J. H. SULLIVAN.

FASTENING DEVICE FOR MOLDS.

APPLICATION FILED OCT. 28, 1907.

901,209. Patented Oct. 13, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

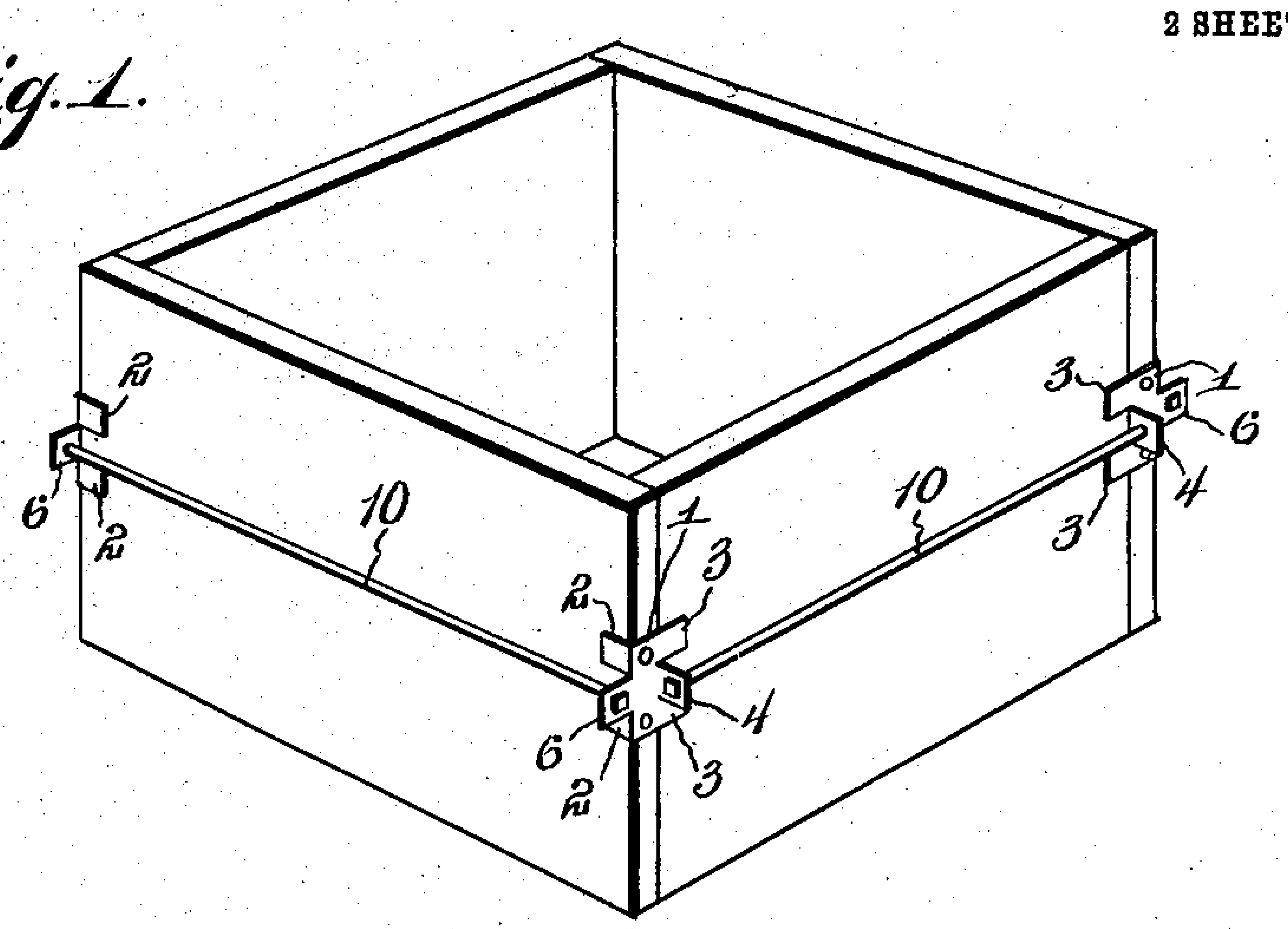


Fig. 2.

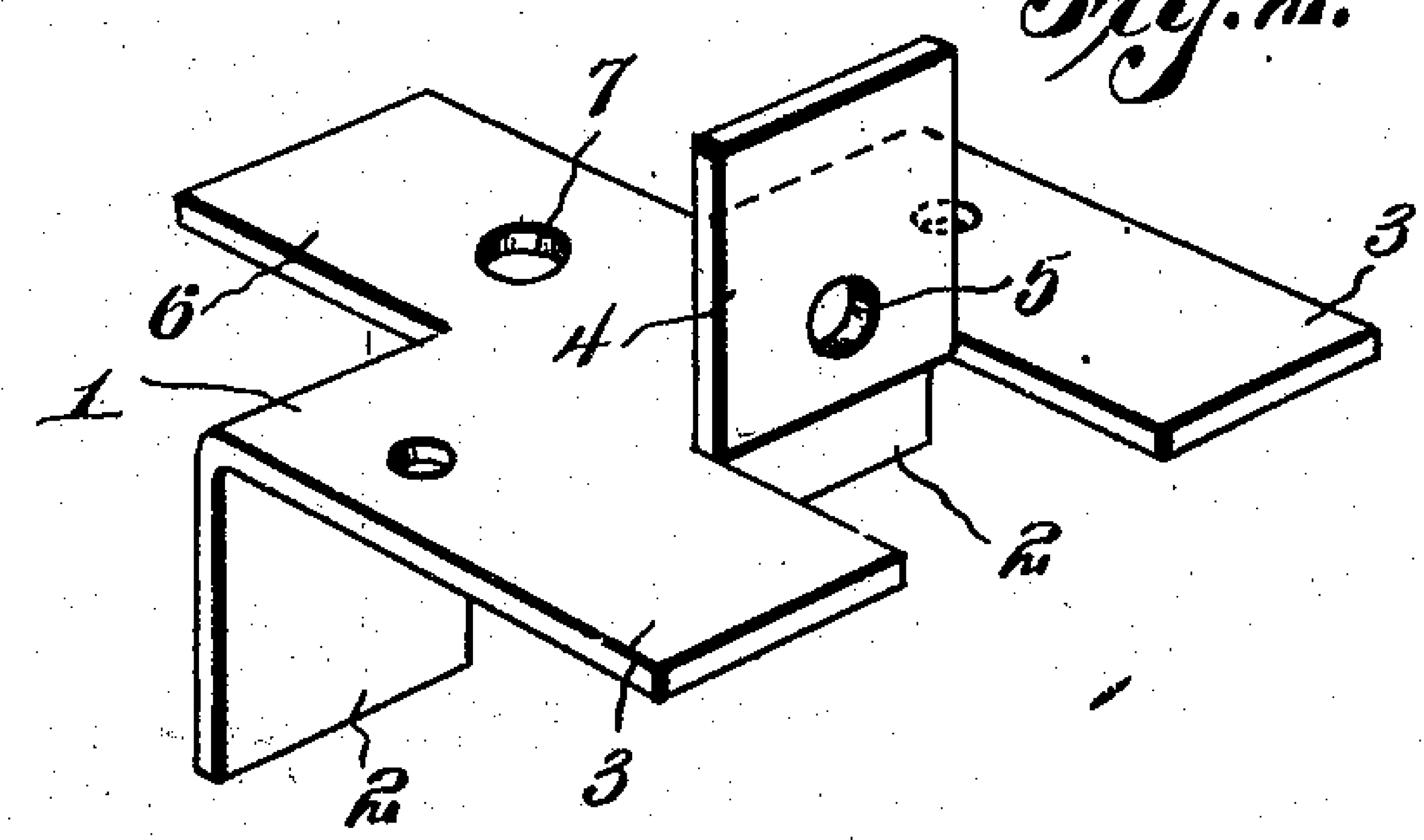
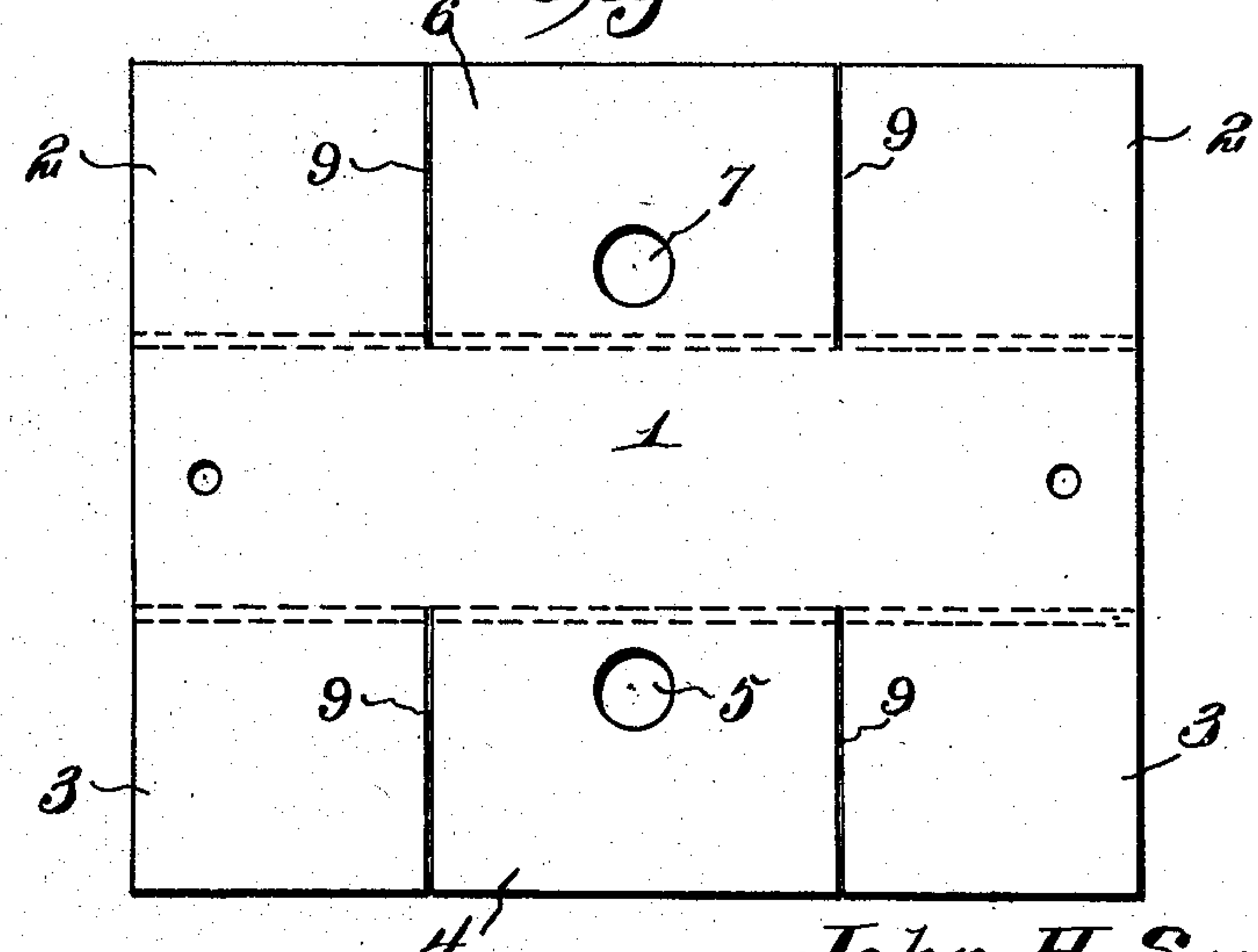


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

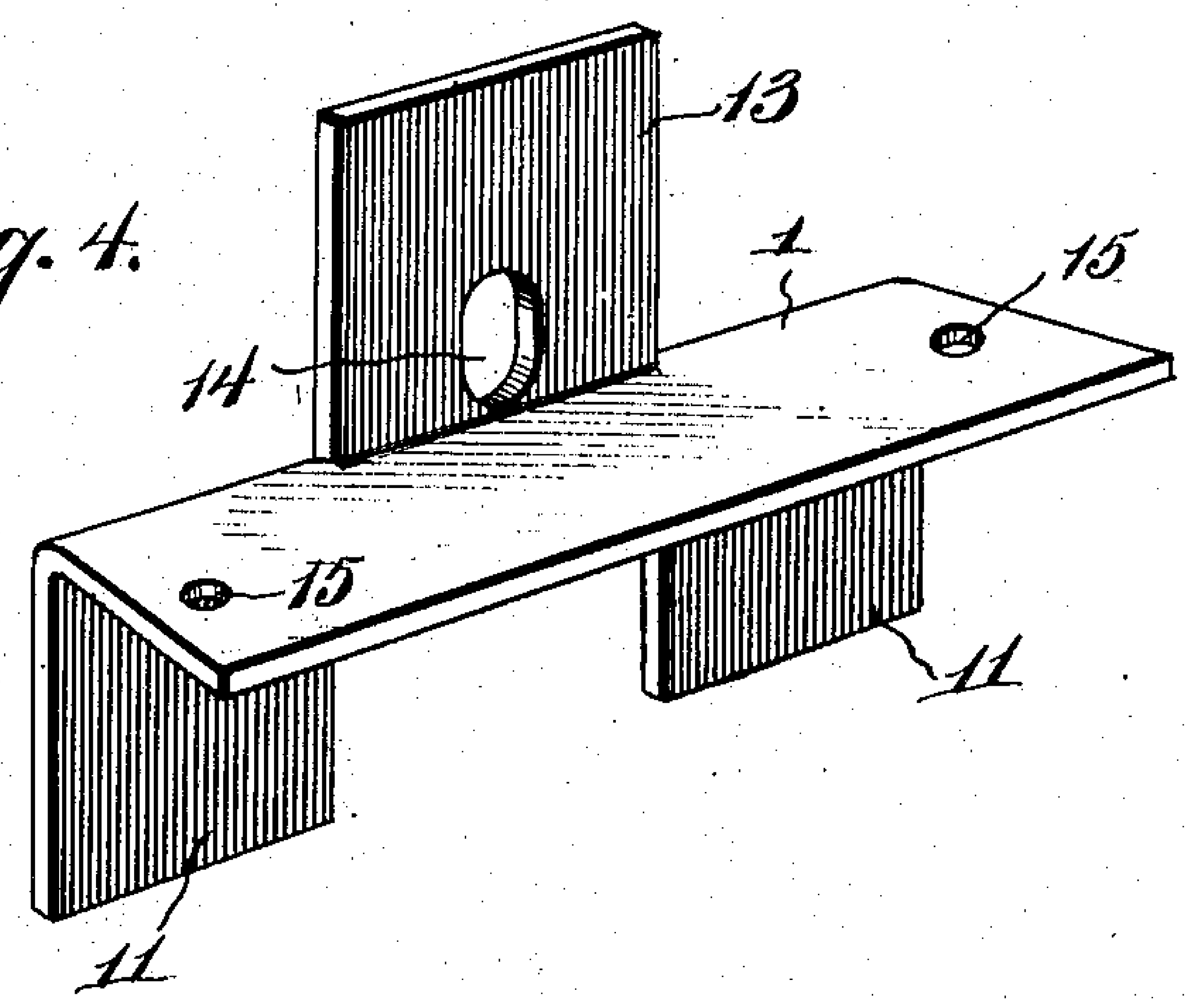
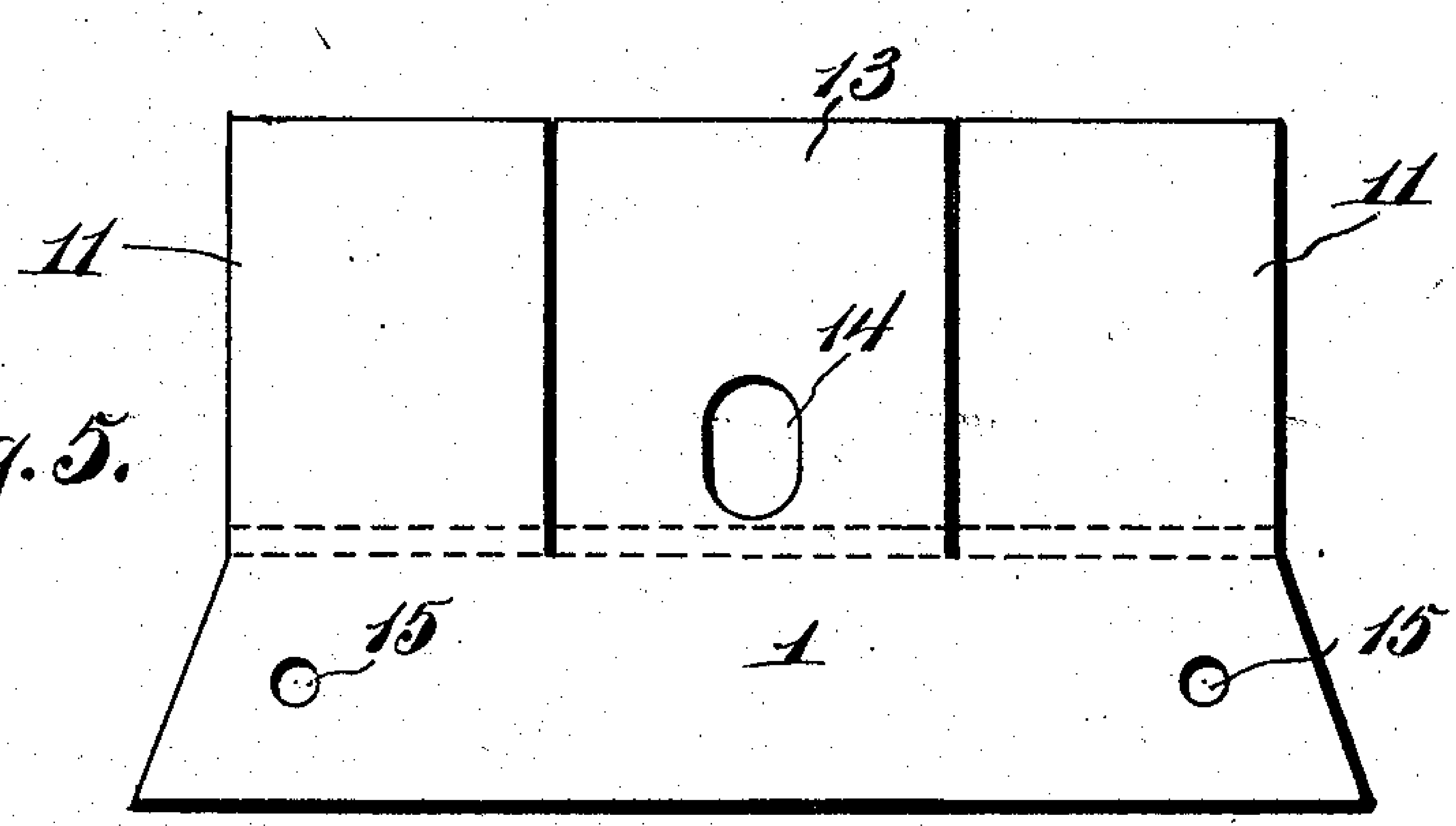


Fig. 5.



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FASTENING DEVICE FOR MOLDS.

No. 901,209. Specification of Letters Patent. Patented Oct. 13, 1908.

Application filed October 28, 1907. Serial No. 399,498.

To all whom it may concern:

Be it known that I, JOHN HOWELL SULLIVAN, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Fastening Devices for Molds; and I do 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.

In the organization of concrete building walls it is customary to employ molds composed of sections or boards arranged in vertical edgewise relation and having their meeting edges temporarily connected by means of fastening members or clips, such, for example, as that illustrated in Patent No. 813,253, granted to me February 20, 1906, it being understood that after the concrete has sufficiently set, the lowermost boards or sections of the mold are removed and again employed in further building up the mold.

The clips disclosed in the patent above referred to have been in some instances found objectionable for the reason that they are not thoroughly applicable for use in connecting the meeting ends of the boards or sections forming different sides of the mold, and that, in some instances, it has been found necessary, in order to remove the boards in the operation of disconnecting the mold, to split or break the boards at the points of engagement with the fastening clips.

It has also been found necessary when using the clip in question to employ sections or boards of a uniform thickness in order that the clips may be properly engaged therewith.

The present invention has for its object to provide a simple, inexpensive form of fastening member which may be conveniently employed for connecting the adjoining ends of the mold sections at the angle of the wall and which further provide when used at the meeting point in the mold for the ready disengagement of the boards or sections of the latter without injuring them.

A further object of the invention is to provide a simplified form of clip through the medium of which boards of varying thicknesses may be employed in the formation of the mold, and one by which these variable boards may be readily and securely connected.

With these and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of a portion of a mold having the sections thereof connected by means of fastening clips embodying the invention; Fig. 2 is a perspective view of one of the improved clips; Fig. 3 is a plan view of the blank from which the clip is made and showing the same prior to bending into shape; Fig. 4 is a perspective view showing a slightly modified embodiment of the invention; and Fig. 5 is a plan view of the blank for composing the clip shown in Fig. 4.

Referring to the drawings, and particularly to Figs. 1, 2 and 3, it will be seen that the improved clip which is composed of sheet metal and made in one piece, comprises a body portion 1 having two sets or pairs of spaced engaging portions or flanges, 2 and 3, arranged respectively in planes at right angles to each other, there being formed on the body 1 and at a point centrally between the flanges 3, a flange 4, projecting at right angles to the plane of the flanges 3 and in turn provided with an opening 5, while projecting from the body 1 at a point centrally between the flanges 2 and in a plane at right angles thereto, is a supplemental flange 6 having an opening 7. Formed in the body 1 at points near its ends are openings or perforations 8 for the reception of screws or other fastening members by means of which the clip may be attached to one of the mold sections or boards.

In the formation of the fastening member, a sheet metal blank such as illustrated in Fig. 3 is serrated transversely at the points 9 to provide the several portions or flanges 2, 3, 4 and 6 which in completing the fastening member are bent relatively to the body portion 1 and to one another in the manner heretofore explained and as clearly illustrated in Fig. 2.

In practice, the clip is employed for connecting the sections or boards forming the mold as illustrated in Fig. 1, the clips at one side of the mold being connected with those at the opposite side by means of tie rods 10 entered respectively through the openings 5 and 7, these rods being adapted for exerting tension on the clips to draw the mold sections tightly together. It is to be

particularly observed that in the use of the device, boards of different thicknesses may be employed in the formation of the mold; and, further, that after the casting or molding operation, the clips may be quickly disconnected from the boards to permit of their removal from the molded article.

In the form of device disclosed in Figs. 4 and 5, the body portion 1 has formed thereon the right-angularly disposed portions or flanges 11, 12, corresponding to the flanges 2 and 3 shown in the other form of the device, and a flange 13 disposed in a plane centrally between the flanges 11 and parallel therewith, but at right angles to the plane of the flanges 12, there being formed in the flange 13 an opening 14 for the tie rod, and in the body 1 openings 15 to receive fastening members for securing the clip to the ends of a board. In the use of this form of the device, the flanges 11 will be engaged by the outer face of one of the mold sections, while the flanges 12 will extend over and engage the adjoining mold section, beyond the face of which the flange 13 will project for engagement by the tie rod. With the exception of the arrangement and number of the flanges provided on the clips, both forms of the device herein illustrated are practically identical in construction and operation.

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

1. A fastening member of the class described, comprising a body portion and bearing flanges, a pair of said flanges being arranged in a plane at right angles to the plane of another pair, and a pair of auxiliary flanges projecting from opposite sides of said body portion in planes at right angles to each other.

2. A fastening member of the type described comprising a body portion having bearing flanges extending from opposite sides thereof, a pair of said flanges extending from one side of said body at opposite ends thereof and having a flange projecting between them in a plane at right angles thereto, and with a flange extending from the opposite side of said body intermediately of its ends and in the same plane therewith.

3. A fastening member of the class described comprising a body portion having bearing flanges extending from opposite sides thereof, a pair of said flanges extending from one side of said body at opposite ends thereof in a plane at right-angles to the body portion and having an intermediate flange projecting between them, and a pair of said flanges arranged at opposite ends on the other side of said body and having an intermediate flange projecting between them and at right angles to the other intermediate flange.

4. A fastening member of the class described comprising a body portion having a plurality of bearing flanges extending from opposite sides thereof, a pair of said flanges extending from one side of said body at opposite ends thereof in a plane at right angles to the body portion and having an intermediate flange projecting between them in the same plane as said body portion, a pair of flanges extending from the opposite side of said body portion at its opposite ends and in the same plane as said body portion, and an intermediate flange projecting between said last mentioned pair of flanges in a plane at right angles thereto.

5. A fastening member of the class described comprising a body portion having a plurality of bearing flanges extending from opposite sides thereof, a pair of said flanges extending from one side of said body at opposite ends thereof in a plane at right angles to the body portion and having an intermediate flange projecting between them in the same plane as said body portion, a pair of flanges extending from the opposite side of said body portion at its opposite ends and in the same plane as said body portion, and an intermediate flange projecting between said last mentioned pair of flanges in a plane at right angles thereto, and in an opposite direction to said pair of flanges on the opposite side of the body portion and in a plane parallel therewith.

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

JOHN HOWELL SULLIVAN.

Witnesses:
GEORGE W. THOMPSON,
CORA TIETEMA.