

No. 677,420.

Patented July 2, 1901.

E. MOLLOY.
FIREPROOF FLOOR AND GIRDER.

(Application filed May 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.

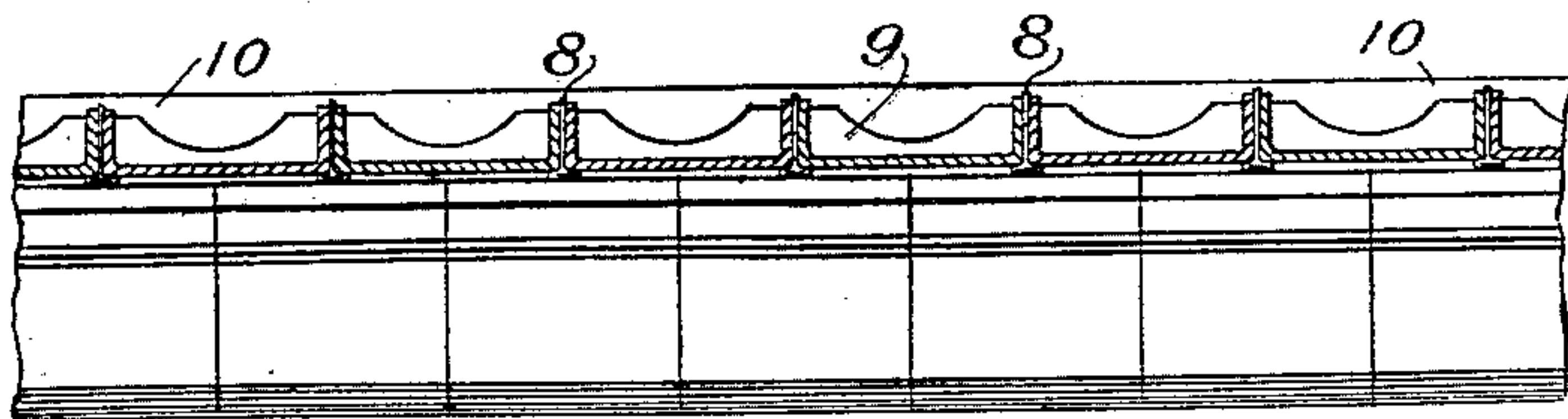


Fig. 1

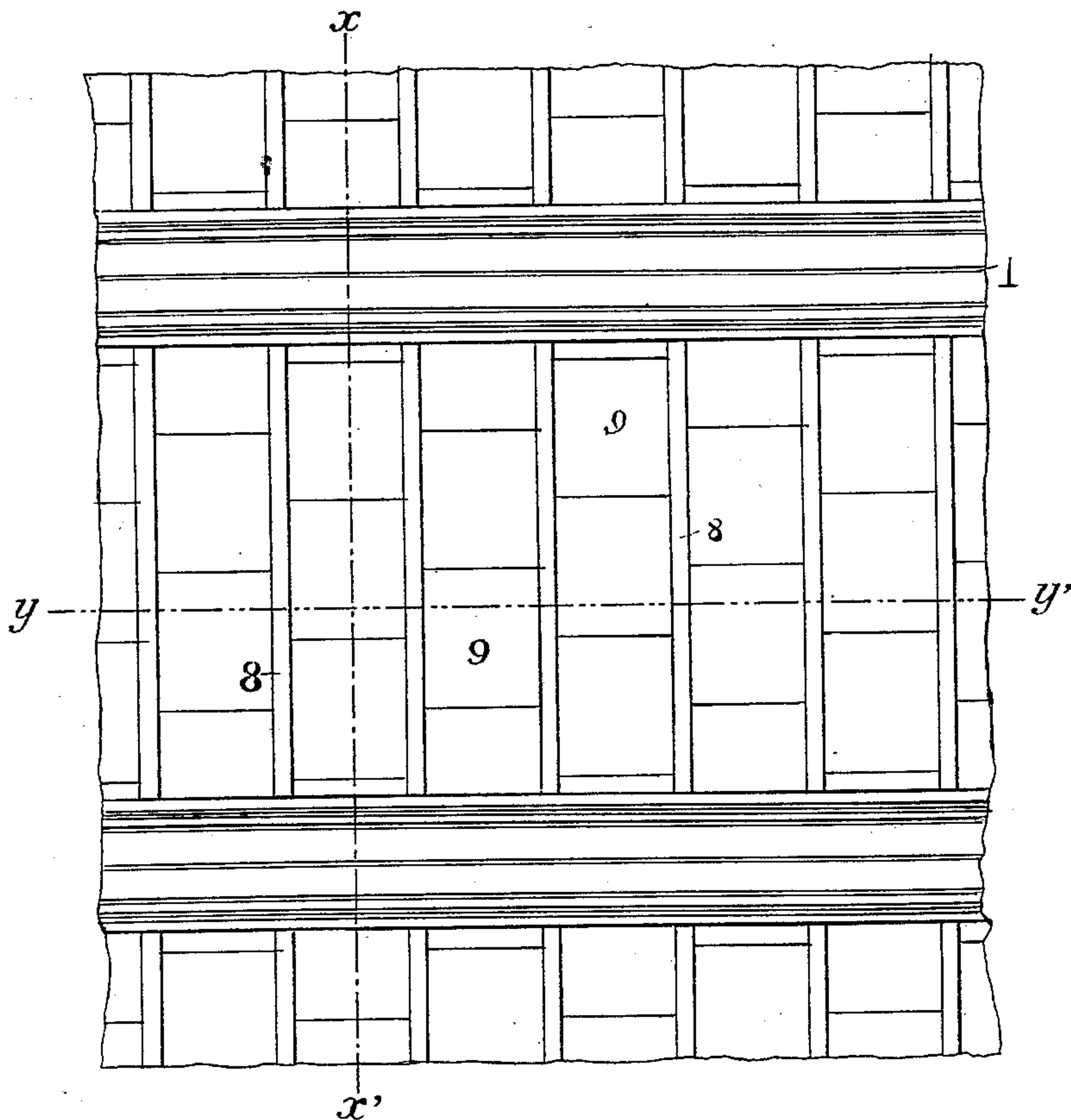


Fig. 2

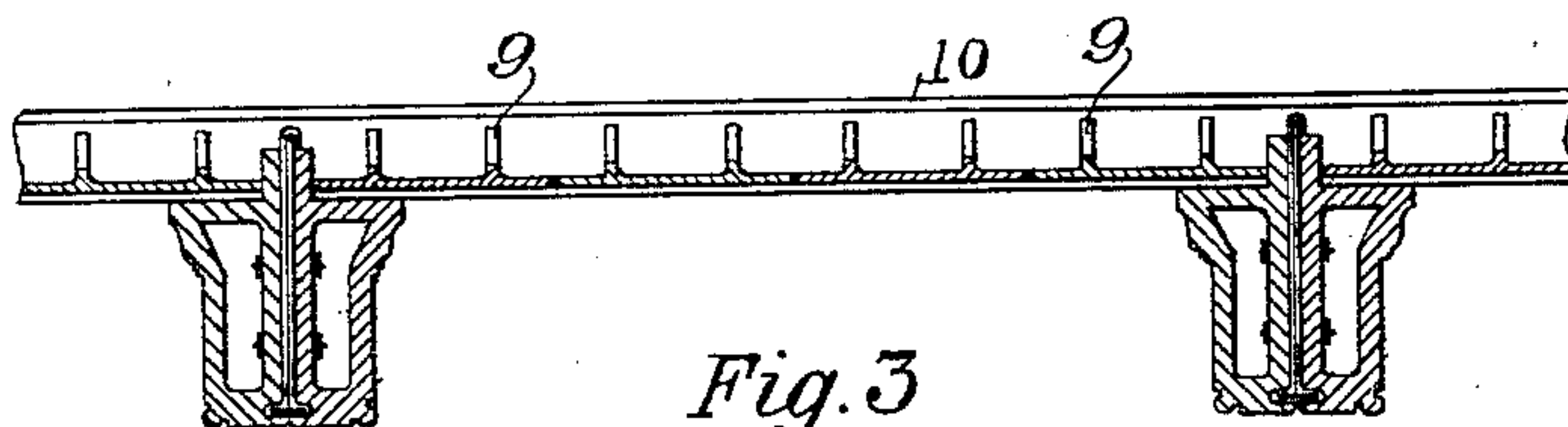


Fig. 3

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2 Sheets—Sheet 2.

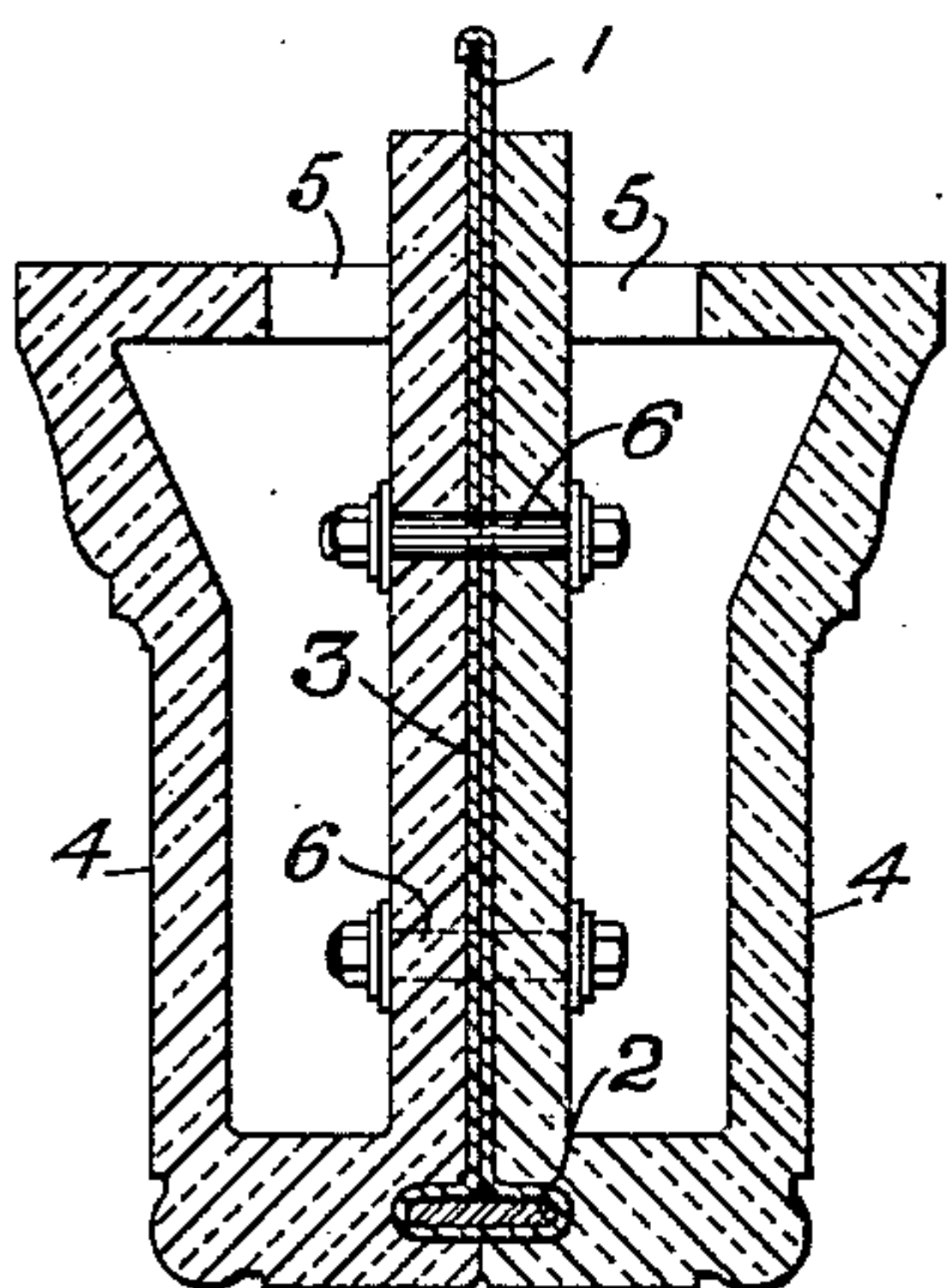


Fig. 4

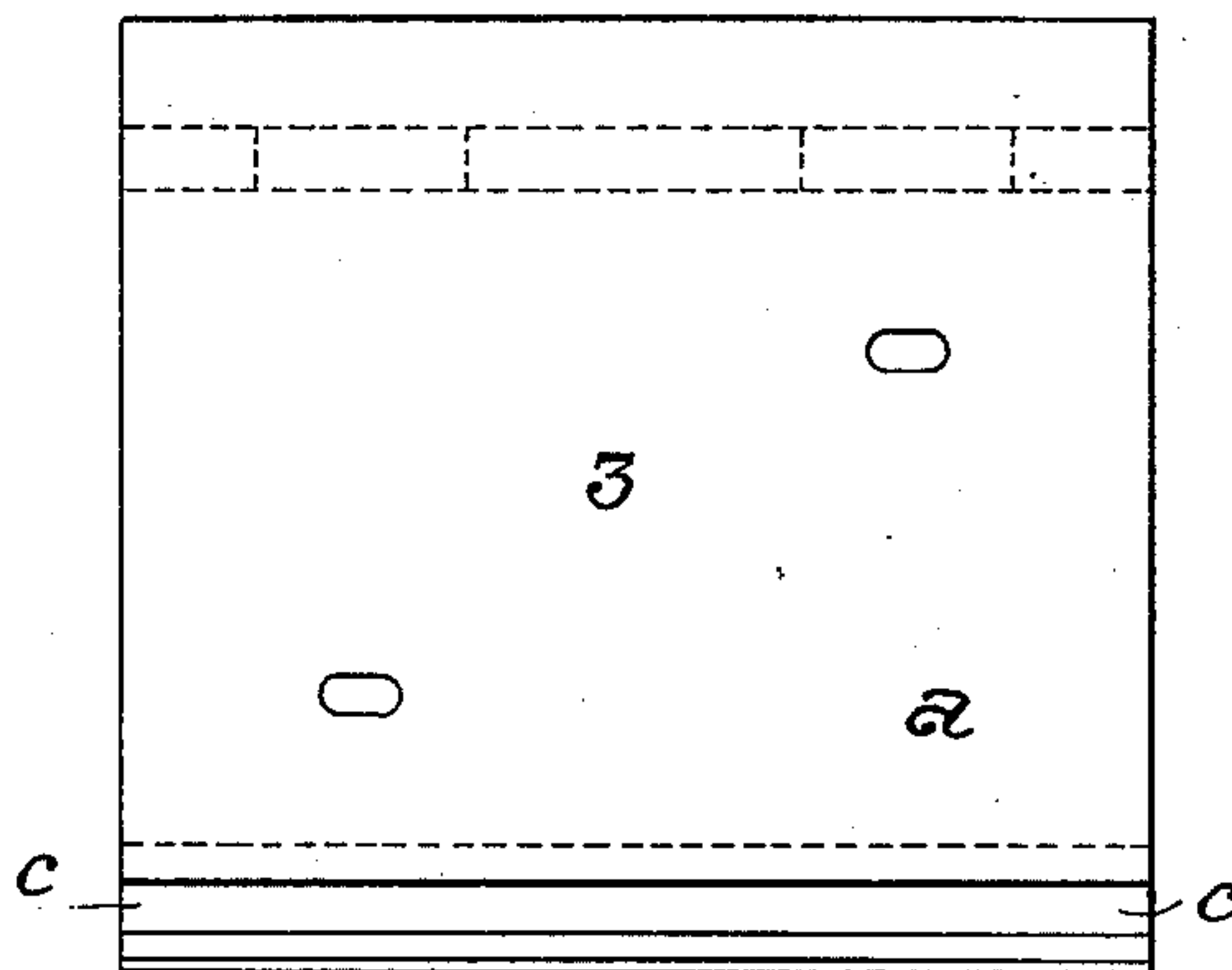


Fig. 5

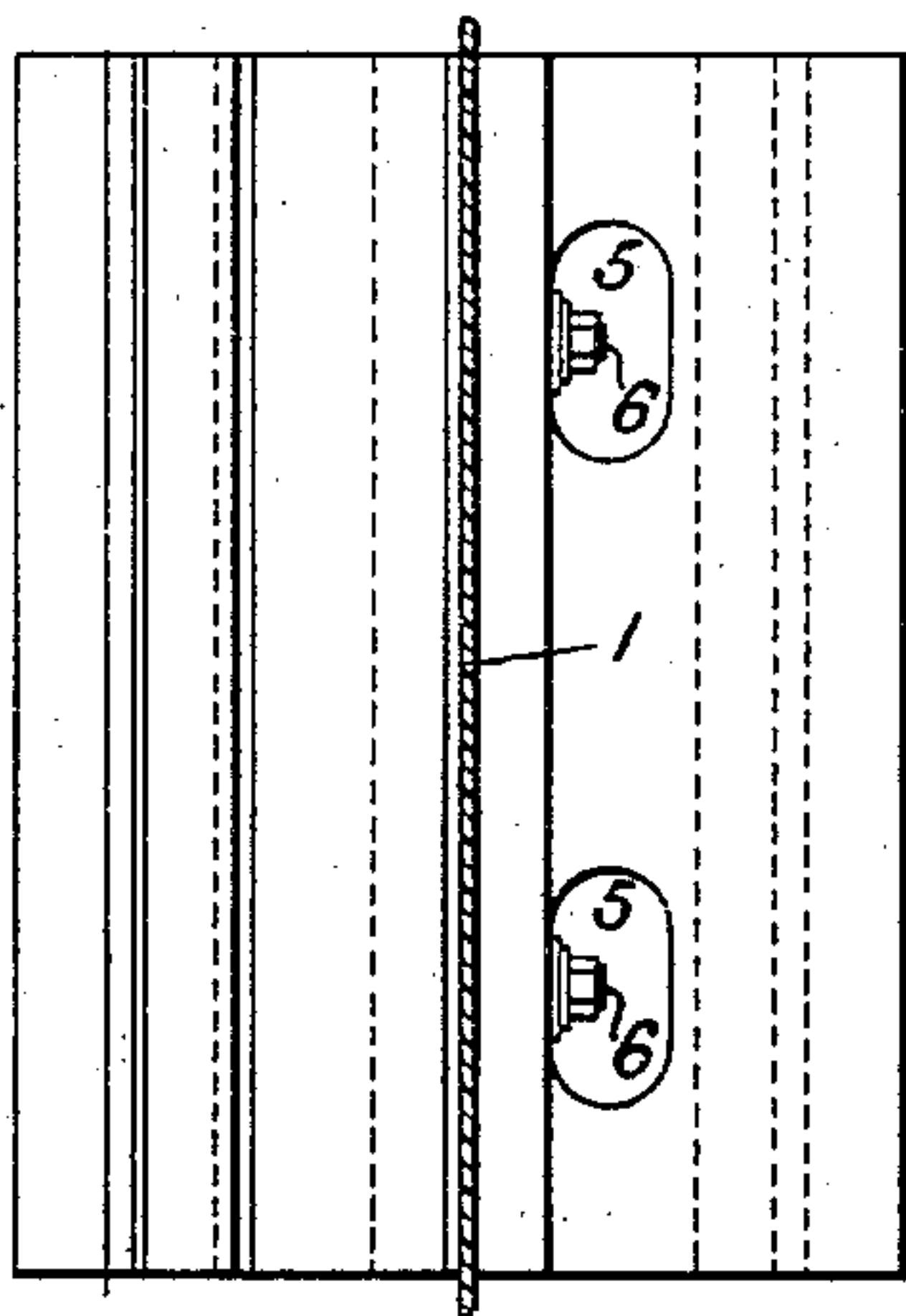


Fig. 6

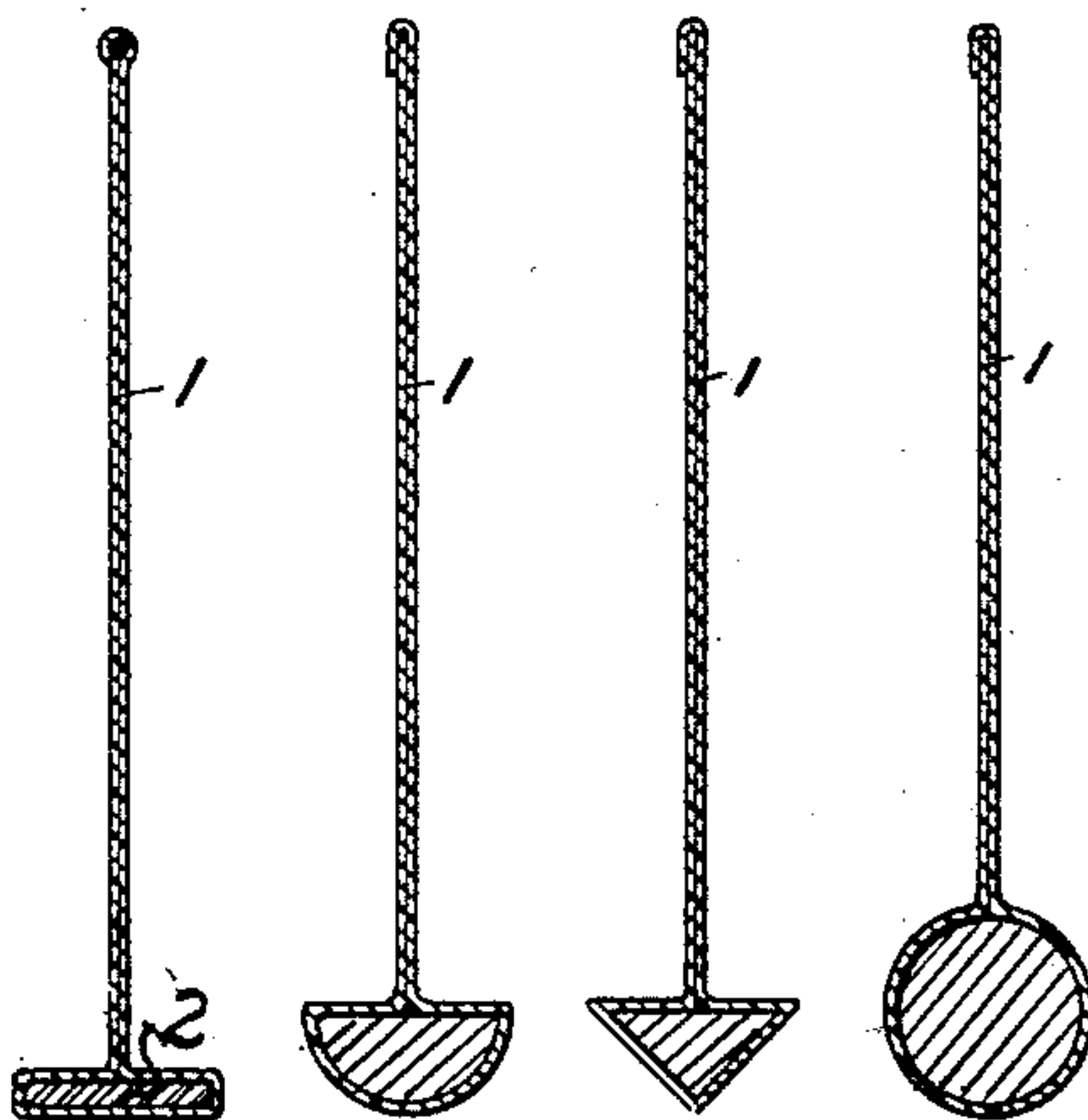


Fig. 7 Fig. 8 Fig. 9 Fig. 10

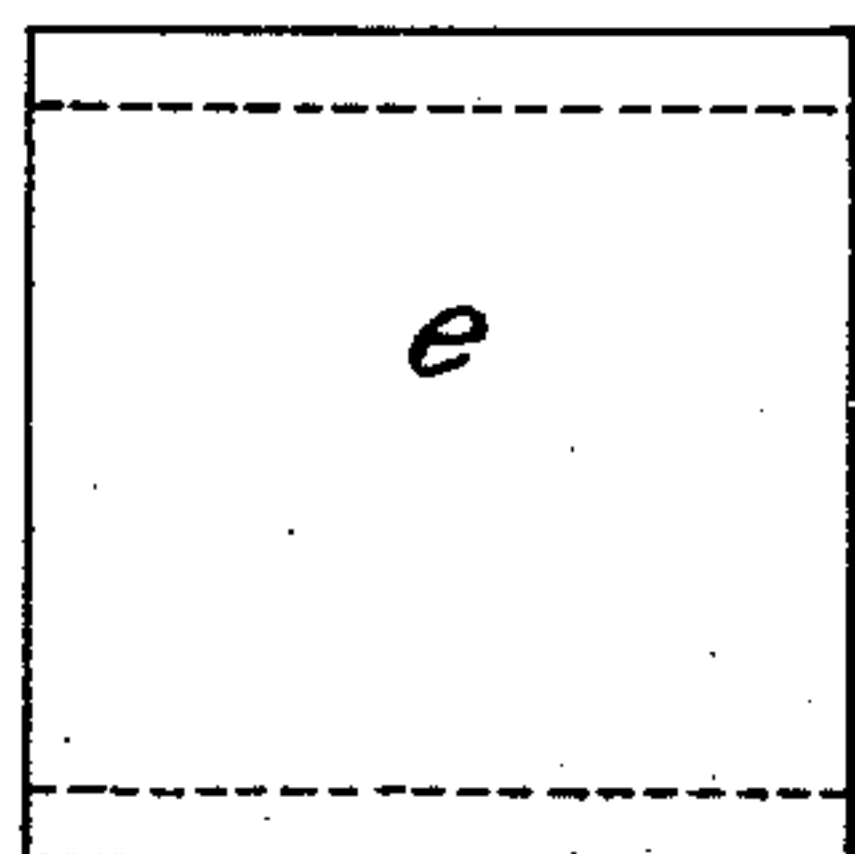


Fig. 11

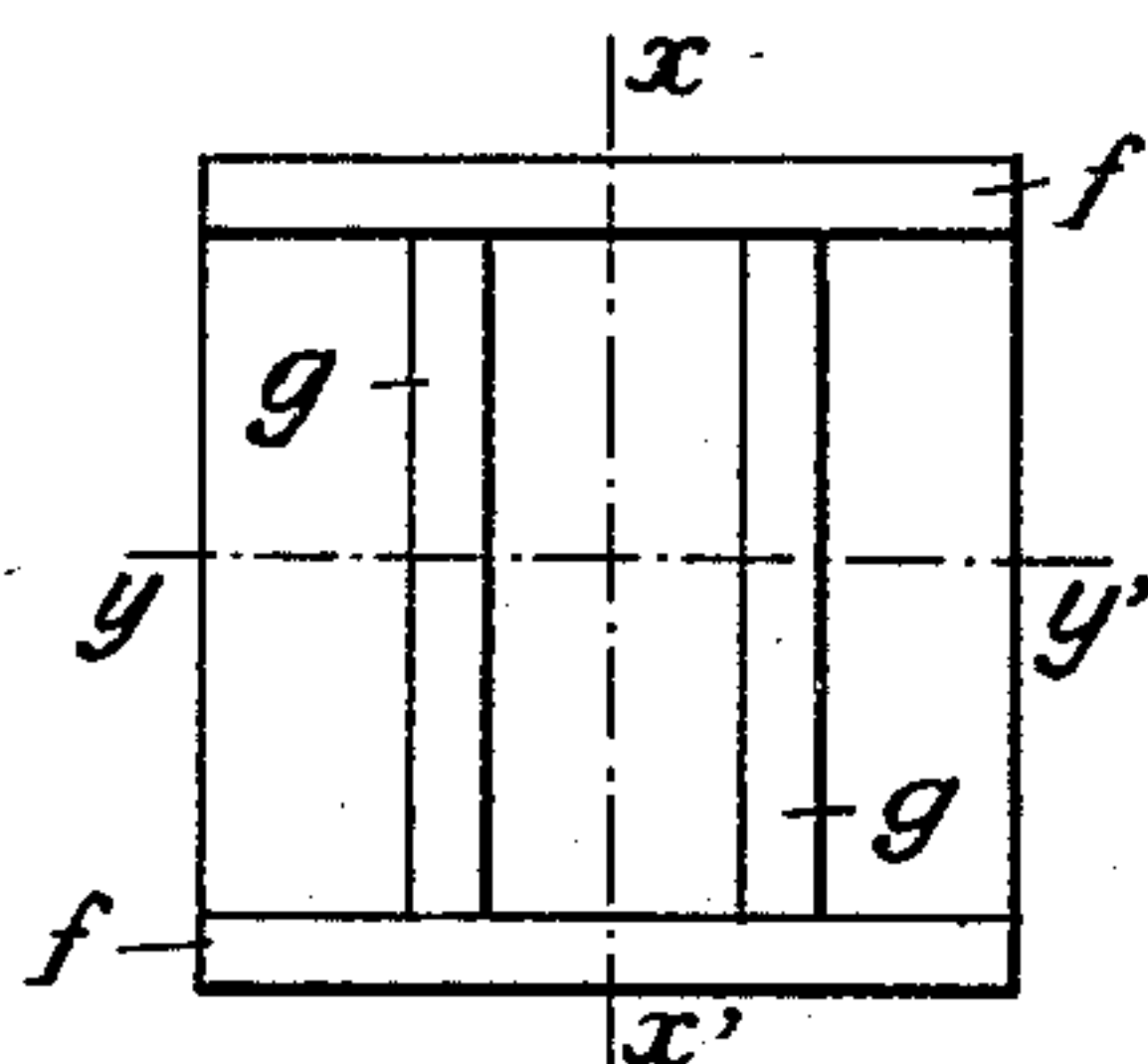


Fig. 12

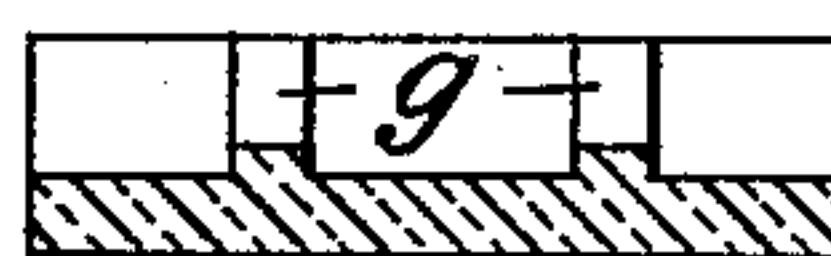


Fig. 13



Fig. 14

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EDMOND MOLLOY, OF PHILADELPHIA, PENNSYLVANIA.

FIREPROOF FLOOR AND GIRDER.

SPECIFICATION forming part of Letters Patent No. 677,420, dated July 2, 1901.

Application filed May 14, 1900. Serial No. 16,618. (No model.)

To all whom it may concern:

Be it known that I, EDMOND MOLLOY, a citizen of the United States, and a resident of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Fireproof Floors and Girders, of which the following is a clear and sufficient specification, reference being had to the drawings annexed.

My improvement belongs to that class of structures shown generally in my former patent, No. 506,521, dated October 10, 1893.

Among the objects of my invention may be mentioned enabling the floor to be constructed between walls at a distance from each other greater than usual without unduly thickening the space between the surface of the floor and the main portion of the ceiling of the room below, giving a paneled appearance to the ceiling, making the structure almost indestructible by fire, and other objects that will appear from the detailed description. The feature of strengthening the web of the supporting member of the girder or of the beam by inserting a piece of stiffening material near the top of the web may also be noted, though it need not be employed in all forms of my invention.

Describing now the best form of which I am at present aware of embodying my invention, Figure 1 is a vertical section of a floor structure containing my invention, being a cross-section on line *y y* of Fig. 2. Fig. 2 is a bottom view of the same, showing the ceiling. Fig. 3 is another vertical section of the floor structure, being a cross-section on line *x x* of Fig. 2, showing the girder in section. Fig. 4 is a cross-section of the girder on an enlarged scale, showing the bolts connecting together the blocks. Fig. 5 is a view of the clamping-block of the girder looking at the face that rests against the web of the supporting member. Fig. 6 shows the upper and lower surfaces of the clamping-block looking at the face that forms the exterior of the girder. Figs. 7, 8, 9, and 10 are cross-sections of different forms of the supporting members of the girder. Figs. 11 and 12 are views of the opposite sides of the blocks suitable for forming the carrying portions of the floor. Fig. 13 is a section on line *y y* of Fig.

12, and Fig. 14 a section on line *x x* of same figure.

The floor structure built in accordance with my invention consists in the best form of which I am at present aware of a series of girders extending from support to support, between which the part of the floor which carries the weight is laid and by which it is supported. This weight-carrying portion consists in practice of a series of beams running between the girders and having a sheet-metal web that is clamped by the blocks or other portion of this part of the floor structure to prevent it from buckling. This portion of the floor will be described hereinafter.

The girders consist of a supporting member consisting of a sheet of tough and strong material, practically metal, such as iron or steel, having a vertical web portion 1. It is wrapped around a piece of stiffer material 2 (a very convenient material for this purpose being bar or hoop iron) at the bottom to afford a resting-place for the clamping-blocks, as will hereinafter be described. A piece of stiffer material can also be inserted (see Fig. 7) at the top of the web and will aid the clamping-blocks in preventing the web from crumpling or buckling. The clamping-blocks can be made in many different forms, the requisite being that the surface adjoining the web of the supporting member fit closely against it to prevent it from buckling or crumpling and to keep it upright. The best form that I have devised I will now describe.

3 is the wall of the block lying adjacent to the web 1, the face *a* fitting closely against it. In this wall is the depression *c*, into which the enlarged part of the supporting member fits. It is pierced by the holes for the bolts 6 6. The block is completed by the wall 4. A hole 5 is left to insert the hand or a tool to screw up the bolts 6 6, which bring and keep together the faces of the opposite blocks. The blocks can be filled up solid, if desired, with cement or other suitable material and can be made of any desired length. The wall 3 in what I regard as the best shape of block, projects above the rest of the block so that a shoulder is formed to receive the ends of the beams of the supporting portions of the floor, and still to clamp the web of the

supporting member of the girder almost to its top. This member may also project beyond the block and be clamped by the cement. By these means a considerable addition to the height of the supporting member can be secured without making the girder project farther downward into the room beneath.

Between the girders is built the carrying portion of the floor structure. This will of course vary with the kind of building in which my invention is used, whether the floors should be translucent or be adapted to have carpets secured to them or other requisites. I will now describe one type of carrying part.

The beam 8 is formed similarly to the supporting member of the girder. The web of this beam is clamped between the adjacent faces of a block, such as 9 9. The ends of these beams 8 8 rest upon the clamping-block of the girder, and upon the block 9 is laid the cement or other filling material 10. The form of block 9 which in practice I find gives the greatest strength combined with lightness is that shown in Figs. 11 to 14, inclusive, in which *e* is the bottom or top and *f f* the two short vertical walls and *g g* the connecting-webs. These blocks can be used with either the top or the bottom formed by the part *e*.

In building the floor structure the supporting members of the girder are first erected, the clamping-blocks are then secured in place, next the beams are put into position, then the blocks 9 9 9 are fitted into place, and then the cement is laid.

Other forms of the supporting members of the girders than the one particularly described above can be used. As examples of variations may be noted that shown in Fig. 8, where the sheet material is wound around a half-round piece; in Fig. 9, where it is wound around a triangular piece, and in Fig. 10, where it is wound around a circular piece. The clamping-blocks can be made to fit any of these various shapes. The girders can be used also where an entirely different form of filling or carrying structure is employed and where a non-fireproof structure forms the carrying portion.

The forms of the girder or clamping-blocks can be greatly altered, if desired, and other means than the bolts be employed to hold the clamping-faces against the web of the supporting member of the girder.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of girders provided with a vertical web of sheet material, and the clamping parts extending along said web, and a carrying structure formed of vertical webs of sheet material extending between said girders, and blocks having faces fitting closely against said webs and extending between them, substantially as described.

2. The girders provided with a vertical web of sheet material and clamping parts extend-

ing along said web, and formed by a series of blocks made of a fireproofing material and having faces fitting against said web, and means for clamping said faces against said web, substantially as described.

3. A girder consisting of a supporting member formed of a sheet material wrapped around a portion of stiffer material, and having upwardly-projecting webs and blocks formed of fire-resisting material having faces fitting against the web and means for clamping said blocks upon said web, substantially as described.

4. The sustaining member, consisting of a piece of stiffer material around which a piece of sheet material is wound, to form the lower side of the supporting member, a piece of stiffer material around which the sheet material is wound toward the upper side of said supporting member, and a web formed of sheet material extending between said pieces of stiffer material; substantially as described.

5. The hollow girder-block consisting of the inner wall projecting above the rest of the block, one face of which wall fits against the web of the supporting member, and the lower and outside walls, forming the exterior of the girder, substantially as described.

6. The combination with girders formed of a supporting member formed of a piece of stiffer material and a piece of sheet material wrapped around said piece of stiffer material, and forming an upwardly-projecting web, and blocks having plane faces fitting against said web, but not extending to the top thereof, but secured to clamp the said member up a portion of the height of its web, of a carrying structure, extending between said girders, and resting on said blocks, and having a cement upper surface surrounding and clamping the upper end of said supporting member of said girder; substantially as described.

7. The combination with girders formed of a supporting member formed of a piece of stiffer material, and a piece of sheet material wound around said piece of stiffer material and forming an upwardly-projecting web, and blocks having plane faces fitting against said web, but not extending to the top thereof, and secured to clamp said web between them for the distance to which they extend, said blocks having an inset in their sides part way down the same, and a carrying structure extending between said girders and resting upon said inset in said blocks, of a cement-floor covering, extending over said carrying portion and holding and clamping the portion of the web of the supporting member of the girder that projects above the blocks substantially as described.

8. A girder consisting of a supporting member formed of a piece of stiffer material, and a piece of sheet material wound around said piece of stiffer material, and forming an upwardly-projecting web therefrom, and hollow blocks placed on either side of said support-

ing member, and provided with plane faces fitting close against said web, means for clamping said faces against said web, and a cement filling for the hollow interior of said
5 blocks; substantially as described.

9. The flooring-blocks having the flat-faced portion *e*, the portions having the vertical

faces *f, f*, and the ribs *g, g*, extending between the parts having the faces *f, f*, substantially as described.

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Witnesses:

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