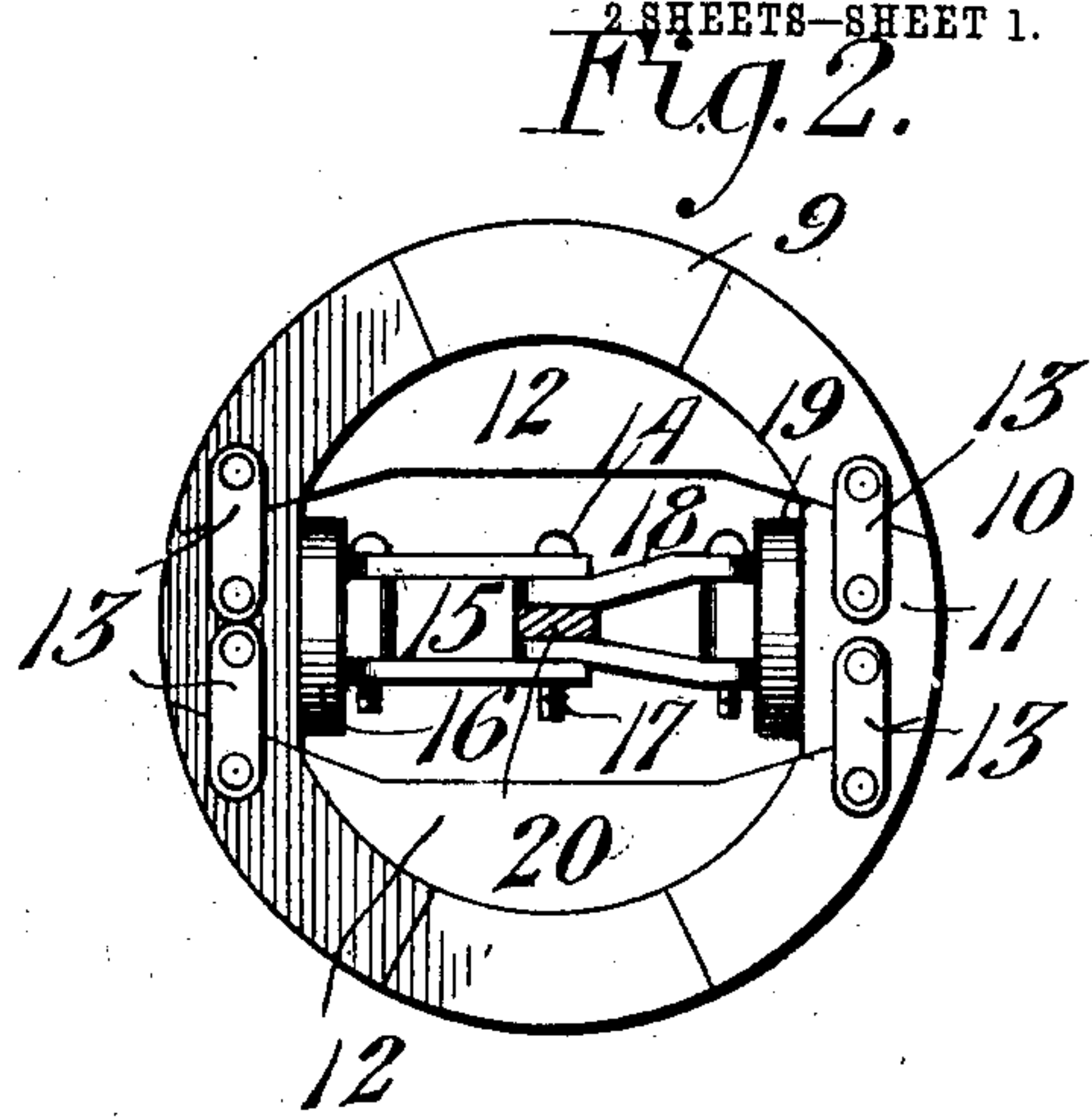
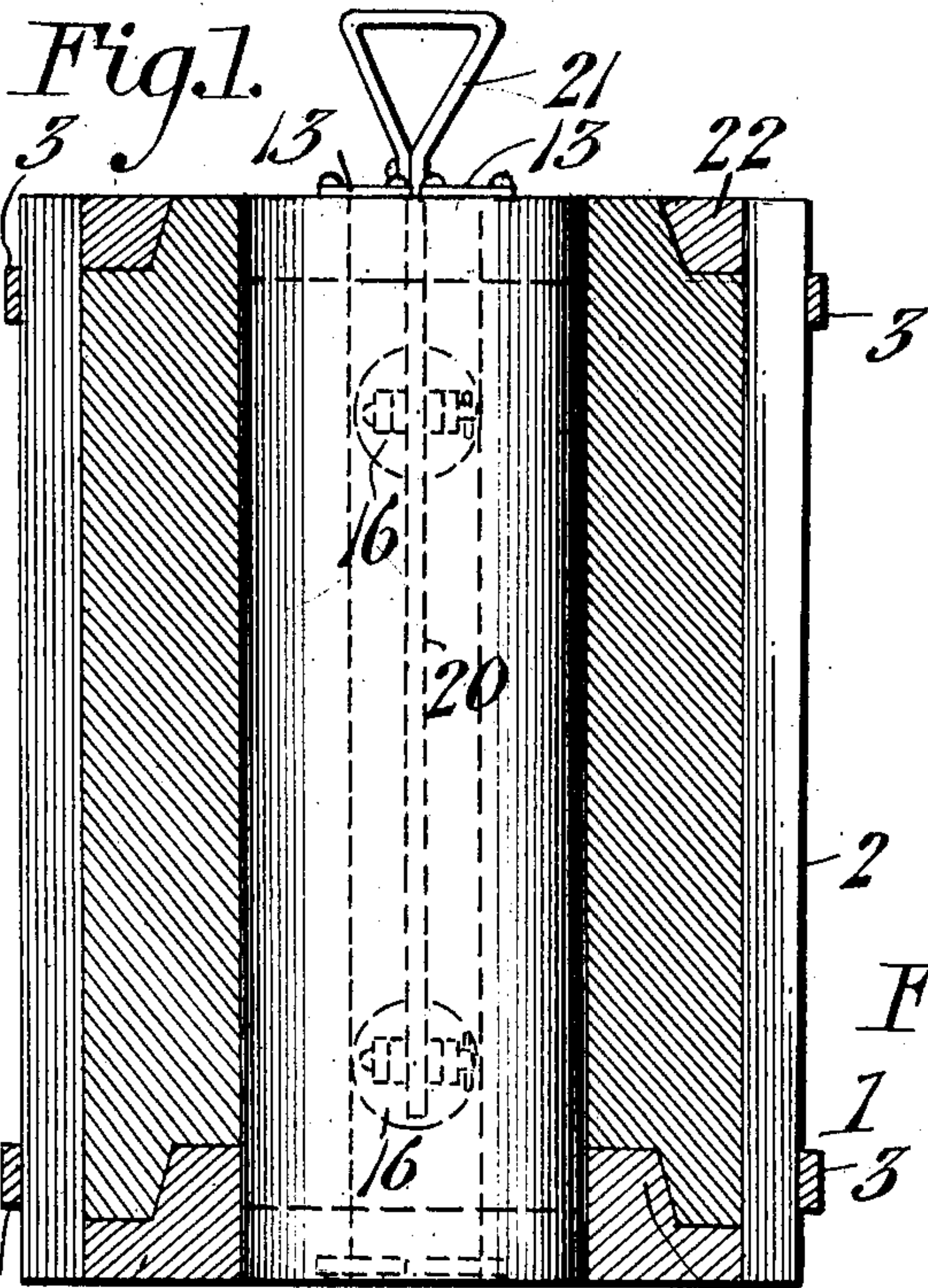


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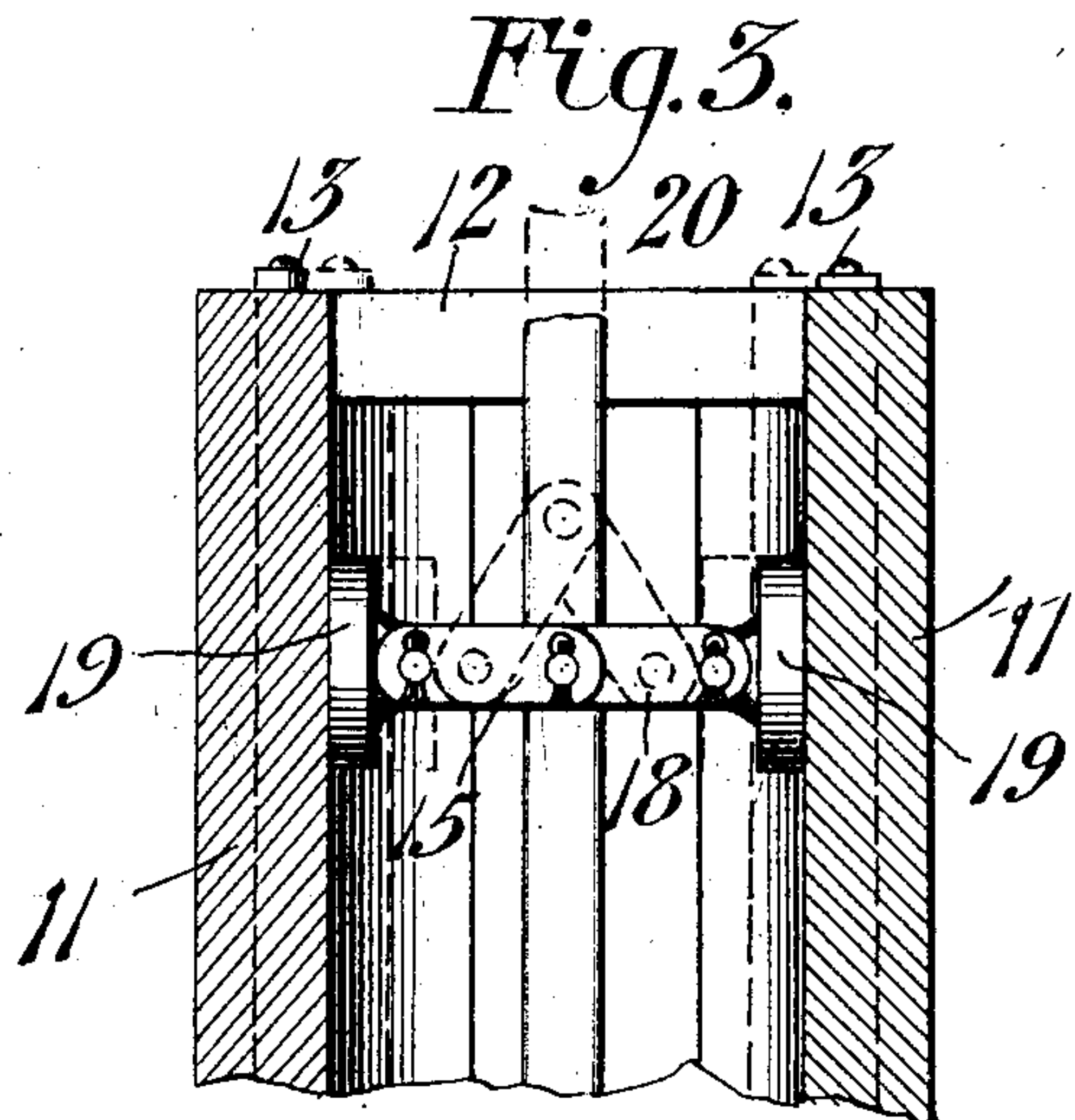
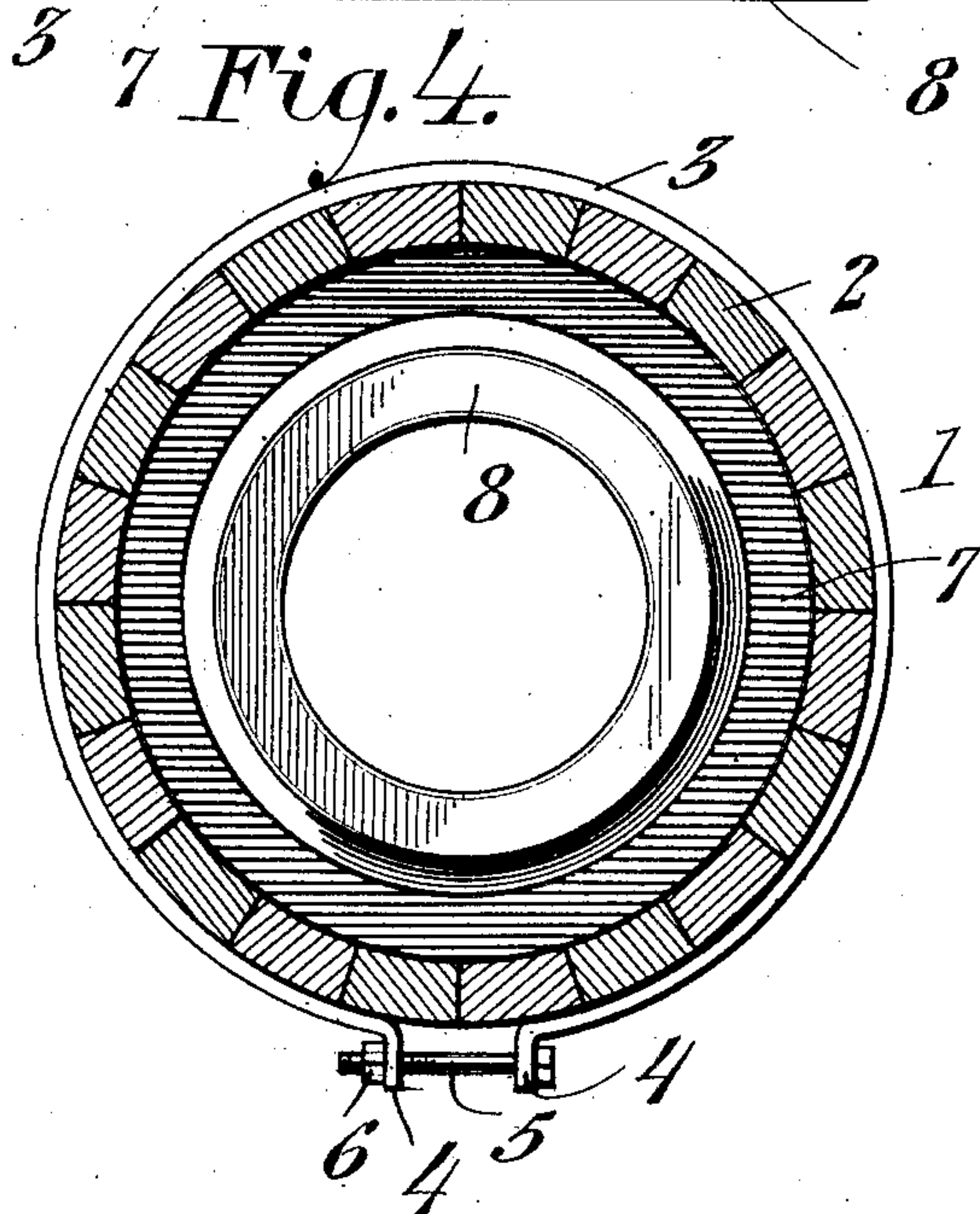
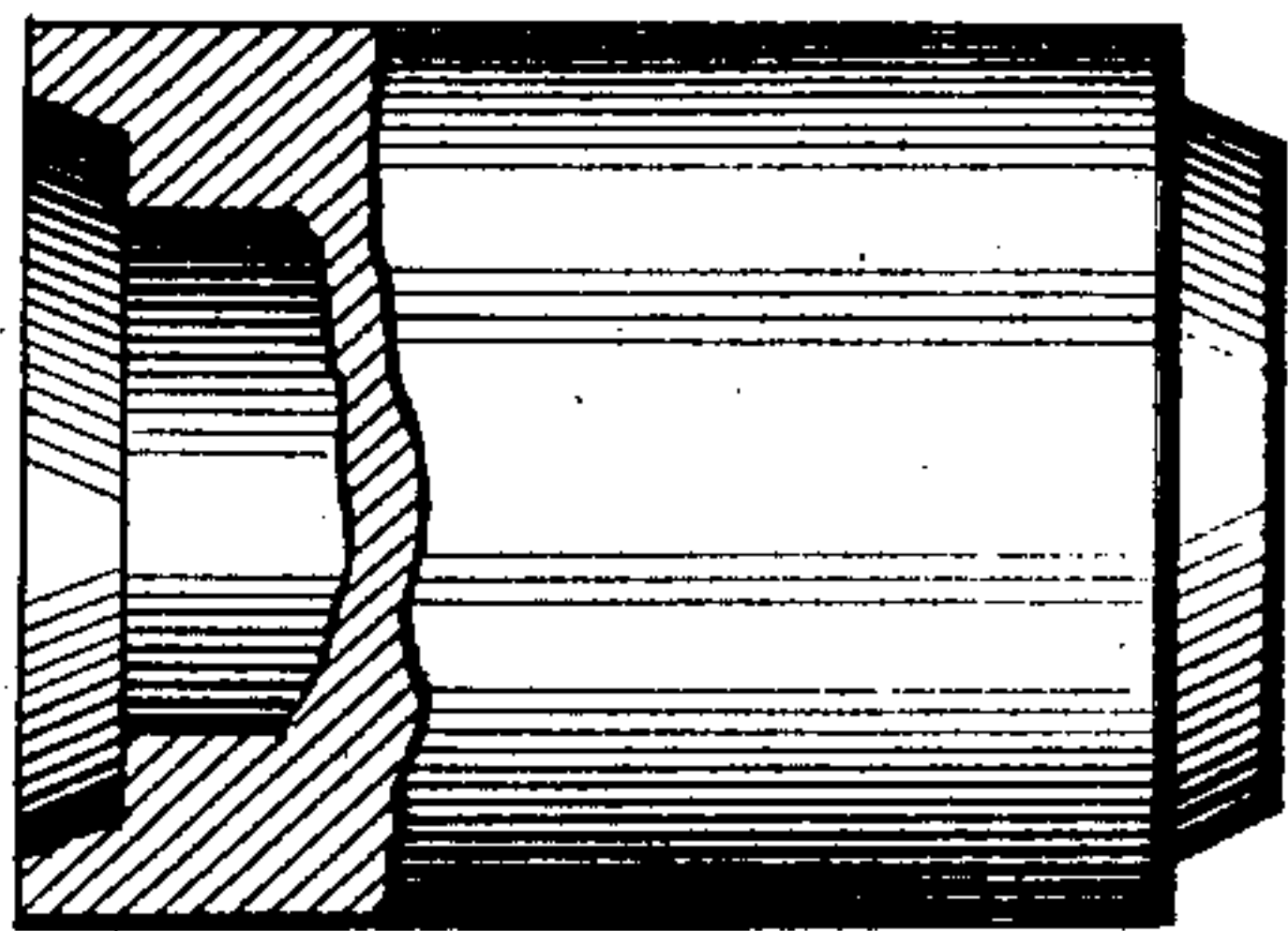
PATENTED JUNE 5, 1906.

J. M. FLUKE.  
CULVERT MACHINE.  
APPLICATION FILED SEPT. 13, 1906.

2 SHEETS—SHEET 1.



*Fig. 5.*



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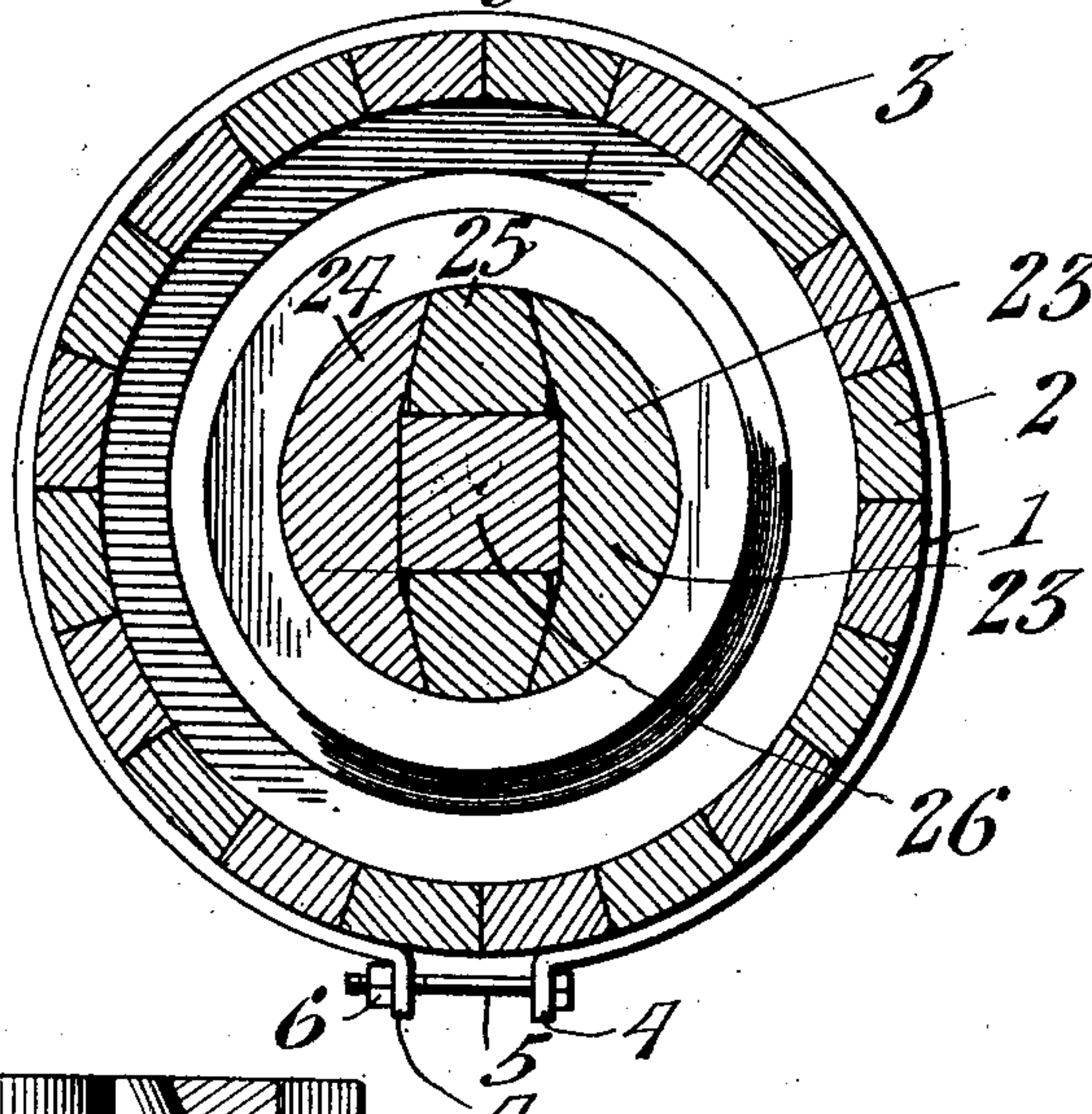
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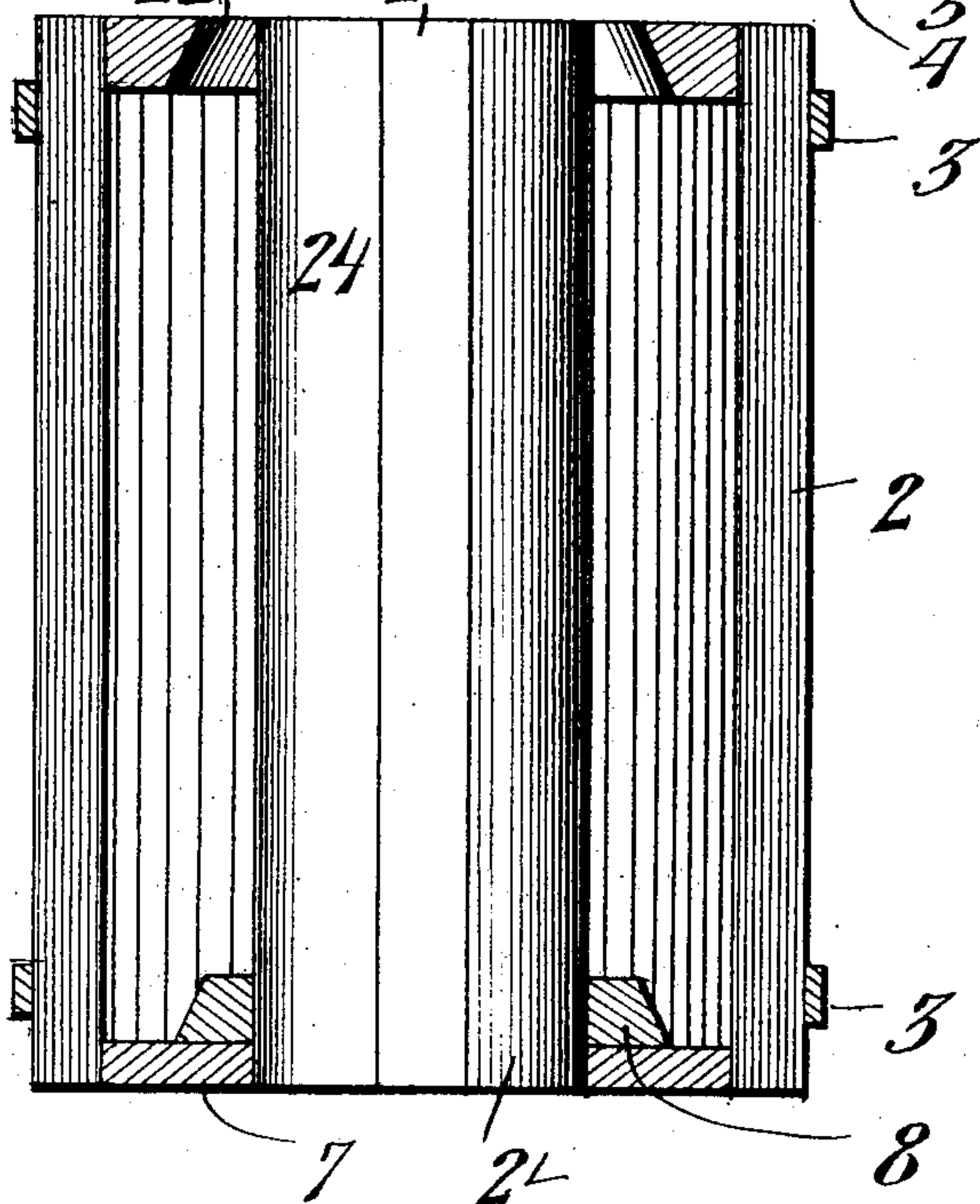
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2 SHEETS—SHEET 2.

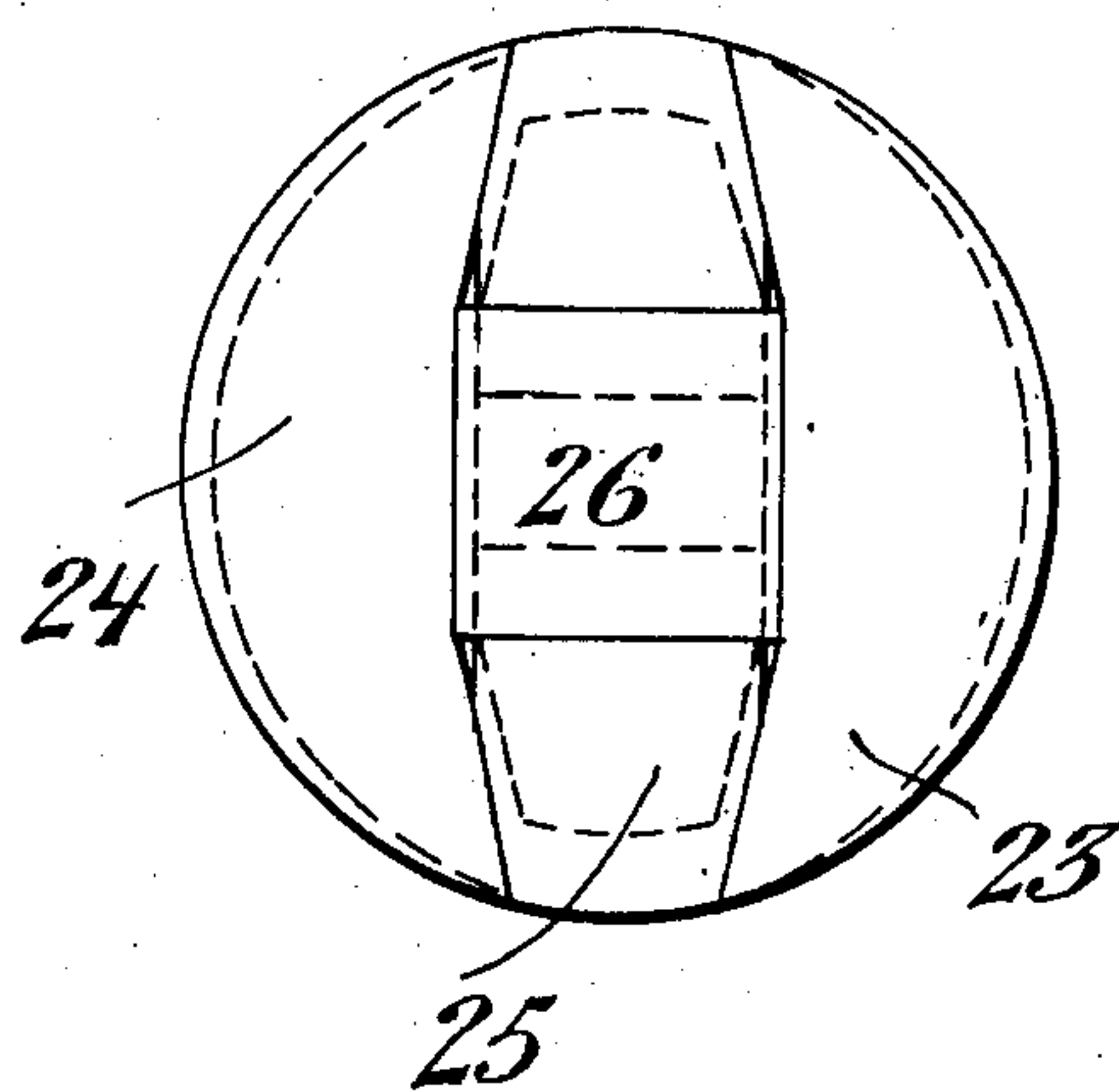
*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

JAMES M. FLUKE, OF NANKIN, OHIO.

## CULVERT-MACHINE.

No. 822,838.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed September 13, 1905. Serial No. 278,326.

*To all whom it may concern:*

Be it known that I, JAMES M. FLUKE, a citizen of the United States, residing at Nankin, in the county of Ashland and State of Ohio, have invented new and useful Improvements in Culvert-Machines, of which the following is a specification.

The invention relates to an improvement in molds, and particularly to a mold constructed and arranged for forming culverts, sewer-pipe, drain-tile, or the like.

The main object of the present invention is the production of a mold of the class described constructed of a plurality of separable members in both the box and core, means being provided for readily increasing or decreasing the size of the box.

Another object of the invention is the production of a sectional core which is adapted to be inserted within the box, means being provided for decreasing the diametrical extent of the core to permit its ready withdrawal from the plastic material within the box.

The invention in its detail of construction will first be described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a mold constructed in accordance with my invention, the core being shown in elevation. Fig. 2 is a plan view of the core. Fig. 3 is a broken vertical section of the core. Fig. 4 is a transverse section through the box, the core being removed. Fig. 5 is a view in elevation, partly in section, of the culvert produced in the use of the improved mold. Fig. 6 is a transverse section through the completed mold, showing a modified form of the core. Fig. 7 is a vertical central section of the same, the core being shown in elevation. Fig. 8 is a plan view of the core.

Referring to the drawings, wherein like parts are indicated by similar reference-numerals throughout the several views, my improved mold comprises a box 1, circular in transverse section and composed of a plurality of separate strips or staves 2. These staves are arranged in contact edge to edge, similar to ordinary barrel construction, and held in place by adjustable bands 3. The bands are slightly less in length than the circumferential length of the box and are formed with laterally-projecting terminal ears 4, perforated to receive a bolt 5 by the manipulation of the nut 6 of which the ears for the

band will be relatively adjusted to increase or decrease the diametrical extent of the band. By this construction any one or more of the staves 2 may be withdrawn from the box construction and wider or narrower staves substituted, thus increasing or decreasing the size of the box, as may be desired. Within the box at the lower end is mounted a mold-ring 7, having a central circumferential opening of a size to receive the core. On its upper side and concentric with its central opening the ring is provided with an offset 8, having one side wall at right angles to the ring 7 and on a plane concentric to its interior opening, the opposite side being inclined upwardly and inwardly from the ring 7, as clearly shown in Figs. 1 and 7. Within the box I arrange the core, comprising a plurality of sections 9, designed when assembled edge to edge to form a cylindrical body. These sections are of such width that when assembled they provide a complete cylindrical body, with the exception of narrow spaces 10, in which I arrange wedge-strips 11. The wedge-strips are arranged diametrically opposite each other, and the adjacent edges of the core strips or staves 9 are shaped to receive and cooperate with said wedges. Securing-strips 12 are provided at both the upper and lower ends of the core, being of a size to include the strips 9 on each side of the wedge and adapted to secure said strips together to prevent accidental displacement. It is to be understood that the strips 12 are curved on their outer edges to conform to the curvature of the strips 9 and approximately straight on their inner edges to provide for the operation of the wedges.

The wedges 11 extend throughout the length of the core, forming, in effect, an additional core or stave, and are connected with the respective core-sections by links 13, pivotally secured to the core-sections and to the wedge-blocks, so that each section, which includes the core-staves on one side of the wedge-blocks and the connecting-strip 12, has pivotal connection with each of the wedges through the link described.

The wedges are operated by toggle-levers 14, arranged near the upper and lower ends of the wedge-blocks, each of said levers comprising links 15, pivotally connected at one end to bearing-plates 19, fixed on the wedge-blocks, and at the opposite end to a transverse pin 17, on which pin are mounted similar levers 18, pivotally connected at the op-



posite end to bearing-plates 19, secured on the other wedge-block, it being understood that the respective plates 16 and 18 are in alinement diametric of the core. An operating-rod 20 is also connected to the upper and lower pins 17 and extends above the core-body, being provided with a handle 21, in the obvious operation of which the wedge-blocks may be operable.

10 In use, the box having been adjusted to the desired size, as hereinbefore described, the ring and offset 7 and 8 are secured in the bottom of the box; this ring and offset in the preferred form being made in one piece. The

15 core, with the sections fully distended by a suitable operation of the rod 20, is now inserted within the box and the space within the core and box filled with the desired plastic material. A forming-ring 22 is inserted

20 to form the upper end of the article with a recess the reverse of that formed at the lower end, as shown in Fig. 5, and the material allowed to set. By reverse or upward movement of the rod 20 the wedge-blocks are

25 turned inward toward the center of the core, collapsing the core-section and permitting its ready withdrawal. Through the medium of the links 13 the inward movement of the wedges forces a slight collapse of the core-

30 sections, as will be obvious, thus insuring the operation of the parts and preventing sticking of the sections. In the use of the ring and offset 7 and 8 and the ring 22 the article is formed with matching ends to receive the

35 opposed end of the next adjacent section or article, as is usual.

In Figs. 6, 7, and 8 a modified form of core

is shown wherein said core comprises two solid sections 23 24, of chord shape, the adjacent faces of which are reversely inclined to permit coöperation of wedge-blocks 25. Said blocks, together with the core and sections, form a complete cylindrical core. A setting-block 26 is adapted to be manually inserted between the squared or wedge blocks to force the core-sections to their operative or set position. The withdrawal of this block permits a sufficient collapsing of the sections to allow for the withdrawal from said material of the core.

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

1. A mold comprising a box-section composed of a plurality of staves, adjustable means for securing said staves together, and a core-section composed of a plurality of staves and wedge-blocks to coöperate with said staves, said wedge-blocks being pivotally connected with the adjacent staves, and means for operating said blocks.

2. A mold comprising a box-section and a core-section, the core-section being made in two parts each comprising a plurality of connected staves, wedge-blocks arranged in diametric alinement and adapted to coöperate with the adjacent ends of each of said core parts, and means connecting the cores with the adjacent core-staves.

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

JAMES M. FLUKE.

Witnesses:

JOHN LUTZ,  
IRVING WILSON.