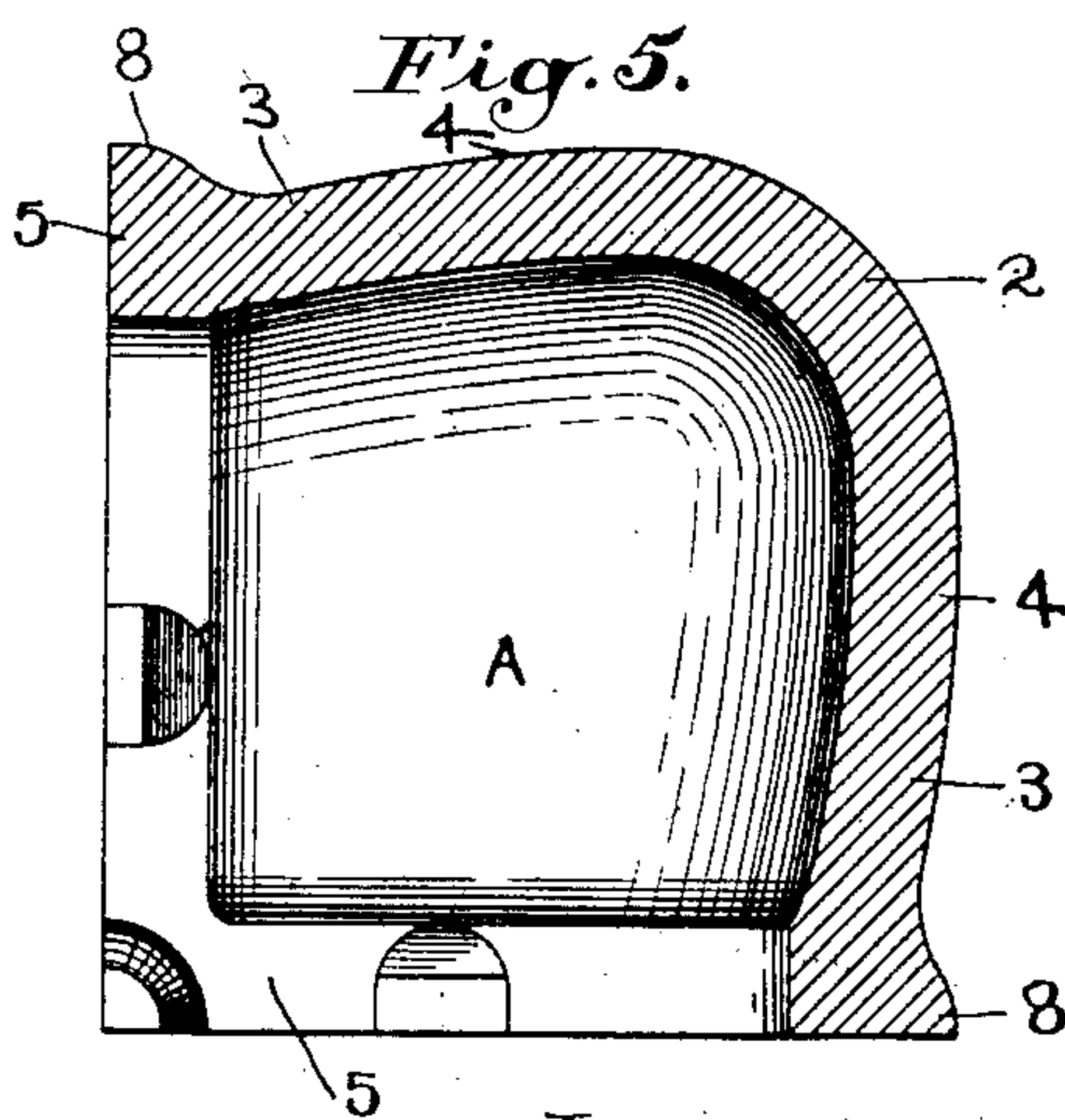
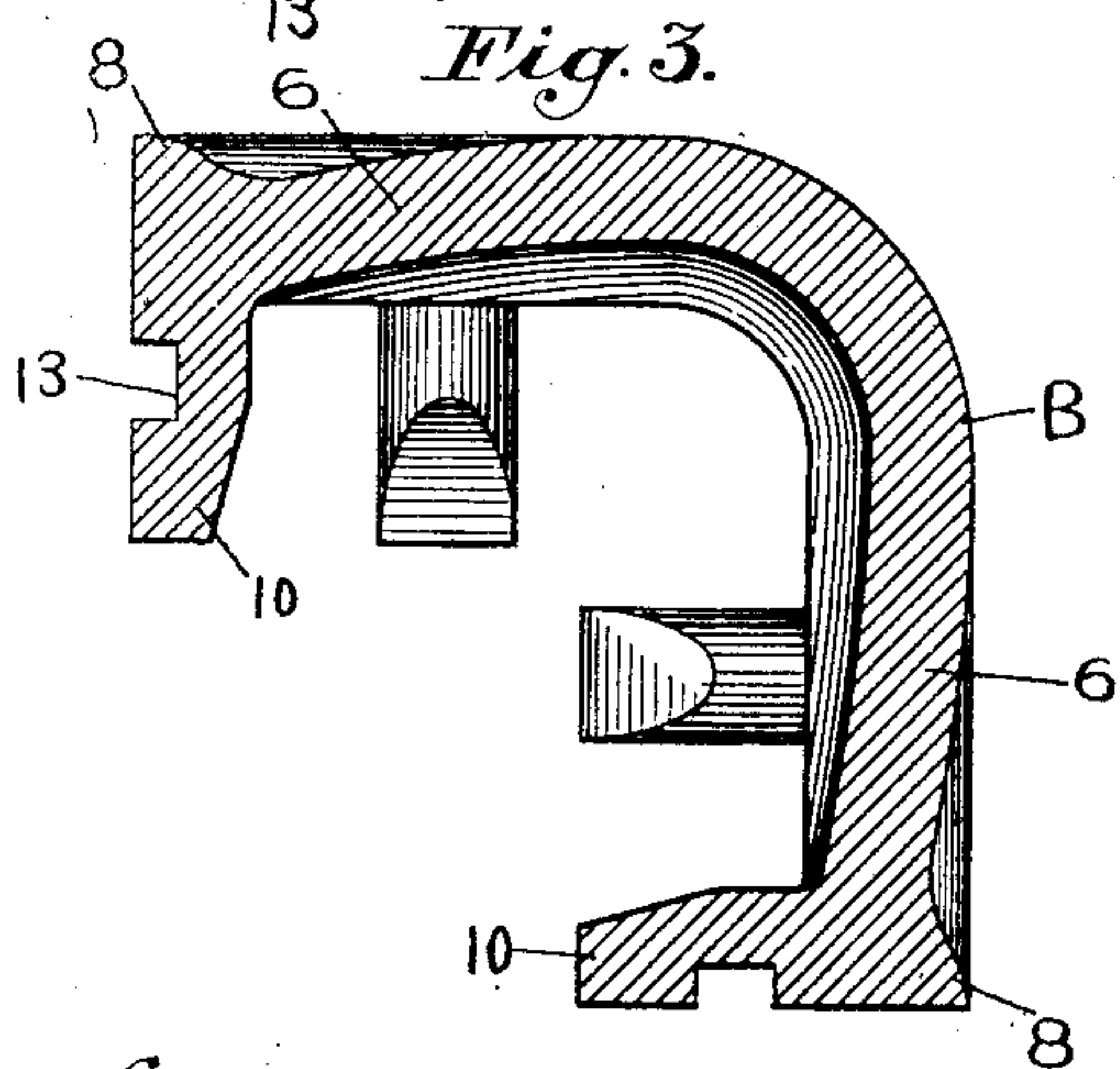
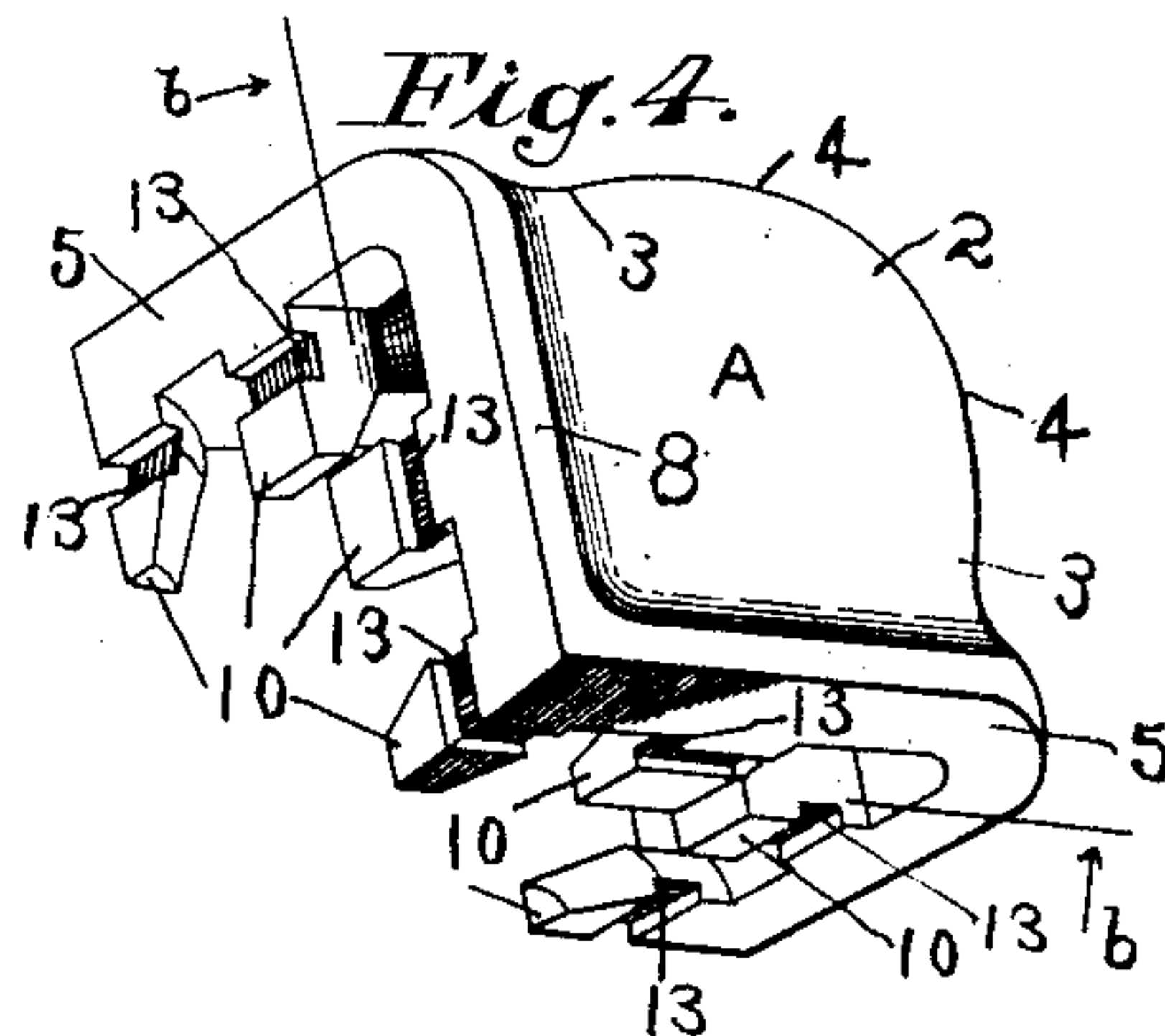
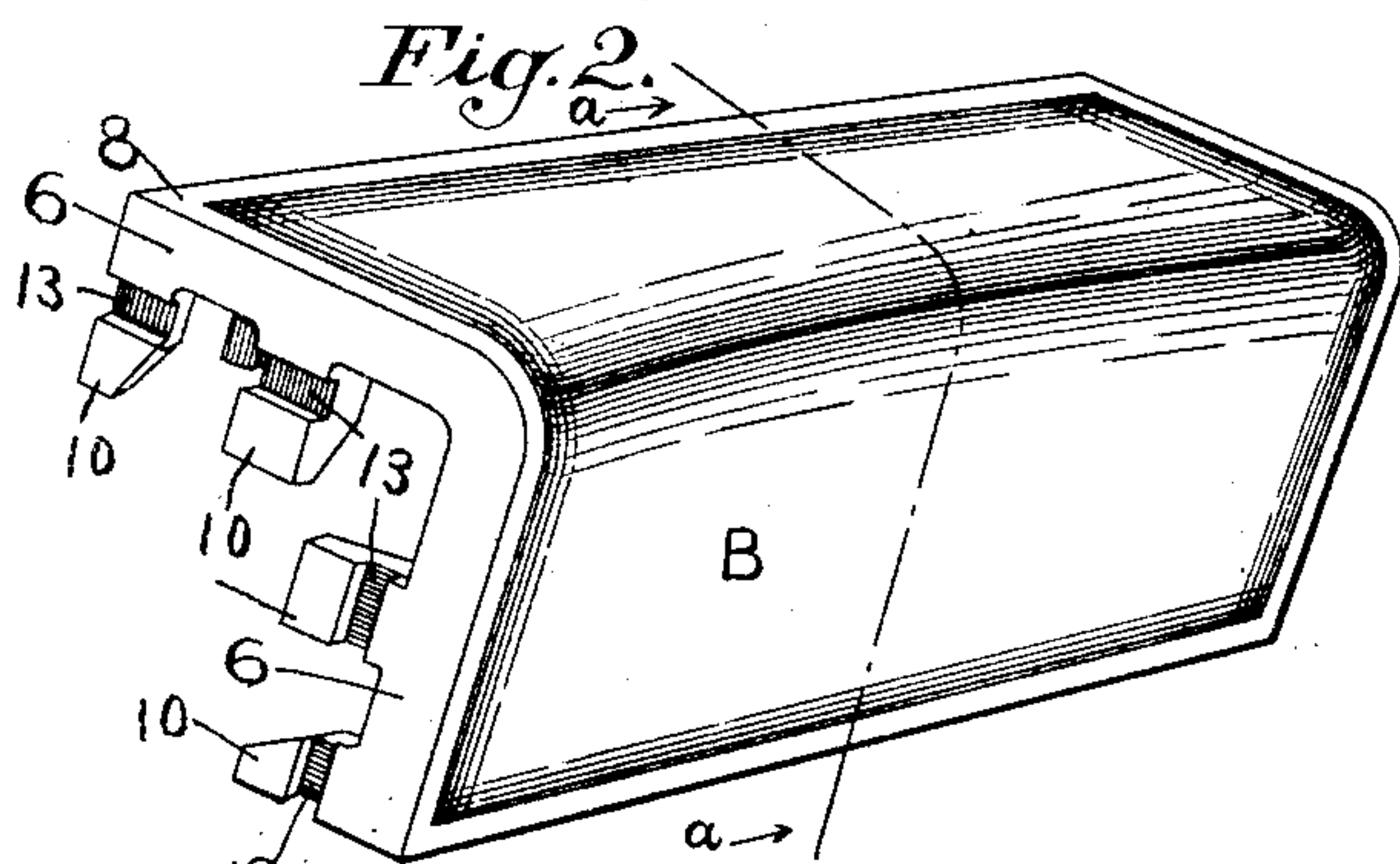
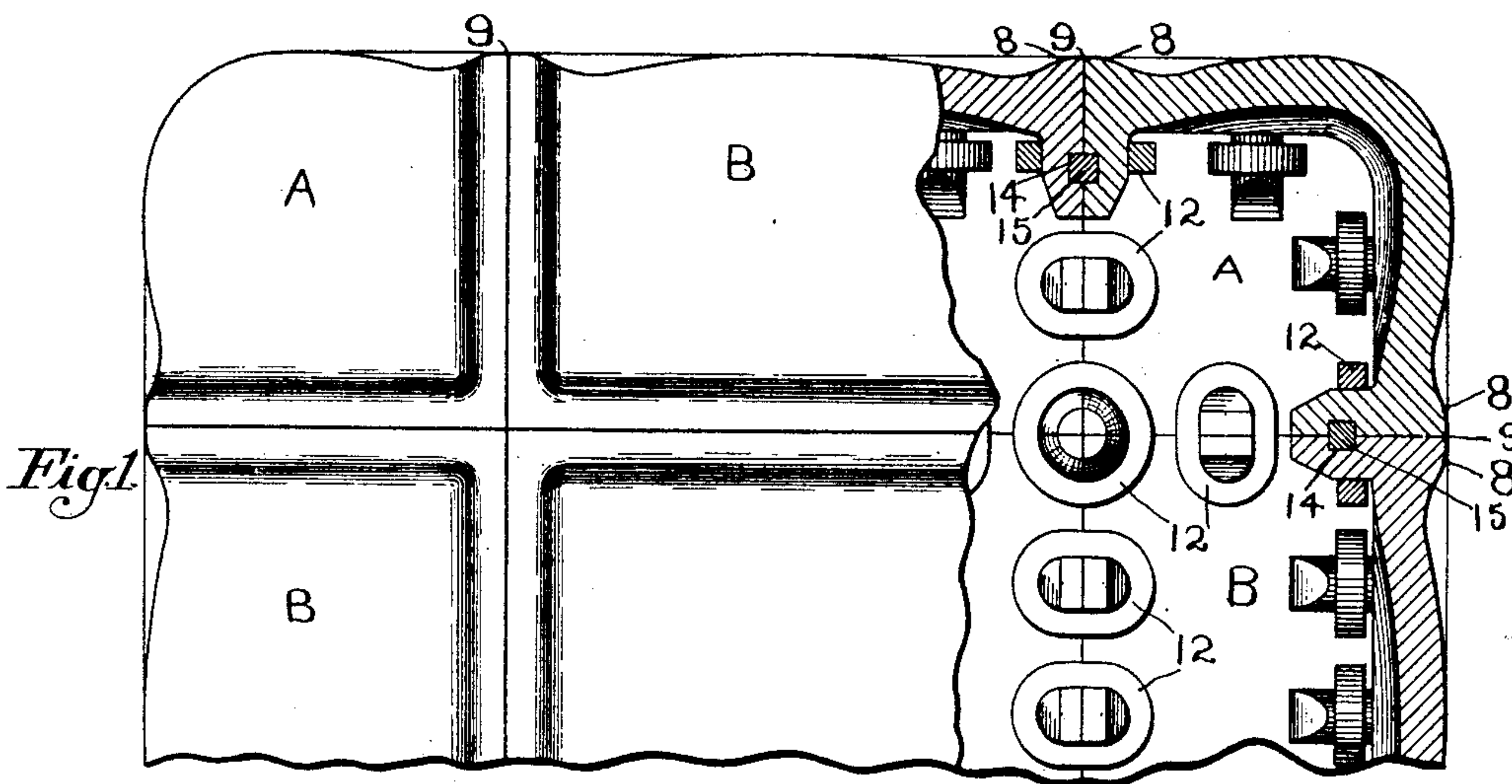


H. D. HIBBARD.
PLATE FOR SAFES OR VAULTS.

(Application filed Oct. 31, 1900.)

(No Model.)



Witnesses:

F. C. Thiedner

R. W. Pittman

Inventor,
Henry D. Hibbard,
By his Attorney.

J. H. Richard.

UNITED STATES PATENT OFFICE.

HENRY D. HIBBARD, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO THE
HIBBARD, RODMAN, ELY SAFE COMPANY, OF NEW YORK, N. Y.

PLATE FOR SAFES OR VAULTS.

SPECIFICATION forming part of Letters Patent No. 679,373, dated July 30, 1901.

Application filed October 31, 1900. Serial No. 34,990. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. HIBBARD, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Plates for Safes or Vaults, of which the following is a specification.

This invention relates to the construction of corner and edge plates or wall components for use in safes, vaults, strong boxes, or other analogous structures; and the object of the invention is to provide an improved arched plate—such, for instance, as a corner-plate and an edge plate—adapted for assemblage with the plates shown and described in my contemporaneously-pending application, Serial No. 7,968, filed March 9, 1900, now Patent No. 662,431, dated November 27, 1900, preferably by the means shown and described in my contemporaneously-pending applications, Serial Nos. 7,967 and 7,969, filed March 9, 1900, and Serial No. 10,471, filed March 28, 1900, now Patents Nos. 662,430, 662,432, and 662,433, respectively, dated November 27, 1900.

In the drawings accompanying and forming part of this specification, Figure 1 is a side, partly sectional, view of one portion of a safe or vault with these improved corner and edge plates assembled in position. Fig. 2 is a perspective view of what is herein designated as an "edge" plate. Fig. 3 is a cross-sectional view thereof, taken in line *a a*, Fig. 2. Fig. 4 is a perspective view of what is herein designated as a "corner-plate;" and Fig. 5 is a cross-sectional view thereof, taken in line *b b*, Fig. 4.

Similar characters of reference designate corresponding parts in the different figures of the drawings.

This improved arched plate comprises a plurality of angular walls or sides, and in one form thereof it is shown as a corner-plate (designated in a general way by A) comprising a three-sided rigid or integral curved structure having substantially the shape of three sides of a hollow cube, whereby an arched wall 2 is obtained at the corner of the safe or vault when the plate is in position. Each

wall or side 3 of the structure is shown preferably curved in two directions, thereby forming an arch 4, the main arch being formed by the juncture of such curved walls 3. Each edge 5 of the plate may be of increased thickness in cross-section, whereby the advantages presented in my said contemporaneously-pending case, Serial No. 7,968, filed March 9, 1900, now Patent No. 662,431, dated November 27, 1900, are obtained during the heat treatment of the plate, to which heat treatment the plate when formed of manganese steel may be subjected in a similar manner to the plates shown and described in said application just referred to.

In another form thereof this improved arched plate comprises an edge plate (designated in a general way by B) consisting of a pair of sides or walls 6, forming an arch at the juncture thereof, and each of which walls 6 is likewise preferably curved in two directions. The edges of this corner-plate may likewise be of increased thickness in cross-section to correspond with the edges of the corner-plate with which it is assembled.

In the present instance each free edge of the corner and edge plates is provided with a flange or projection 8, located on the outer side thereof, which not only assists in giving increased thickness to the plate at its edge, and therefore an increased bearing-surface over which the shocks of an explosive charge are distributed, but this flange forms, when the plate is assembled with its companion plates, a yielding bead 9, located around the joint of such plates. The metal of this bead is adapted to yield under the effect of an explosive charge and so prevents the opening of the joint in the manner more particularly shown and described in my application for an improved fastening filed simultaneously herewith.

Each of the corner and edge plates is provided along its free edges, on the interior thereof, with a plurality of inwardly-extending projections 10, located at an angle to the plate, for the reception of suitable clamping means, such as links 12, which I prefer to shrink on. Each of said projections is pro-

vided with a slot or recess 13, forming, with the slot located in a projection of a companion plate, a keyway 14 for the reception of a suitable key 15 for locating the plates in fixed 5 alignment.

The provision of the yielding increased portion or bead 9 of metal around the edges of the assembled plates not only provides a means for protecting the main part of the 10 plate from the action of high explosives, but also furnishes, as hereinbefore set forth, increased bearing-surfaces at the joints, so that the shocks of heavy charges of explosive material may be more readily transmitted and 15 distributed without injury to the plates, while it also provides heat-retaining edges for such plates.

From the foregoing it will be seen that both the edge plate and the corner-plate are arched 20 in cross-section to form a main arch at the juncture of the walls of such plates, while each wall of such plate is also preferably curved in two directions, thereby forming a plurality of arches subordinate to the main 25 arch, all of which furnish an improved plate the arches of which should they be subjected to an explosive charge or to a heavy blow would merely force the joint bearing-surfaces into tighter engagement.

30 I claim as my invention—

1. An angularly-formed curved safe or vault plate, the walls at the juncture thereof forming an arch, said plate having an exterior flange located around the outer or free 35 edge thereof.

2. An angularly-formed curved plate, the walls at the juncture thereof forming an arch, said plate having located around its outer or free edge a plurality of projections extending 40 interiorly of said plate.

3. An angularly-formed curved plate, the walls at the juncture thereof forming an arch, said plate having located around its outer or free edge a plurality of inwardly-extending 45 projections, each having a slot or recess therein.

4. An angularly-formed curved plate having located around its outer or free edge an exterior flange and also having inwardly-extending 50 projections.

5. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched sur-

face, and such walls at the juncture thereof forming a main arch. 55

6. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch, the outer or free edge 60 of such plate having an exterior flange or projection.

7. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch, the outer or free edge 65 of such plate having interiorly-located projections.

8. An angularly-formed curved plate, each 70 of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch, the outer or free edge of such plate having an exterior flange or 75 projection, and said plate having inwardly-extending projections.

9. A three-sided corner-plate having its free edge provided with an exteriorly-located flange or bead adapted to yield under the 80 action of an explosive charge.

10. A corner-plate for safes or vaults comprising a three-sided rigid or integral structure having substantially the shape of three 85 sides of a hollow cube, said plate having increased thickness in cross-section at its outer or free edge whereby the edge face of the plate which engages the edge face of a companion plate has relatively large area in 90 cross-section.

11. A curved three-sided corner-plate having its outer or free edge provided with a plurality of inwardly-extending projections extending interiorly thereof.

12. A three-sided corner-plate, each side of 95 which is curved in two directions to form an arch, the junction of such sides forming a main arch, and the outer or free edge of said plate having an exteriorly-located flange or projection, and a plurality of inwardly-extending 100 projections for the reception of retaining means.

HENRY D. HIBBARD.

Witnesses:

C. A. WEED,
CHARLES FINKLER.