

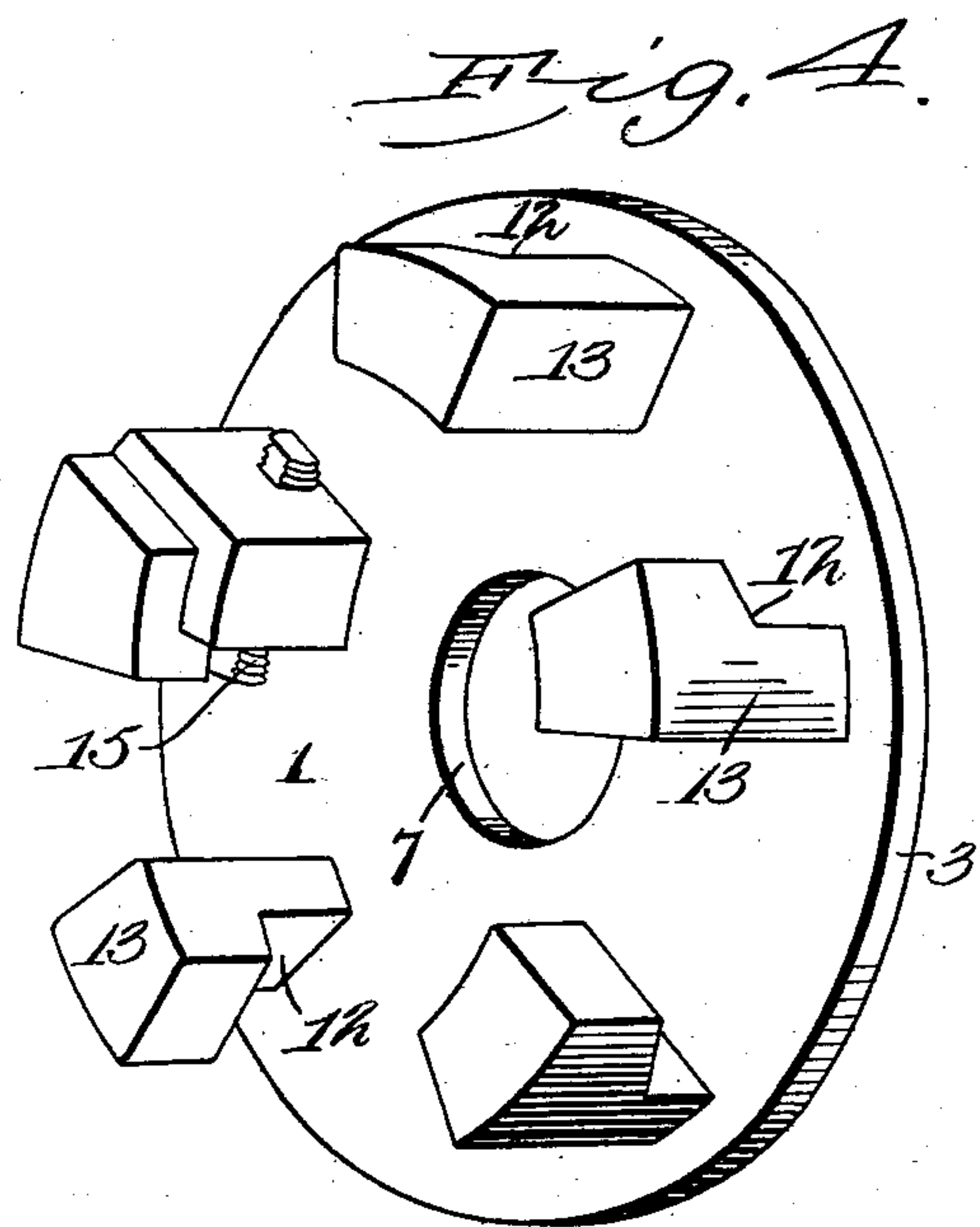
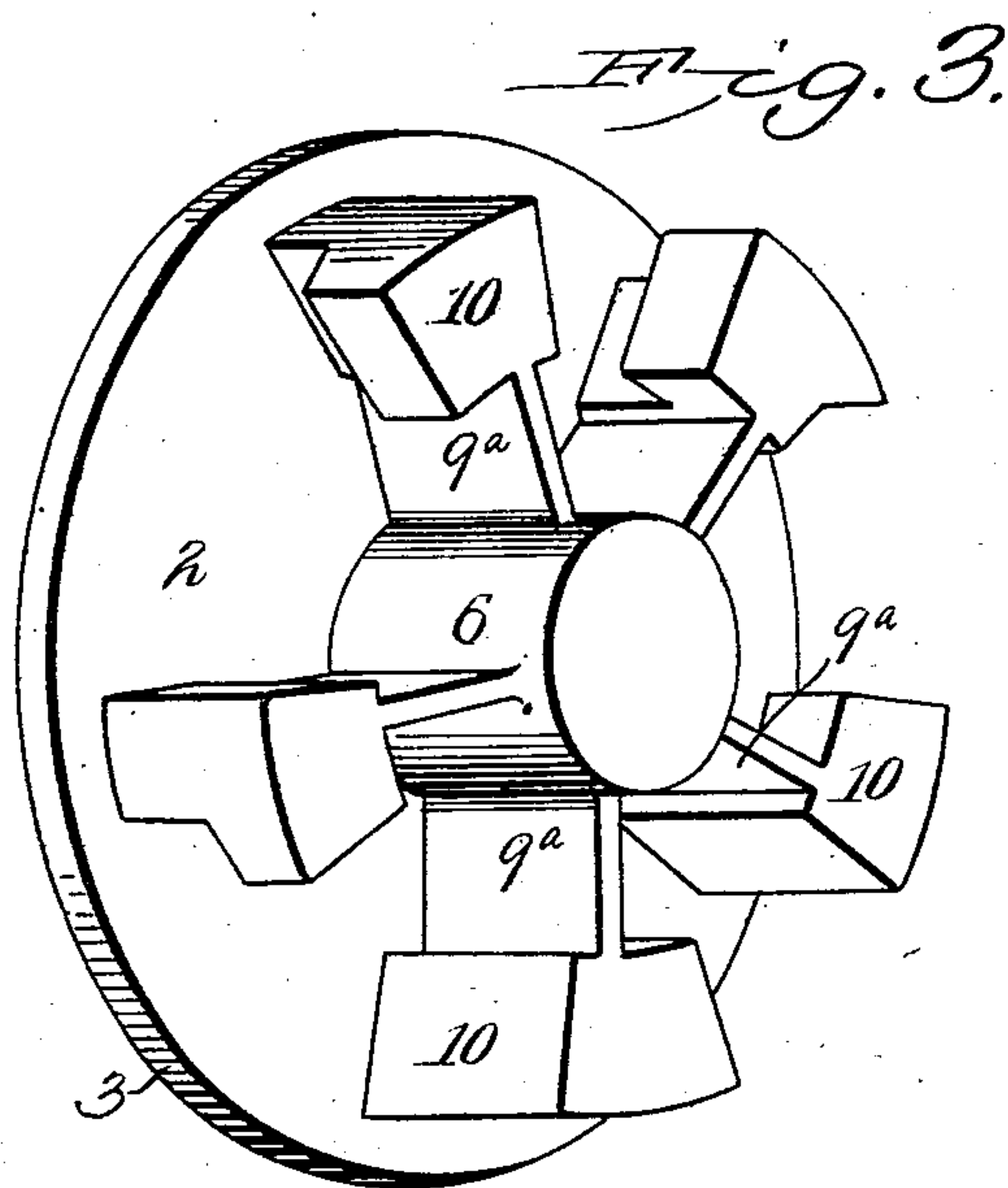
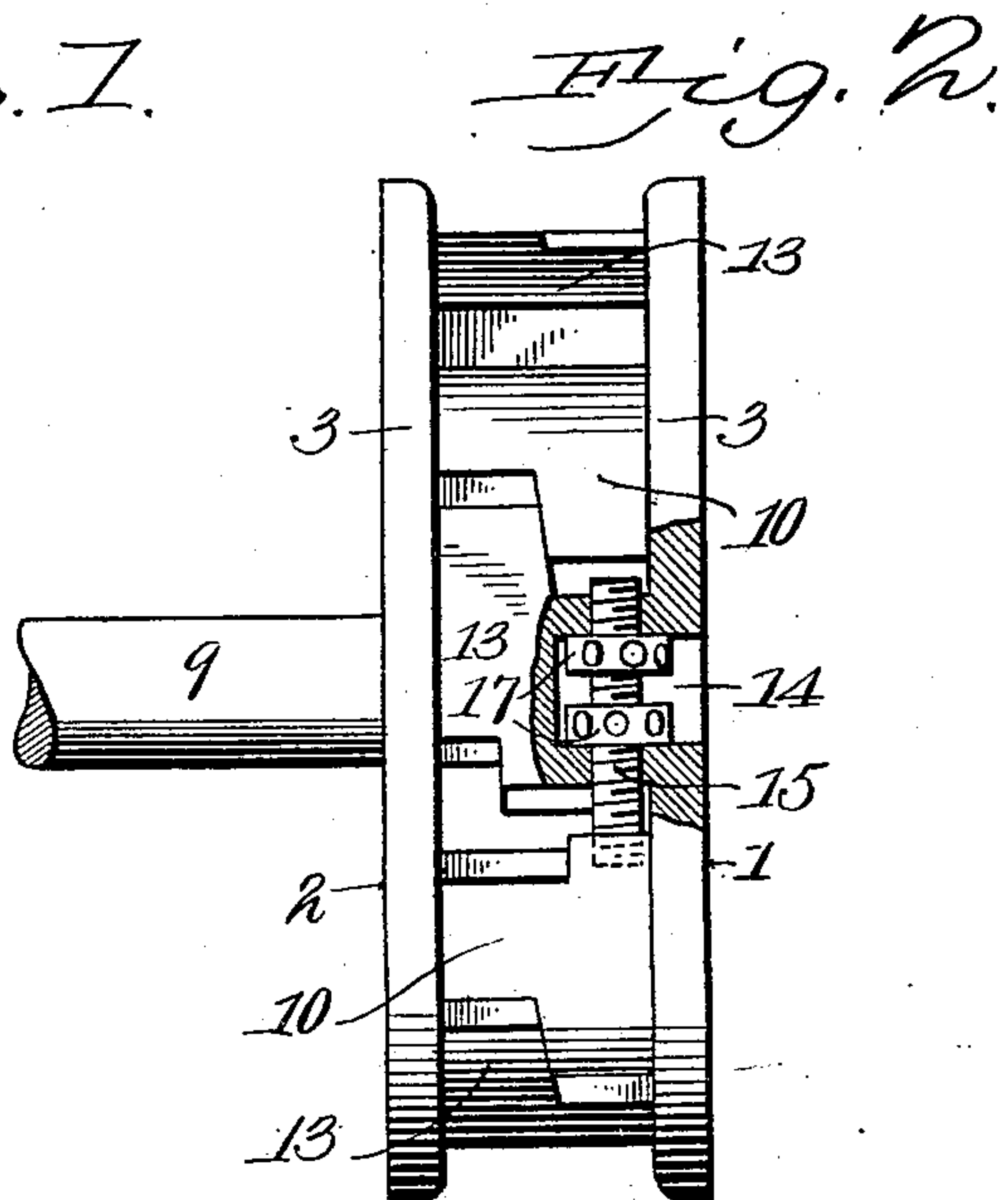
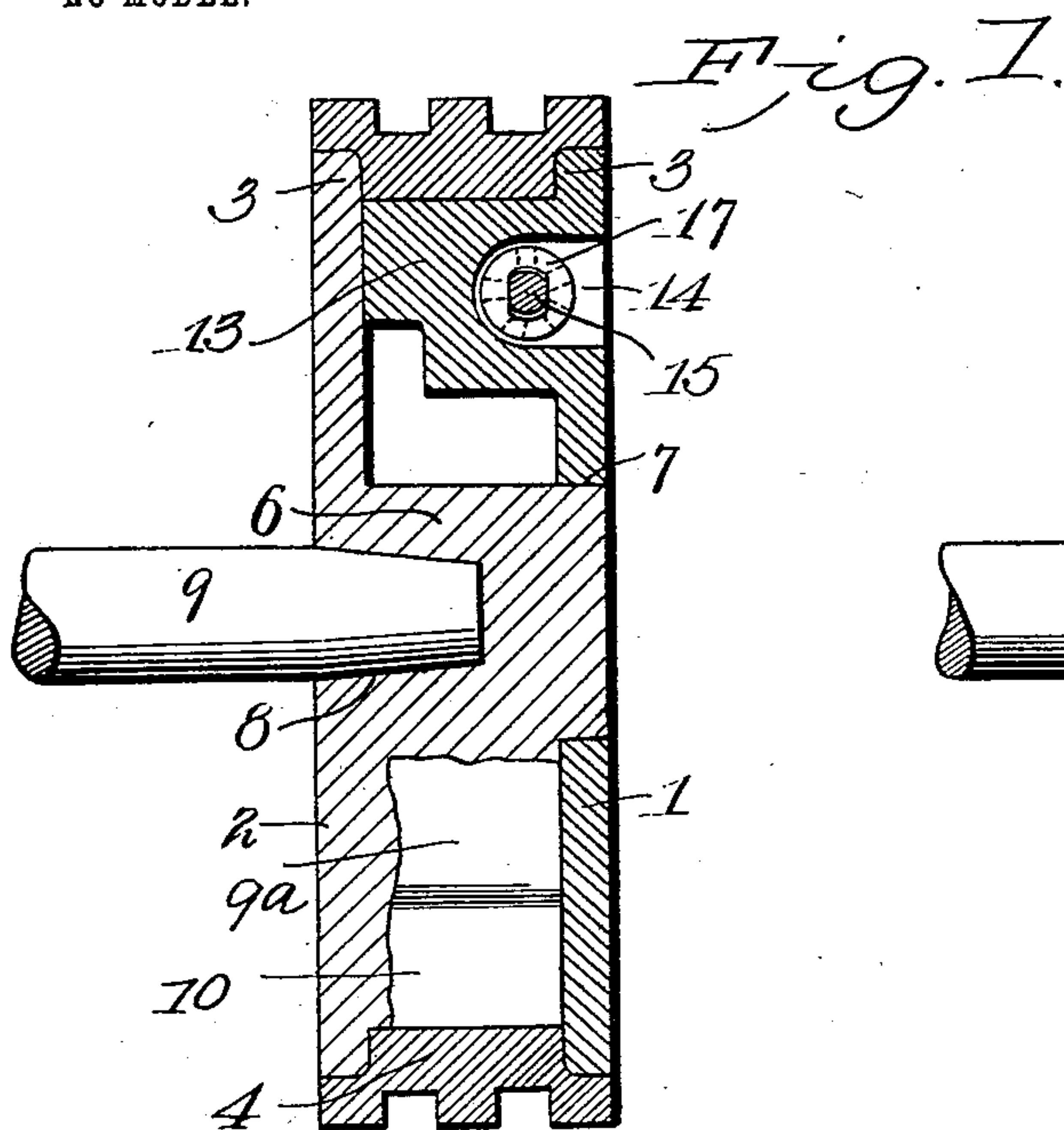
No. 750,875.

PATENTED FEB. 2, 1904.

K. MATHEWS.
PISTON.

APPLICATION FILED NOV. 13, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

KARL MATHEWS, OF MARSHALL, TEXAS, ASSIGNOR OF ONE-HALF TO
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PISTON.

SPECIFICATION forming part of Letters Patent No. 750,875, dated February 2, 1904.

Application filed November 13, 1903. Serial No. 181,068. (No model.)

To all whom it may concern:

Be it known that I, KARL MATHEWS, a citizen of the United States, residing at Marshall, in the county of Harrison and State of Texas, have invented a new and useful Piston, of which the following is a specification.

This invention relates to certain improvements in pistons for steam-engines and other purposes, and has for its principal object to provide a piston of that general class in which a pair of piston-heads are used with a connecting means that will positively and firmly interlock the two piston-heads without the necessity of employing the usual follower-bolts.

A further object of the invention is to provide a novel form of piston in which the opposite piston-heads are so constructed as to firmly engage and support the bull-ring and, further, to provide a piston construction in which the several members may be readily disconnected when it becomes necessary to renew the packing of the piston.

With these and other objects in view, as will hereinafter appear more fully, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a transverse sectional elevation of a piston constructed in accordance with the invention. Fig. 2 is a plan view of the same. Figs. 3 and 4 are detached perspective views of the opposite piston-heads. Fig. 5 is a transverse sectional elevation of a portion of the piston, showing the means for circumferentially adjusting the two piston-heads.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In steam-engine pistons as ordinarily constructed the piston is formed of a pair of heads usually provided with peripheral grooves for the reception of the bull-ring and held to-

gether by follower-bolts. These bolts are likely to wear loose under the strain to which the piston is subjected and in many cases result in the blowing out of the cylinder head or heads and the bending or breakage of the piston-rod. The bolts are furthermore difficult to remove on account of oxidation when it becomes necessary to make repairs.

In carrying out the present invention it is designed to so arrange and construct the piston that the two heads may be readily separated and the bull-ring removed, and when in use the members will be held together positively without the employment of any of the ordinary follower-bolts or similar connecting devices.

In the drawings, 1 and 2 represent the opposite piston-heads, each provided with marginal flanges 3, that are seated in grooves formed in the opposite sides of a bull-ring 4, the latter being of the usual construction and having peripheral grooves for the reception of the usual metallic or other packing. The piston-head 2 is provided with a centrally-disposed hub 6, that extends through a suitable opening 7, formed in the member 3, and serves in part to keep the two heads in proper relative position. The hub 6 is further provided with a central opening 8 for the reception of the piston-rod 9, the latter being confined in position in any manner commonly practiced in this art.

From the hub 6 extend a plurality of radial arms or webs 9, terminating in enlarged heads 10 near the periphery of the piston-head. Each of the heads 9 is provided with an undercut portion 10, forming a lug that is adapted to enter the undercut portion 12 of lugs 13, projecting from the head 3. The engaging faces of these lugs are preferably slightly tapered, so that when the heads are moved circumferentially in opposite directions the lugs of one will enter the undercut portions of the other and the interengaging tapering faces will serve to positively draw the heads toward each other, although this particular feature of construction may in some cases be omitted. During circumferential adjustment of the parts the hub 6 being entered in the open-

ings 7 permits of accuracy of movement of the two heads, so that there will be no danger of premature binding or the movement of the parts out of proper alinement.

5 One of the lugs of the head 3 is recessed and is provided with an approximately rectangular opening 14 for the passage of a screw 15, having its opposite sides flattened in order that when passed through the guiding-open-
10 ings it will be prevented from turning, or the same result may be accomplished in any ordinary manner, as by providing the screw with a keyway to receive a feather or key projecting inward from the wall of the opening. The
15 recess 14 opens at the rear face of the piston, and within this recess and mounted on the screw are two nuts 17, which may be turned to move the screw in one direction or the other, and after the necessary movement is
20 accomplished one of the nuts is moved into engagement with one side of the recess and the opposite nut is in engagement with the other side of said recess.

In assembling the parts the two members
25 are engaged and slightly turned by hand until the lugs are in part interlocked, after which the nuts may be turned and the screw driven in the proper direction in order to positively interlock the lugs and hold the same in the
30 locked position. Turning of the nuts in the opposite direction will move the screw in such manner as to force the lugs to disengaging position.

In practice it is found that the members
35 will be firmly locked in place, and as the screw is under little or no strain there will be no danger of its working loose and allowing the parts to separate.

Having thus described the invention, what
40 is claimed is—

1. In a piston, a pair of heads and interlocking members movable revolubly to engaging and disengaging positions.

2. In piston construction, a pair of heads
45 of which one is revolubly adjustable with respect to the other, and interlocking means carried by both heads.

3. In piston construction, a pair of heads

of which one is revolubly adjustable with respect to the other and undercut lugs carried 50 by each head, the lugs interlocking to hold the heads together.

4. In piston construction, a pair of heads each provided with a plurality of undercut lugs, and means for revolubly adjusting one 55 of the heads with respect to the other and for locking the same in adjusted position.

5. In piston construction, a pair of piston-heads having marginal flanges to support a grooved bull-ring, a plurality of undercut lugs 60 carried by each head and adapted to interlock with each other, the outer faces of the lugs serving as supports for the bull-ring, and means for effecting revoluble movement of one of the heads with respect to the other. 65

6. In piston construction, a pair of heads having undercut lugs, the engaging faces of the lugs being inclined to draw the heads toward each other.

7. In piston construction, a pair of heads 70 having undercut lugs of which the engaging walls are inclined, and means for effecting a positive revoluble movement of one of said heads.

8. In piston construction, a pair of heads 75 of which one is provided with a central opening and the other with a hub adapted to enter the opening, undercut lugs carried by both heads and adapted to interlock, and means for effecting positive revoluble movement of one 80 of the said heads with respect to the other.

9. In piston construction, a pair of heads having undercut and interengaging lugs, one of the lugs being recessed, a non-revoluble screw extending through the walls of the re- 85 cess for engagement with a lug or lugs of the opposite head, and adjusting-nuts carried by said screw, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 90 the presence of two witnesses.

KARL MATHEWS.

Witnesses:

W. S. COOK,

JOHN EICHENBERGER.