

No. 785,142.

PATENTED MAR. 21, 1905.

R. G. WINTER.
HINGE.

APPLICATION FILED DEC. 7, 1903.

Fig. 1.

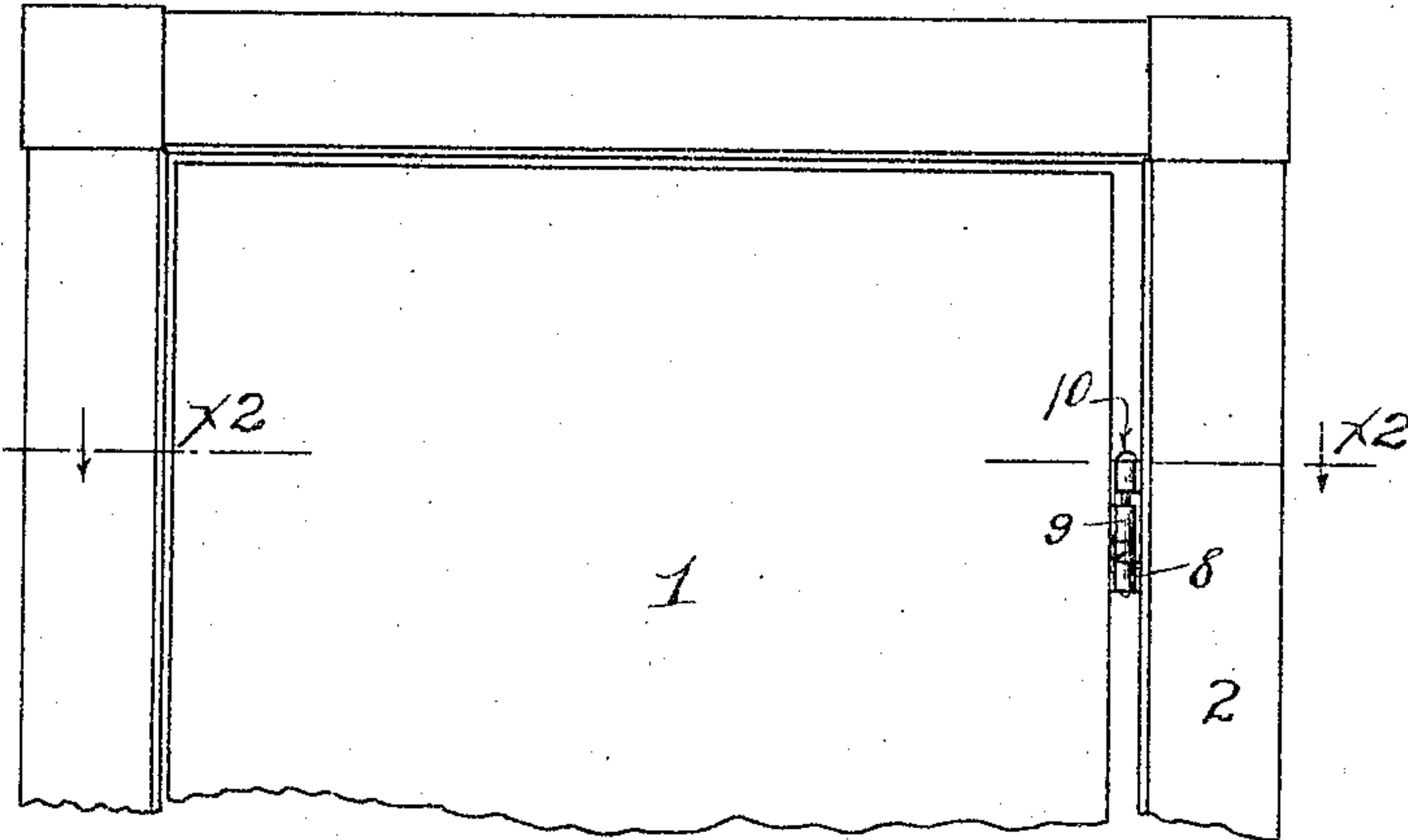


Fig. 3.

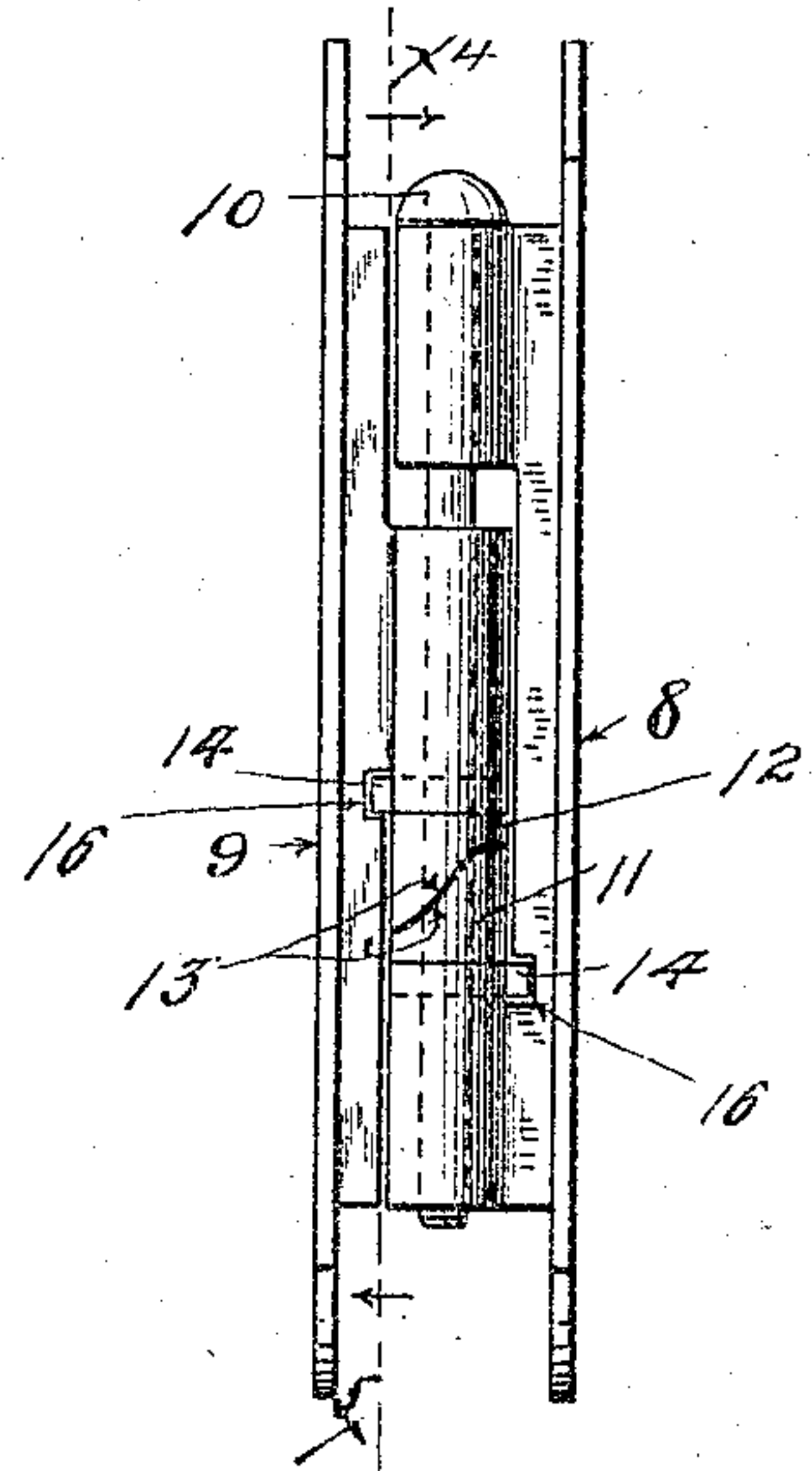


Fig. 2.

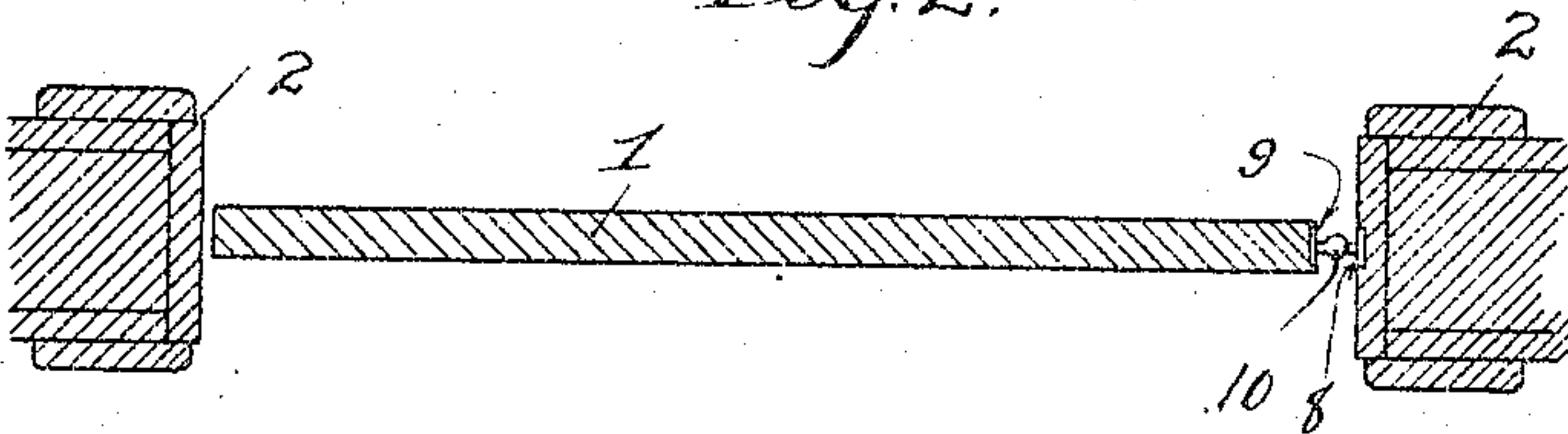


Fig. 4.

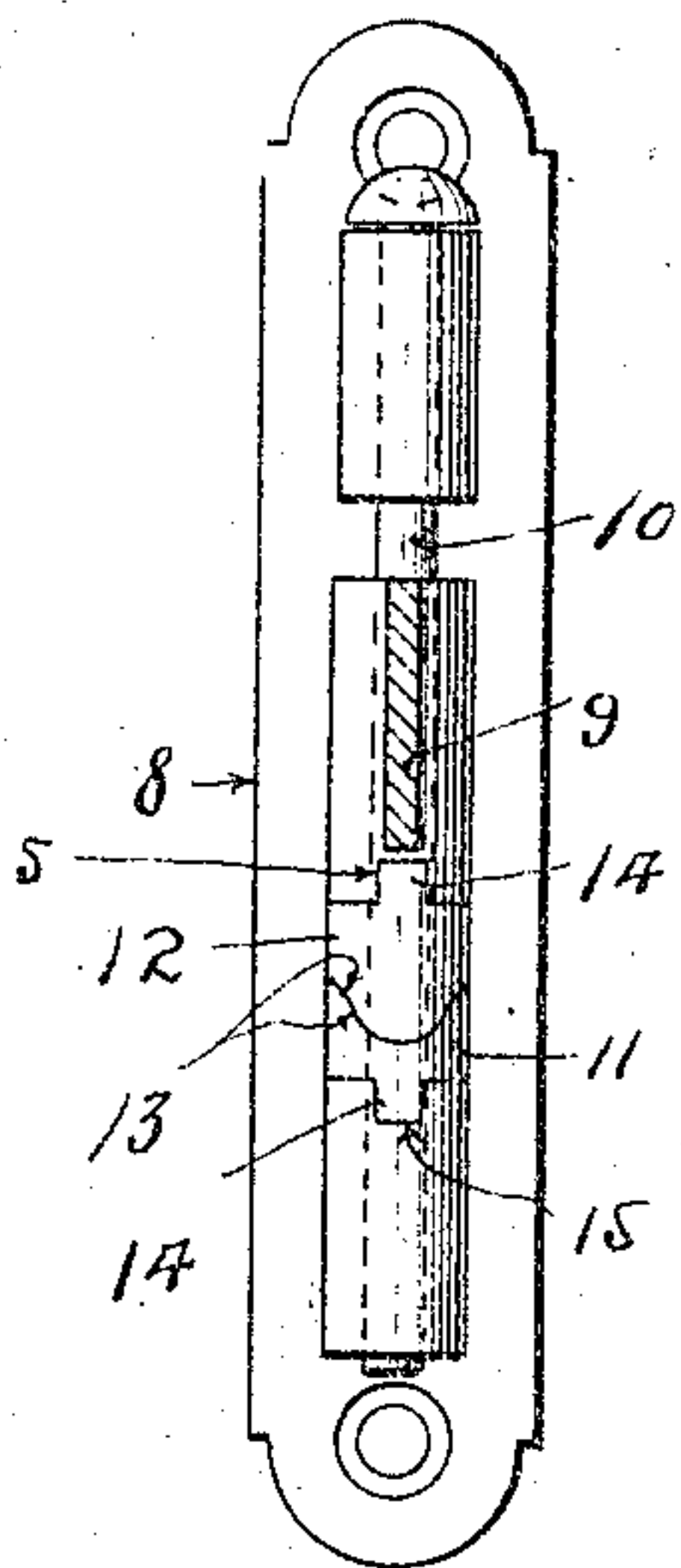


Fig. 5.

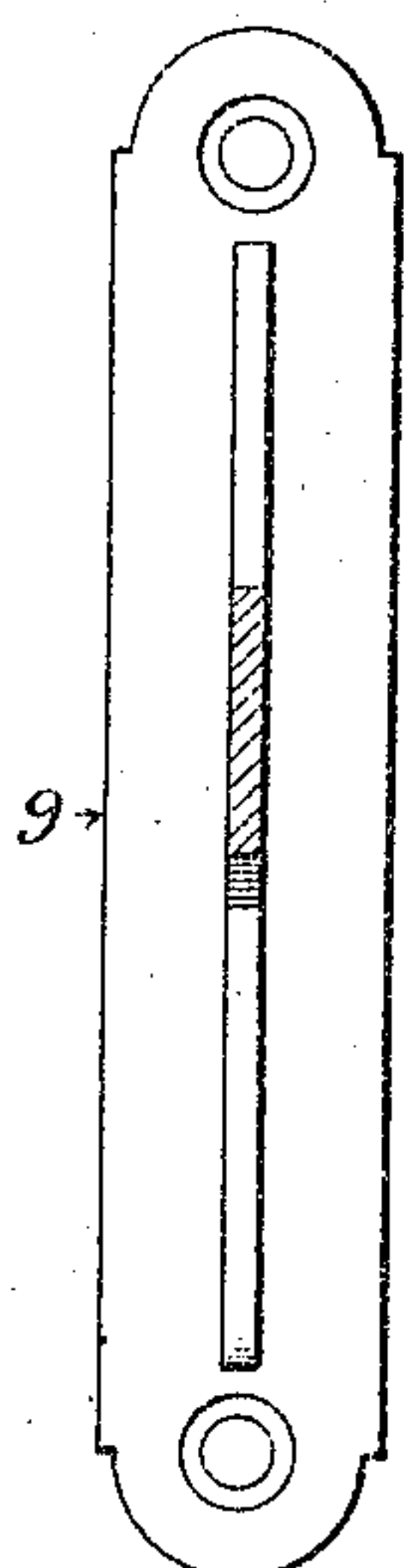


Fig. 6.

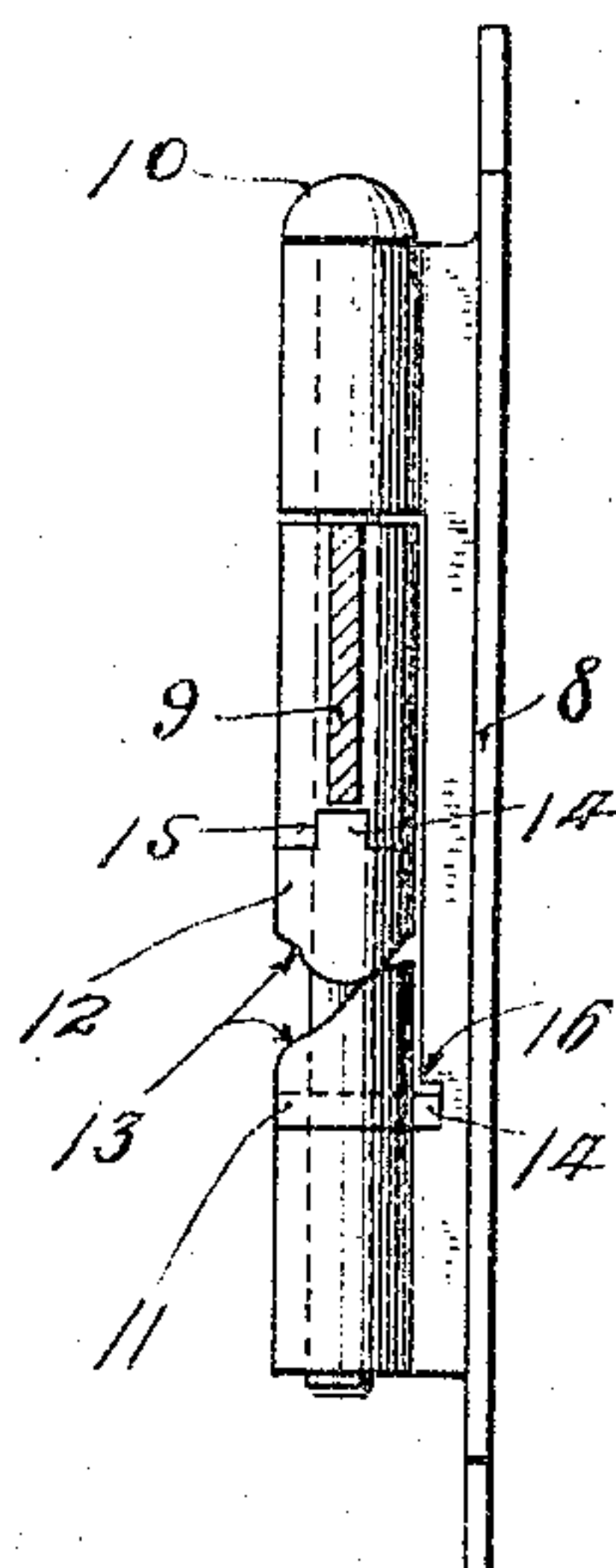
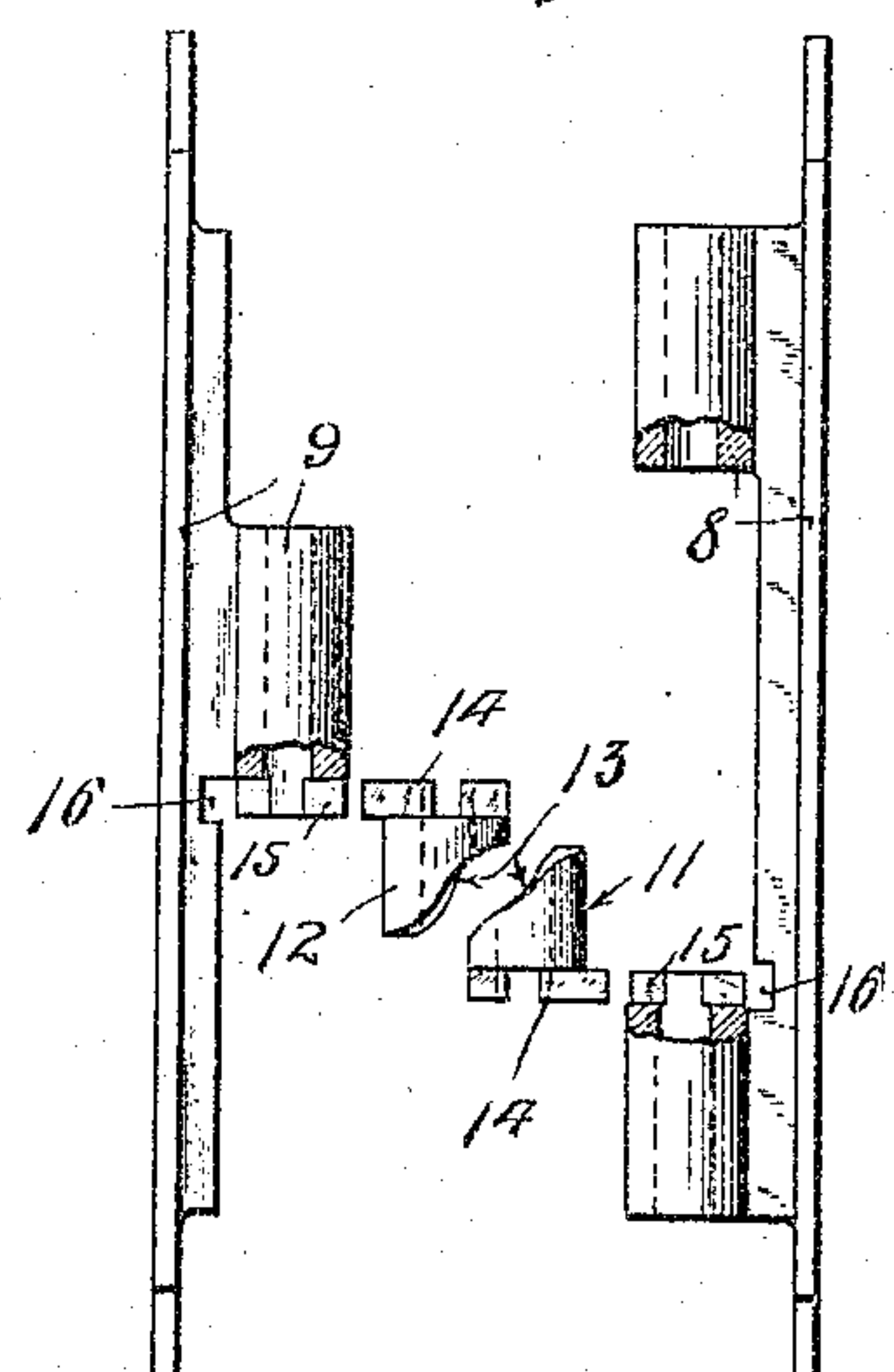


Fig. 7.



Witnesses.
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Inventor:
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By his Attorney.

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UNITED STATES PATENT OFFICE.

RUDOLPH G. WINTER, OF MILWAUKEE, WISCONSIN.

HINGE.

SPECIFICATION forming part of Letters Patent No. 785,142, dated March 21, 1905.

Application filed December 7, 1903. Serial No. 184,026.

To all whom it may concern:

Be it known that I, RUDOLPH G. WINTER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Hinges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to hinges, and has for its object to provide an improved hinge which will automatically close under the action of gravity and without the use of a spring or springs.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

In carrying out my invention I provide or form the hinge members with cooperating cam-surfaces which are so arranged that under the action of gravity they will cause the hinge to close—that is, to move into a position to cause the door or other part which they support to move into a closed position or, at least, into a predetermined desired position. Usually it will be desired to have the hinge arranged to move the door into its closed position; but the hinge may be arranged to move the door into an open position. Hence it will be understood that the expression “moved into a closed position” is illustrative and not necessarily a limitation of this invention.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

In said drawings, Figure 1 is a view in elevation with parts broken away showing a hinge designed in accordance with my invention, which hinge permits the door to swing either inward or outward from its normal intermediate or closed position. Fig. 2 is a horizontal section on the line $x^2 x^3$ of Fig. 1. Fig. 3 is an enlarged view, in side elevation, of the hinge shown in Figs. 1 and 2. Figs. 4 and 5 are sections on the line $x^4 x^5$ of Fig. 3, the former being a view looking toward the right and the latter being a view looking toward the left. Fig. 6 is a view cor-

responding to Fig. 4, showing the hinge in an open position—that is, with the movable member thereof turned at ninety degrees from the position shown in Figs. 1, 2, and 3. Fig. 7 is a view corresponding to Fig. 3, but showing the parts of the hinge separated or drawn apart.

Throughout the drawings the numeral 1 indicates a door and the numeral 2 the door-casing to which it is hinged. In Figs. 1 and 2 the door is shown as a two-way swinging door. The numeral 8 indicates the relatively fixed and the numeral 9 the relatively movable members of the hinge, which members are secured by screws or otherwise, respectively, to the casing 2 and door 1, the said hinge members being pivotally connected by a pintle bolt or pin 10, passed vertically through the interlapping hub portions thereof. As a novel feature the cooperating cam-surfaces are not formed directly on the hub portions of the hinge members, but are formed on detachable hub-sections which are capable of being replaced when worn without removing the hinge members from the parts to which they are secured.

Double or reverse acting cam-surfaces are provided which permit the door to swing in either one of two directions—that is, either inward or outward from its normal intermediate or closed position. Referring in detail to this construction, the numeral 11 indicates the detachable hub-section of the lower hub portion of the relatively fixed hinge member 8, and the numeral 12 indicates the detachable hub-section of the intermediate hub portion of the swinging hinge member 9, which hub-sections 11 and 12 are formed with engaging cam-surfaces 13. These cam-surfaces 13 extend spirally in two directions, so that when the door is swung in either direction from its normal closed position, gravity acting on the door and on these cam-surfaces will tend to swing the door back to its closed position. The detachable hub-sections 11 and 12 have diametrically-extended ribs 14, that engage diametrically-extended slots 15, formed in the hinge-hub portions, which they supplement or complete. As is evident, the engagement of the said flanges 14 with the said slots 15

cause the detachable hub-sections to remain fixed against rotation with respect to the respective hinge members to which they are attached. Otherwise stated, the hub-section 5 11 will be locked to the hinge member 8 and against rotation, while the hub-section 12 will be locked to the hinge member 9 and be caused to oscillate therewith. Furthermore, the said hub-flanges 14 project at one end and engage 10 notches 16 in the respective hinge members, so that when the parts are connected by the pintle 10 the said hub-sections are locked vertically as well as rotatively to the respective hinge members. It will of course be understood that with this arrangement the said detachable hub-sections must be properly adjusted before the pintle is applied to the hinge. 15

It will of course be further understood that 20 since the door must be moved slightly in a vertical direction some clearance must be allowed between the upper edge of the door and the overlying portion of the door-casing. This clearance may be reduced very greatly by bev- 25 eling the upper edge of the door and the said overlying portion of the casing.

A hinge constructed on the plan above described is of small cost and has no parts to get out of order, springs being entirely dispensed with. From what has been said it will 30 of course be understood that the invention described is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows: 35

1. A hinge, the members of which have detachable hub-sections, said hub-sections being formed with cooperating cam-surfaces, adapting it to close under the action of gravity. 40

2. A hinge, having detachable hub-sections interlocked with the respective hinge members, and having cooperating cam-surfaces, adapting the hinge to close under the action 45 of gravity.

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

RUDOLPH G. WINTER.

Witnesses:

ROBERT C. MABEY,
F. D. MERCHANT.