

R. F. LUDLOW.  
MOLD HAVING COMPRESSIBLE CORE.

(Application filed Jan. 20, 1900.)

(No Model.)

Fig. 1.

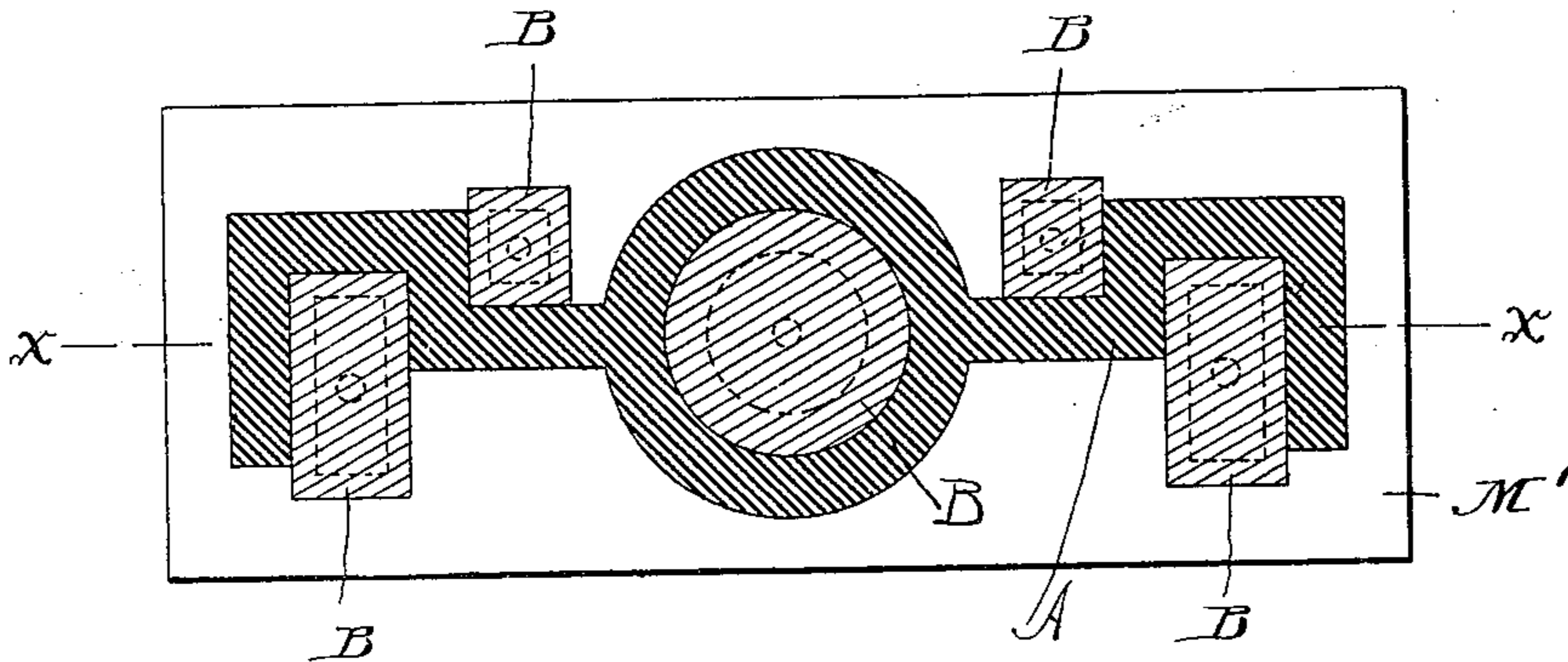


Fig. 2.

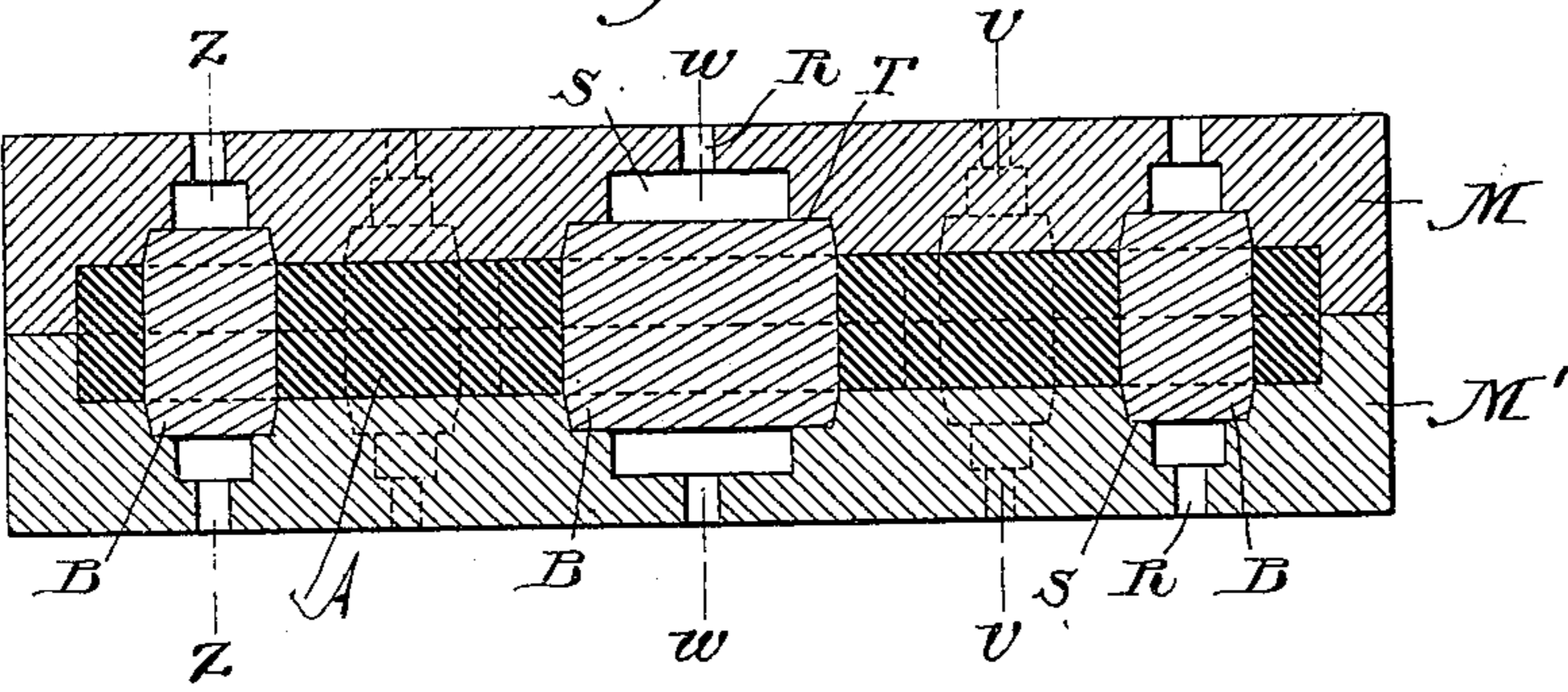


Fig. 4.

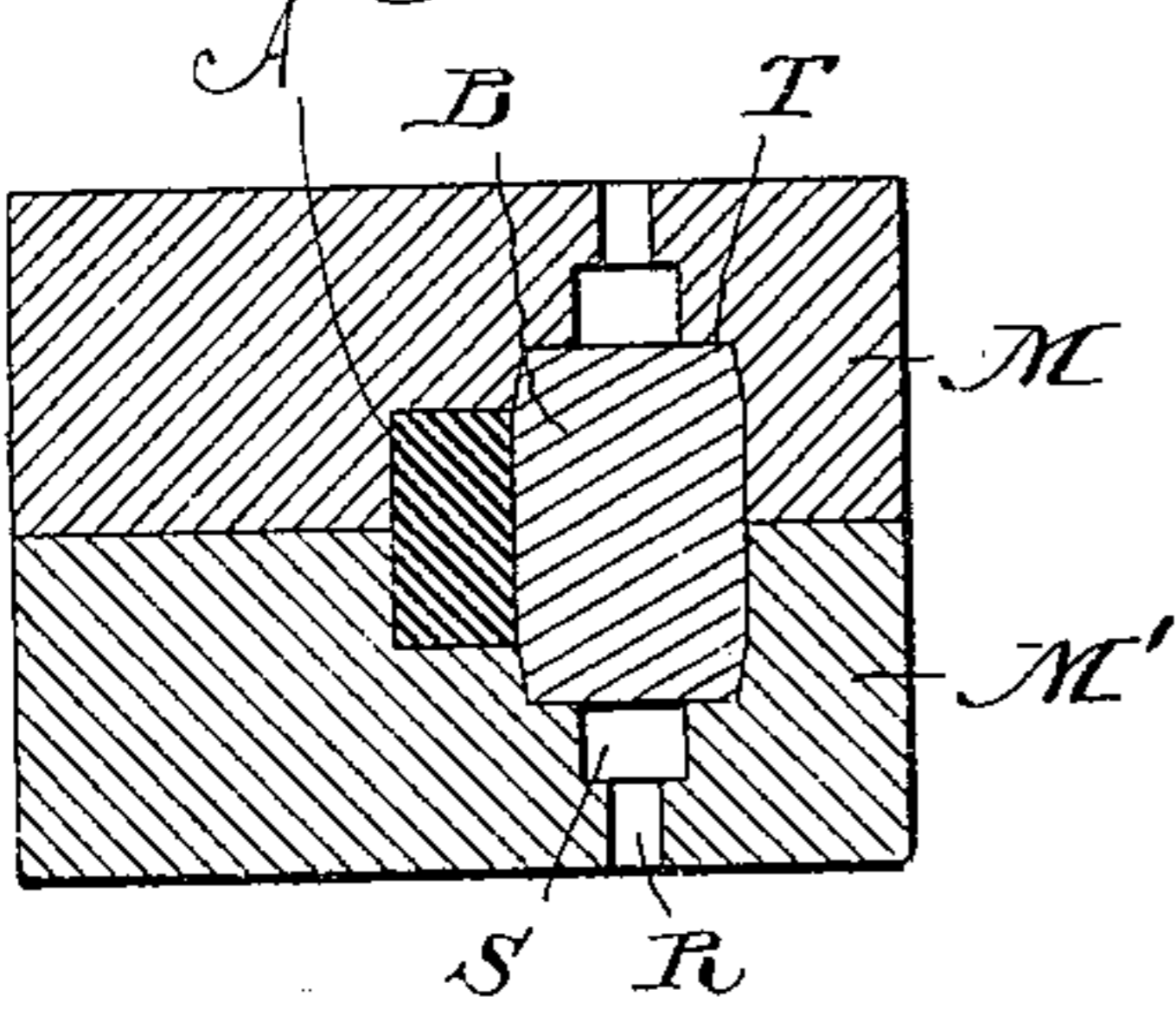


Fig. 3.

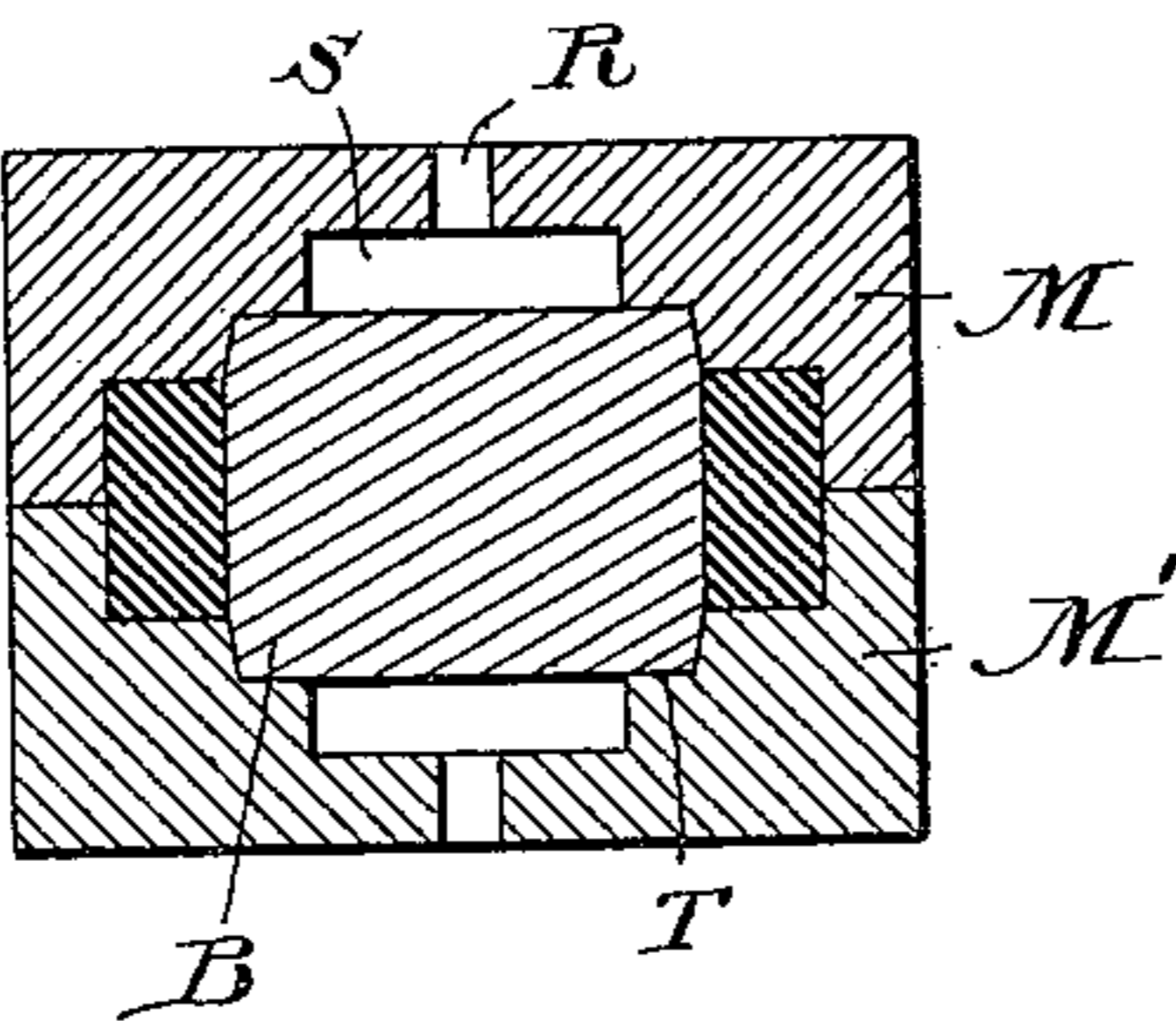
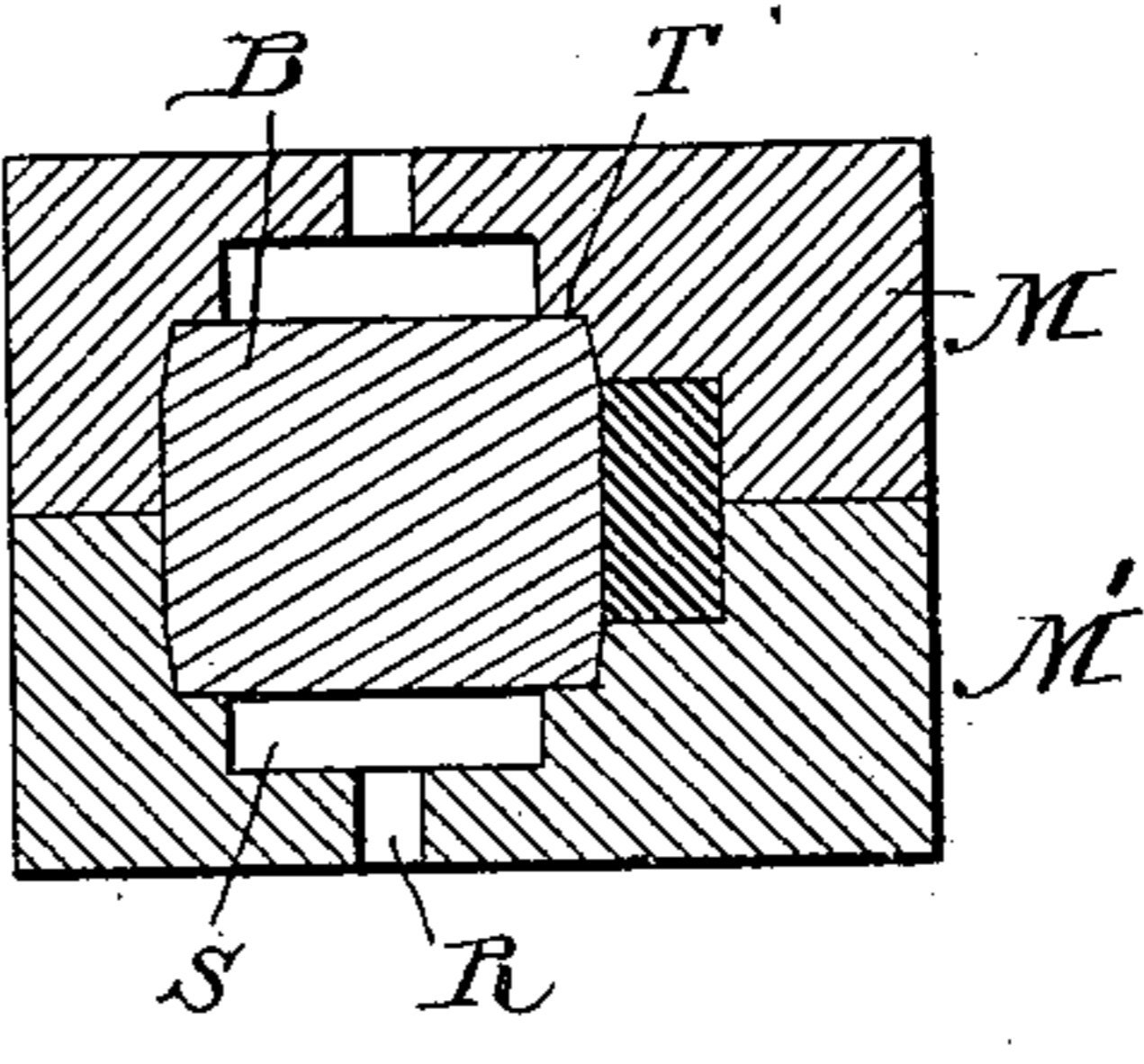


Fig. 5.



WITNESSES:

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INVENTOR

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# UNITED STATES PATENT OFFICE.

RODNEY F. LUDLOW, OF PHILADELPHIA, PENNSYLVANIA.

## MOLD HAVING COMPRESSIBLE CORE.

SPECIFICATION forming part of Letters Patent No. 663,548, dated December 11, 1900.

Application filed January 20, 1900. Serial No. 2,171. (No model.)

*To all whom it may concern:*

Be it known that I, RODNEY F. LUDLOW, a citizen of the United States, residing at Philadelphia, in the State of Pennsylvania, have  
5 invented certain new and useful Improvements in Molds Having Compressible Cores, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of  
10 this specification.

My invention relates generally to molds for forming metal castings, and specifically to that class of molds employing compressible  
15 cores, and has for its object to provide means for taking up or equalizing the strain due to contraction of the cast metal on cooling.

To that end it consists of the combination with such a mold having a suitable mold-cavity and recesses to receive the core and  
20 openings or passages leading from such recesses of a compressible solid core.

The distinctive feature of the invention—namely, the compressibility of the core and of minor features of novelty—will be herein-  
25 after described, and pointed out in the claims.

In the drawings illustrating my invention and how it may be carried into effect, Figure 1 is a horizontal section of the drag or lower half of the mold and of a compressible core  
30 therein. Fig. 2 is a vertical section through both cope and drag on the line *x x* of Fig. 1. Fig. 3 is a vertical section on line *w w*, Fig. 2. Fig. 4 is a like vertical section on line *v v*, Fig. 2; and Fig. 5 is a like vertical section on  
35 line *z z*, Fig. 2.

Referring to said drawings, the cope or upper half of the mold is indicated at *M* and the drag or under half is indicated at *M'* in the several figures, and these views show also  
40 the relative arrangement to the cope and drag of the compressible core and of the article cast in the mold. In the several figures, *A* indicates the article cast; but of course the shape will vary with the pattern of casting to  
45 be made.

*B B B B B* in Figs. 1 to 5 represent solid cores of compressible material hereinafter described, which fit into and fill openings *T* in the mold corresponding in shape thereto.  
50 Said openings communicate with other openings or pockets *S S* in both drag and cope of the mold, which openings or pockets *S S*

preferably terminate in air-vents *R*, extending to the respective outer faces of the drag and cope, and hence when so constructed are  
55 open-ended; but it is obvious that they may be located in any desired relation to the mold and at any angle to the core and to the core-openings in the mold. The solid cores *B* are made of any of the well-known mixtures used  
60 for cores that will soften rather than harden on exposure to the heat of the metal of the casting when poured into the mold and which will be crushed on the application of pressure from the casting due to its contraction in  
65 cooling. For this purpose I prefer to use a core, commonly called the "oil-core," made of mixed sand and oil; but any other having the characteristics I have described above may be substituted with like effect in my in-  
70 vention.

The operation is as follows: The compressible core *B B'* will be normally hard in the cold and retain its solidity or normal shape long enough to withstand the molten metal  
75 poured in the mold until the casting cools sufficiently to take its intended permanent form, whereupon the continued heat of the casting will soften the solid core *B* and the pressure from the contraction of the casting  
80 in cooling will crush the softened core and force it or enough of it into the openings or pockets *S S* of the mold to equalize the pressure and compensate for the strain that would otherwise be attendant thereon.  
85

I desire it to be understood that I do not confine my construction to any particular design of mold or core therefor, as these may be varied as occasion and particular construction of pattern or casting to be made may  
90 require.

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

1. A mold for casting metal having a suitable mold-cavity, core-openings, and open-  
95 ings or pockets communicating with the core-openings, and an air-vent in communication with said openings or pockets, a compressible solid core composed of material that will ini-  
100 tially withstand the heat of the molten metal until the casting sets, and will then soften on the continued application of heat from the latter and be forced into said pockets by the

pressure of the casting and thereby equalize and take up the natural strain produced by such cooling.

2. A mold for casting metals having a suitable mold-cavity, core-openings, and openings or pockets communicating with the said core-openings, and a compressible solid core composed of material that will initially withstand the heat of the molten metal until the  
10 casting sets and will then soften on the continued application of heat from the latter,

and be forced into said pockets by the pressure of the cooling casting and thereby equalize and take up the natural strain produced by such cooling.

In testimony whereof I have hereunto affixed my signature this 12th day of January,  
A. D. 1900.

RODNEY F. LUDLOW.

Witnesses:

GEO. W. REED;  
H. T. FENTON.