

No. 755,035.

PATENTED MAR. 22, 1904.

A. M. O'BRIEN.  
FLUID PRESS.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.

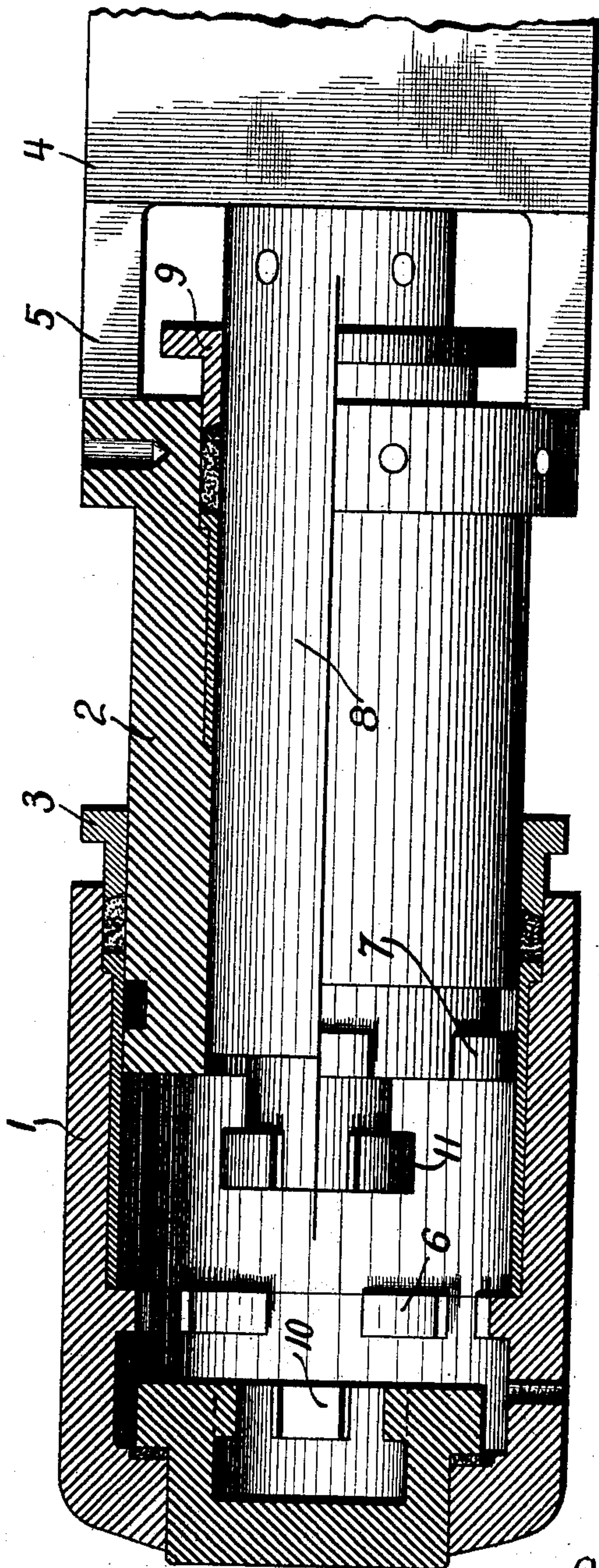


Fig. 1.

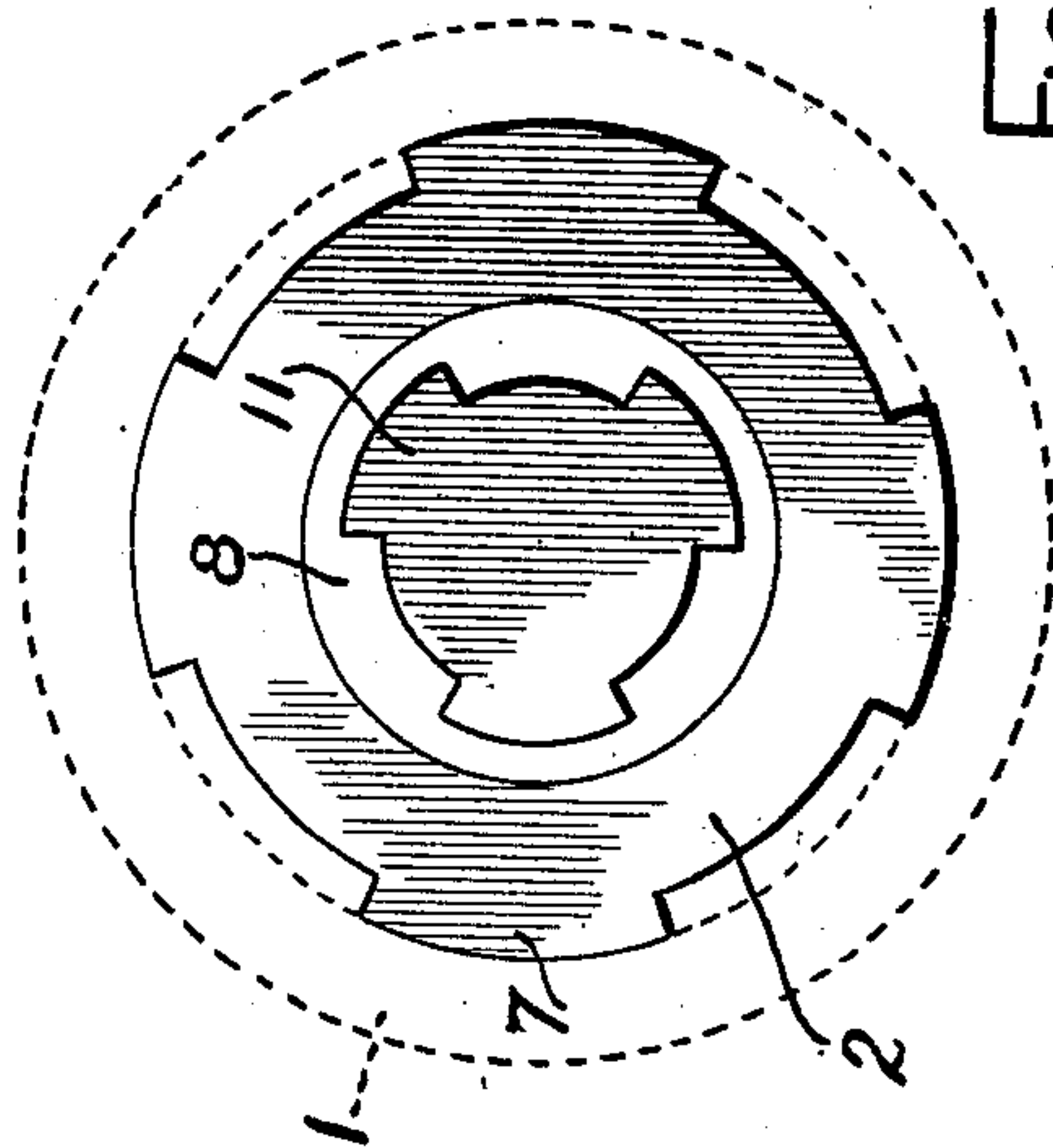


Fig. 2.

Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## FLUID-PRESS.

SPECIFICATION forming part of Letters Patent No. 755,035, dated March 22, 1904.

Application filed January 18, 1904. Serial No. 189,420. (No model.)

*To all whom it may concern:*

Be it known that I, ARCHIBALD MACLEAN O'BRIEN, a citizen of the United States, residing at Philadelphia, Philadelphia county, Pennsylvania, (post-office address Philadelphia, Pennsylvania,) have invented certain new and useful Improvements in Fluid-Presses, of which the following is a specification.

This invention pertains to improvements in that class of presses or machines operated by direct fluid-pressure within a cylinder and employing compound or telescopic plungers for varying the areas on which the fluid exerts useful pressure, and it relates to an improved construction for locking the selected plunger members out of action.

The invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a longitudinal section of a fluid-press embodying my invention, and Fig. 2 a view of the inner end of the plungers thereof.

In the drawings, 1 indicates the cylinder of the machine or press, which may pertain to a press, accumulator, riveting-machine, or the like; 2, the larger plunger of the machine working in the cylinder, as usual; 3, the usual gland to pack between the cylinder and the larger plunger; 4, the machine part or object which is to be moved relative to the cylinder by fluid-pressure action of the machine, this machine part being disposed near the outer face of but not fixed to the larger plunger; 5, arms extending from the machine part 4 toward and into contact with the outer end of the larger plunger; 6, a series of lugs projecting from the circular wall of the cylinder near its inner end; 7, a series of lugs projecting outwardly from a reduced portion or neck of the inner end of plunger 2, the relative dimensions of lugs 6 and 7 being such that plunger 2 when back home in the cylinder may have its lugs 7 passed through the spaces between the cylinder-lugs 6 and then permit the plunger to be turned somewhat, so that the lugs interlock with each other and prevent the outward movement of the plunger; 8, the

smaller plunger, working axially through the larger one; 9, the gland packing the joint between the smaller plunger and the larger one and finding room between the machine part 4 and the outer end of the larger plunger by reason of the projection of arms 5; 10, a circular series of lugs rigidly supported concentrically within the cylinder inwardly beyond lugs 6, the inner extremities of lugs 10 being arranged upon a circle less in diameter than that of the smaller plunger, and 11 a circular series of lugs projecting outwardly from a reduced portion or neck upon the inner end of the smaller plunger, these lugs being adapted when the smaller plunger is home within the cylinder to pass inwardly beyond lugs 10 and when the smaller plunger is turned to interlock therewith and prevent the smaller plunger moving outwardly.

The two plungers having been so turned that their lugs will pass freely in and out between their fellow lugs carried by the cylinder, the two plungers work together as one plunger and the machine part 4 becomes acted upon by pressure on an area corresponding with the full diameter of the larger plunger precisely as if the larger plunger were solid. If, however, the smaller plunger be locked back into the cylinder, then the larger plunger alone will act and with a power due to the area of its annulus. Again, if the smaller plunger be left unlocked from the cylinder and the larger plunger be locked back into the cylinder then the smaller plunger alone will act and with a power corresponding with its area.

I claim as my invention—

1. In a fluid-press, the combination, substantially as set forth, of a cylinder, a circular series of lugs projecting inwardly from the circular wall thereof near its inner end, a second circular series of lugs rigidly supported by the cylinder inwardly beyond the first series and arranged in a circle of lesser diameter than that of the first series, an annular plunger working in the cylinder and having lugs upon its inner end adapted to interlock with the first series of lugs in the cylinder, and a plunger working within the annular plunger and

having at its inner end a series of lugs adapted to interlock with the second series of lugs within the cylinder.

2. In a fluid-press, the combination, substantially as set forth, of a cylinder, a circular series of lugs projecting inwardly from the circular wall thereof near its inner end, a second circular series of lugs rigidly supported by the cylinder inwardly beyond the first series and  
10 arranged in a circle of lesser diameter than that of the first series, an annular plunger working in the cylinder and having lugs upon its inner end adapted to interlock with the first series of lugs in the cylinder, a plunger

working within the annular plunger and having at its inner end a series of lugs adapted to interlock with the second series of lugs within the cylinder, a machine part disposed in front of the outer ends of the plungers to be operated by them alternatively or conjointly, 20 and arms projecting from said machine part and adapted to straddle the projecting end of the inner plunger and abut upon the face of the annular plunger.

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Witnesses:

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GEO. T. REISS.