

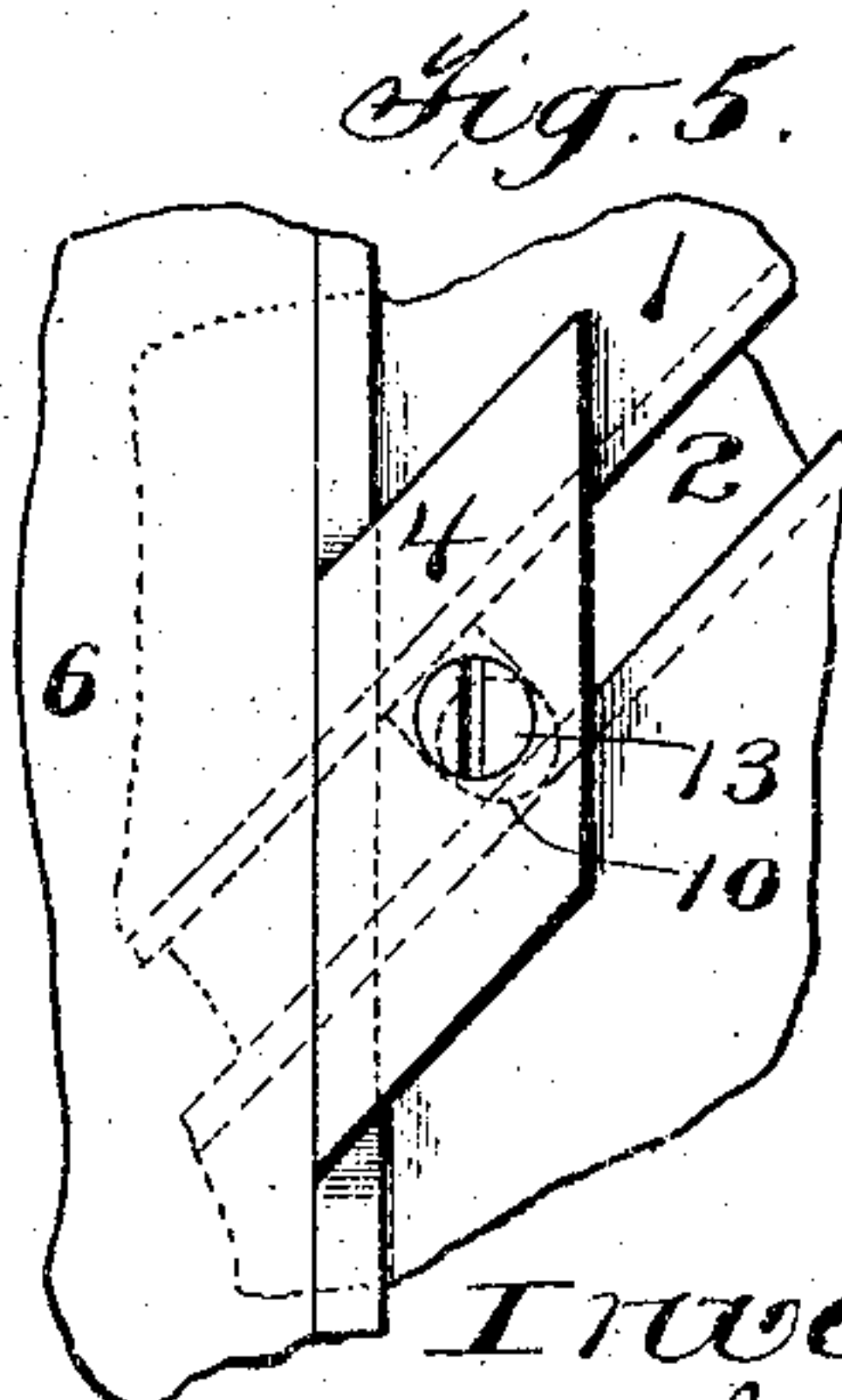
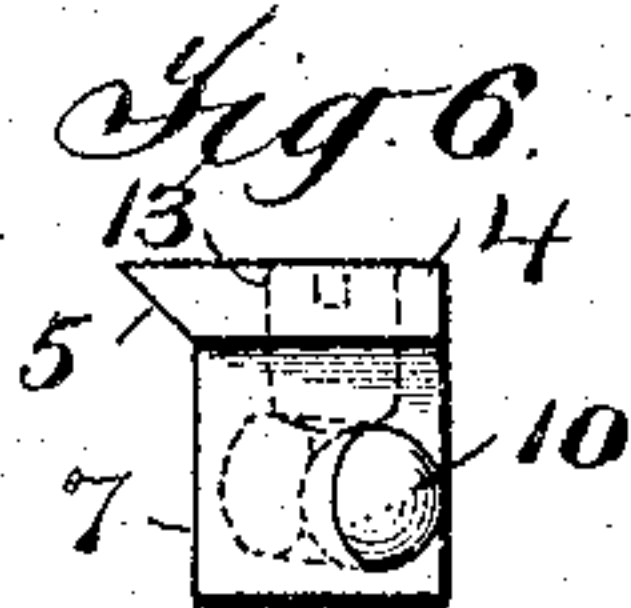
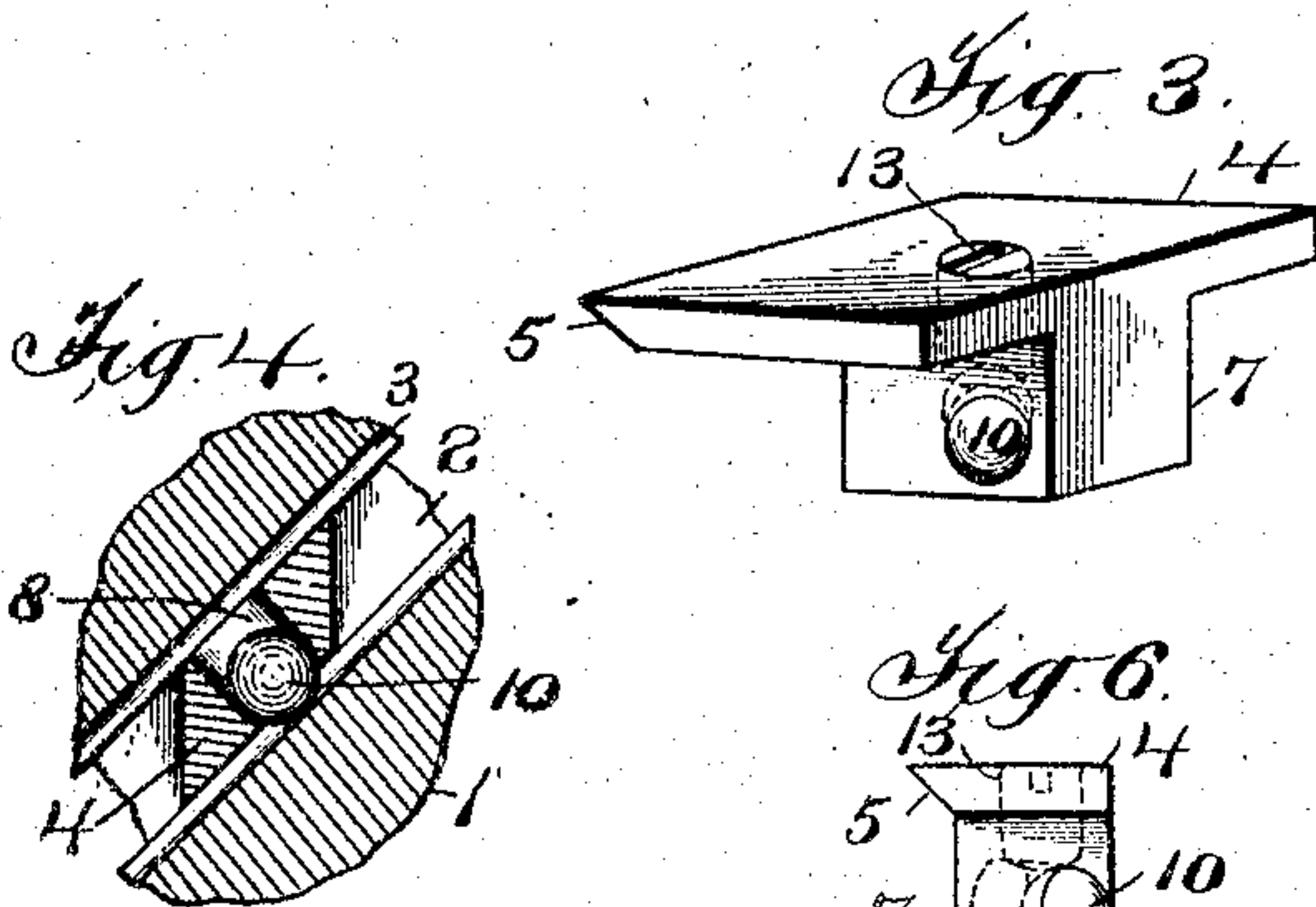
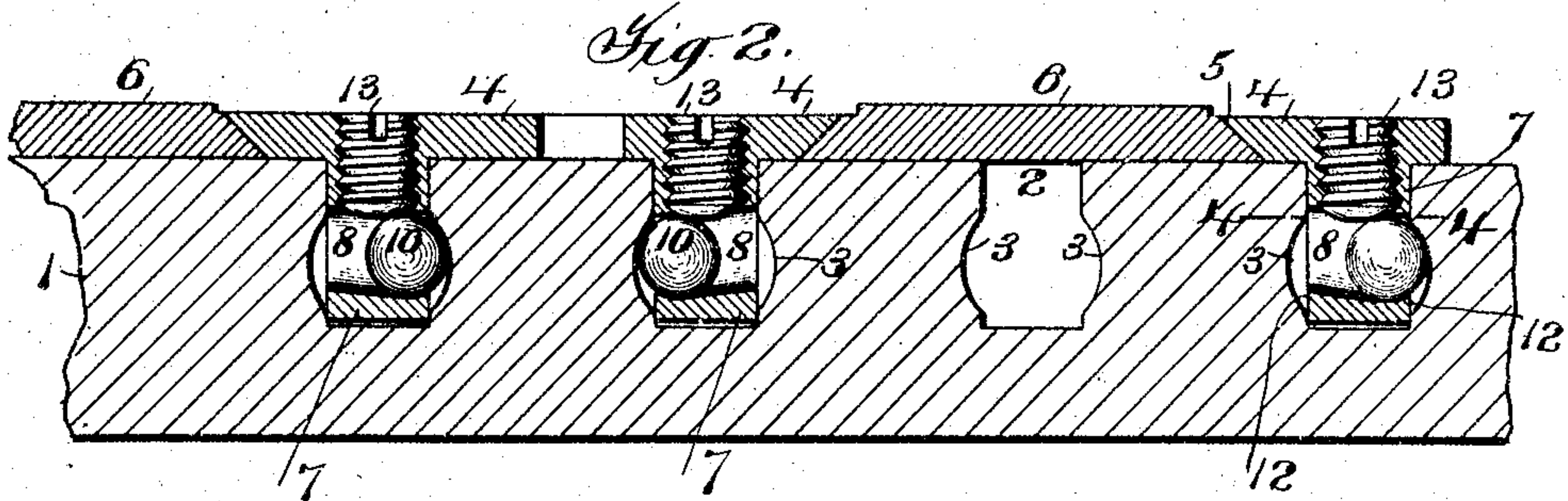
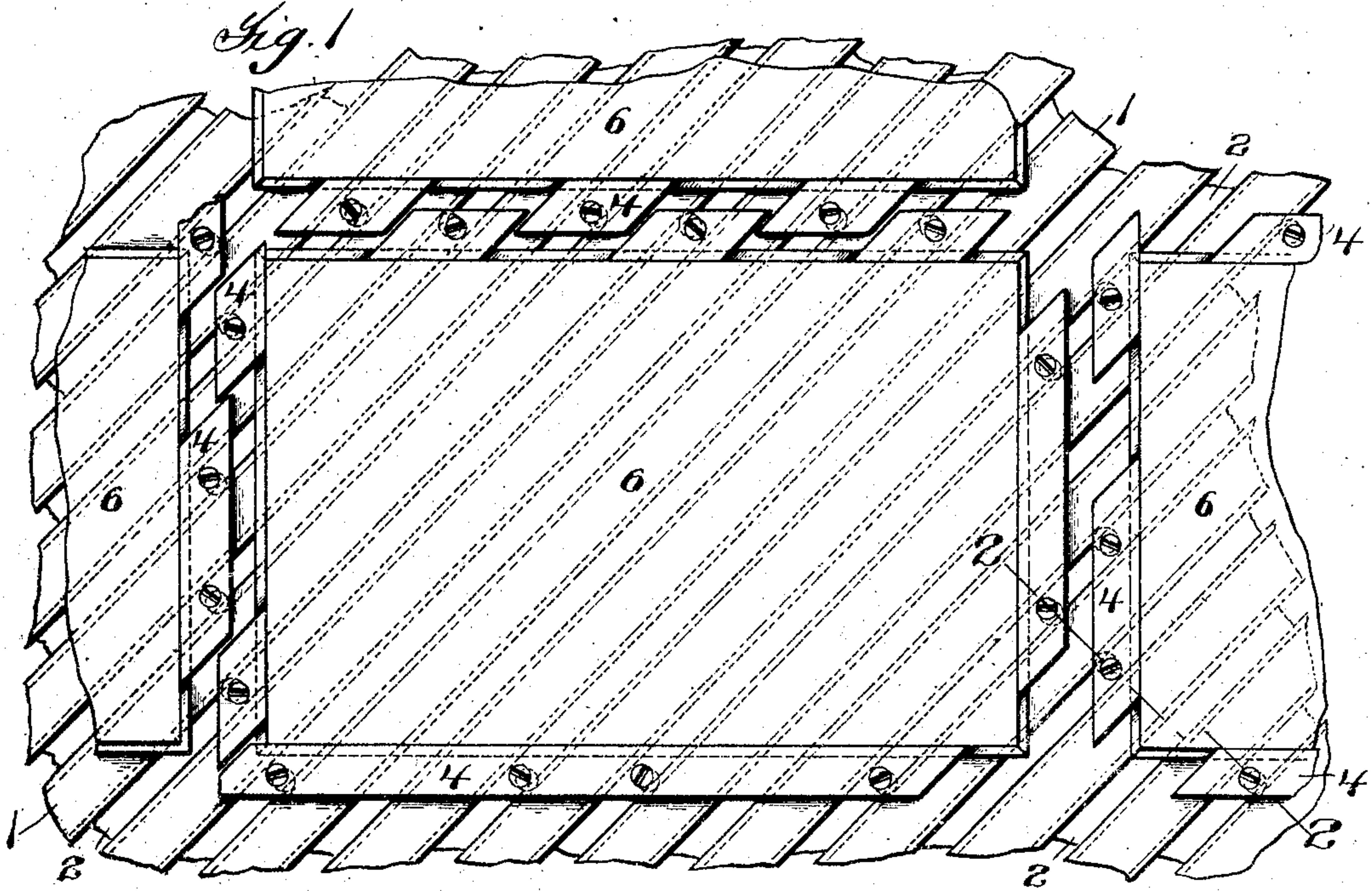
No. 778,255.

PATENTED DEC. 27, 1904.

W. J. MAIN.
PLATE CLAMP.

APPLICATION FILED JAN. 14, 1902.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

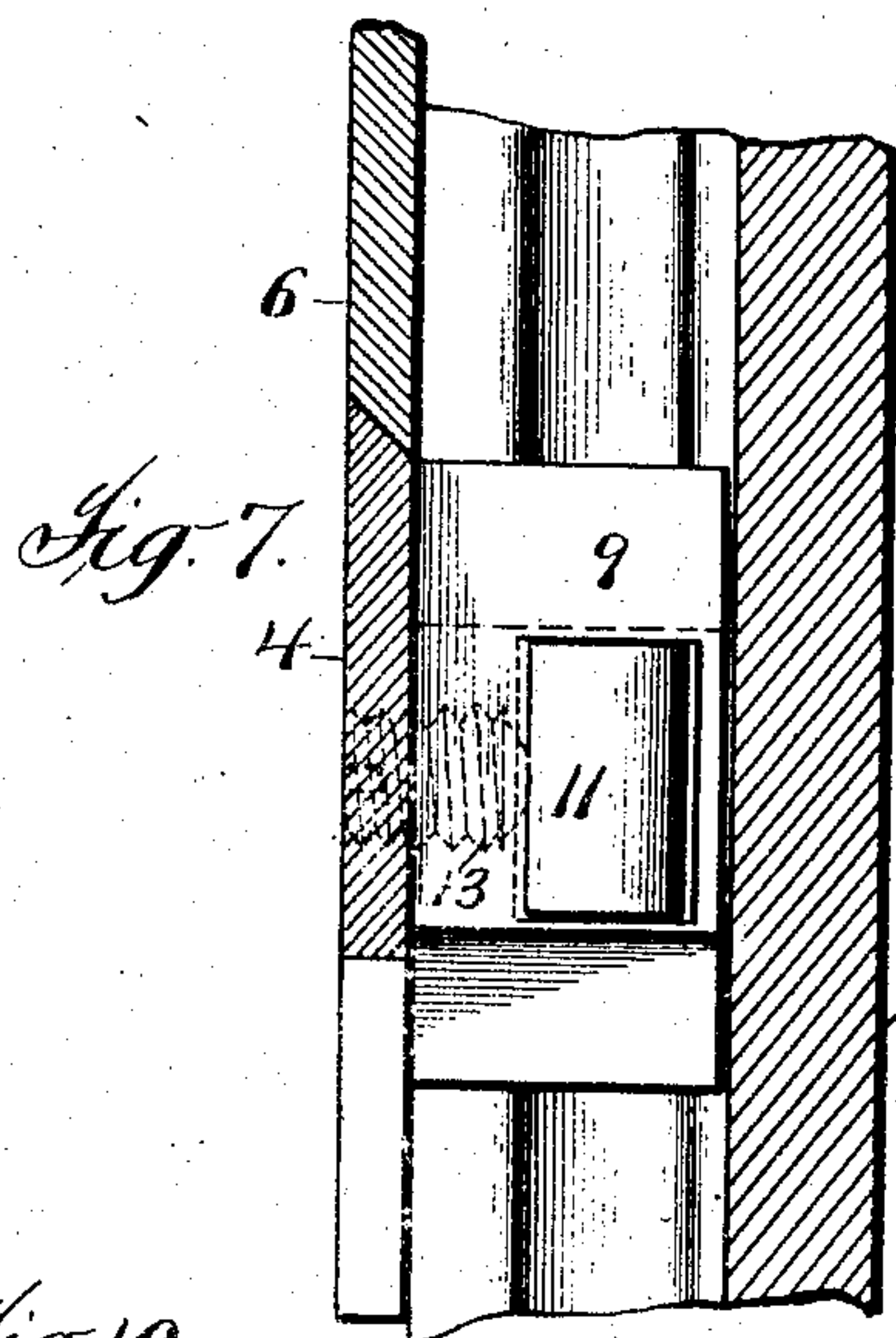


Fig. 8.

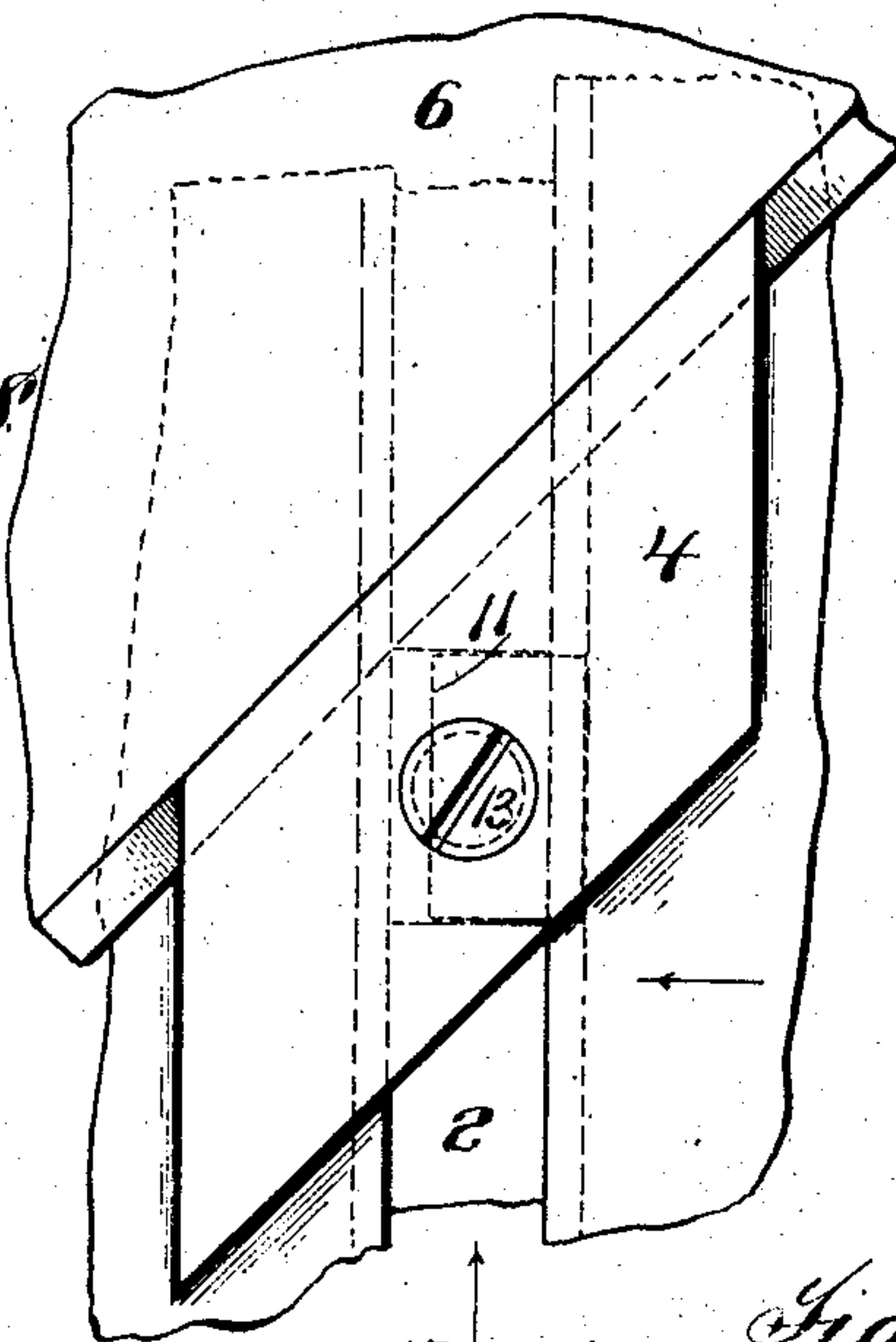


Fig. 9.

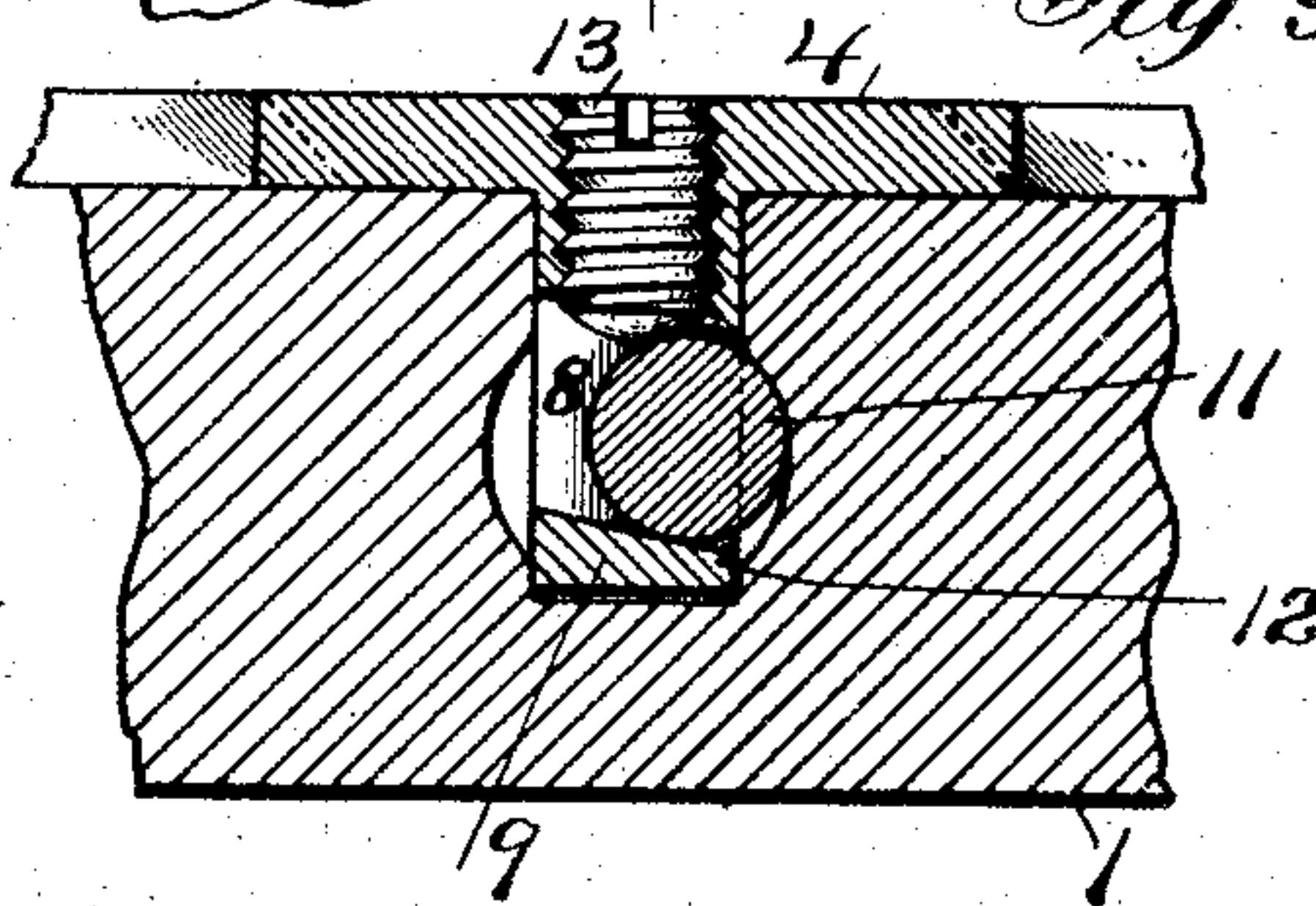


Fig. 10.

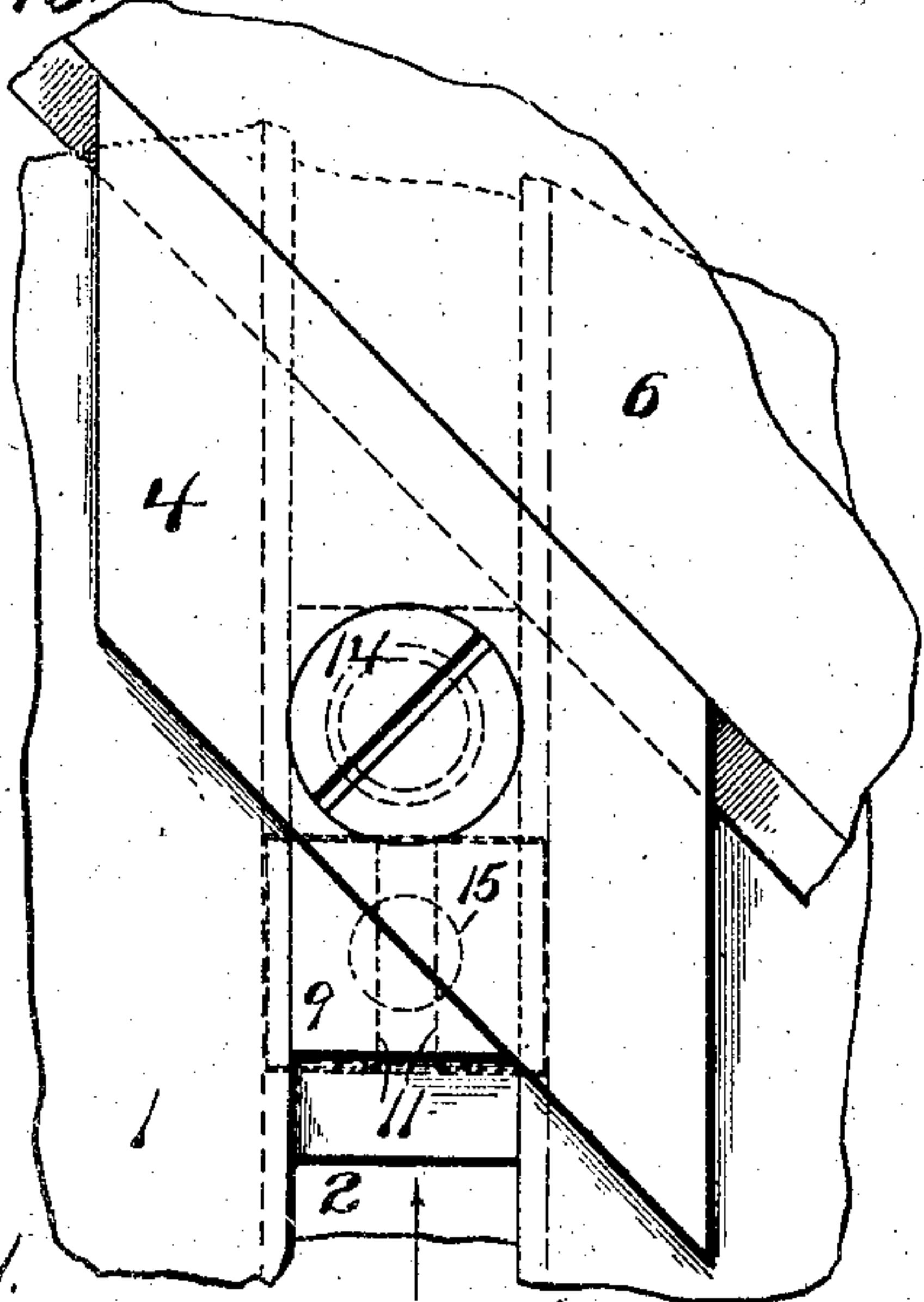


Fig. 11.

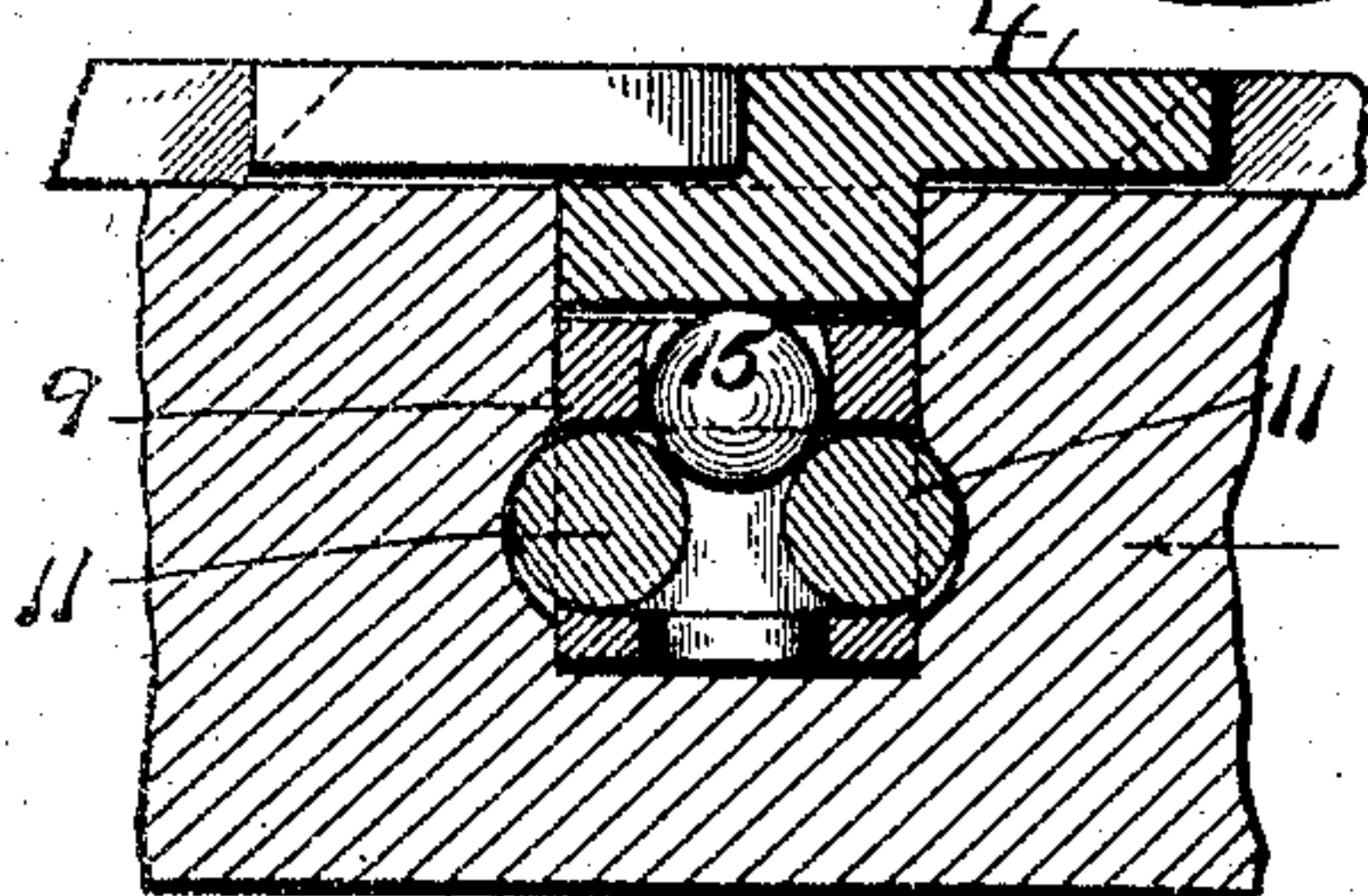
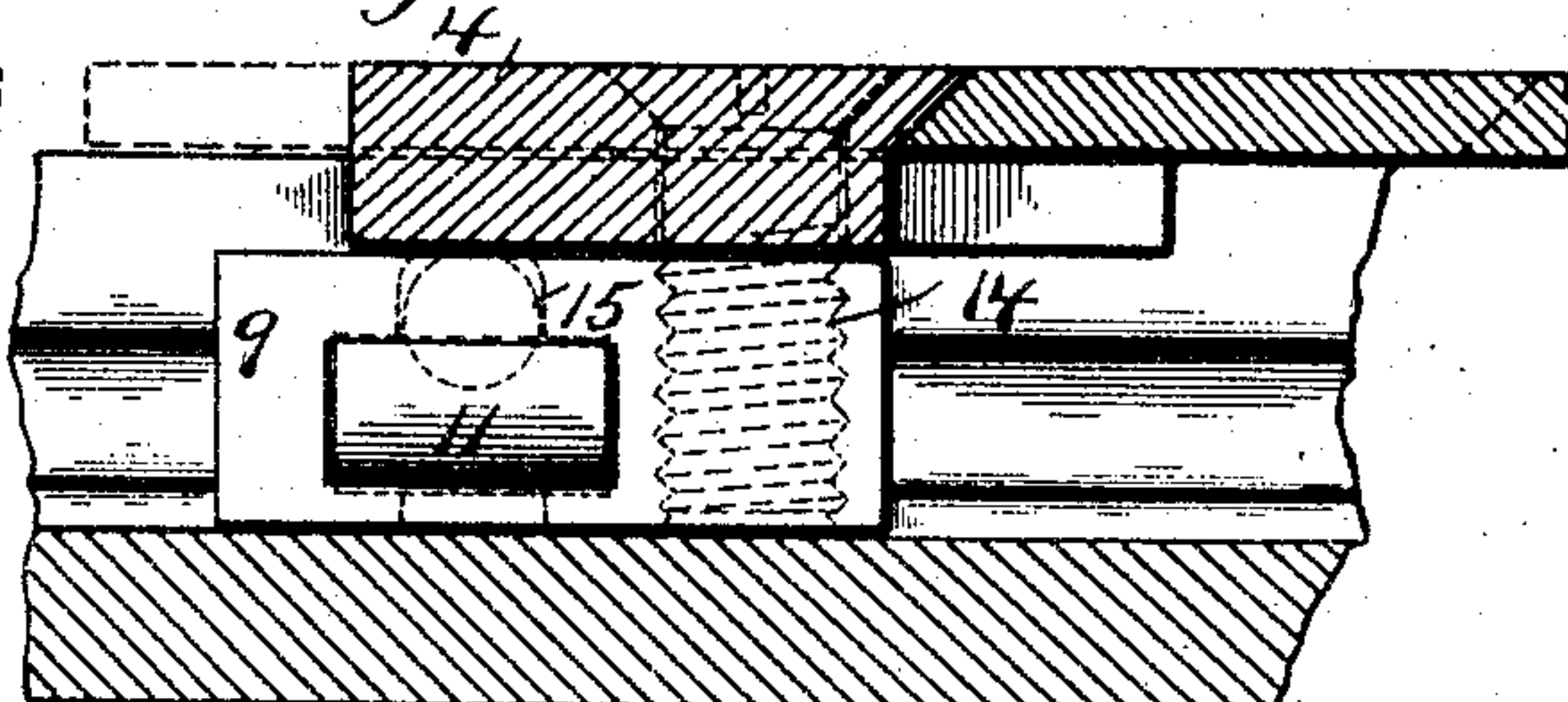


Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM J. MAIN, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE,
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PLATE-CLAMP.

SPECIFICATION forming part of Letters Patent No. 778,255, dated December 27, 1904.

Application filed January 14, 1902. Serial No. 89,679.

To all whom it may concern:

Be it known that I, WILLIAM J. MAIN, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Plate-Clamps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in clamping devices, and more particularly to that class of clamping devices which are used for securing electrotype or stereotype plates to the beds on which they are supported during the printing operation.

The invention has for its object to produce a simple and cheap clamp which can be readily adjusted in position, the parts of which are not liable to become lost, and which is very effective in operation.

With this and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification, and in which like characters of reference indicate the same parts, Figure 1 is a plan view of a plate-supporting bed having a series of plates secured in position thereon by the improved clamp. Fig. 2 is a detail sectional elevation on an enlarged scale, the plane of section being indicated by the line 2 2 in Fig. 1. Fig. 3 is a perspective view of the improved clamp removed from the plate. Fig. 4 is a detail section on the line 4 4 of Fig. 2. Fig. 5 is a detail view on an enlarged scale of one of the clamps in position. Fig. 6 is an end view of the clamp shown in Fig. 3. Figs. 7, 8, and 9 are detail views illustrating the construction of a modified form of the clamp, and Figs. 10, 11, and 12 are detail views illustrating another form of the clamp.

Referring to the drawings, 1 indicates a plate-supporting bed which is provided with recesses for the clamps to be hereinafter described. These recesses may be made in any desired form. Preferably, however, they will

consist of grooves 2, arranged diagonally across the bed, as is usual. While the walls of these grooves might be vertical, if desired, they are preferably undercut, and preferably also the undercut portion will be curved, as indicated at 3. By constructing the recesses in the form of grooves, as shown, it is possible to adjust the clamps readily from one position to another without removing them from the grooves when the plates are changed, as might be necessary were the recesses simply holes in the plate.

The plate-clamp includes a retaining-plate 4, which is arranged to engage the edge of a plate. In the preferred form of the construction this retaining-plate is provided with a beveled edge 5, which takes over a similar bevel on the edge of the plate 6.

The clamp further includes a carrier for the locking member to be hereinafter described. This carrier may be variously constructed and may be integrally connected to the retaining-plate or may be separate therefrom and secured thereto in any desired manner. As shown in Figs. 1 to 9, inclusive, the carrier consists of an integral downwardly-projecting stem 7, which is provided with a chamber 8 for the locking member. As shown in Figs. 10 to 12, inclusive, the carrier consists of a chambered block 9, which is independent of the retaining-plate and secured thereto.

The locking member may be constructed in various ways and given various configurations. Preferably, however, it will be provided with a curved operating-face. In the construction shown in Figs. 1 to 5 the locking member consists of a ball 10, which is located in the chamber. In the construction shown in Figs. 7, 8, and 9 the locking member consists of a cylinder 11, and in the construction shown in Figs. 10, 11, and 12 the locking member consists of two cylinders 11.

The carrier for the locking member is preferably of such a width that it may be slipped easily in and out of the mouth of any of the grooves 2, and the locking member, whether it consists of a ball or cylinder or a plurality of cylinders, will be so arranged that it may

be entirely contained within the chamber in the carrier. This construction enables the clamp to be withdrawn vertically from the grooves when necessary, thus obviating the necessity of sliding the clamps to the end of the grooves in order to remove them, as is the case with many of the clamps now in ordinary use.

Means are preferably provided for retaining the locking member in the chamber, so that it may not be lost or misplaced when the clamp is removed from the groove. While this may be effected in various ways in the construction shown, the mouths or openings of the chambers are preferably provided with shoulders 12. These shoulders may be formed in any desired manner—as, for instance, by forming one of the mouths of openings in the chamber slightly smaller than the other and then upsetting the edges of the larger mouth after the locking member has been introduced.

Suitable means are provided for positioning the locking member so that it will engage a wall or walls of the groove. In the construction shown in Figs. 1 to 9, inclusive, this positioning device consists of a screw 13, which is tapped through the retaining-plate and into the carrier, the screw being sufficiently long so that when it is forced home its lower end will come in contact with a side of the ball or cylinder. This screw, however, strikes the ball or cylinder on one side of its central line, and therefore tends to move it outward, thereby forcing the ball or cylinder into engagement with the wall of the groove. When the wall of the groove is undercut, as it will be in the preferred form of the construction, the pressure produced by the screw on one side of the locking member not only forces the member outward, but also produces a pressure which tends to drive the clamp forcibly down into the bottom of the recess and also over against the opposite wall of the same. The tightening of the screw therefore not only drives the clamp down into the bottom of the recess, but securely locks it in position therein.

While the bottom of the chamber may be at right angles to the axis of the screw, if desired, it will be, preferably, slightly inclined, as shown, so that the locking member tends to roll down it. When the plate-clamp is placed in position in the recess or groove, the locking member will be so placed as to be properly acted upon by the screw—that is to say, it will be so located that the screw will strike it at one side of its center.

In the modification shown in Figs. 10, 11, and 12 the carrier 9 is connected to the retaining-plate by means of a screw 14, and the forcing device employed consists of a ball 15, which is located just above the cylinders 11. As the screw 14 is driven home the underside of the retaining-plate 4 strikes the top of the ball and forces it down between the cylinders

11 in the chamber of the carrier, thus causing these cylinders to move outward and engage the walls of the recess.

The construction illustrated in Figs. 10, 11, and 12 forms the subject-matter of divisional application, Serial No. 153,901, filed April 28, 1903.

While the constructions which are illustrated and have been described constitute preferred embodiments of the invention, it is to be understood that the invention may be embodied in constructions which differ widely therefrom. The invention is not, therefore, to be limited to the specific constructions hereinbefore set forth.

What is claimed is—

1. The combination with a supporting-bed having a recess, of a retaining-plate, a locking member, a carrier for said member, and means independent of the carrier for positioning said member in locking engagement with a wall of the recess, substantially as described.
2. The combination with a supporting-bed having an undercut recess, of a retaining-plate, a locking member, a carrier for said member, and means independent of the carrier for positioning said member in locking engagement with a wall of the recess, substantially as described.
3. The combination with a supporting-bed having a recess, of a retaining-plate, a carrier connected to said plate, a locking member loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.
4. The combination with a supporting-bed having an undercut recess, of a retaining-plate, a carrier connected to said plate, a locking member loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.
5. The combination with a supporting-bed having a recess, of a retaining-plate, a carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.
6. The combination with a supporting-bed having an undercut recess, of a retaining-plate, a carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.
7. The combination with a supporting-bed having an undercut curved recess, of a retaining-plate, a carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.
8. The combination with a supporting-bed

having a recess, of a retaining-plate, a chambered carrier, a locking member loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

9. The combination with a supporting-bed having an undercut recess, of a retaining-plate, a chambered carrier, a locking member loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

10. The combination with a supporting-bed having an undercut curved recess, of a retaining-plate, a chambered carrier, a locking member loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

11. The combination with a supporting-bed having a recess of a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

12. The combination with a supporting-bed having an undercut recess, of a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

13. The combination with a supporting-bed having an undercut curved recess, of a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

14. The combination with a supporting-bed having an undercut recess, of a retaining-plate, a chambered carrier having an inclined bottom, a locking member having a curved operating-surface loosely mounted in the chamber, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

15. The combination with a supporting-bed having an undercut curved recess, of a retaining-plate, a chambered carrier having an inclined bottom, a locking member having a curved operating-surface loosely mounted in the chamber, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

16. The combination with a supporting-bed having a recess, of a retaining-plate, a chambered carrier having an inclined bottom, a locking member having a curved operating-surface loosely mounted in the chamber, means for retaining the member in the chamber, and means for positioning said member in lock-

ing engagement with a wall of the recess, substantially as described.

17. The combination with a supporting-bed having an undercut curved recess, of a retaining-plate, a chambered carrier having an inclined bottom, a locking member having a curved operating-surface loosely mounted in the chamber, means for retaining the member in the chamber, and means for positioning said member in locking engagement with a wall of the recess, substantially as described.

18. A plate-clamp comprising a retaining-plate, a chambered carrier, a locking member loosely mounted in the carrier, and a positioning device, substantially as described.

19. A plate-clamp comprising a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and a positioning device, substantially as described.

20. A plate-clamp comprising a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, and a positioning-screw, substantially as described.

21. A plate-clamp comprising a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, means for retaining the locking member in the chamber, and a positioning device, substantially as described.

22. A plate-clamp comprising a retaining-plate, a chambered carrier, a locking member having a curved operating-surface loosely mounted in the carrier, means for retaining the locking member in the chamber, and a positioning-screw, substantially as described.

23. A plate-clamp comprising a retaining-plate, a chambered carrier, a spherical locking member loosely mounted in the chamber, and a positioning device for said member, substantially as described.

24. A plate-clamp comprising a retaining-plate, a chambered carrier, a spherical locking member loosely mounted in the chamber, means for retaining the locking member in the chamber, and a positioning device for said member, substantially as described.

25. In a marginal clamp, the combination with a contact portion, of a guide portion, a part adapted to be forced laterally outward against a side wall of the receiving-slot and a screw having a tapering end adapted to contact with said part and force the same outward as the screw is turned.

26. In a printing-plate holder, the combination with a bed or base plate provided with grooves running slantingly with reference to the sides of the base-plate; of a printer's block adapted to hold and laterally adjust a printing-plate; said block being provided with means adapted to secure the block in one of said grooves, said means comprising a plug adapted to project laterally from the side of the said block, and means for forcing said

plug outward and thereby locking said block in said groove.

27. A plate-holder of the character described, comprising a base or block provided
5 with slots, and plate-holding clamps arranged on said block, said clamps consisting of a plate, a screw in operative connection with the plate, a laterally-movable clamping member coöperating with a wall of said slot, and

means on said screw coöperating with said 10 laterally-movable member.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM J. MAIN.

Witnesses:

F. W. H. CRANE,
W. F. MORGAN.