

E. RICHARDSON.
COMPOSITE STRUCTURE EMBODYING ENAMELED PLATES.
APPLICATION FILED FEB. 3, 1911.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

994,337.

FIG. 13

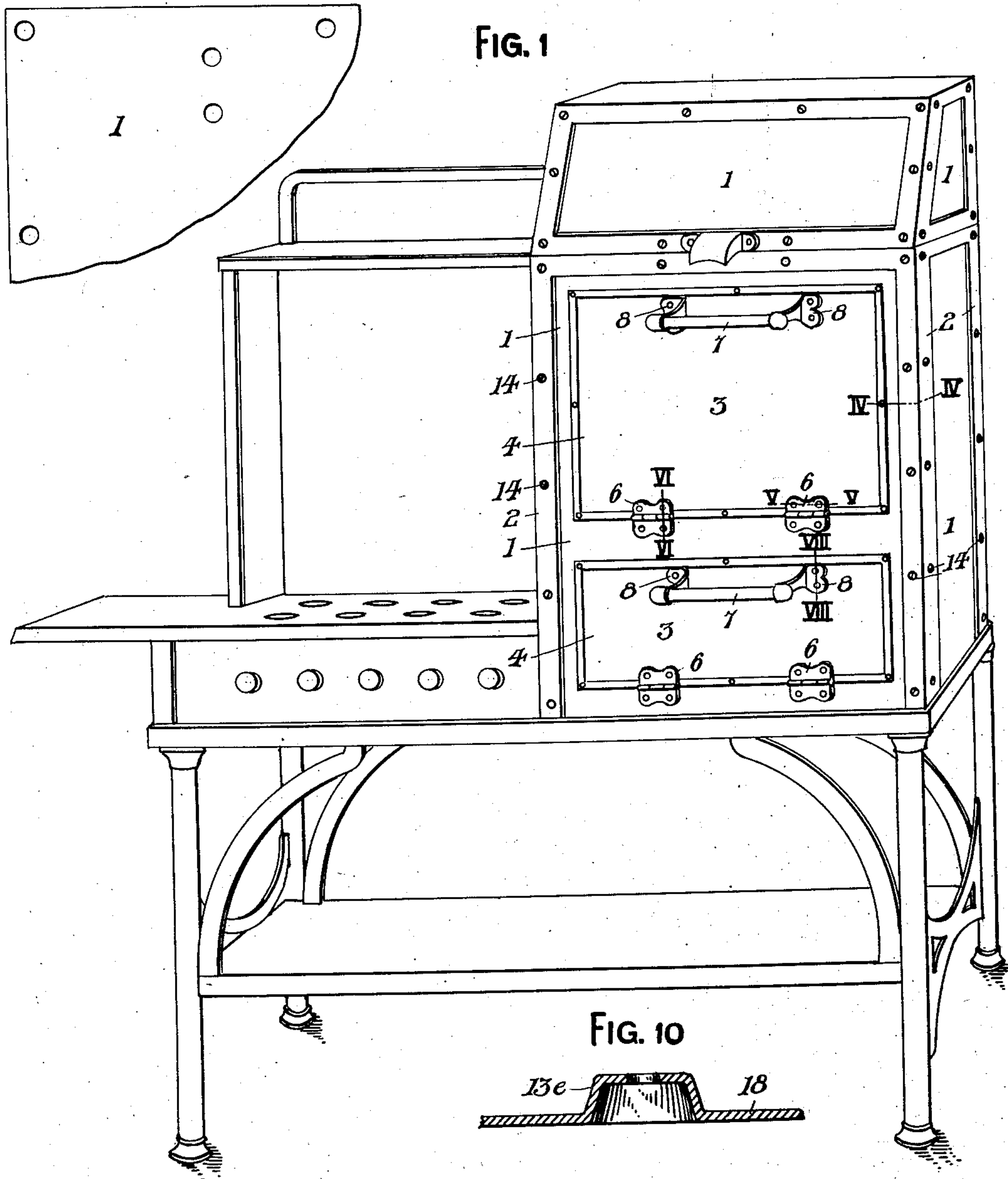
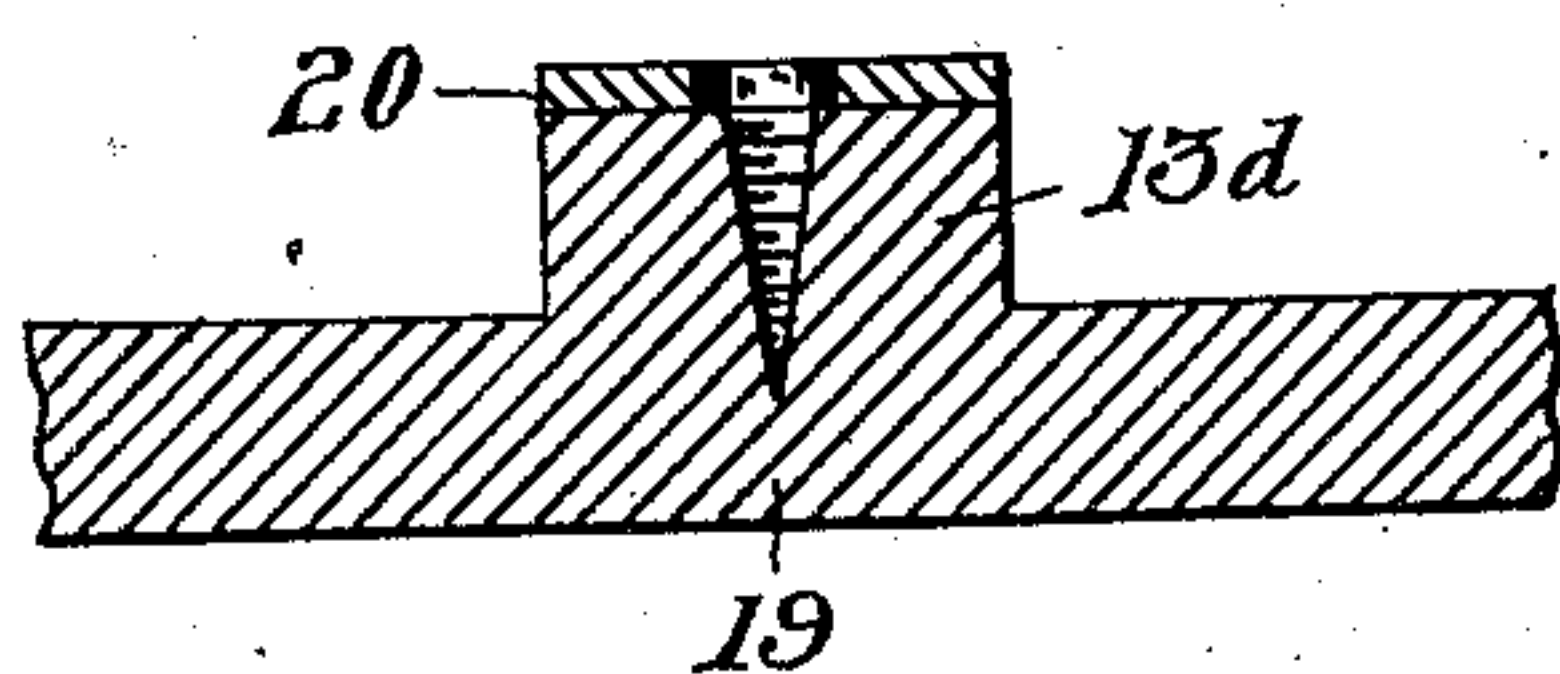


FIG. 10



FIG. 11



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2 SHEETS—SHEET 2.

FIG. 2

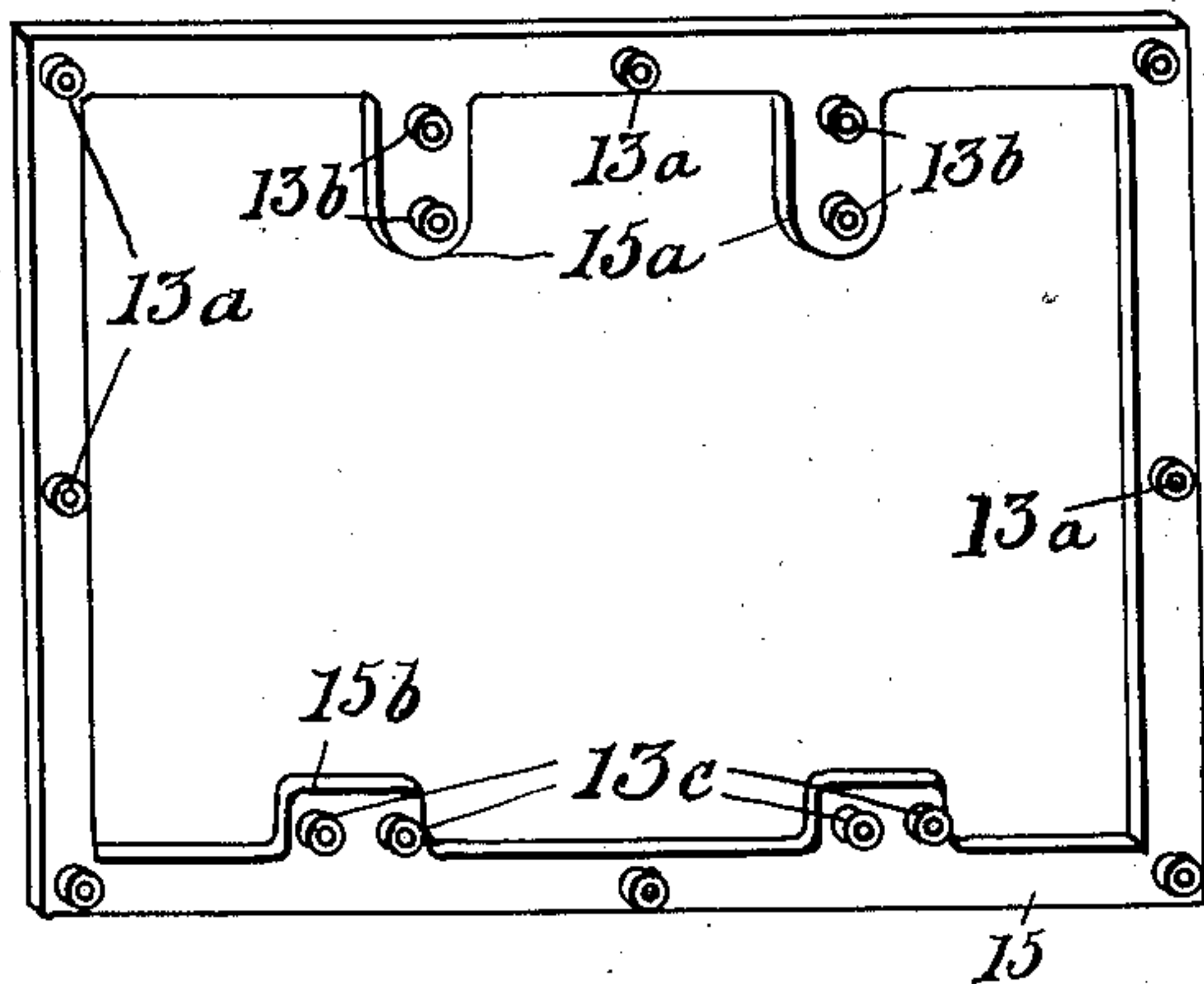


FIG. 3

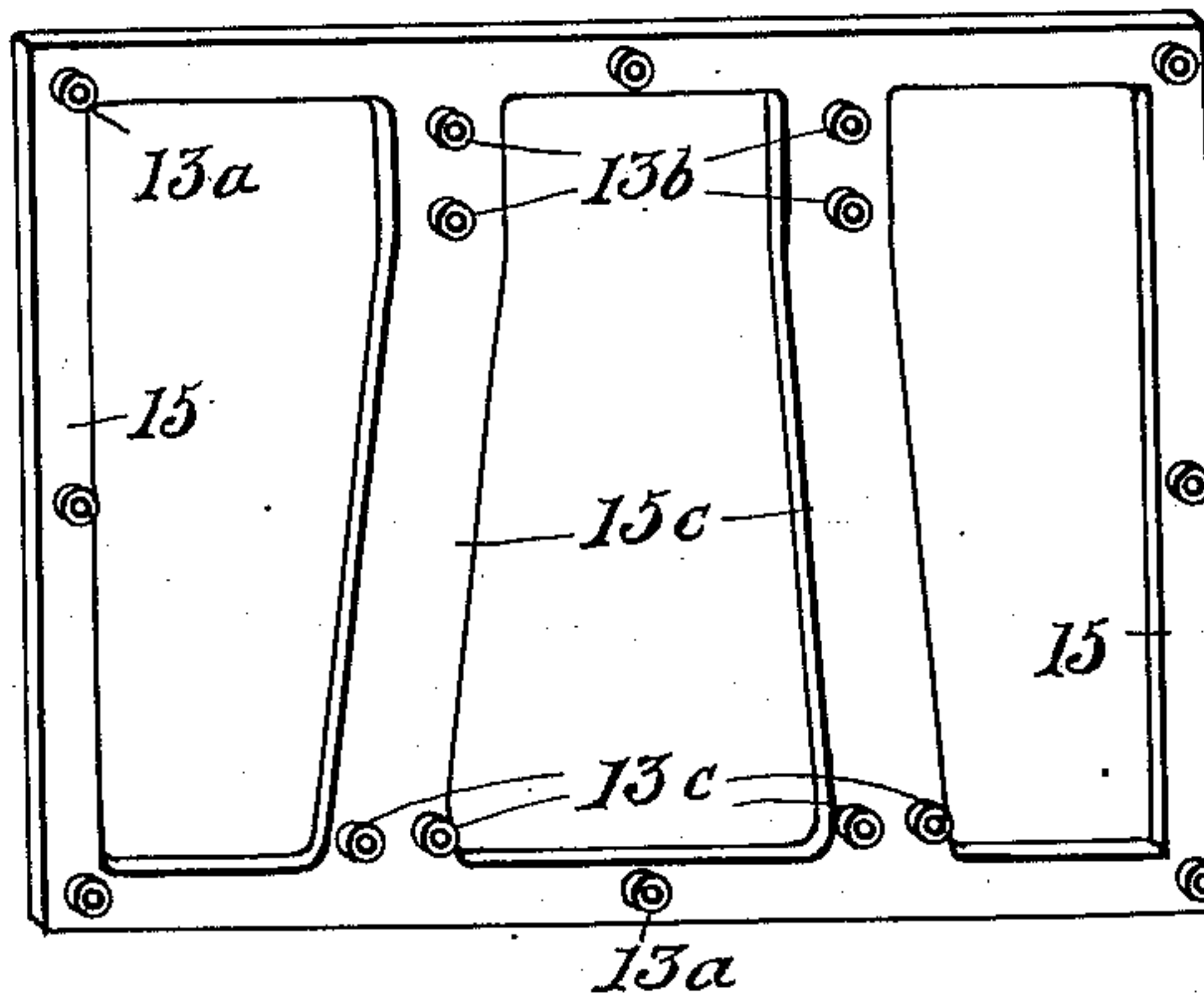


FIG. 4

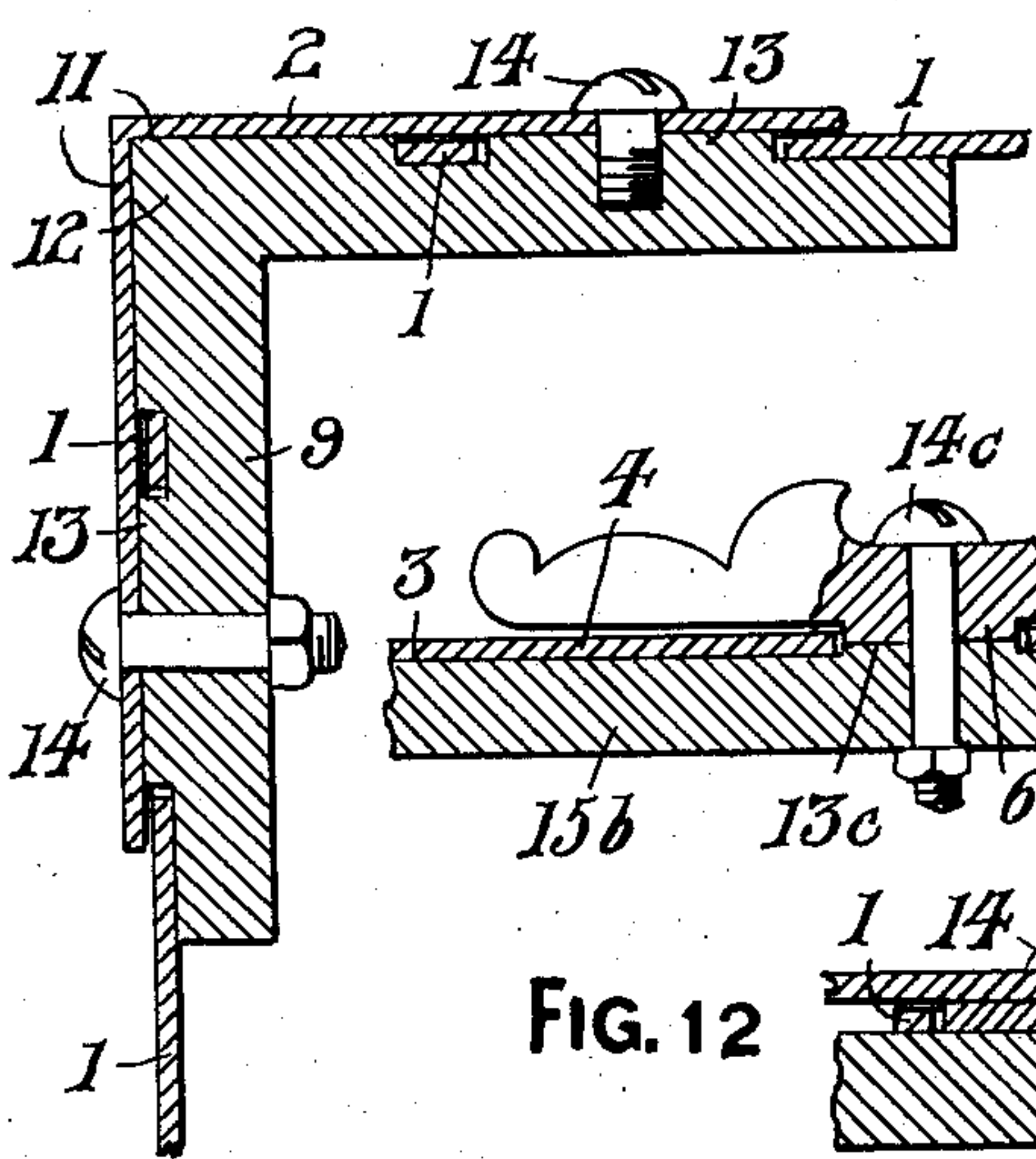


FIG. 5

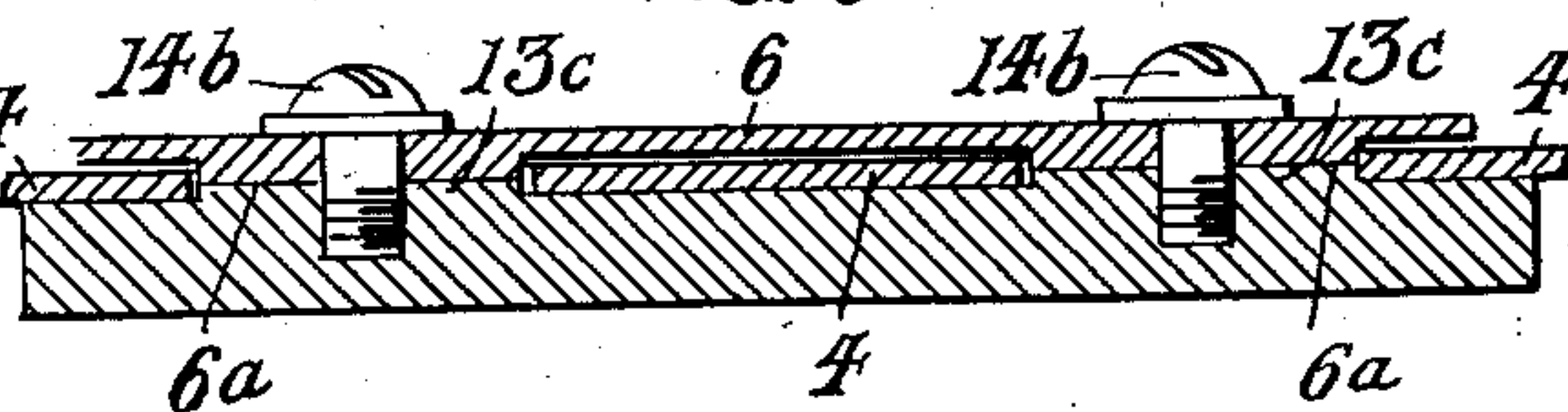


FIG. 6

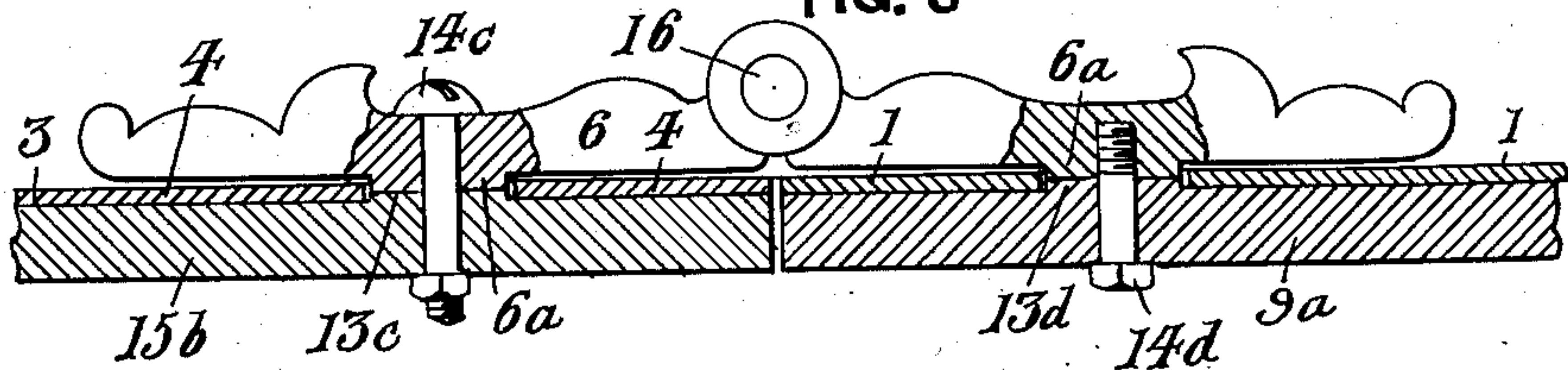


FIG. 12

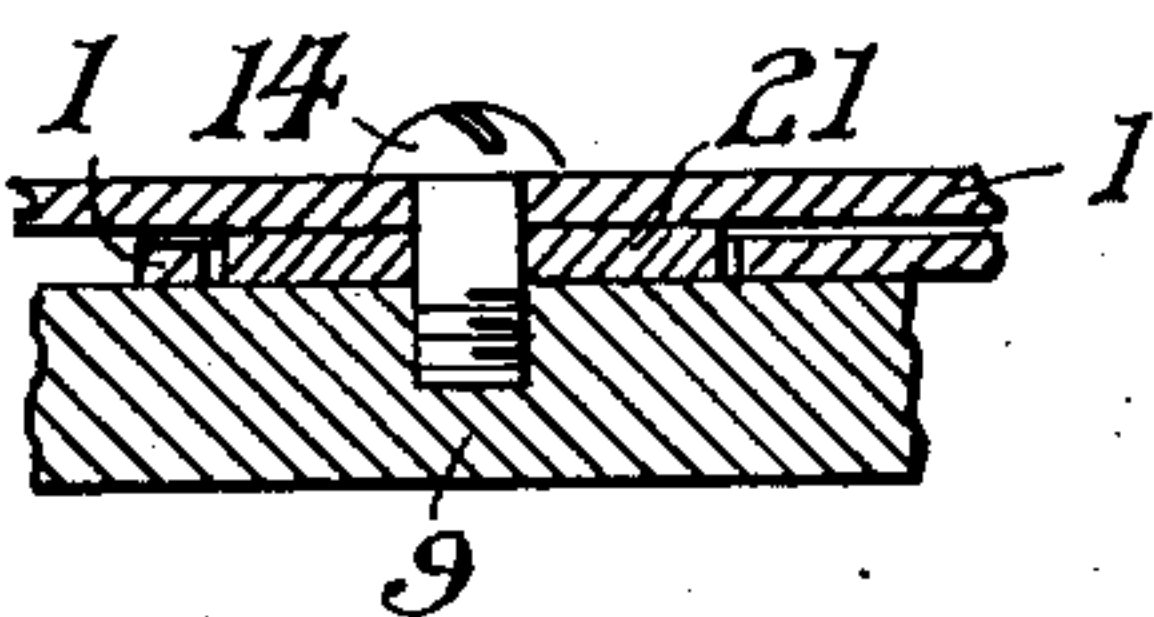


FIG. 7

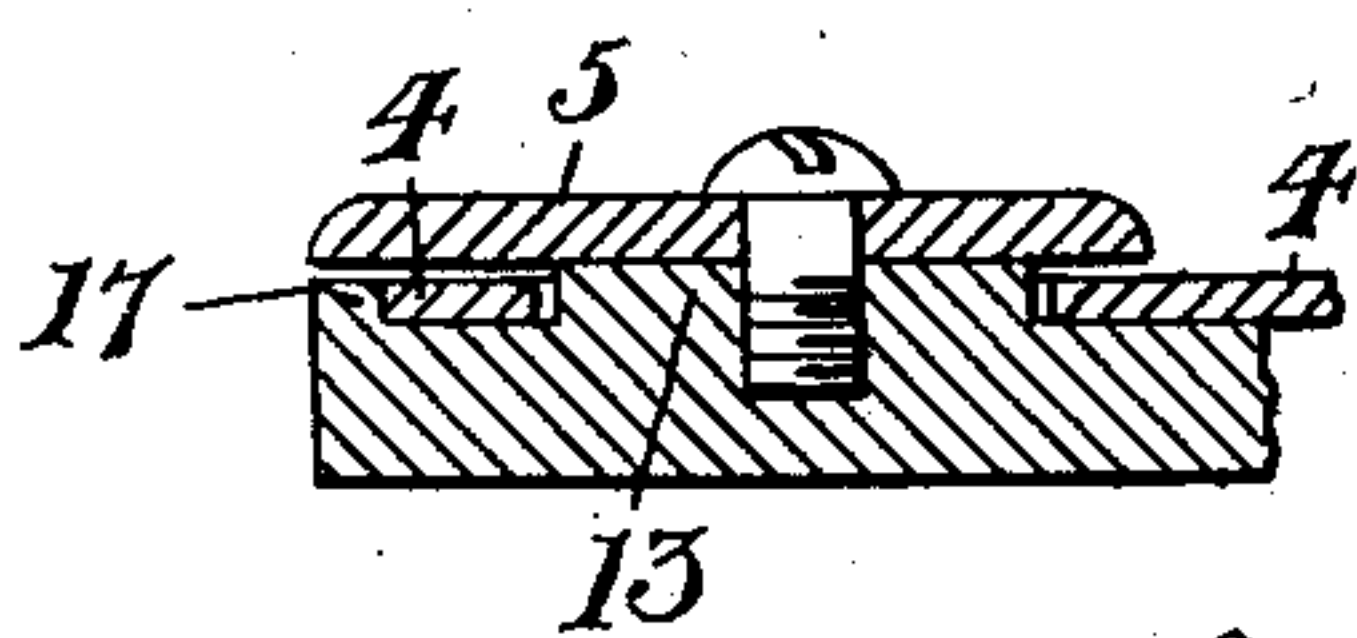


FIG. 9

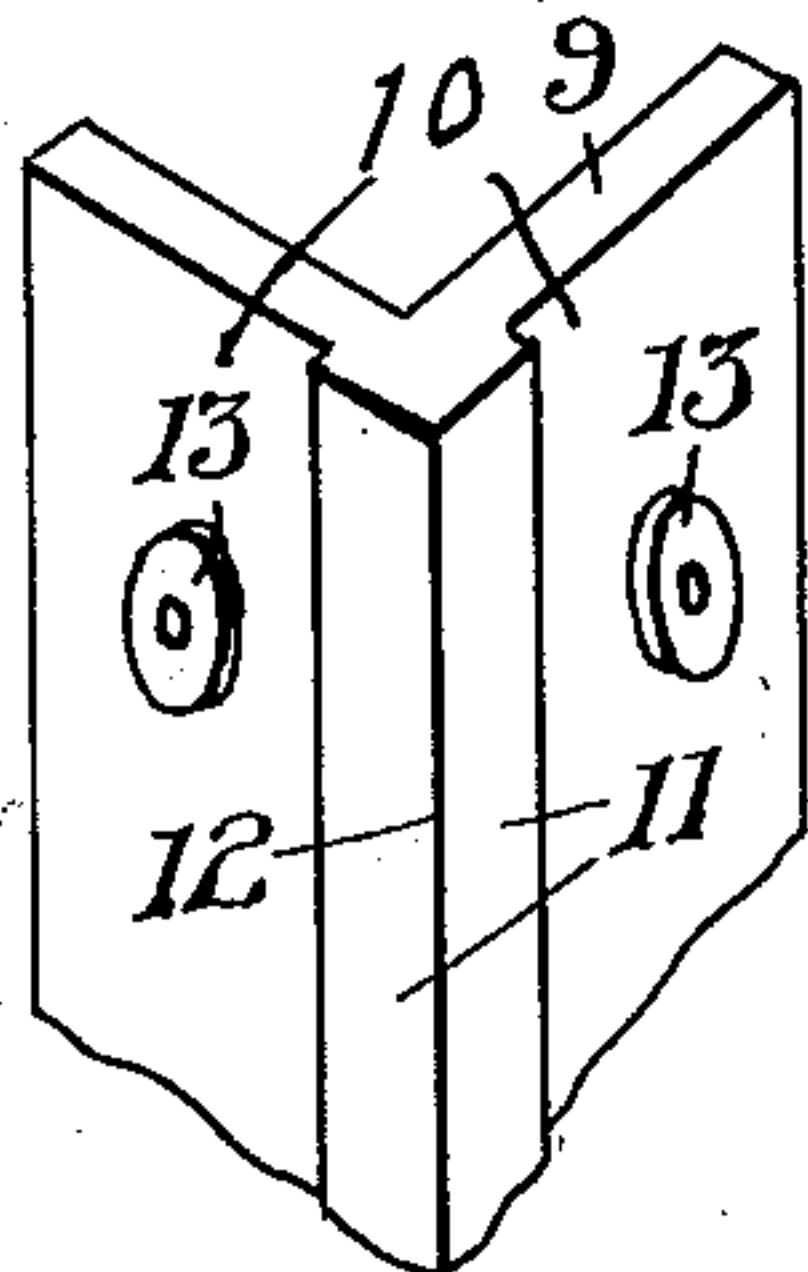
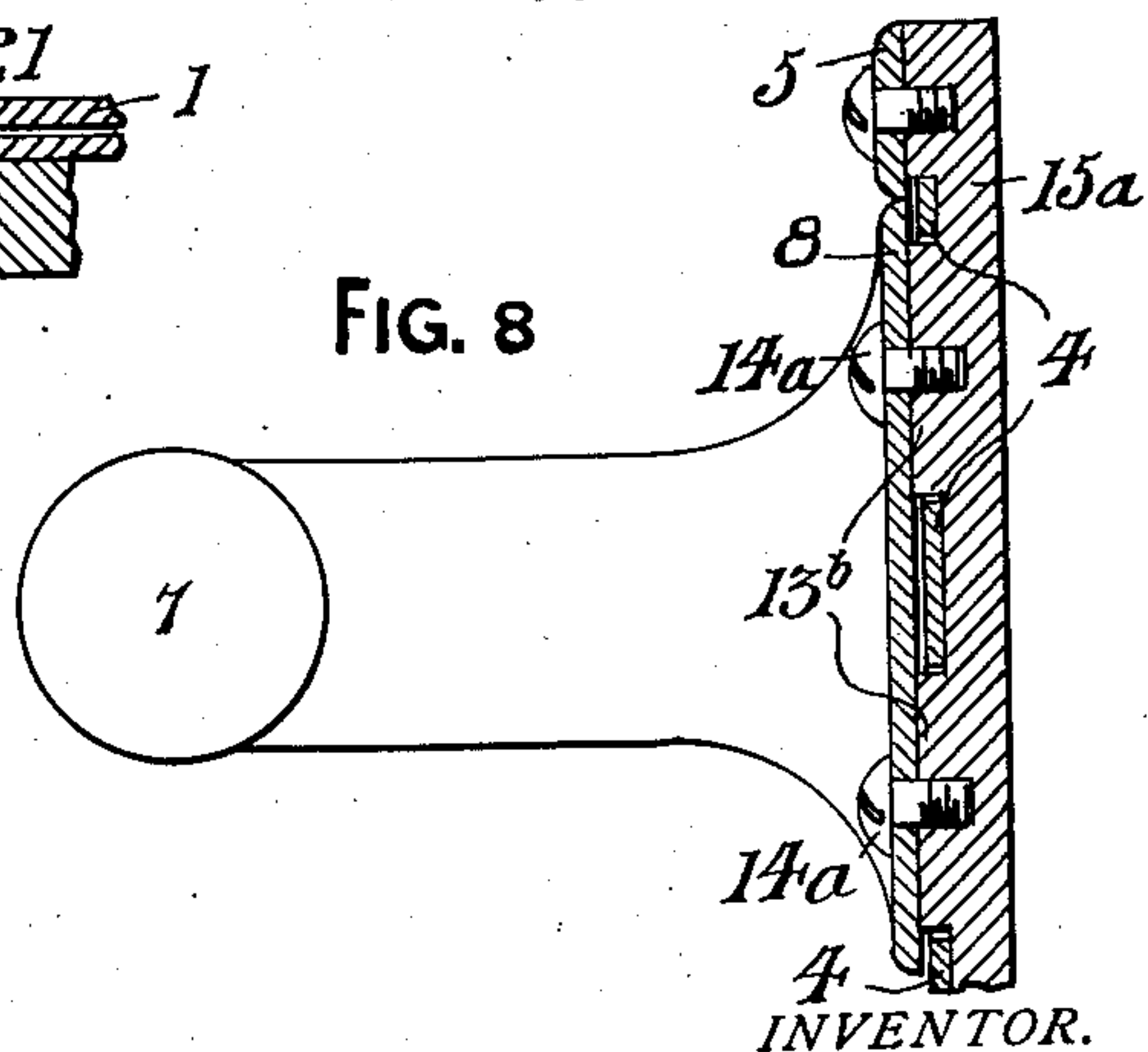


FIG. 8



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UNITED STATES PATENT OFFICE.

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COMPOSITE STRUCTURE EMBODYING ENAMELED PLATES.

994,337.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed February 3, 1911. Serial No. 606,373.

To all whom it may concern:

Be it known that I, ERNEST RICHARDSON, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented new and useful Improvements in Composite Structures Embodying Enameled Plates, of which the following is a specification.

My invention relates to composite structures in which enameled metal sheets are embodied.

Heretofore, it has been impossible to make satisfactory joints between enameled sheet metal and other structure with which it has been enameled. In stoves, refrigerators, etc. which use enameled sheet metal panels, linings, etc. the enamel has become broken or cracked because no adequate provision was made for expansion, and for the bending and twisting imparted to it during shipment or handling. I have overcome these objections by the invention shown in the accompanying drawings in which—

Figure 1 is a perspective of a stove showing the application of my improvements. Figs. 2 and 3 are perspectives of two forms of door frames constructed in accordance with my invention. Fig. 4 is a section on line IV—IV, Fig. 1. Fig. 5 is a section on the line V—V, Fig. 1. Fig. 6 is a section on the line VI—VI, Fig. 1. Fig. 7 is a section showing the edge of the enameled sheet concealed by a flange on the frame. Fig. 8 is a section on the line VIII—VIII, Fig. 1. Fig. 9 is a perspective of a portion of the frame for a corner or edge. Fig. 10 is a fragment of a sheet metal frame or support provided with bosses struck up or shaped by dies. Fig. 11 is a modification of my invention adapted for wooden supports. Fig. 12 is a section showing a boss made of a separate spacer or washer. Fig. 13 is a plan of a portion of one of the enameled plates.

Fig. 1 shows a stove having the panels 1 composed of sheet metal coated with enamel burned thereon. The adjacent edges of the panels are covered with metal corner plates or angles 2, preferably plated with nickel or otherwise finished to present an attractive appearance. The doors 3 also carry enameled sheet metal panels or fronts 4 covered by border strips 5 of metal finished to match the corner strips 2. The hinges 6 overlie the

enameled panels 1 and 4 and are applied in a manner to be described hereinafter. The handles 7 are provided with feet 8 which overlie the enameled panels 4 and are applied in a manner soon to be described.

Fig. 4 shows the manner in which I prefer to construct a corner or edge where two enameled sheets or plates 1 are adjacent (see line IV—IV, Fig. 1). At each corner or angle where two panels 1 are adjacent, I provide an angle frame 9 having its outer faces recessed, as at 10, Fig. 9, to provide the external ribs 11 meeting at the corner 12 of the angle. In the recesses 10, I provide a series of bosses or spacers 13 which extend outwardly as far as the plane of the ribs 11. The enameled plates or panels 1 are provided with openings in which the bosses 13 stand, the holes being slightly larger than the bosses, and the depth of the recesses 10 and the height of the bosses are such that a very light, if any, pressure is exerted on the enamel by the corner strips which lie on the ribs 11 and the bosses 13 and are secured to the bosses by the screws 14. The washers 21 (Fig. 12) may be used in place of spacers integral with the frame. By this construction the enamel will not be broken or cracked by the expansion of the sheets, and in case the plates or panels should be warped or twisted during shipment or handling, the enamel will not be injured.

The doors 3 (Fig. 2) have a rear four-sided frame 15 of cast-iron having thereon the outwardly projecting bosses 13^a for the slightly large holes near the edges of the plates or panels 4. The border strips 5 lie on the bosses 13^a and cover and protect the enamel on the plates 4 the same as the strips 2 cover and protect the plates 1.

The frame 15 is provided with the two pairs 15^a and 15^b of inwardly-projecting lugs provided with the bosses 13^b and 13^c, respectively, which may be like the bosses 13^a. The bosses 13^b project through the plates or panels 4 (Fig. 8), and the feet 8 for the handles 7 lie over the bosses 13^b and the adjacent portions of the plates 4, to which bosses, the feet 8 are secured by the screws 14^a. The relations among the bosses 13^b, the plate 4, the holes in the plate 4, and the feet 8 are the same as among the frame

15, the plate 4, the holes in the plate 4, and the strips 5. The bosses 13^c extend partly through the plate 4 and one member of each of the hinges 6 is provided with rear bosses 5 6^a which extend into the holes in the plate 4 and rest on the bosses 13^c. This member covers the adjacent portion of the plate 4 and is secured to the bosses 13^c by the screws 14^b, Fig. 5, or the bolts 14^c, Fig. 6. The 10 bosses 6^a and 13^c are smaller than the holes in the plate 4, and together have the same length that a single boss would have.

The remaining or lower member of the hinge 6 is provided with the bosses 6^a which 15 engage the bosses 13^a on the support or frame 9^a, the panel or plate 1 being between the frame 9^a and the said lower member of the hinge 6 and provided with holes for the bosses 6^a and 13^a. The bolt 14^d passed 20 through the frame 9^a from the rear and into the boss 6^a, serves to hold the lower hinge-member in place.

16 represents the hinge pin or pivot.

The frame 15 may be provided with a recess 25 for the panel or plate 4, having a flange 17 to cover the edge of the panel or plate, as shown in Fig. 7.

The bosses and their supports may be made from heavy gage sheet with the bosses 30 pressed therefrom as shown in Fig. 10, where 13^c represent the bosses pressed out from the plane of the sheet 18.

On Fig. 3 I show the frame 15 with the lugs 15^a and 15^b of Fig. 2 extended to form 35 the bars 15^c.

On Fig. 11 I show a wooden frame 19 having thereon the wooden boss 13^a capped with the metal washer 20, for use where, as 40 in the case of refrigerators, the enameled sheets or plates are to be secured to backings of wood. The boss 13^a with the washer

20 (which may be omitted) have the same function as the bosses hereinbefore described.

In all instances shown the bosses, which may be regarded as spacers, are to fit loosely 45 in the holes in the enameled plates, sheets, or panels, and the corner-strips, border strips, hinges, feet of the handles, and the like are kept by the bosses from exerting an injurious pressure on the enamel on the 50 plates, sheets or panels.

Various modifications of my invention may be readily devised without departing from the spirit of my invention.

I claim—

1. A support, an enamel-coated plate 55 thereon provided with holes, a cover for the edge of the plate and the holes therein, and spacers between the support and the cover and in the holes, the holes being larger than 60 the spacers and the spacers being of such length as to prevent injurious pressure on the enamel coat, and means for securing the cover to the support.

2. A support, having a rib, an enamel- 65 coated plate thereon provided with holes, a cover for the edge of the plate and the holes therein, spacers between the support and the cover and in the holes, the holes being 70 larger than the spacers, the said rib being adjacent to the edge of the plate and supporting a portion of the cover, and the rib and the spacers being of such elevation as to prevent injurious pressure on the enamel 75 coat, and means for securing the cover to the support.

Signed at Beaver Falls, Pa., this 27th day of January, A. D. 1911.

ERNEST RICHARDSON.

Witnesses:

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