J. F. LAMB.

EXTENSIBLE FRAME FOR MOLDERS' USE.

APPLICATION FILED DEC. 28, 1908.

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914,584.

Patented Mar. 9, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

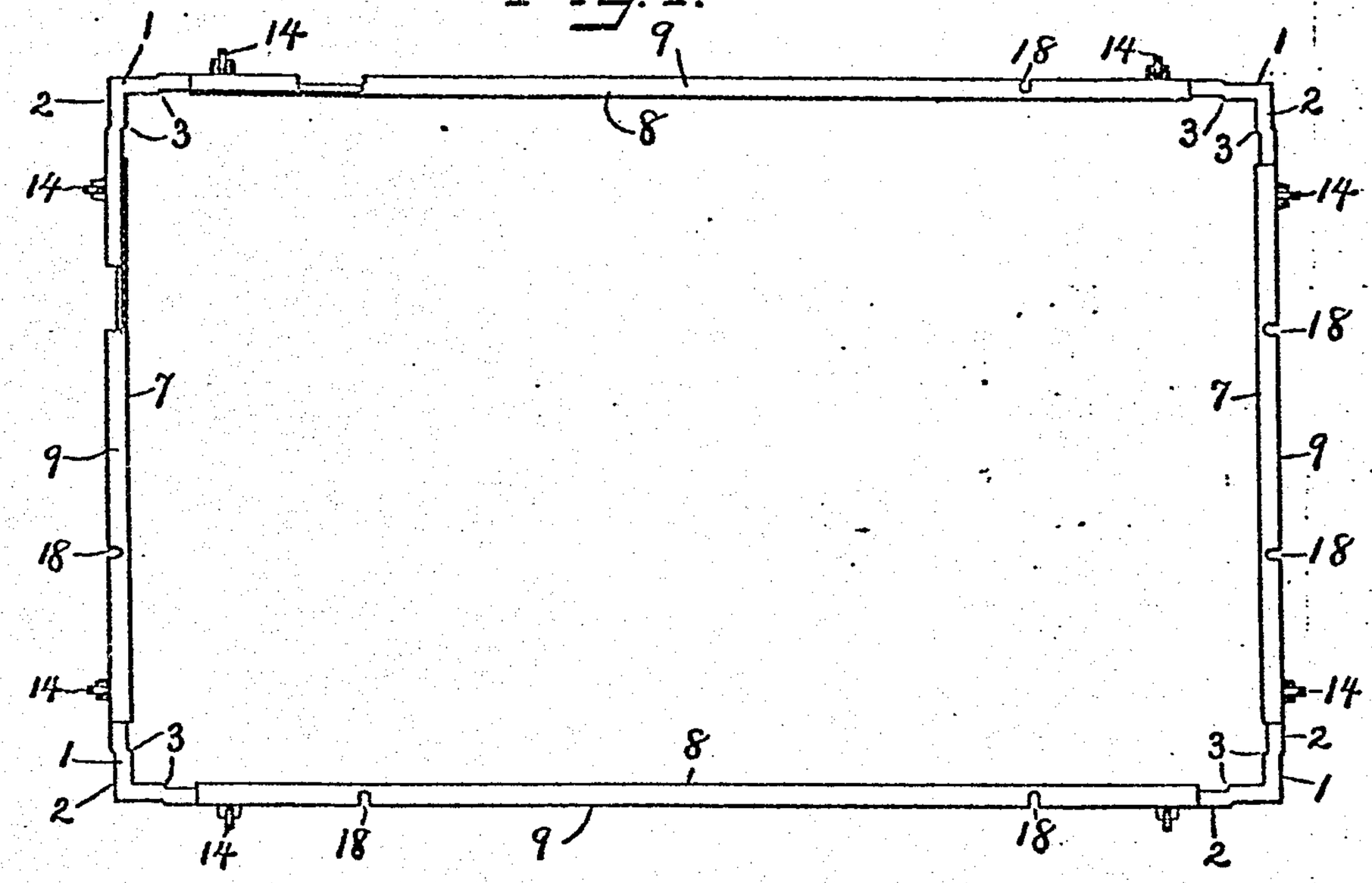


Fig. 2.

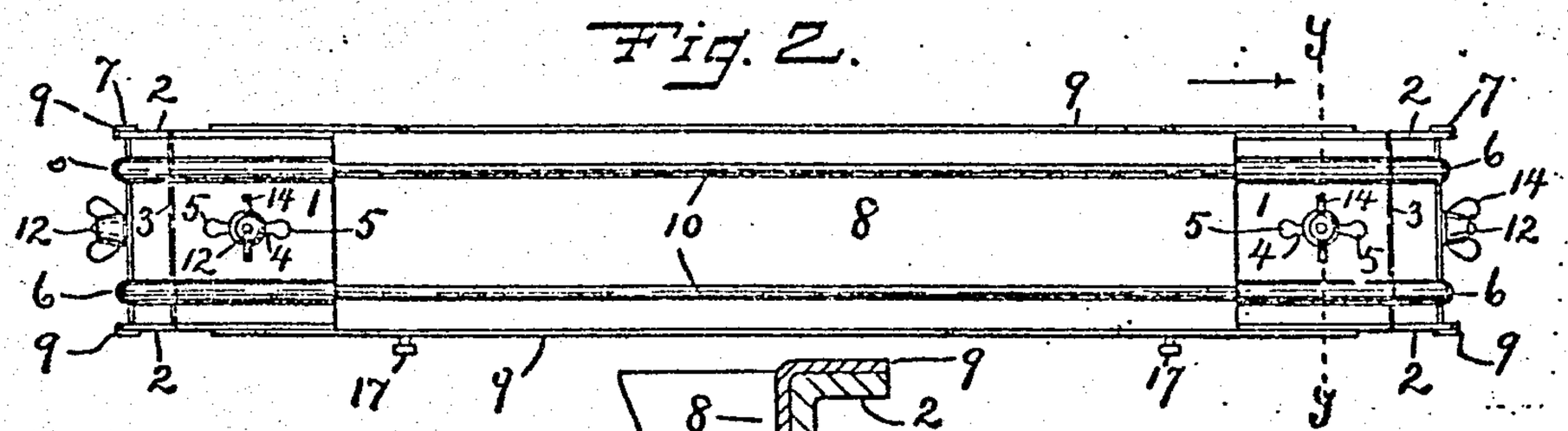


Fig. 5.

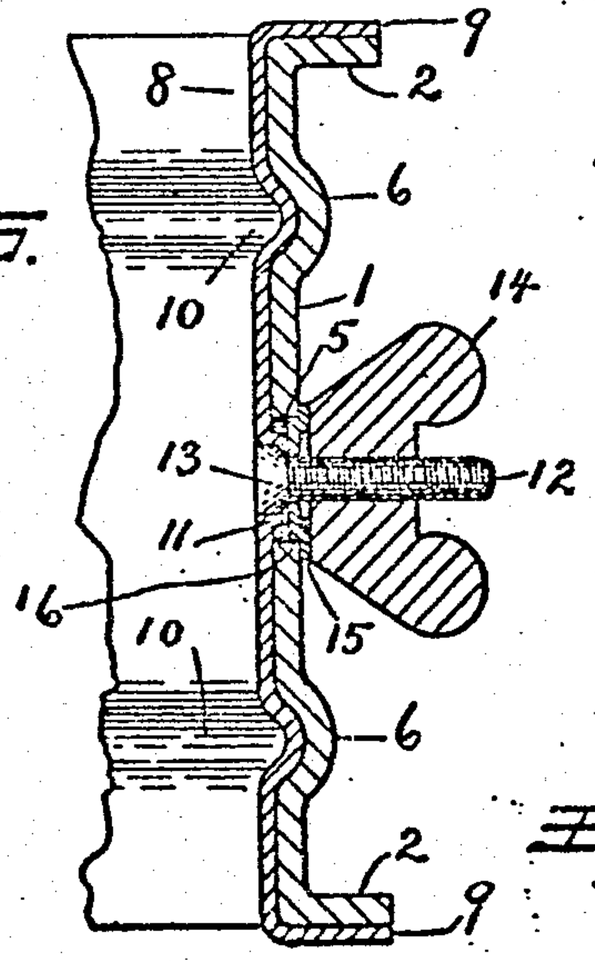
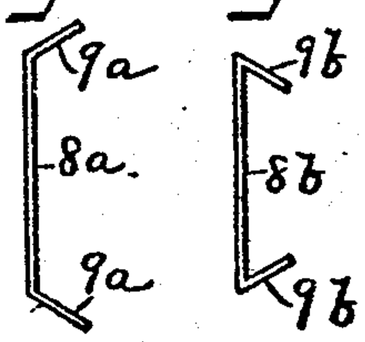


Fig. 3. Fig. 4.



Witnesses.

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3 SHEETS—SHEET 2.

Fig. 6.

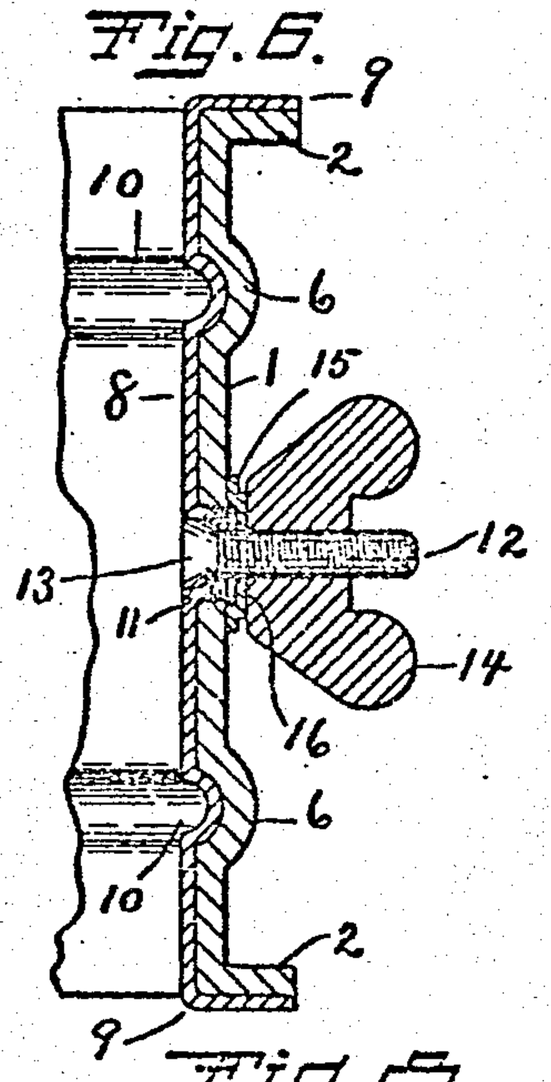


Fig. 7.

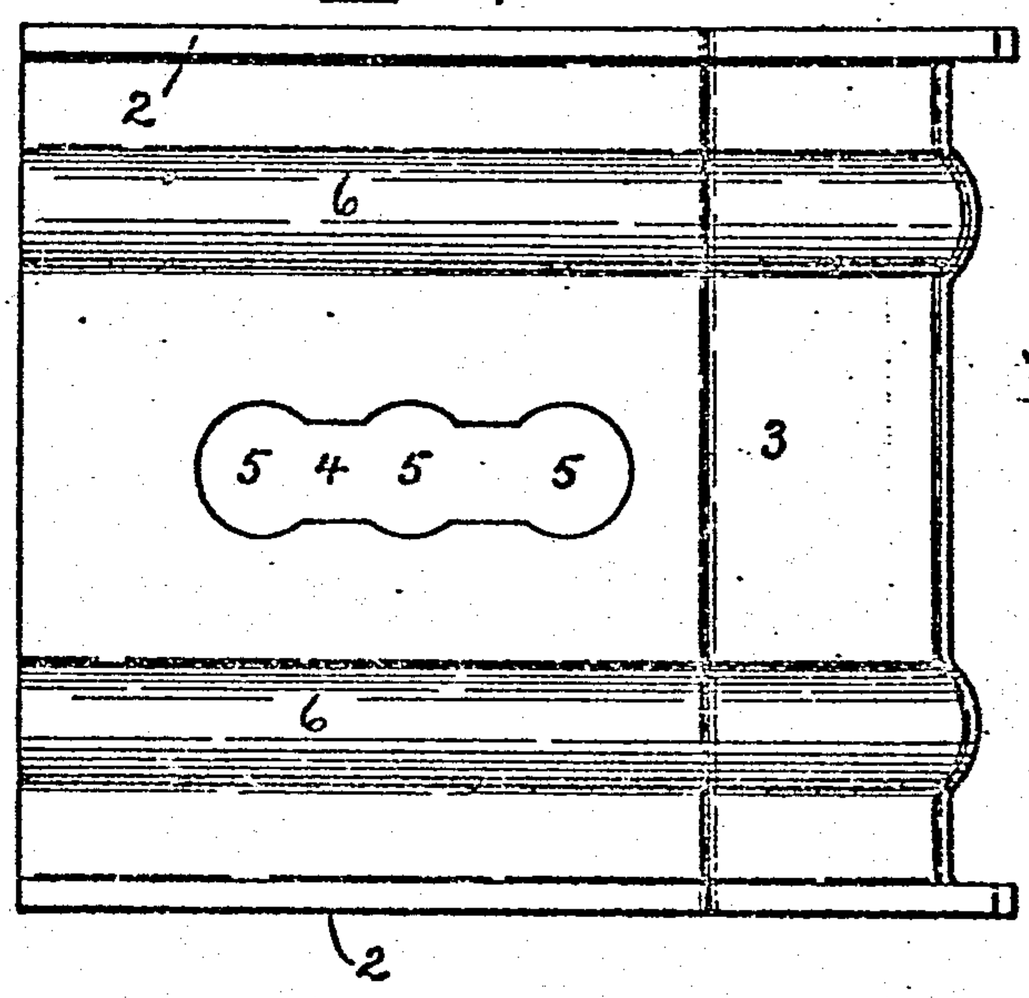


Fig. 8.

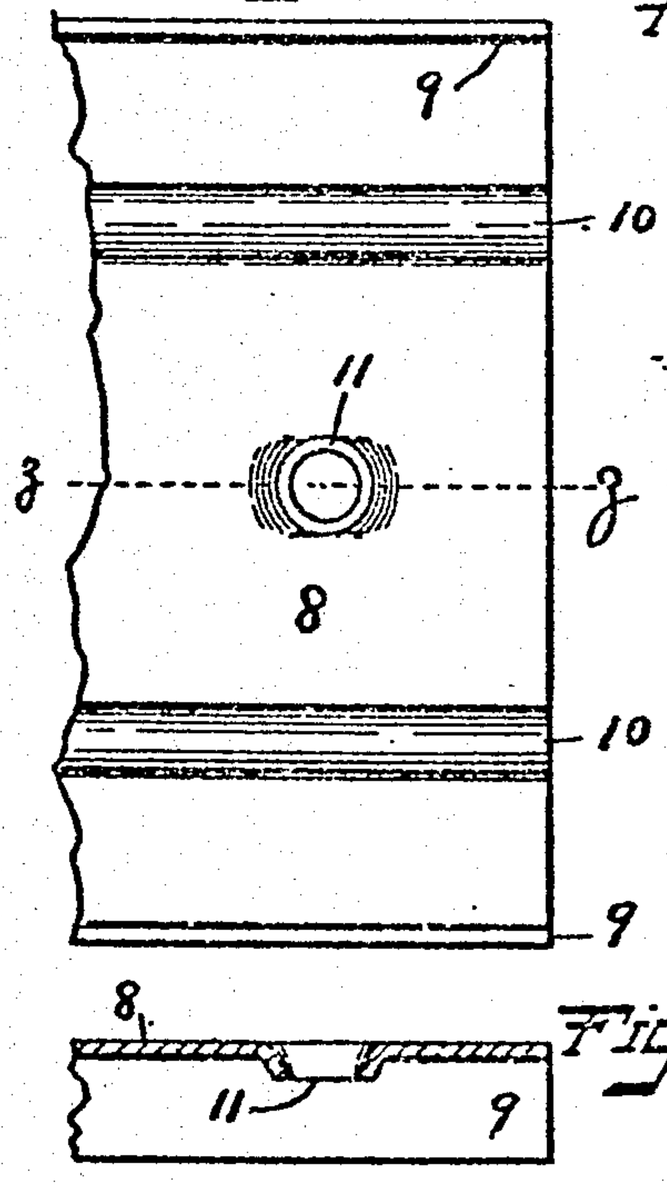


Fig. 9.

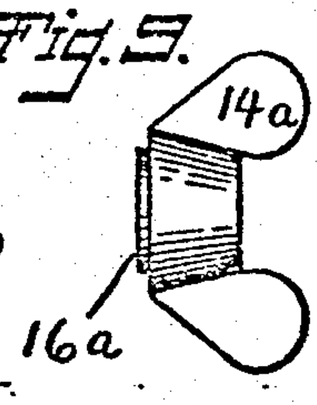


Fig. 10.

Fig. 11.

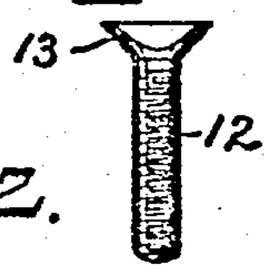


Fig. 12.

Fig. 13.

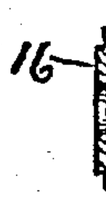
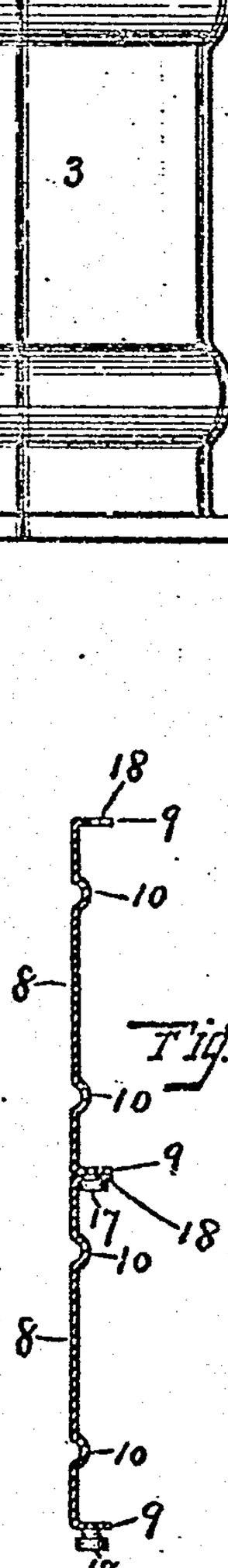


Fig. 14.



Witnesses.

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2 SHEETS—SHEET 3.

Fig. 15.

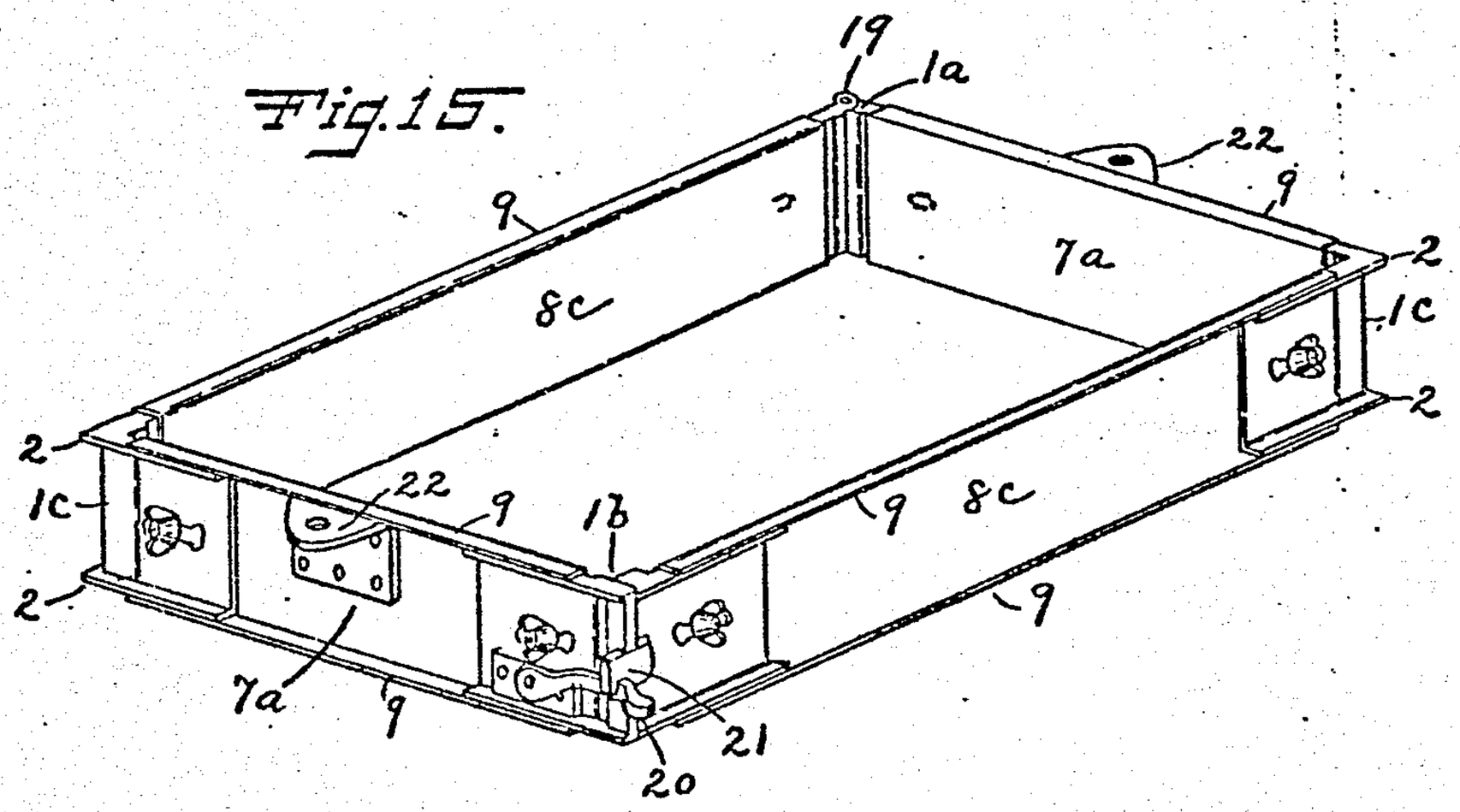
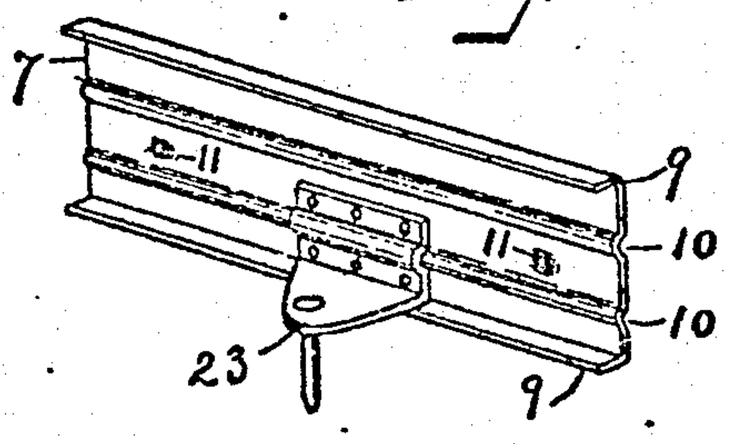


Fig. 16.



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UNITED STATES PATENT OFFICE.

JOSEPH F. LAMB, OF NEW BRITAIN, CONNECTICUT.

EXTENSIBLE FRAME FOR MOLDERS' USE.

No. 914,584. Specification of Letters Patent. Patented March 9, 1909.

Application filed December 28, 1908. Serial No. 469,711.

To all whom it may concern:

Be it known that I, JOSEPH F. LAMB, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Extensible Frames for Molders' Use, of which the following is a specification.

My invention relates to improvements in extensible frames for molders' use as bands and flasks, and the objects of my improvements are simplicity and economy in construction with convenience and efficiency in use, and particularly to produce a frame of a simple, convenient and reliable construction that is adapted for use either as a band or flask, all as hereinafter described.

In the accompanying drawing Figure 1 is a plan view of my frame with one side and one end partly in horizontal section. Fig. 2 is a side elevation of the same. Figs. 3 and 4 are end views of a side or end piece for my frame showing modifications in shape. Fig. 5 is an enlarged vertical section along the line *y y* of Fig. 2 with the clamp screw washer arranged for a lock joint. Fig. 6 is a like view of the same with the clamp screw washer arranged for a friction joint. Fig. 7 is an elevation of one of the corners for my frame. Fig. 8 is a side view of a portion of a side piece or end piece showing the boss for the clamping screw. Fig. 9 is a side elevation of the nut for the clamping screw in a modified form. Fig. 10, is an end view and Fig. 11 a side view of the clamping bolt or screw. Fig. 12 is a horizontal section of a portion of one side piece or end piece on the line *z z* of Fig. 8. Fig. 13 is a transverse section of a special form of washer for the clamp screw. Fig. 14 is a transverse section on a reduced scale of two side pieces or two end pieces put together to make a wider frame. Fig. 15, is a perspective view of one of my extension frames with two corners divided to produce a hinged frame, the said view being on a smaller scale than Figs. 1 and 2. Fig. 16, is a perspective view of one of the end pieces with a bracket and dowel pin attached thereto.

Similar reference characters refer to similar parts throughout the several views.

My frames are mainly composed of four corners and four sides, or two sides and two ends. The corners 1 are in the form of two wings arranged at right angles to each other and are preferably formed of sheet metal. They are provided with outwardly turned flanges 2 at the top and bottom edges thereby forming each wing into what may be called a channel iron. The wings of the corners are offset outwardly near their junction as at 3, the thickness or depth of the offset on the inner faces of the corners being equal to the thickness of the metal employed for the four sides. The wings of the corners are each provided with longitudinally extended slots 4 and preferably with a series of enlargements or holes 5 in connection with the said slots as best shown in Fig. 7. I also prefer to employ one or more longitudinally extended ribs or corrugations 6 which, when the frame is to be used as an external band for a mold, should project outwardly, although when the frames are used exclusively as a flask this precaution is not necessary.

The four sides will ordinarily be made in two lengths and in that case may be properly termed sides and ends, the shorter pieces 7 constituting the ends and the longer pieces 8, constituting the sides. These have the same general form in cross section as the wings of the corners. The top and bottom flanges 9 are turned outwardly and the ribs 10 project outwardly, but the sides are made a little wider than the corners and the ribs a little smaller, so that the ends of the corners and sides may shut one within the other and lap by each other, with the ends of the sides on the inner faces of the corners, and when so placed may slide longitudinally one upon the other. Near the ends of the sides, or sides and ends, I form an outwardly turned screw hole boss 11 preferably of an irregular or oblong shape. These bosses are formed on the line of the slots 4 of the corners and may project into the said slots. Clamping screws or bolts 12 with elongated or slabbed off heads 13 are passed through the said bosses and slots and suitable nuts, preferably thumb nuts 14 on the outer ends of the said screws will clamp the parts firmly together and at the same time permit the parts to slide one upon the other when the nuts are loosened to extend or contract the frames to any desired size within the range of their adjustability. When used as a band it is preferable to have the parts slip along so as to adjust the frames to any desired size of mold, but when used as a flask such nicety of adjustment is not re-

quired, and it is desirable to lock the parts positively in their adjusted position. An ordinary flat washer may be employed when a positive lock is not required. I prefer to employ a special washer 15 having a boss 16, on one side. When a positive lock is required this washer is placed on the screw 12, with the boss facing the corners. The parts are slipped one upon the other to make approximately the desired size of frame, and then the boss is let into the nearest one of the enlargements or holes 5, and the thumb nut tightened up to make a positive lock as shown in Fig. 5. If desired to secure the parts with the bolt at any point intermediate the enlargement or holes, then a plain washer may be used, or the washer may be reversed in position, as shown in Fig. 6, when it will act as a plain washer. If desired to form a positive lock without a special form of washer, a like boss or projection 16^a may be formed on the thumb nut 14^a as a substitute for the washer.

By the construction hereinbefore described I provide an extensible frame which may be extended or contracted to vary the size. If desired sides or sides and ends of varying lengths may be used with the one set of corners, thereby producing frames of any size that may be desired. By turning the flanges outwardly the inner faces of the parts are smooth, then adapting the frame to be placed upon ordinary sand molds as a supporting band. By the offset corners I can make the inner faces at the corners of the band flush with the inner faces of the several sides and thereby support the mold, not only on the sides but also at the corners. Two of the same frames may if desired be used as a flask as well as a band, and when so used may be secured together by a positive lock in the manner hereinbefore described.

In order to make a wider frame I secure headed studs or buttons 17 in the lower one of the flanges 9 on the several sides and ends and corresponding recesses 18 in the upper one of the said flanges, whereby two sides or two ends may be secured together edge to edge by slipping the buttons 17 into the recesses 18, as shown in Fig. 14, thereby extending the width of the band or frame. In such case the several sides will be connected with the corners as hereinbefore described.

While I prefer the form in cross section hereinbefore described, the flanges may be bent more or less to produce different forms of channel irons. for example, the flanges 9^a may project obliquely downward and upward at an obtuse angle to the sides 8^a, as shown in Fig. 3, or at an acute angle to the sides 8^b like the flanges 9^b shown in Fig. 4.

If desired to produce a hinged frame for use either as a band or flask, the same construction of sides and corners may be employed by separately forming the two wings of two of the corners and providing the two wings of one corner 1^a with a hinge 19, and the two parts of the diagonally opposite corner 1^b with a latch 20, and keeper 21, as shown in Fig. 15, while the construction of the other parts may be the same as hereinbefore described. When used as a flask, two frames will be used, one for the cope and the other for the nowel and any ordinary dowel pin and socket bracket can be secured to the respective parts. In Fig. 15, a bracket having a socket 22 is shown as secured to the respective ends 7^a while in Fig. 16 a bracket having a dowel pin 23 is secured to one of the ends 7. In Fig. 15 the corrugations or beads shown in the other views have been omitted, and consequently the rigid corners are given the modified reference character 1^c and the sides are designated as 8^c.

I claim as my invention:—

1. An extensible frame for molders' use comprising four separate corners having at their top and bottom edges outwardly extended flanges, and four separate sides having at their top and bottom edges similar outwardly turned flanges, the said corners and sides lapping one over the other at their ends with the said flanges nested together for sliding longitudinally, and fastening screws passing through the said sides and corners for adjustably securing the parts together.

2. An extensible frame for molders' use, comprising four separate corners, four separate sides, and fastening screws, the said corners each comprising two wings offset outwardly near their junction a distance equal to the thickness of the metal forming the sides, the said sides having their ends lapping the wings of the corners on their inner faces, whereby the inner faces of the adjustable frame at the corners and at the main portion of each side are in the same plane under various adjustments.

3. In an extensible frame for molders' use, the several corners and sides fitted to and lapping each other, one of the said parts being provided with a screw hole and the other with a longitudinal slot having parallel straight edges at certain portions in the length of the said slot and a series of oppositely arranged enlargements at other portions thereof, the width of the said slot between the said parallel straight edges being approximately equal to the diameter of the said screw hole while at the enlargements the width of the slot is greatly in excess of the said diameter, a fastening screw fitted to and substantially filling the said screw

hole at one point, and passing through the said slot at another point where its diameter is less than the narrower portions of the said slot, a locking boss of a diameter in excess of the narrower portions of the said slot and of a diameter to enter and fill the said slot at the said enlargements, the said boss being mounted on the said screw for entering the slot at the said enlargements to form a positive lock, and a nut on the end of the said screw for securing the parts in place.

4. In an extensible frame for molders' use the several corners and sides fitted to and lapping each other, one of the said parts being provided with a screw hole and the other with a longitudinal slot having a series of enlargements, a fastening screw, a washer for said screw having one flat side and a boss on its other side fitted to enter and fill the said enlargements, the said boss being of a diameter in excess of the width of the said slot at points where there are no enlargements, while the body of the said washer is of a larger diameter than the said boss, and a nut on the said screw for holding the parts in place.

5. In an extensible frame for molders' use composed of corners and sides adjustably secured together, the sides having out turned flanges at their top and bottom edges, the upper flanges having outwardly opening recesses and the lower flanges having headed studs that register with the said recesses for locking two sides together edge to edge for extending the width of the frame.

6. In an extension frame for molders' use, comprising four corners and four sides fitted to and lapping each other, fastening screws for securing the parts in their adjusted position, two of the said corners being formed each of two parts, one of the said corners having a hinge and the other having a latch and keeper, all substantially as described.

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Witnesses:
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