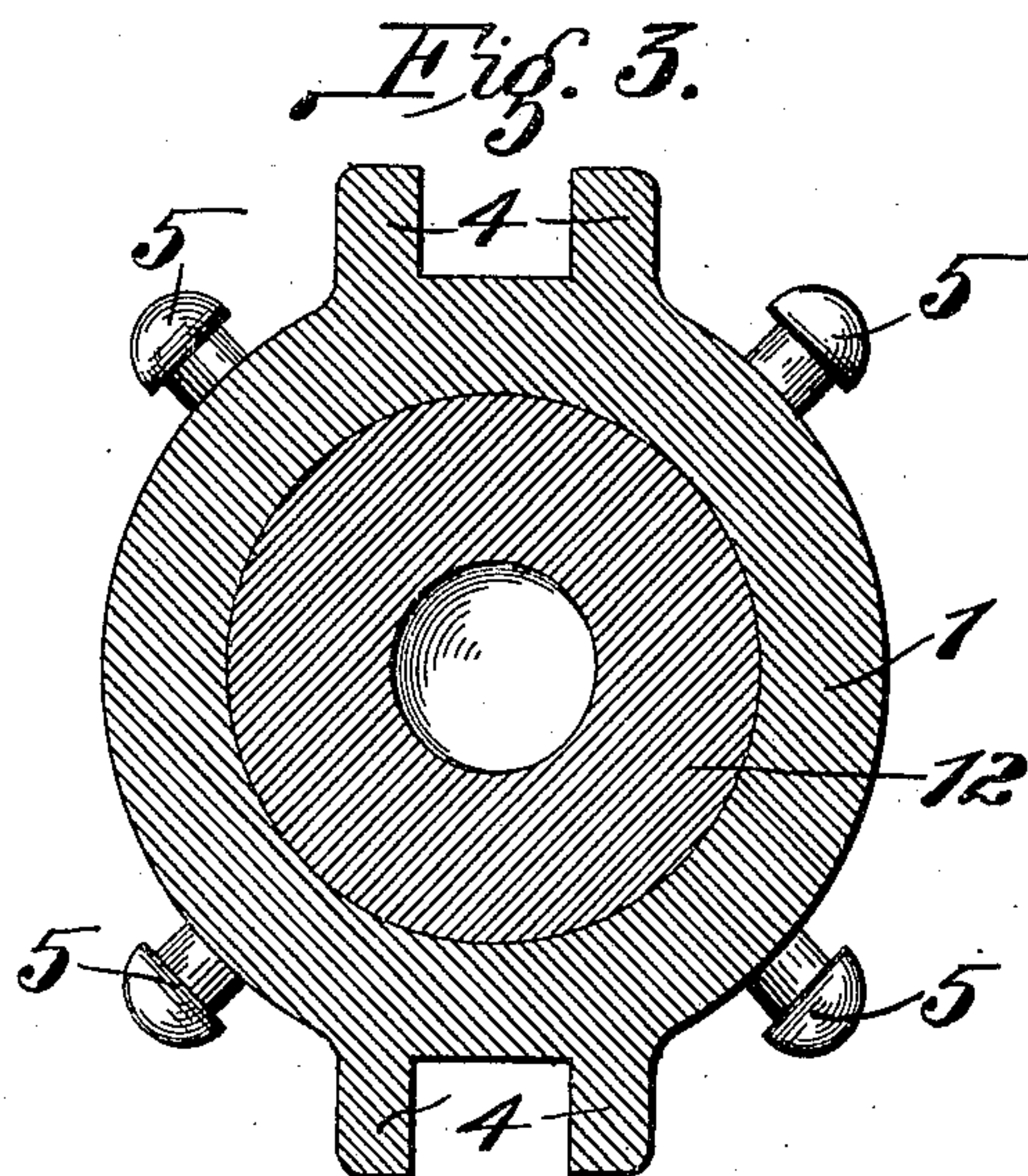
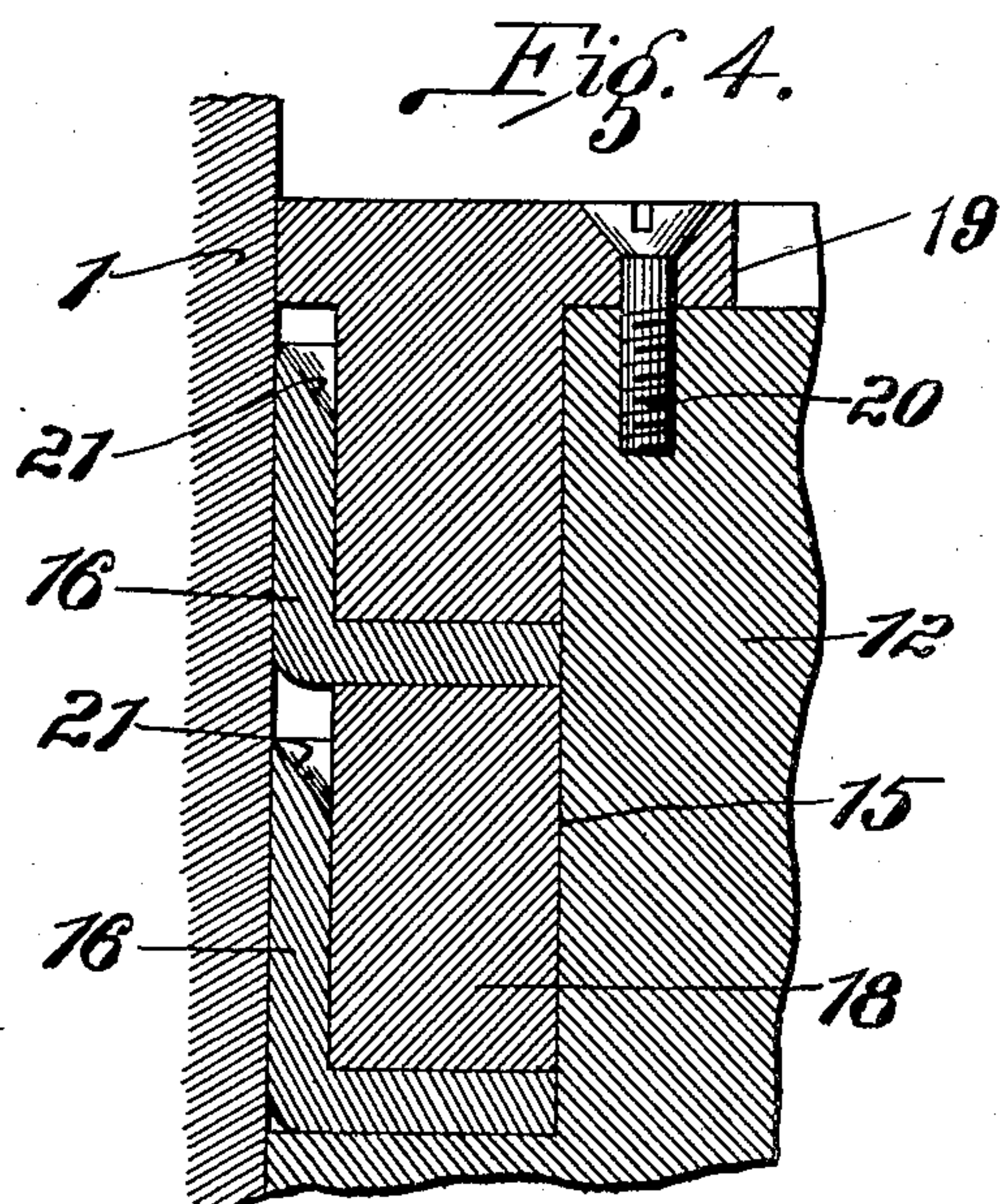
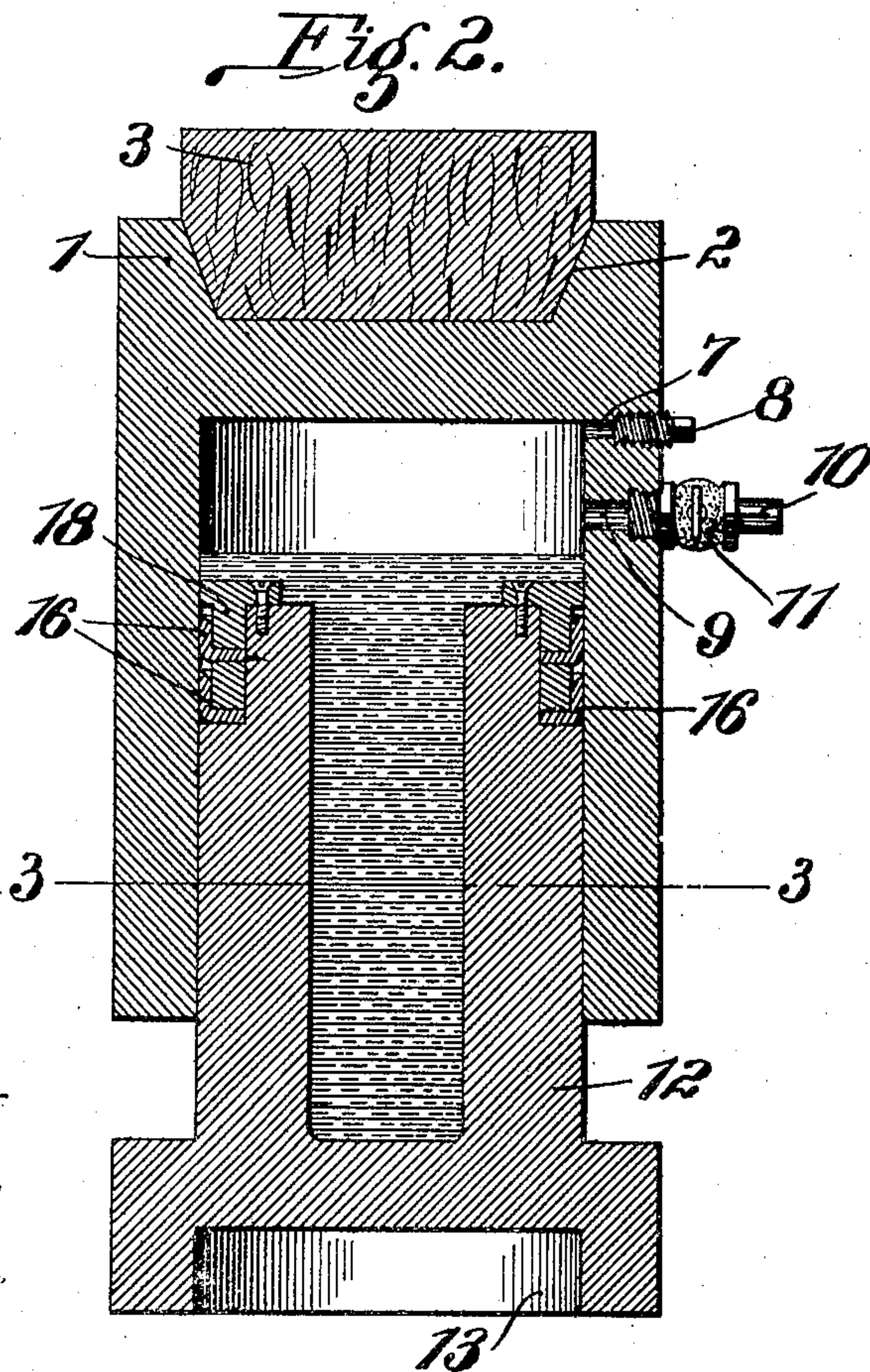
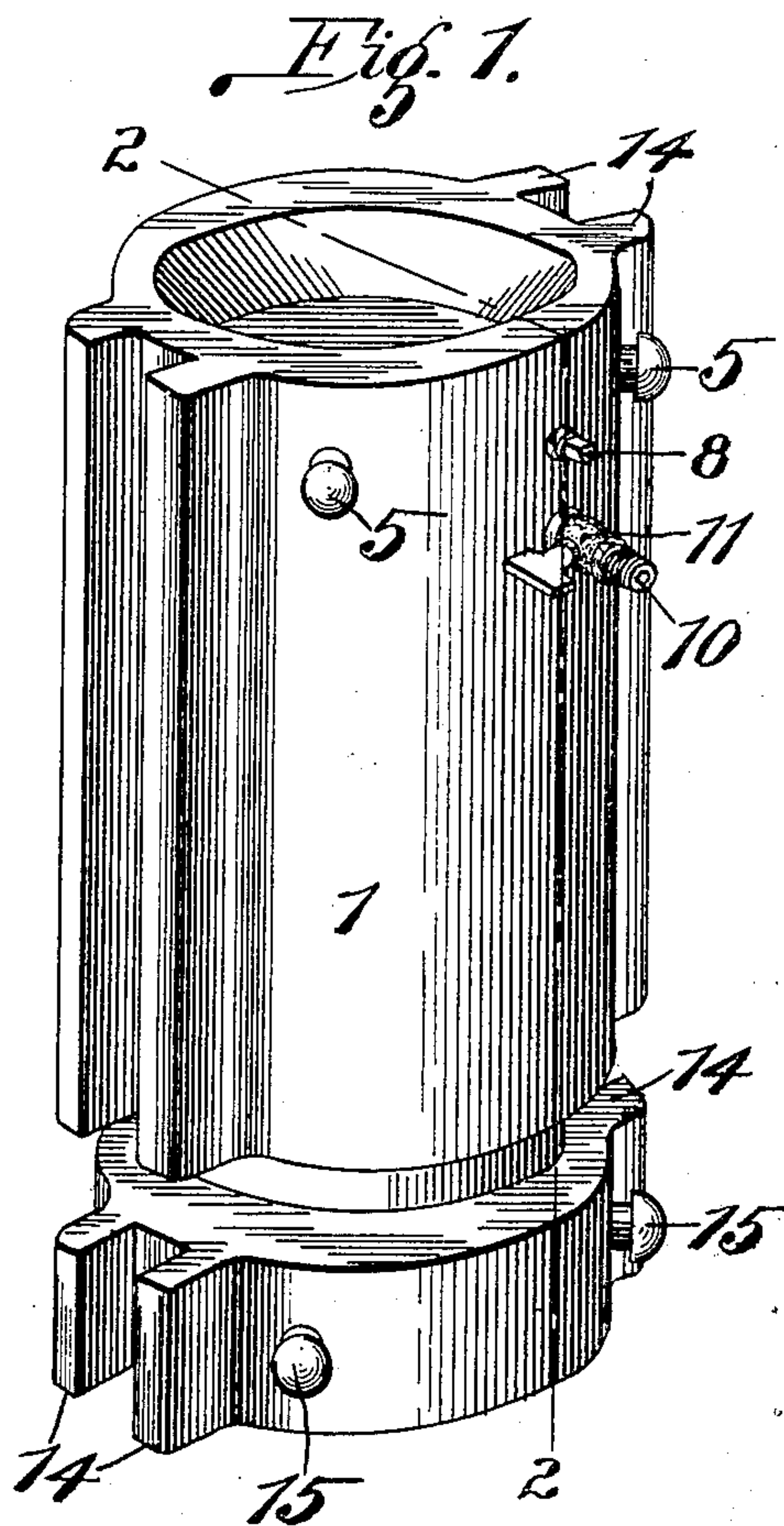


No. 886,193.

PATENTED APR. 28, 1908.

C. C. DE WITT.
COMPRESSED AIR CUSHION BLOCK.

APPLICATION FILED NOV. 12, 1907.



Attest.
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UNITED STATES PATENT OFFICE.

CLINTON C. DE WITT, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO FRANK L. AYMOND,
OF ST. LOUIS, MISSOURI.

COMPRESSED-AIR-CUSHION BLOCK.

No. 886,193.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed November 12, 1907. Serial No. 401,898.

To all whom it may concern:

Be it known that I, CLINTON C. DE WITT, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Compressed-Air-Cushion Blocks, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a compressed air cushion block to be used on the upper end of concrete piling when the same is being driven into the ground, and my present invention is an improvement on a similar device for which application for Letters Patent in the United States were issued to me December 10, 1907, No. 873,517.

The object of my present invention is to generally improve and simplify the construction of the device shown and described in the application above referred to, and to provide means whereby a body of liquid is located in the chamber between the two members forming the block in order that the air cushion in said chamber may be readily varied to suit different conditions.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of a cushion block of my improved construction; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2; Fig. 4 is an enlarged section illustrating the packing rings utilized between the members forming my improved block.

Referring by numerals to the accompanying drawings:—1 designates the upper member of the block, which is in the form of a hollow cylinder with the upper end closed, and there being a recess 2 formed in the top of said member, and which recess is adapted to receive a block of wood, or analogous material, 3 which acts as an anvil or striking surface for the hammer of the pile driver.

Formed integral with and on opposite sides of the member 1 are the vertically disposed pairs of flanges 4, which serve as guides and engage the vertically disposed uprights

of the pile driver frame when the device is in use.

Formed integral with the member 1, adjacent the upper end thereof, are lugs 5, to which may be attached chains or cables utilized in hoisting the block into position for use.

Formed through the wall of the member 1 and communicating with the upper end of the chamber 6, within said member, is an aperture 7, which is normally closed by a screw plug 8; and formed through the wall, a short distance below this aperture 7, is a second aperture 9, and fitted therein is a short nipple 10, provided with a valve or stop cock 11.

The lower or piston member 12 of the block is in the form of a cylinder adapted to fit snugly within the cylindrical member 1, and formed in the under side of the bottom of said member is a recess 13, adapted to receive the upper end of the piling; and formed on the opposite sides of the lower portion of the member 12 are the pairs of vertically disposed guide ribs 14, which, when the device is in use, are in alinement with the guides 4 and bear on the uprights of the pile driver frame.

Formed integral with the lower portion of the member 12 are lugs 15, similar to the lugs 5, and which are utilized when the block 12 is hoisted into position for use.

The block 12 is preferably cored out to lighten its weight, and the upper end of said block is cut away on its periphery, as designated by 15; and seated in this cut away space is a pair of cup-shaped packing rings 16, of leather, or analogous material, which are held in place by a pair of metal rings 18, the upper one of which is provided with a flange 19, which projects over the top edge of the block 12 and receives screws 20, which fasten said upper ring to the block.

The top edges of the packing rings are beveled, as designated by 21, in order that any air or liquid under pressure which may engage on said beveled edges will tend to tightly pack the rings against the surface of the air chamber 6 in the block 1.

When my improved block is made ready for use, a heavy liquid, such as oil or glycerin is delivered to the air chamber 6 through the nipple 10, open valve 11 and aperture 9, and after a sufficient quantity of liquid is delivered to said chamber, air is pumped into the

chamber, and when the valve 11 is closed, the air within the chamber 6 and above the liquid provides a suitable pneumatic cushion when compressed by the action of the pile driver hammer on the member 1 of the device.

By removing the screw plug 8, a portion of the air trapped in the chamber 6 is allowed to escape and, therefore, the position of the member 1 upon the member 12 can be accurately regulated and the cubic area of the air cushion varied as desired.

The hammer of the pile driver strikes upon the block 3 and in so doing moves the member 1 downward upon the member 12, thus compressing the air within the chamber 6; and the cushioning effect obtained by this compression breaks the force of the compact between the lower end of the member 12 and the upper end of the pile, thus preventing the top of the pile from being shattered as a result of the driving blows of the hammer.

The oil, or other liquid, which partially fills the air chamber between the members of the block provides a very effective packing; and, together with the packing rings, 16, prevents the escape of air while under compression within the chamber 6; and where oil is used as the liquid within the air chamber, the engaging faces of the two members of the block are thoroughly lubricated.

I claim:—

1. A cushion block of the class described, comprising a pair of telescoping members, there being a chamber formed between said members, a flexible packing ring arranged in one of the bearing faces of one of the members and a solid ring engaging the flexible ring for maintaining the same in position.

2. A cushion block of the class described, comprising a pair of telescoping members, there being a chamber formed between said members, flexible packing rings arranged on the upper end of the inner member, solid rings engaging the flexible rings for maintaining the same in position.

3. A cushion block, comprising a pair of telescoping members, between which is formed a flexible chamber, a packing ring arranged in the bearing face of one of the members, a solid ring engaging the flexible ring to maintain the same in position, and means whereby fluid is delivered to and allowed to discharge from the air chamber.

4. A cushion block, comprising a pair of telescoping members, between which is formed a chamber, there being a recess formed in the under side of the lower one of the telescoping members, a flexible packing ring arranged in the bearing face of one of the members, and a solid ring engaging the flexible ring to maintain the same in position.

5. A cushion block, comprising a pair of telescoping members, a flexible packing ring arranged between the bearing surfaces of the members, a solid ring engaging the flexible ring to maintain the same in position, and means whereby fluid is delivered to and allowed to discharge from the chamber.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

CLINTON C. DE WITT.

Witnesses:

M. P. SMITH,
E. L. WALLACE.