

976,648.

J. GOW.
APPARATUS FOR MAKING CORES.
APPLICATION FILED MAY 20, 1910.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.

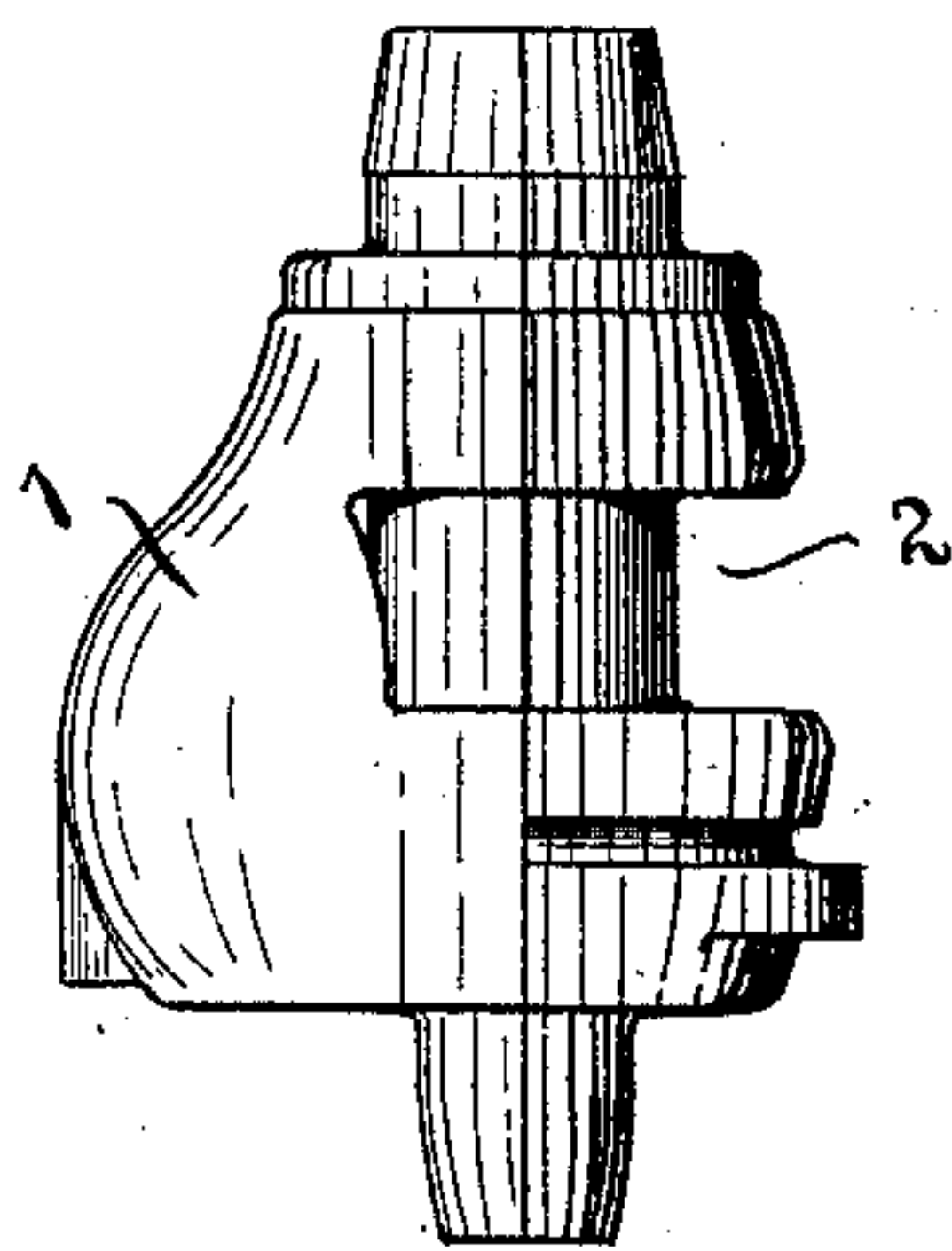


Fig. 1.

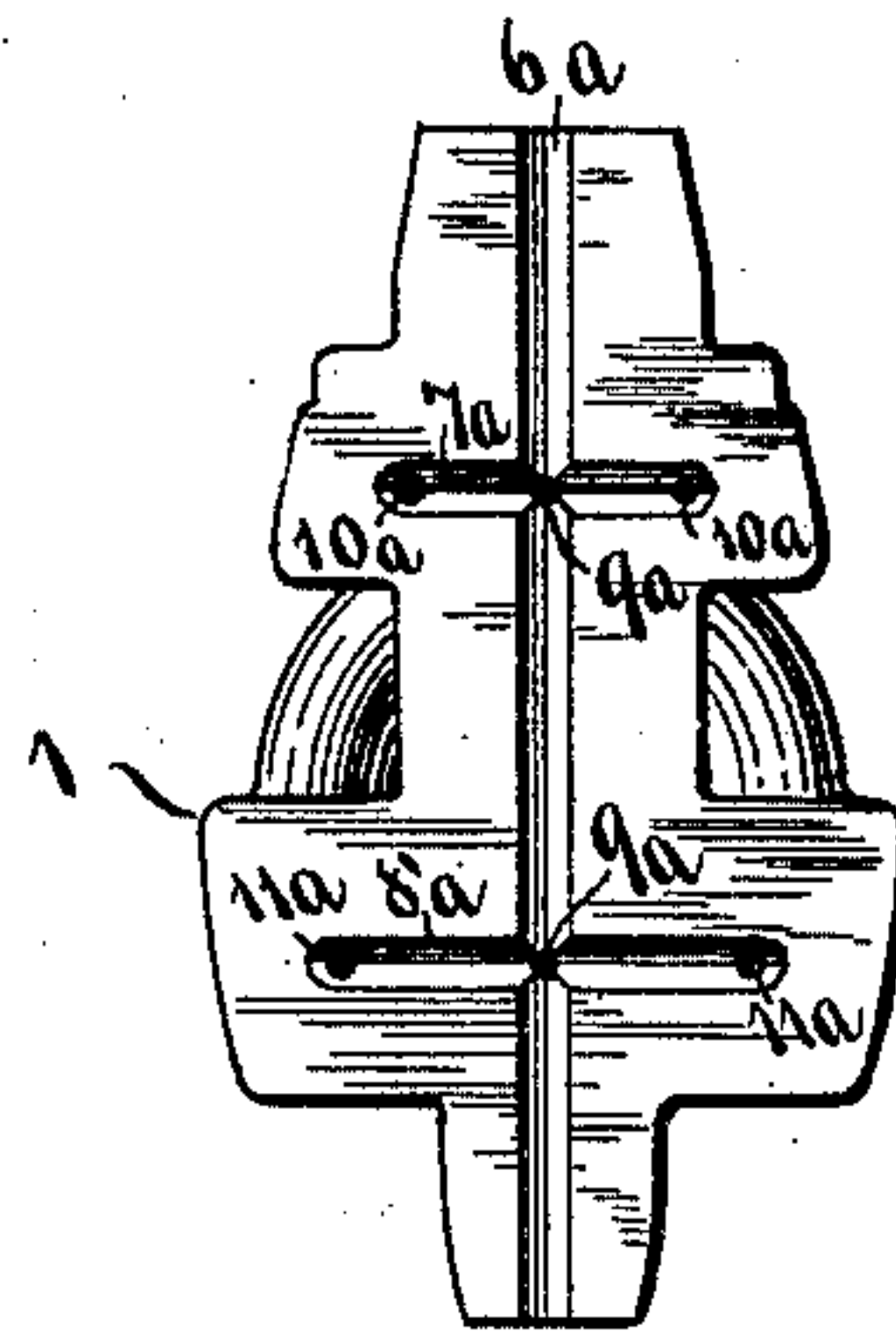


Fig. 2.

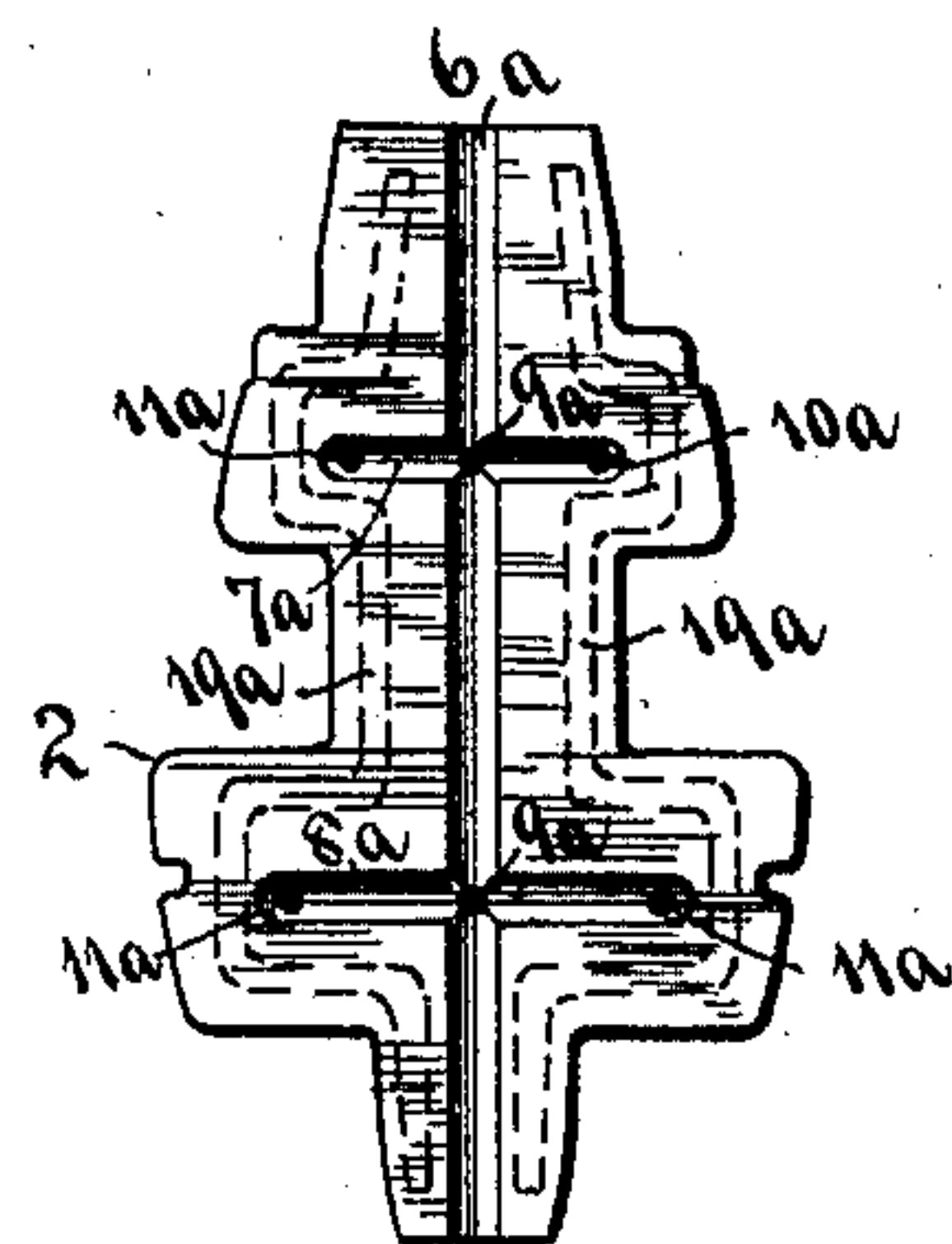


Fig. 3.

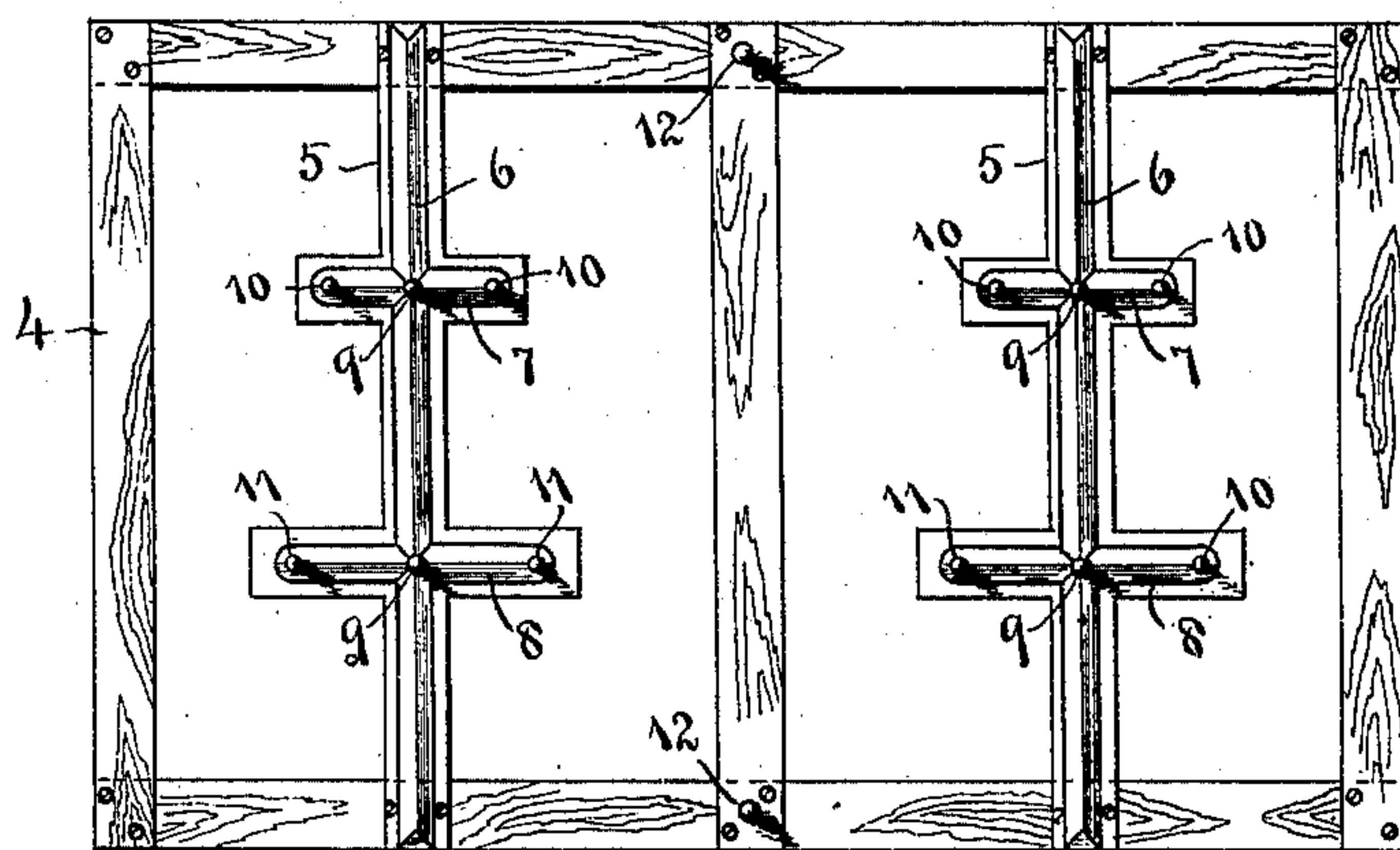


Fig. 4.

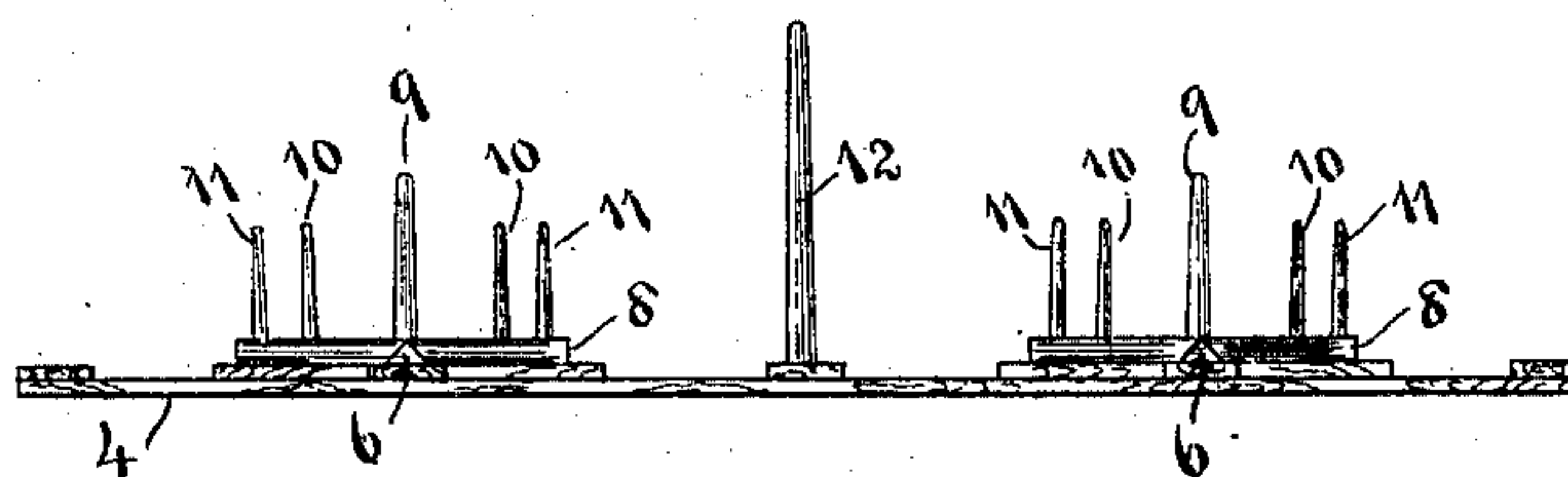


Fig. 5.

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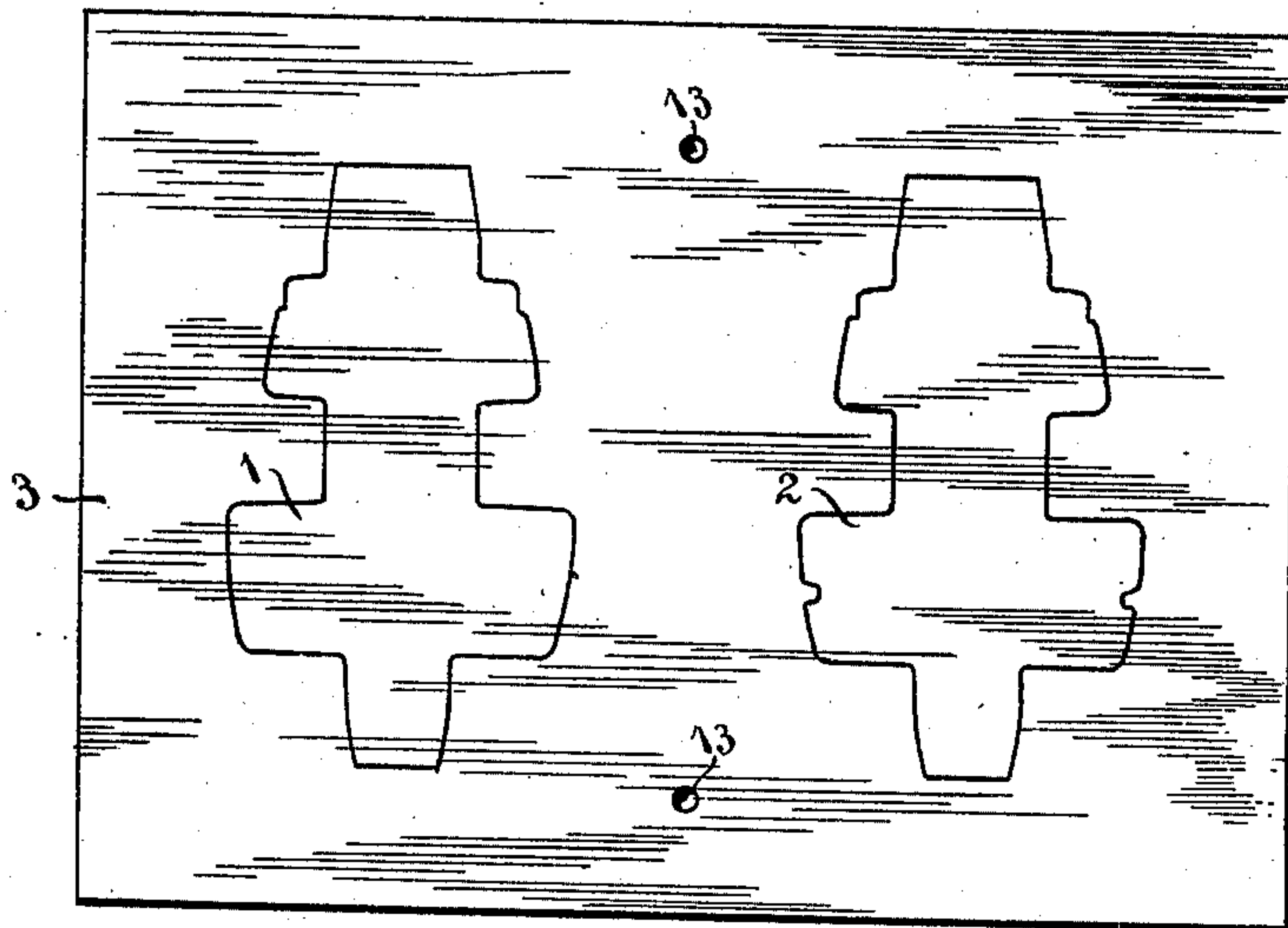


Fig. 6.

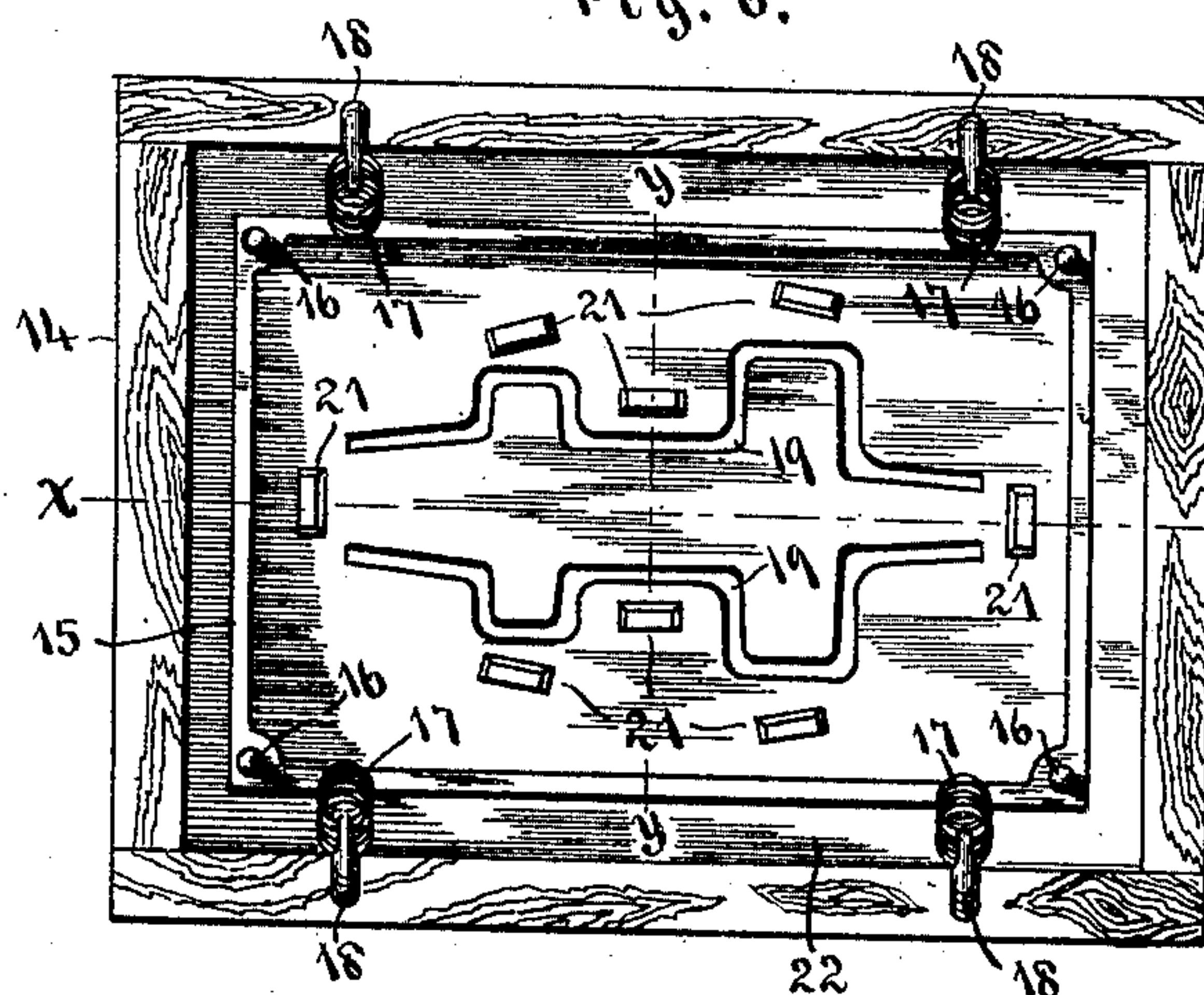


Fig. 7.

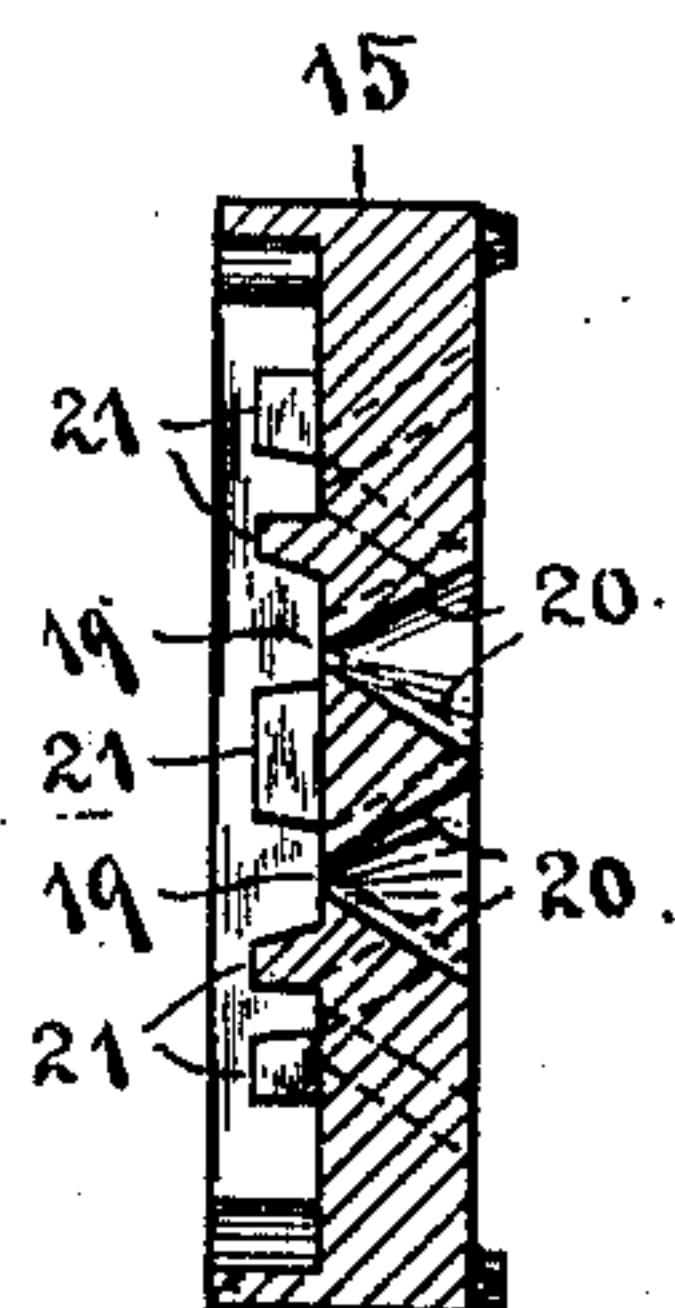


Fig. 9.

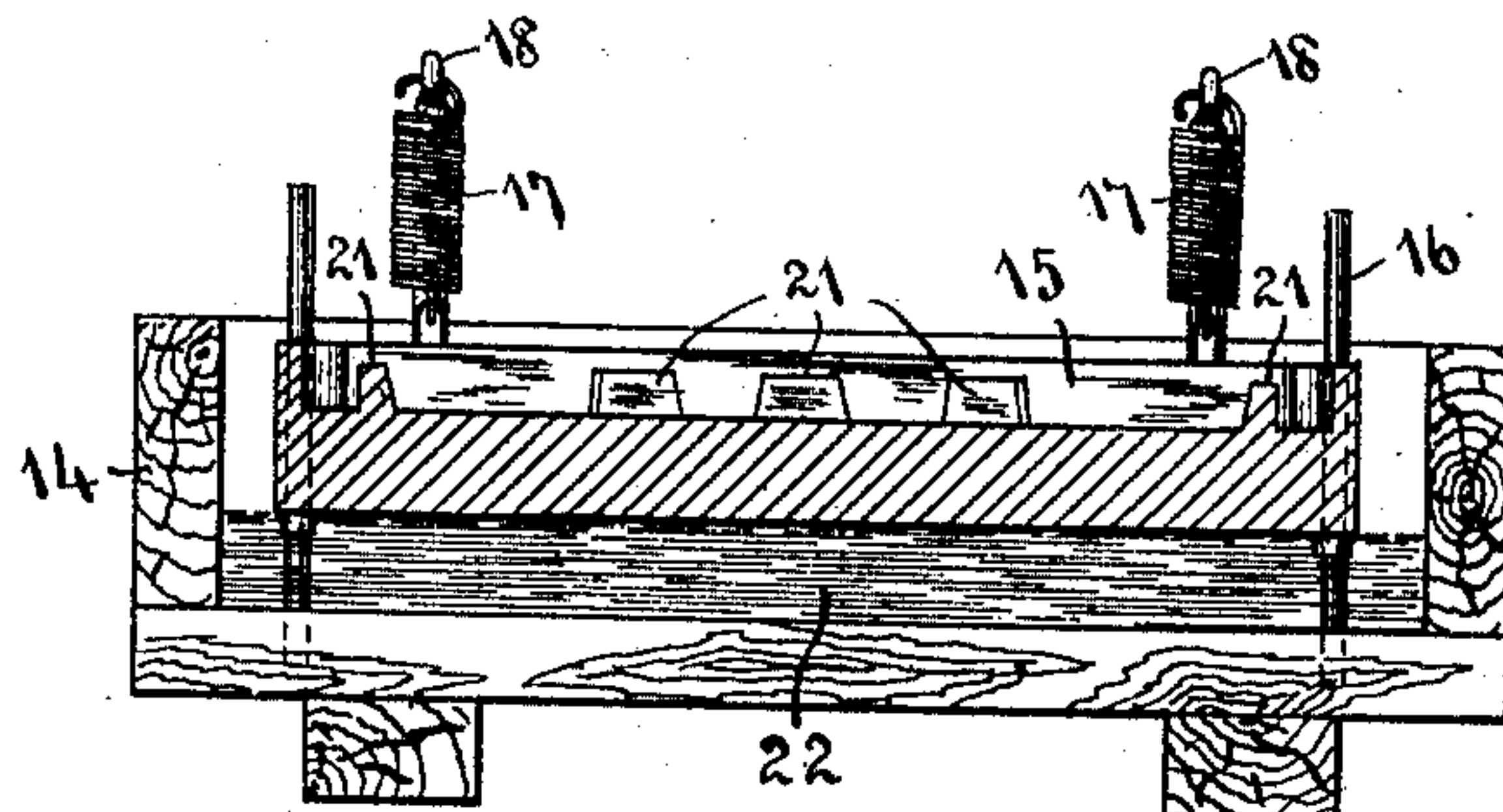


Fig. 8.

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APPARATUS FOR MAKING CORES.

976,648.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed May 20, 1910. Serial No. 562,434.

To all whom it may concern:

Be it known that I, JOHN GOW, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Apparatus for Making Cores, of which the following is a specification.

This invention relates to improvements in the methods and means for forming cores for founding purposes; and my object is to provide apparatus for quickly and accurately applying paste to one of the core parts around and clear from the gas vents, said vents having previously been formed in the core parts in a fixed relation to the peripheral contour of the dividing surfaces thereof, as by means of the apparatus described in connection herewith and claimed in the divisional application hereof, namely, Serial #584,223, filed September 28, 1910.

I attain my object by constructing and applying the several parts of the apparatus in the manner illustrated in the accompanying drawings, in which—

Figure 1 presents, in elevation, a sample of a complete core; Figs. 2 and 3, plan views of the parts of said core, on the dividing plane; Figs. 4 and 5, a plan view and side elevation, respectively, of the vent forming device; Fig. 6, a plan view of a core box adapted to receive the vent forming device when the core molds have been filled and rammed up; Fig. 7, a plan view of a paste applying apparatus adapted to receive one or the other of the core parts, as shown in Figs. 2 and 3; and Figs. 8 and 9, sectional views of the paste applying apparatus on the lines $x-x$ and $y-y$, respectively, in Fig. 7.

Like numerals designate like parts in the several views.

The core, as shown in Fig. 1, by way of example, is to be used in forming automobile bearings; but it will be understood that this invention may be applied to any form of divided core, however simple or complex. This core consists of the two parts, 1 and 2, fastened together by paste, as usual, on the line of division shown in the view. In Figs. 2 and 3, the parts of this core, 1 and 2, are shown separated upon the dividing plane. These two parts are provided, for the escape of the gases in the molding

operation, with vents 6^a, extending from end to end of the longitudinal portions, in order that the gases may escape at each end through the core prints in the mold. From the main vents branch vents 7^a and 8^a are provided for the enlarged portions of the core, said branch vents and the main vent, where intersected thereby at 9^a, 10^a, and 11^a, having vent holes extending into the interior of the body of the core parts. To accurately form these vents on the two parts of the core so that, when said parts are fastened together, the vents 6^a, 7^a, and 8^a will accurately register, I construct the core box in the following manner and apply thereto, after the core molds have been filled, a vent forming device such as shown in Figs. 4 and 5. This device consists of a skeleton frame 4, of wood or metal, provided with cross bars 5, positioned on opposite sides of the center of the frame. Upon these cross bars strips of V- or U-shaped cross section are fastened to form the longitudinal and branch vents in the two parts of the cores; as shown at 6, 7, and 8 on the two cross bars. From these vent forming strips pins 9, 10, and 11 project, the length of said pins corresponding to the depth and contour of the parts of the core into which they will enter. At the center of the frame, and at the opposite sides thereof, pins 12 are provided, said pins being longer than any of the vent forming pins on the cross bars. The core box has the two parts of the core spaced apart to correspond in distance to the distance between the cross bars 5. After the molds have been filled with the core composition, either in a machine or by hand, the print forming frame will be applied by inserting the pins 12 in sockets 13 provided therefor in the core box 3. The frame will then be pressed down, guided into place by the pins 12, until the vent strips 6, 7, and 8 have entered into the cores, thus forming simultaneously the vents in both the core parts in position to accurately register when the core parts are fastened together.

After the vents have been formed the core parts will be removed from the core box and baked in the usual manner. After the baking operation has been completed, one of each pair of core parts will be placed flat side downward in a pan 15, of metal or

wood, (see Fig. 7), which rests upon the surface of a body of paste 22, contained in a receptacle 14. This pan on the upper side of its bottom is provided with a number of guides 21 corresponding to the contour of the core part, so that the said part will be accurately guided into position upon the bottom of the pan over passageways 19 cut through the bottom of the pan; through which passageways the paste will rise into contact with the core part around and out of touch with the vents, as formed thereon. These passageways 19, on the underside of the pan, are provided with beveled edges, as shown at 20 in Fig. 9, to facilitate the rise and fall of the paste through the passageways. When the core part is in place upon the bottom of the pan, a slight pressure downward will force the paste up through the passageways 19, causing the paste to be applied evenly and only where wanted upon the division face of the core part, (see broken lines 19^a in Fig. 3). The core part will then be removed from the paste applying apparatus, and placed in position against the other part of the core, and put aside for the paste to set. If desired, the paste may be applied to both parts, the lines of paste coinciding when the two parts are applied to one another.

The pan 15 may be either allowed to float freely upon the surface of the paste, or it may be held in position at the center of the paste receptacle by means of guidepins 16, which rise through guide ways formed at the four corners of the pan; and the pan may be hung upon spring supports 17, attached to posts 18, which project upwardly from the sides of the receptacle. As so arranged the pan will be evenly guided in its descent into the paste, when pressed upon, thus avoiding the possibility of tilting the pan so that the paste will not be evenly applied at the opposite sides of the central vent. The spring supports quickly return the pan, when relieved of pressure, to its normal position with the top of the passageways 19 above the level of the paste; the tension of the springs being sufficient to overcome the weight of the core part regardless of what may or may not be the buoyancy of the pan.

While I have described the application of my invention to a core box containing molds for but one core, it will be understood that the venting frame and the core box may be so constructed as to form and vent but one core part at a time, or more than a single pair of core parts, by a simple reduction, or

duplication or multiplication of the requisite parts of the box and frame.

Where castings are being made in large quantities, this combined apparatus will be found to greatly simplify and perfect the making of the cores, to say nothing of the time that will obviously be saved in venting and pasting the cores. The expense of making the venting frame and pasting pans for the different core forms will be slight in comparison with the time and cost reduction.

What I claim as my invention and desire to secure by Letters Patent is—

1. Apparatus for applying paste to the joint surfaces of a core part comprising a member provided with passageways and with guiding means contiguous to said passageways, whereby the core part may be applied to said member in a fixed position relative to the passageways and with its gas vents free therefrom, and means for applying paste to the core part through the passageways.

2. Apparatus for applying paste to the joint surfaces of a core part comprising a pan resting upon a bath of paste and provided with passageways through its bottom and with guiding means contiguous to said passageways whereby said part, when applied to the bottom of the pan, will rest in a fixed position thereon with its gas vents free from said passageways and, when pressed downward, will receive the paste through said passageways.

3. Apparatus for applying paste to the joint surfaces of a core part comprising a paste receptacle, a pan resting over a bath of paste contained therein, means for guiding the pan for vertical movement in the receptacle, and spring connections between the pan and receptacle for imparting an upward movement to the pan after depression in the bath, the bottom of the pan being provided with passageways through its bottom and with guiding means contiguous to said passageways whereby said part, when applied to the bottom of the pan will rest in a fixed position thereon with its gas vents free from said passageways and, when pressed downward, will receive the paste through said passageways.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JOHN GOW.

Witnesses:

E. W. VEEDEN,
J. H. MEEHAN.