

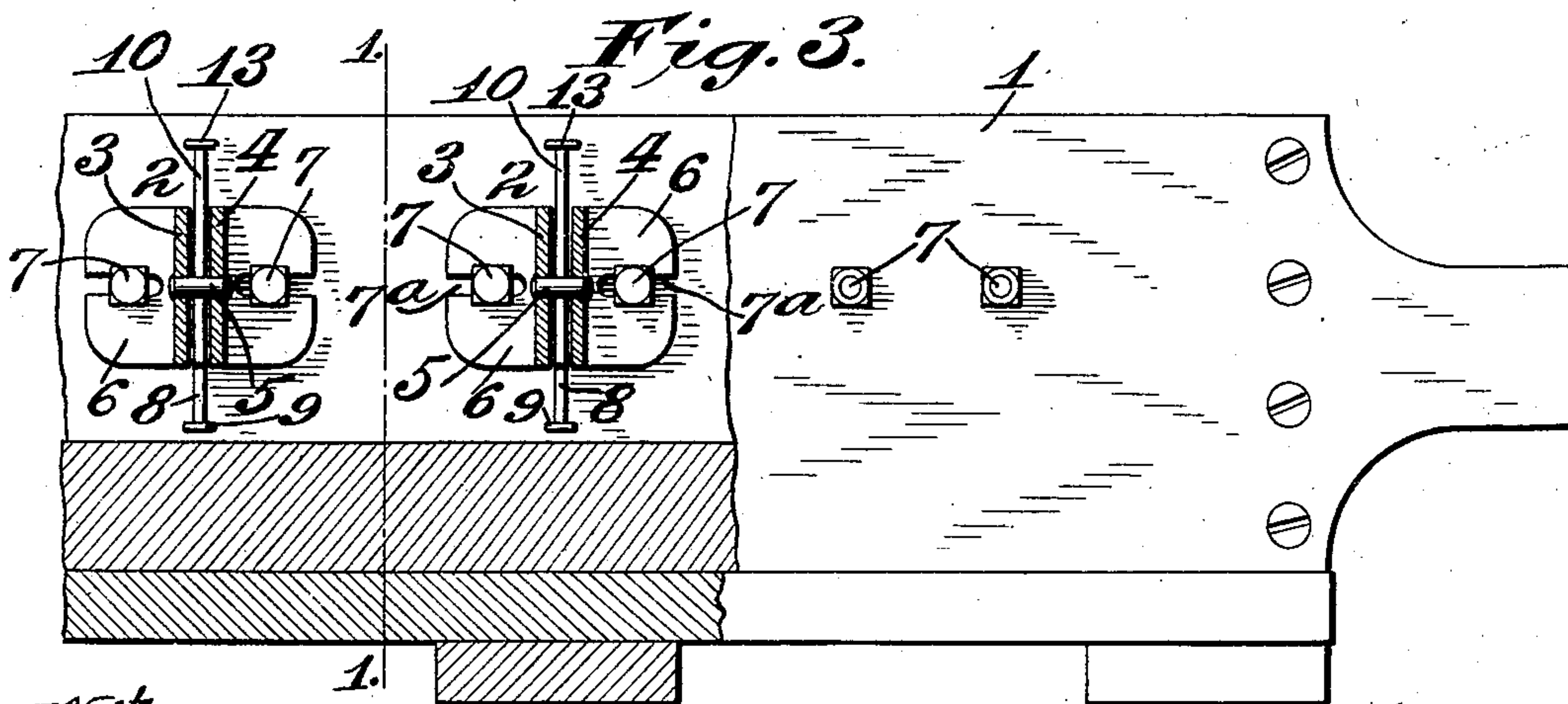
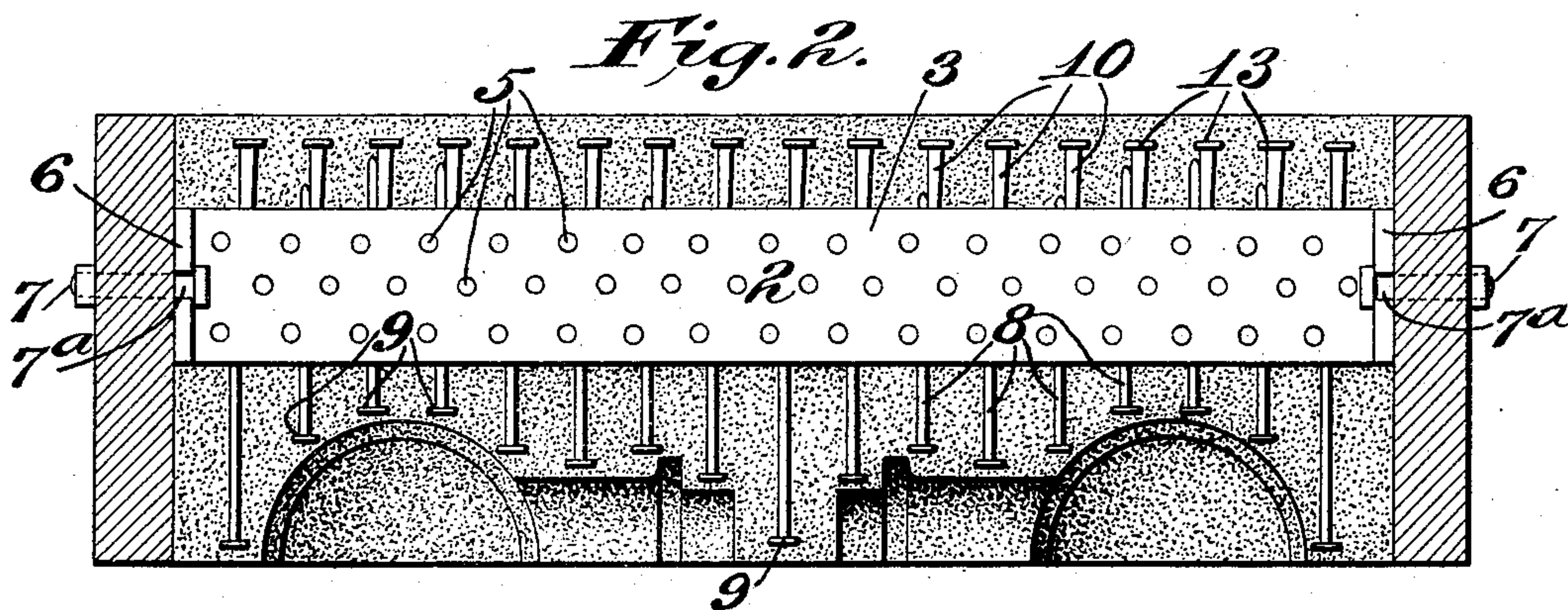
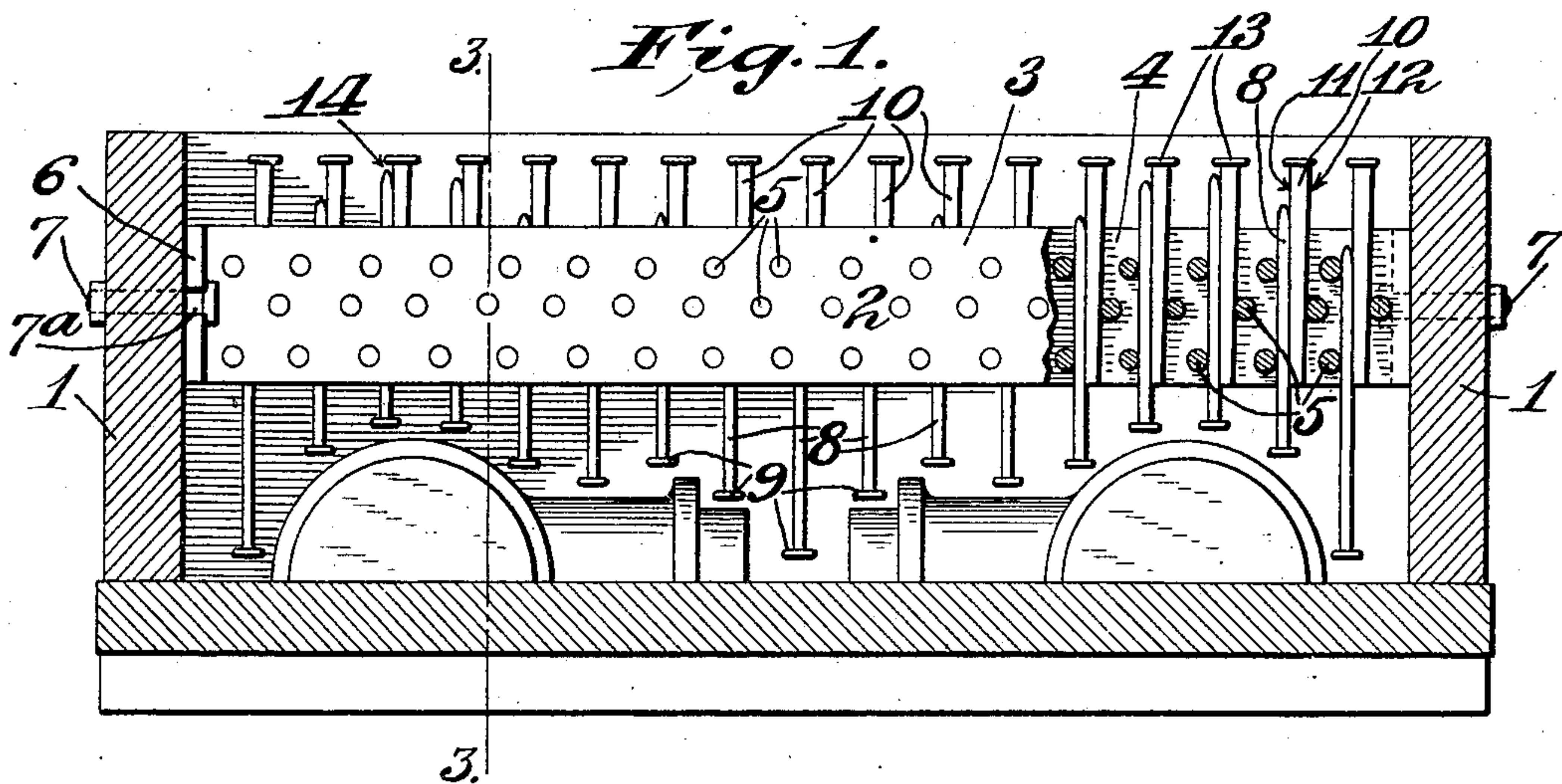
No. 880,397.

PATENTED FEB. 25, 1908.

D. PARKS.
MOLDER'S FLASK.

APPLICATION FILED AUG. 15, 1907.

2 SHEETS—SHEET 1.



Witnesses:
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Clara Conley

Inventor:
Dennis Parks,
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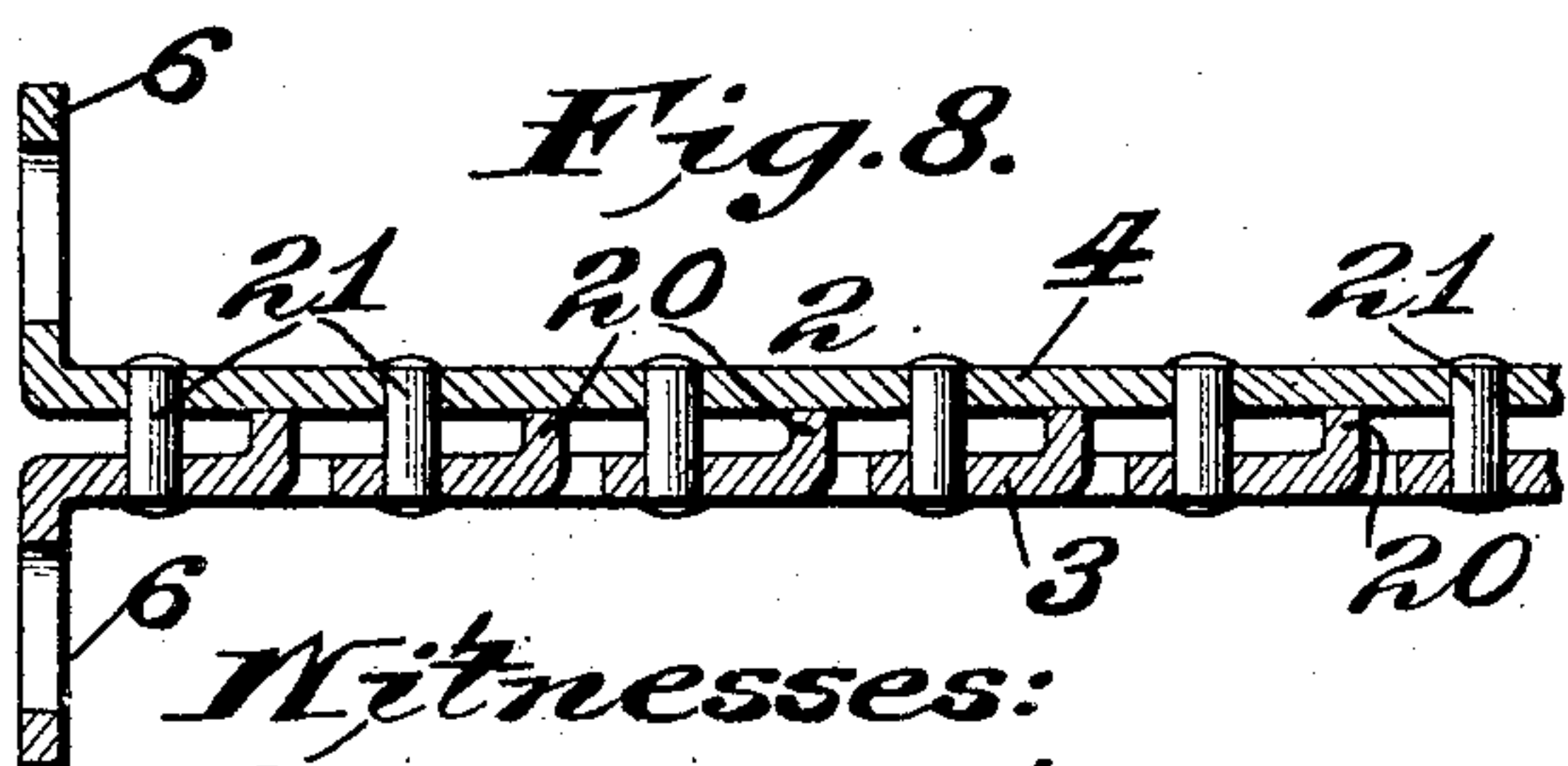
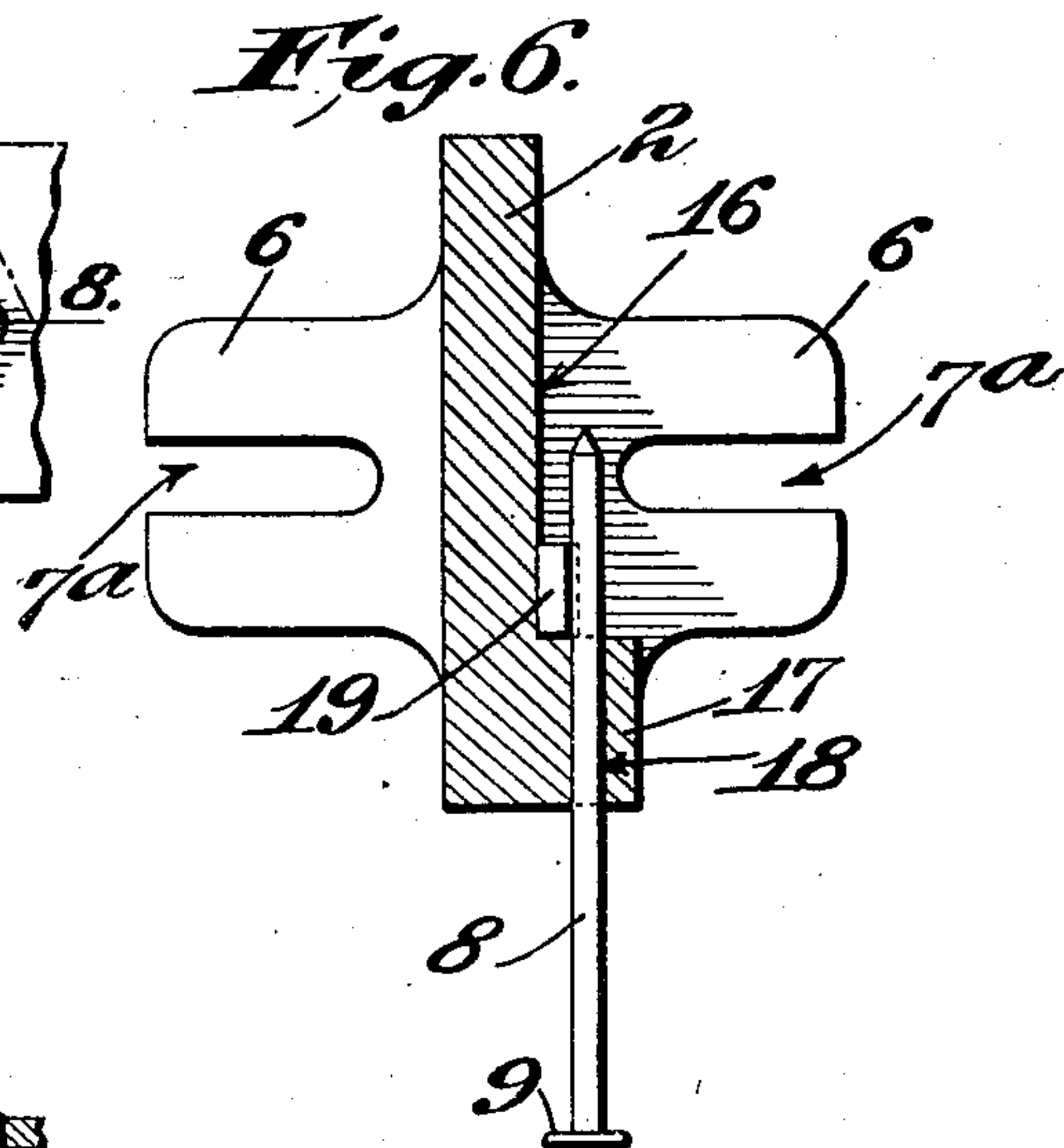
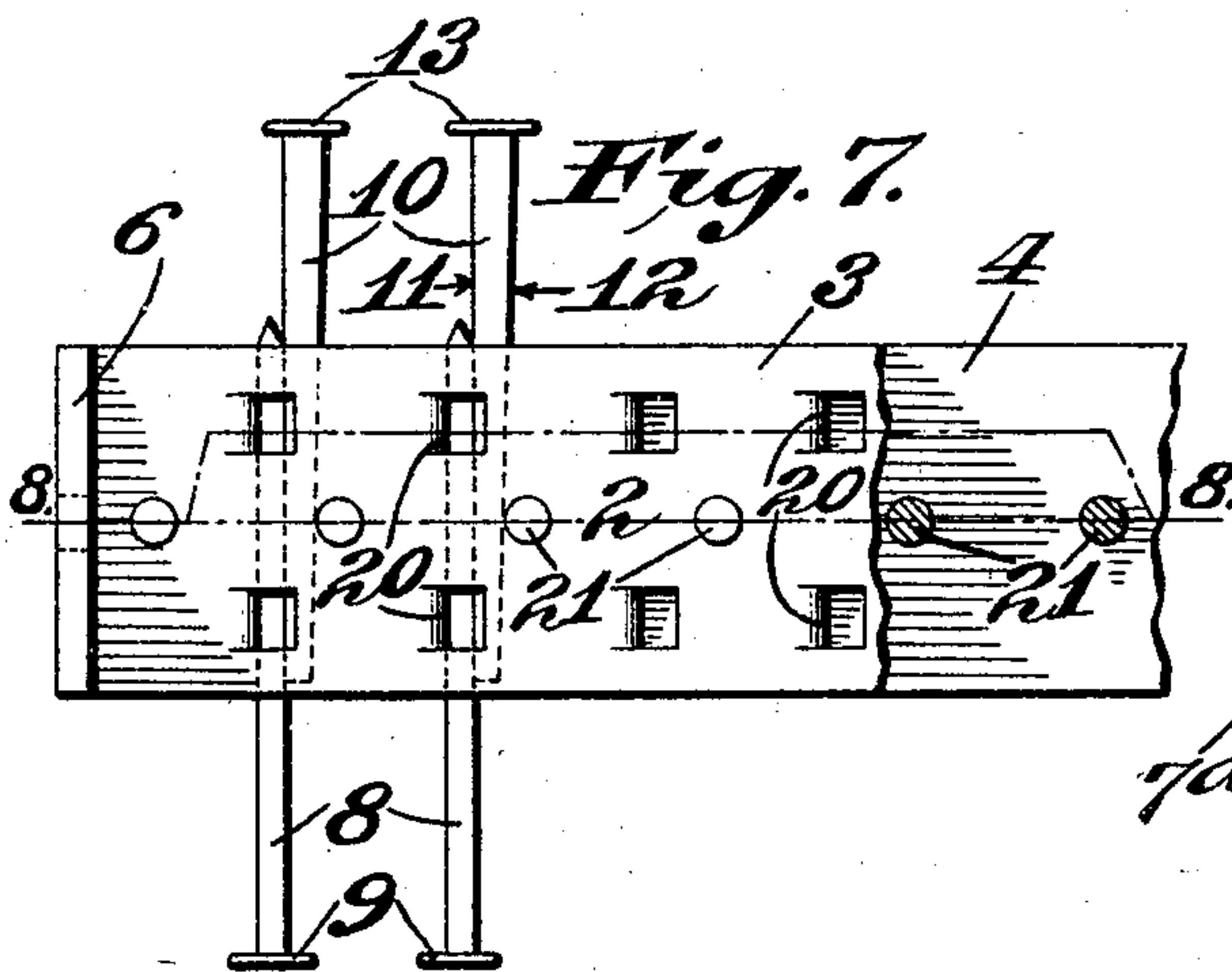
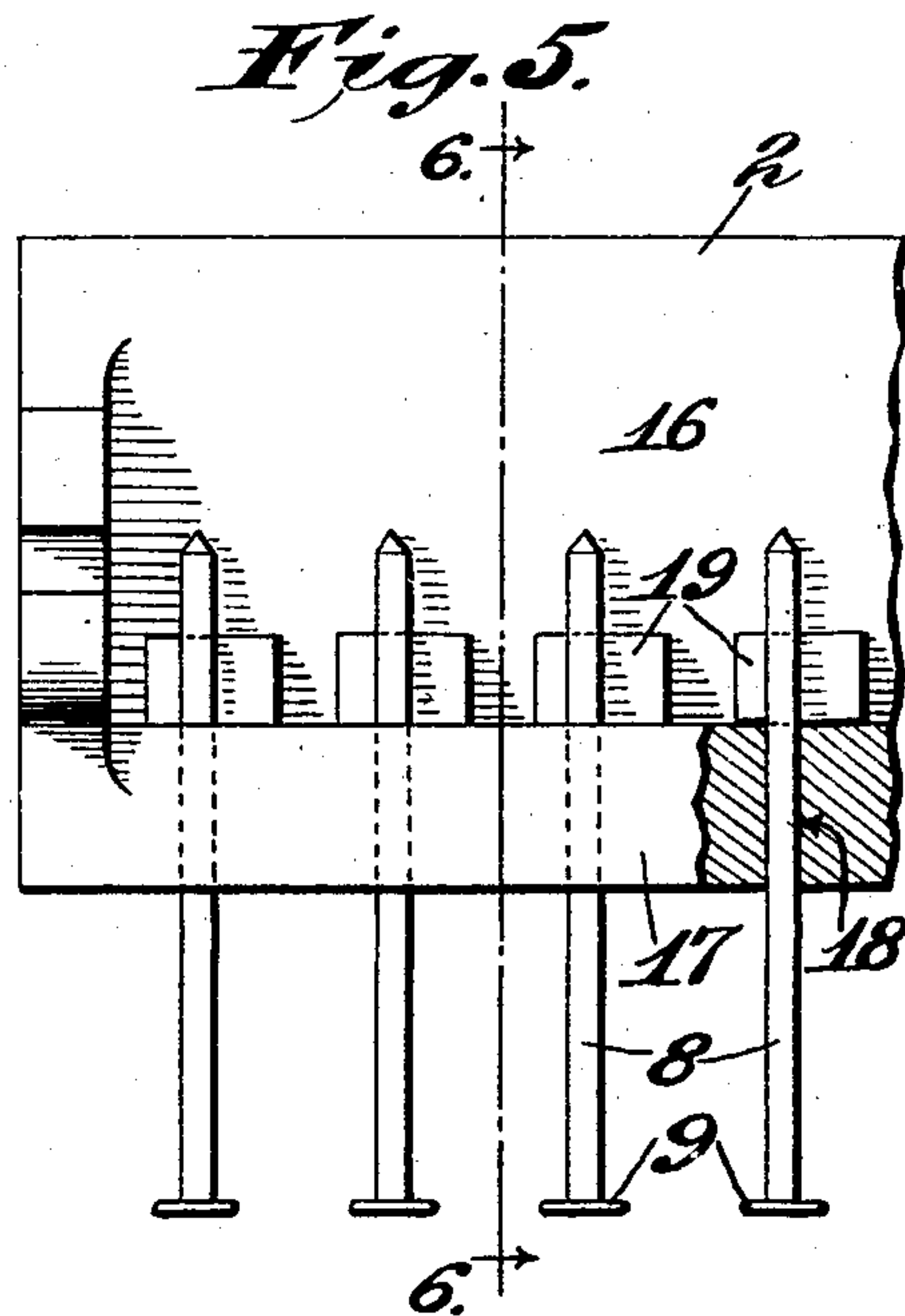
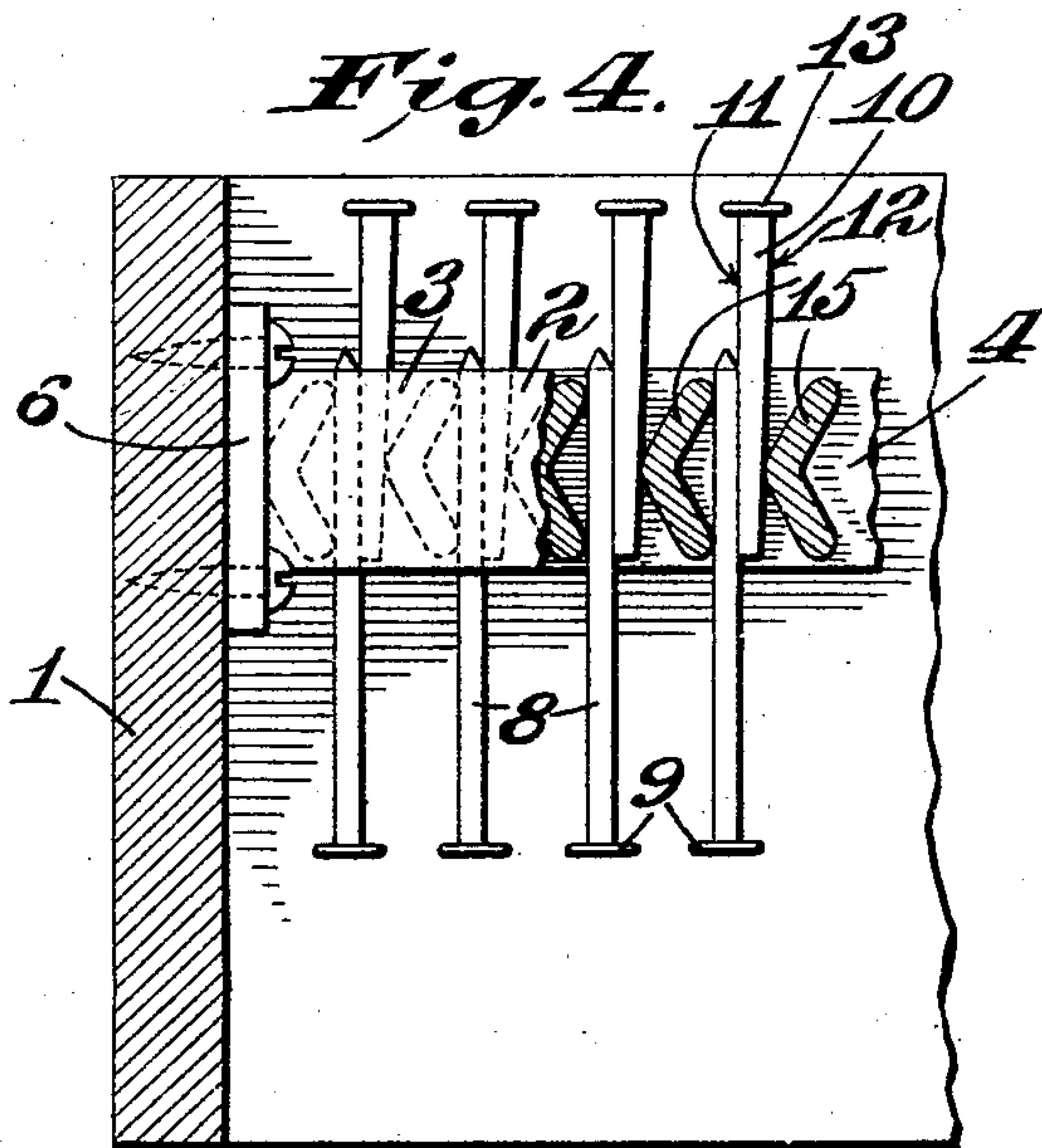
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UNITED STATES PATENT OFFICE.

DENNIS PARKS, OF ST. LOUIS, MISSOURI.

MOLDER'S FLASK.

No. 880,397.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed August 15, 1907. Serial No. 388,589.

To all whom it may concern:

Be it known that I, DENNIS PARKS, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented new and useful Improvements in Molders' Flasks, of which the following is a specification.

This invention relates to the art of molding, and has for its object improvements in the construction of the flask, or receptacle, used by the molder for containing in molded form the sand which has been packed about the pattern.

The invention aims to provide a flask, or flask member, in which provision is made for accommodating patterns of varying heights and configurations, and for insuring the firm retention of the molded sand in the flask after the pattern has been withdrawn.

The invention is directed, more particularly, to the cope, or upper member of the flask, which, after the sand has been packed therein about the pattern must be turned and the pattern withdrawn, and then turned again and placed in position on the drag or lower member of the flask.

In a companion application, filed August 15, 1907, Serial No. 388,588, I have set forth at some length the difficulties which have been experienced in providing means for securely holding the sand in the cope so that it will not fall out when the cope is turned over, and some of the means which have been employed for obviating this difficulty.

The present invention is directed to cover certain forms of construction, differing from that described and illustrated in said companion application, but coming within the broad principle of the invention outlined and claimed therein, and designed to accomplish the same results.

The object of the present invention may be briefly stated, therefore, to be the production of a flask member having means for adjustably and removably mounting a series of sand-supports, or anchors, therein in such manner as to render the same capable of use with any shape or configuration of pattern whatsoever within the limits of the capacity of the flask, and so that the same flask member, or cope, may be used with different patterns, in such case requiring merely an adjustment of the sand-supports to conform to the particular shape of the pattern to be molded.

I accomplish the object of my invention by the means illustrated in the accompanying drawing in which:

Figure 1 is a cross-sectional view through a cope provided with my improvements, one of the bars for holding the sand-supporting devices being shown partly in elevation and partly in section, the sand-supports being shown adjusted to have their lower headed ends conform to the outline of two patterns, and the cope, as a whole, being in readiness to have the sand packed therein about said patterns; Fig. 2 is a view similar to Fig. 1, but with the patterns removed to show the manner in which the packed sand is held in the cope by the sand-supports; Fig. 3 is a view showing the cope partly in elevation and partly in section, the view being on a line at right angles to that of Figs. 1 and 2; Fig. 4 is a broken sectional view of one of the bars, illustrating a modified form of locking-members for the sand-supports; Fig. 5 is a view in front elevation of a portion of a bar illustrating a further modification; Fig. 6 is a cross-section through the bar shown in Fig. 5; Fig. 7 is a view in front elevation of a portion of a bar illustrating a modified construction of the locking-members; and Fig. 8 is a cross-section through the bar illustrated in Fig. 7.

Referring now to these drawings, more particularly to Figs. 1, 2 and 3, 1 indicates the frame of the cope, 2 bars running from side to side of said cope and secured therein in spaced parallel relation. The bars 2 are compound bars, as shown by the several views, the two members 3, 4 of each bar being united by a series of bolts 5, arranged in a particular manner, serving also as locking members, as hereinafter described. Each of the members 3, 4 has its outer end bent outward at right angles to its body to form flanges 6, by means of which the bars are secured in the cope by bolts 7, passing through slots 7^a. The bolts 5 extending between the members 3, 4 of each of the compound bars 2 are triangularly disposed. In each case the two bolts lying in the base of one triangle form with the bolt at the apex of the adjacent triangle, a means for locking the sand-supporting devices in the bar. Each of the sand-supports is substantially in the shape of an ordinary wire nail, comprising a cylindrical body portion 8, provided at one end with a head 9. These sand-supports are

locked in adjusted positions by means of a series of wedge-shaped keys 10, each of which has a straight side 11, and a tapering side 12.

In operation each sand-support is inserted 5 in the space between three of the bolts 5, and, as shown, when adjusted to the proper height the key 10 is inserted with its straight side against the rod 8, and its inclined side against the single bolt 5. A slight tap with a hammer 10 on the top of the key 10 is all that is necessary to firmly lock the rod 8 in position. This is largely due to the fact that the single locking-member 5 is positioned mid-way 15 between the other two locking-members, and hence when the key 10 is forced into engagement with the single locking-member the tendency of this engagement is to spring the rod 8 outward between the locking members 5. The rod 8 is, of course, not permanently bent in thus being locked, and the displacement would not even be noticeable, yet at the same time, the spring is sufficient to secure a very firm engagement between the members 5, the shaft 8, and the key 10. 25 Owing to this spring-lock there is absolutely no danger of the sand-supports jarring loose and falling out. At the same time the keys may be readily released by a slight blow on their inner end. The keys 10 may be provided with heads 13, and the heads of the keys are in practice located a short distance below the upper surface of the cope, so as not to project above the sand filling. The adjustment inward of the sand-supports is 35 limited practically to the distance the keys 10 project upward beyond the upper edges of the bars 2, the extreme limit of adjustment being indicated at the point 14 in Fig. 1. Furthermore, as the engaging surfaces between the shafts 8 and keys 11 are straight, 40 whereas the opposite sides of the keys engaging the single locking-member 5 are inclined, said keys, subject to wear by abrasion, can only descend a short distance 45 between the locking-members when the sand-supports are in place and are maintained at a substantially uniform height.

I have shown two patterns in position in the cope in Fig. 1, merely for the purpose of 50 better illustrating the adaptability of the sand-supports to adjustment to desired positions. Several ways of positioning the sand-supports will suggest themselves to those skilled in the art, any one of which will 55 probably be as good as another. For instance, with some patterns the sand-supports might be permitted to fall down on the pattern, thus automatically adjusting themselves about the same, and then each sand-support could be slightly raised by the operator 60 and the key driven home; or the sand-supports may be placed in position, one at a time, and locked by the key at the desired height above the pattern. In the event that 65 in any given position of a bar 2 its sand-sup-

ports should not be capable of being positioned as desired with respect to the pattern, the slots 7^a in the flanges 6 provide for laterally adjusting the bars so as to bring them to a position where the sand-supports will be 70 properly located with respect to the pattern. No vertical adjustment of the bars 2 is necessary, or indeed practicable, for the reason that the space between the top of the bars 2 and the upper edge of the frame 1 of the cope 75 is practically fixed by the very exigencies of the case. In other words, the body of sand above the bars 2 must in practice be about the relative depth shown in the drawings in order to provide for securely holding the sand 80 in position in the cope. As a matter of fact, the range of adjustment of the sand-supports is sufficient to accommodate within the cope as large patterns as can practically be accommodated in the same size of cope specially 85 constructed for the purpose.

In Fig. 4 I have shown a modified construction of the locking-members, that is to say, in place of the bolts 5 I have employed angular bridge-pieces 15, the base of each of 90 which serves as a locking-member in connection with the apex of the adjacent bridge-piece. In the event that this construction should be employed I would preferably form the bars 2 of cast-iron, the bridge-pieces 15 95 extending between, and being cast integral with, the two members of the bars.

According to the construction shown in Figs. 5 and 6 each bar 2 is provided with a cut-away portion 16, extending longitudinally 100 of the bar to near opposite ends thereof, said cut-away portion providing at the lower edge of the bar a projecting flange 17 through which extends a line of vertically-disposed apertures 18, said apertures extending 105 from one end of the flange to the other, and being located an equal distance apart. 19 indicates wedge-shaped keys, one of which is employed for each sand-support. In operation a sand-support, or nail, 110 being inserted in an aperture 18 and adjusted to the proper height therein, the key 19 is placed behind the pointed end of the nail with its inclined surface bearing against the nail and is driven in to slightly deflect 115 the nail and lock it in position in its aperture, as will be understood. It is not essential to drive the wedges far enough in between the nail and the wall of the recess 16 to bend the nail, as a slight binding action is 120 all that the circumstances of the case require. The fact that the nail will slightly spring out without becoming permanently bent, will also assist in the present construction in securing a firm locking of the 125 nail in a somewhat similar manner to that previously described with reference to the construction of Fig. 1.

The construction illustrated in Figs. 7 and 8 varies from that shown in Figs. 1, 2 and 3 130

only in the manner of providing the locking members. In the present instance two of these locking-members are formed by cutting one member, 3, of the compound bar at two points in a vertical line and at equal distances apart throughout the length of the bar to form tongues 20; these tongues are bent inward at right angles to the member 3, so as to engage the inner side of the opposite member 4 when the two members are secured together. These tongues 20 form two points of the locking-member, the third point being formed in each case by a bolt 21, a row of said bolts extending longitudinally of the bar and serving to secure the two members 3 and 4 together. The sand-supports are secured in position in the same manner as described with reference to the construction shown in Figs. 1 and 4.

It will be seen that a cope provided with my improved bars and sand-supports may be advantageously employed in any of the several systems of molding now in vogue. For instance, in systems where match-boards are employed and drawn from the cope, as well as in systems where the cope is placed on the packed drag the upper half of the pattern secured in position on the half of the pattern in the drag, and the sand then packed in the cope. I have not thought it necessary to describe in detail the operation of preparing the flask for receiving the molten metal, as such operation is well known.

The use of a cope provided with my improvements will, to a large extent, obviate the necessity of foundries doing a general foundry work making a special cope for each particular pattern, and thus save the multiplication of flasks, or copes, and consequently the time and money heretofore necessary to be expended thereon. I contemplate under my invention constructing the cope as a whole, or furnishing each foundryman, desiring to adopt my invention, with my improved bars and sand-supporting devices, as said bars may be readily substituted for the wooden bars in the copes he may have on hand, and as many foundries have several thousands of dollars invested in flasks, they will thus be saved the necessity of buying entirely new flasks.

I claim:

1. A molder's flask provided with a series of supports, a series of sand-anchors adjustable in said supports, and means for locking each anchor in its adjusted position.

2. A molder's flask provided with a series of supports, a series of sand-anchors adjustable in said supports, and keys for locking each anchor in its adjusted position.

3. A molder's flask provided with a series of supports, a series of sand-anchors adjustable in said supports, and removable means for independently locking each sand-support in its adjusted position.

4. A molder's flask provided with a series of supports carrying locking-members, a series of sand-anchors insertible in said locking-members and adjustable therein vertically, and means coöperating with a locking-member and a sand anchor for securing the latter in said support in the desired adjusted position.

5. A molder's flask provided with a series of spaced parallel bars having locking-members, a sand-anchor insertible in each locking-member and adjustable vertically therein, and a key for locking each sand-anchor in the desired position in its bar.

6. A molder's flask provided with a series of spaced parallel compound bars each of said bars having extending between its two members a row of locking members, and sand-supports adapted to be adjustably secured in the locking-members.

7. A molder's flask provided with a series of spaced parallel compound bars, each of said bars having extending between its two members a row of angularly-disposed locking-members, and sand-anchors adapted to be adjustably secured between adjacent locking-members.

8. A molder's flask provided with a series of spaced parallel compound bars, each of said bars having between its two members and extending substantially from end to end of the bar, a row of angularly-disposed locking members, the vertices of which point in the same direction, and the body of each locking-member at the vertex thereof forming with the end portion of the adjacent locking-member the locking surfaces, and sand-supports adapted to be secured between said locking-members.

9. A molder's flask provided with a series of spaced parallel compound bars capable of horizontal adjustment, a series of locking-members extending between the two members of each bar, sand-supports insertible in said locking-members and vertically adjustable therein, and means for removably securing the sand-supports in the locking-members.

10. A molder's flask provided with a series of spaced parallel compound bars, each of said bars having extending between its two members a row of angularly-disposed locking-members having their vertices pointing in the same direction, a series of sand-supports, each of which has a shank insertible between two of said locking-members, and a key insertible in the space between said shank and the vertex of the adjacent locking-member, and having a tapering side bearing on the latter, whereby, when the said key is driven home, the action will result in springing said shank slightly outward in the space between the ends of the locking-member against which it rests, thereby forming a spring-lock.

11. A molder's flask provided with a series of compound bars adapted to receive sand-supports, each of said bars having its two members turned outward at right angles to form flanges, said flanges being provided with elongated slots, and bolts securing said bars in the flask through said slots, whereby the bars are capable of horizontal adjustment.

10 12. A bar for a molder's flask comprising two members secured together in parallel relation, and having between them, and extending substantially from end to end of the bar, a series of locking-members.

15 13. A bar for a molder's flask comprising two members secured together in parallel relation, and having between them and ex-

tending substantially from end to end of the bar, a series of angularly-disposed locking-members.

14. A compound bar for a molder's flask having its two members turned outward at right angles at its ends and provided with elongated slots and a series of locking members located between the two members of the bar and extending substantially from end to end thereof.

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

DENNIS PARKS.

Witnesses:

W. P. FRENCH,

WM. WILLIAMSON.