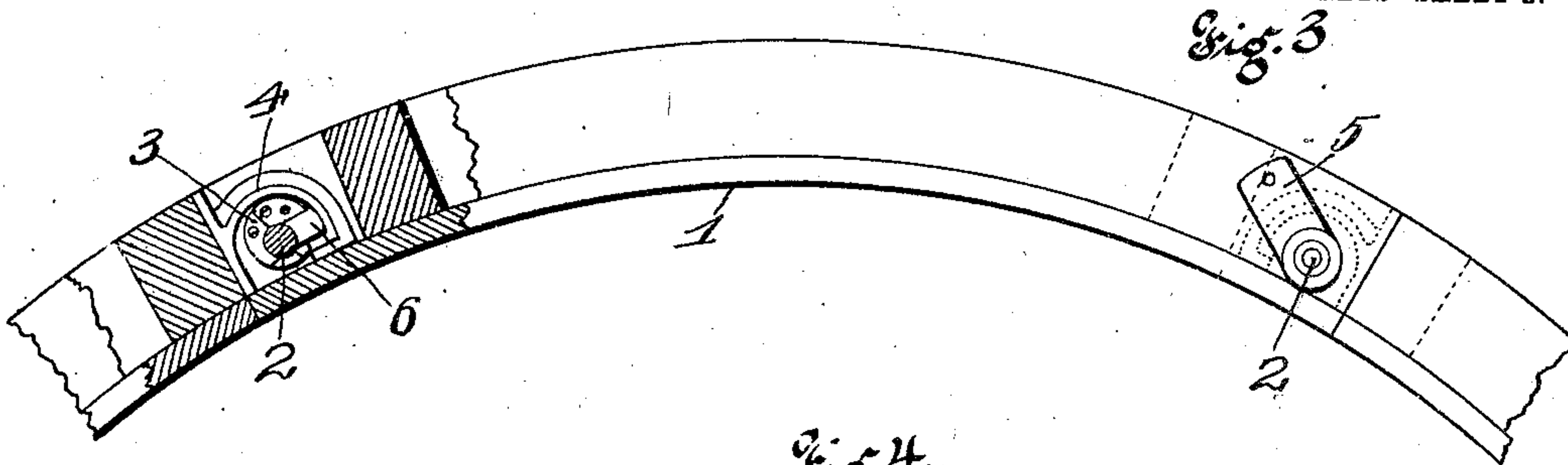
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN V. BOLAND, OF ST. LOUIS, MISSOURI.

MOLD.

No. 844,298.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed February 26, 1906. Serial No. 302,967.

To all whom it may concern:

Be it known that I, JOHN V. BOLAND, a citizen of the United States, residing at St. Louis, Missouri, have invented a new and useful Mold, of which the following is a specification.

This invention relates to molds, and more especially to those molds that are used in the erection of concrete and other molded structures; and it consists of the novel construction, combination, and arrangement of the cooperating devices herein fully shown, described, and claimed.

One object of this invention is to produce a mold for forming the complete surface of the wall of any inclosure, which shall consist of a number of separable sections having connecting devices whereby they may be held rigidly together while in use and which may be readily released when the wall-surface is formed.

Another object is to provide a series of molds each composed of a number of separable sections having couplings whereby they may be fastened together to form the desired wall-surface and means for operating the couplings to unite and release the sections as required for convenient use of the invention.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional view of a concrete chimney being constructed or formed by use of the mold constituting my invention, the several molds being shown in position. Fig. 2 is a view showing the spreading device for the interior molds. Fig. 3 is a view showing the couplings for the exterior molds. Fig. 4 is a side view of the coupling for the exterior molds. Fig. 5 is a perspective view of the rod or shaft forming a part of the coupling. Fig. 6 is a sectional view showing the spreading device for the interior molds. Fig. 7 is a detail view of the bearing for the coupling rod or shaft. Fig. 8 is a sectional view thereof taken along the line *a a* of Fig. 7.

These molds are designed particularly for use in building concrete chimneys, and consist of a mold for forming the interior surface of the wall of the chimney, a mold for forming the exterior surface of the wall of the chimney, and two molds for forming the air-space within the chimney-wall, so that there will be in reality two concentric walls. The mold for forming the exterior surface of the

outer wall consists of a series of arcuate sections 1, which when set edge to edge form an annular mold, as shown in Fig. 1. Each alternate section carries a vertical rod or shaft 2 near each edge mounted in bearings 3, and the remaining sections carry eccentric curved hooks 4, which when the sections are set edge to edge, as shown in Fig. 3, reach round the rods 2. Upon the upper end of each of said rods 2 is a lever 5, whereby said rods may be turned or rotated in their bearings. At intervals on the rods 2 and in position to engage with the eccentric hooks 4 are projections 6, so that when the sections are placed edge to edge and the rods are turned said projections 6 by engaging the hooks 4 will draw the various sections closely together, thereby completing and holding the mold in assembled form. By releasing the projections 6 from the hooks 4 the various sections may be separated and the mold disassembled. The interior mold A is of similar or duplicate construction, and specific description thereof is not deemed necessary, nor are detail views of the construction or arrangement of the couplings essential, the same being similar to those for the exterior mold, which are fully shown in Figs. 3, 4, and 5.

For dividing the wall and forming the two concentric walls as above mentioned two molds are necessary, one for forming the inner surface of the outer wall and the other for forming the exterior surface of the inner wall. These molds are shown in their adjustment or assembled position in Fig. 1 and partially in Figs. 2 and 6. The mold for forming the interior surface of the outer wall is designated by B, and the mold for forming the exterior surface of the inner wall is designated by C. Each of these molds consists of a series of arcuate sections arranged to be set edge to edge, and thereby form the assembled molds. Each section of the mold C has bearings, Fig. 7, near each edge in which is mounted a rod or shaft 8, said rods having handles or levers 9 upon their upper ends, so that said rods or shafts may be turned in their bearings.

The sections of the mold B carry cams 10, which project toward the rods or shafts 8. Matching said cams on the shafts 8 are projections 11, which when the molds are assembled one within the other and the shafts 8 are turned rub against the cams 10, and thereby compress the inner mold C and expand the

outer mold B, causing the said molds to compress the material which is placed between them and the inner mold 8 and the outer or exterior mold, which molds are left in this adjustment or position until the cement or other material hardens, whereupon they may be removed by turning the shafts 8 to release the projections 11 from the cams 10. The exterior molds and the interior mold A may be released as above described.

For upholding the sections of the molds B and C, I provide rods 12, adapted to pass through holes in the upper edges of the various sections and extend over the upper surface of the wall, so that when the sections are released or while they are being assembled they cannot drop down between the two concentric walls.

I have described and illustrated my invention in its preferred form and intended use. I am aware, however, that there may be variations within equivalent limits, and I do not restrict myself to specific features.

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

1. A series of molds for forming annular concentric walls, consisting of an outer mold arranged to encircle the outer wall, and an inner mold to be within the inner wall, in combination with two annular concentric molds intermediate of the outer and inner molds, and devices carried by said intermediate molds operable for expanding one and compressing the other thereof, substantially as specified.

2. A mold, comprising a series of edgewise-abutting sections, rods and hooks on said sections to engage with each other, levers for turning the rods, and cams on the rods in position to engage the hooks, in combination with a second mold adapted to stand parallel with the first-named mold, substantially as described.

3. A series of molds for forming parallel walls, comprising two molds each composed of a series of separable sections for confining both walls, couplings for uniting said sections, two intermediate molds adapted to be positioned between the first-named molds, one or more rods supported by said intermediate molds, and means in connection with said rod or rods for spacing said intermediate molds apart, substantially as specified.

4. A series of molds for forming two walls, comprising an outer mold composed of a series of sections, means for uniting said sections, an inner mold composed of a series of sections, means for uniting said sections, two molds intermediate of the outer and inner molds, a lever or handle supported by one of said intermediate molds, and means controlled by said handle for spacing said intermediate molds apart, substantially as described.

5. A mold, comprising a series of arcuate sections adapted to fit edge to edge, a rod carried near each side of each alternate section, cams on said rods, means to turn the rods, and hooks on the other sections adapted to engage with said cams.

6. A set of molds, comprising in combination an outer mold and an inner mold each composed of a series of sections, couplings for locking the sections of each mold one to another, devices in connection with the couplings operable to draw the adjacent sections toward each other, two intermediate molds to cooperate, respectively, with said outer and inner molds, and mechanism carried by said intermediate molds operable for expanding the one and compressing the other, substantially as specified.

7. A set of molds, comprising in combination an outer and an inner mold each composed of a series of sections, couplings for locking the sections of each mold one to another, devices in connection with the couplings operable to draw the adjacent sections toward each other, two intermediate molds to cooperate, respectively, with said outer and inner molds, and each comprising a series of edgewise-abutting sections and mechanism carried by said intermediate molds operable to adjust them in proper position relative to said outer and inner molds, substantially as specified.

8. A set of molds for forming two parallel walls, comprising in combination two molds each composed of a series of sections, couplings for uniting said sections, means in connection with the couplings for drawing the sections together, two intermediate molds to cooperate, respectively, with the first-named molds, means to hold said intermediate molds in proper relation to each other and mechanism carried by said intermediate molds operable for expanding the one which cooperates with the outer mold aforesaid, substantially as specified.

9. A mold, comprising a series of edgewise-abutting sections, rods and hooks on said sections to engage with each other, levers for turning the rods, and cams on the rods in position to engage the hooks, substantially as specified.

10. A mold, comprising a series of edgewise-abutting sections, rods and hooks on said sections to engage with each other, levers for turning the rods, and cams on the rods to engage the hooks when the rods are turned, in combination with a cooperating mold, and means for holding it in proper relation to the first-named mold.

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

JOHN V. BOLAND. [L. S.]

Witnesses:

F. J. MCCASLIN,
J. D. RIPPEY.