

B. WOLHAUPTER & B. G. BRAINE.

RAIL JOINT PATTERN.

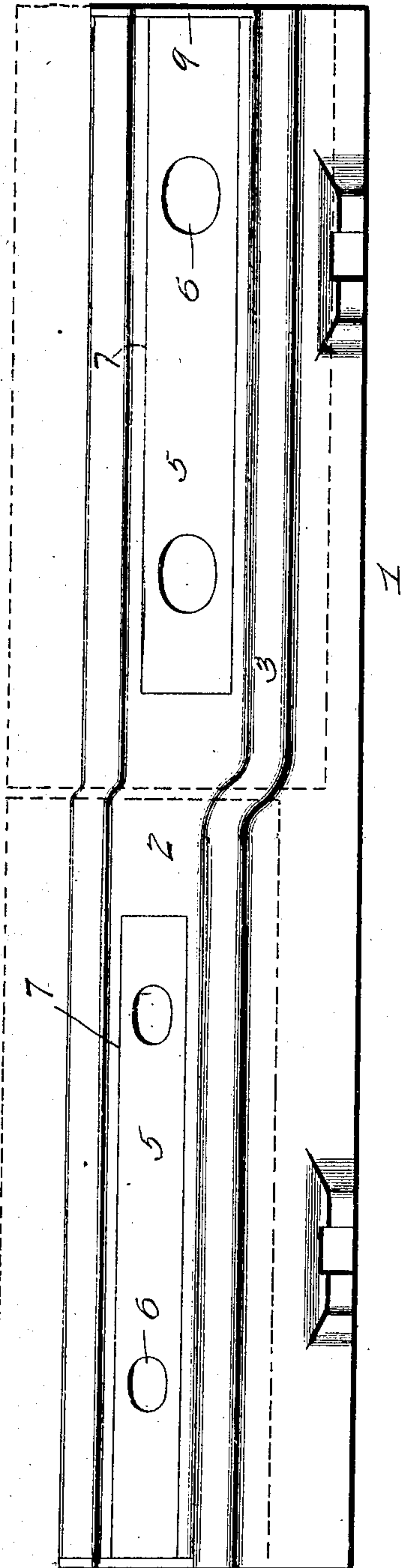
APPLICATION FILED JAN. 2, 1908.

925,738.

Patented June 22, 1909.

4 SHEETS—SHEET 1.

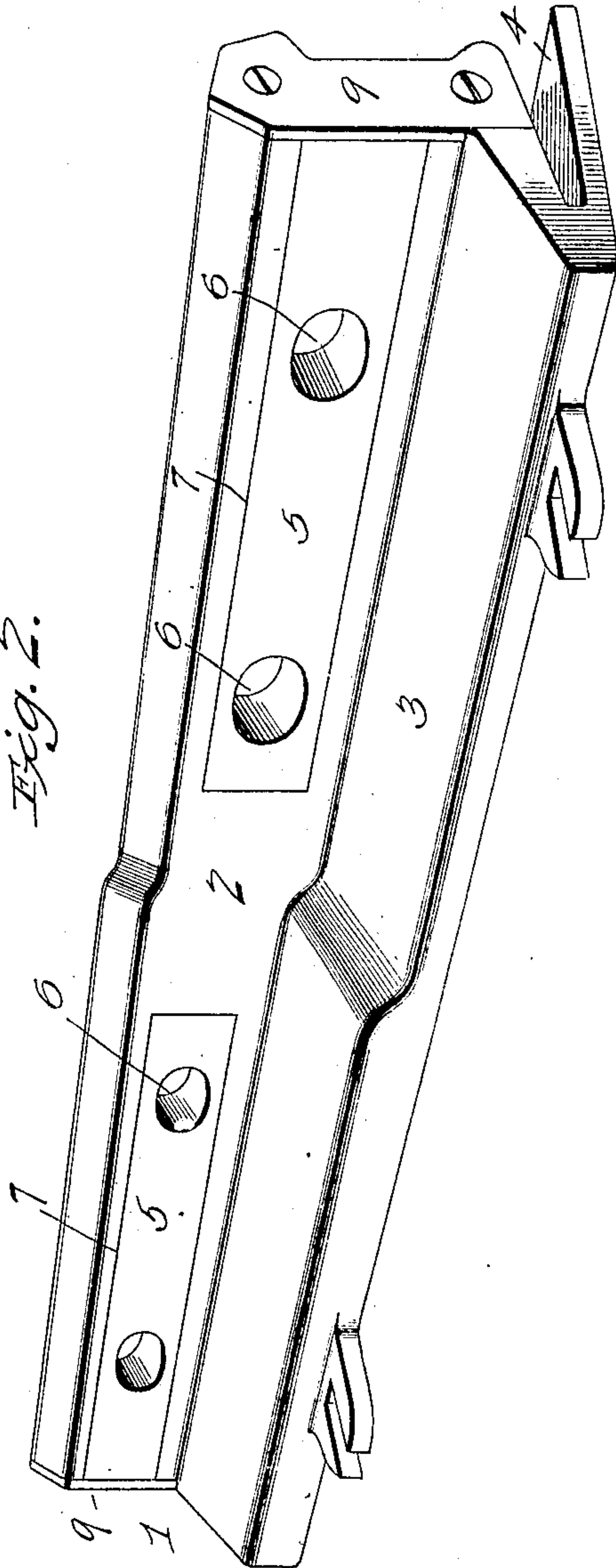
Fig. 1.



Witnesses

J. L. Moersch
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Fig. 2.



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4 SHEETS—SHEET 2.

Fig. 5.

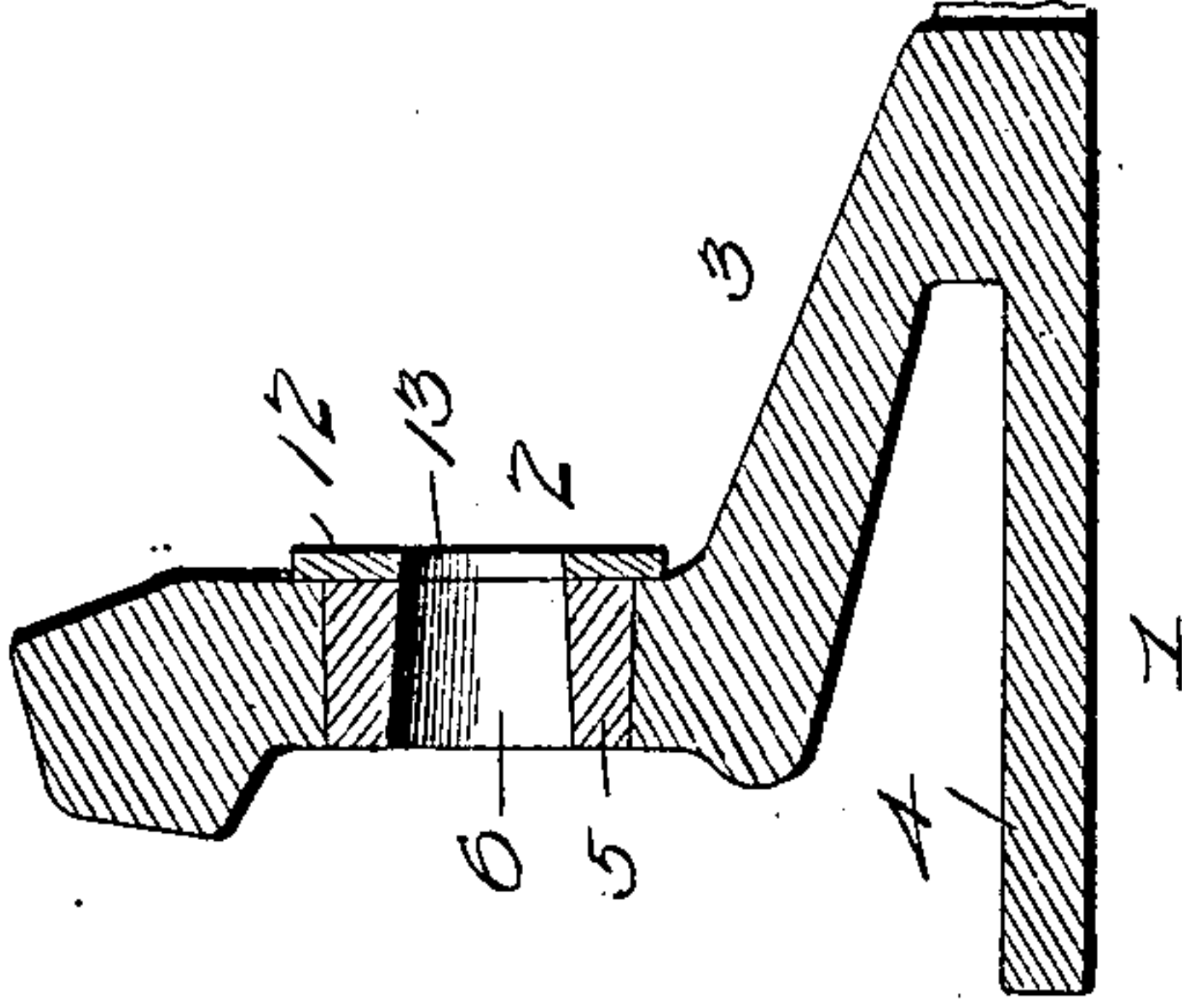


Fig. 4.

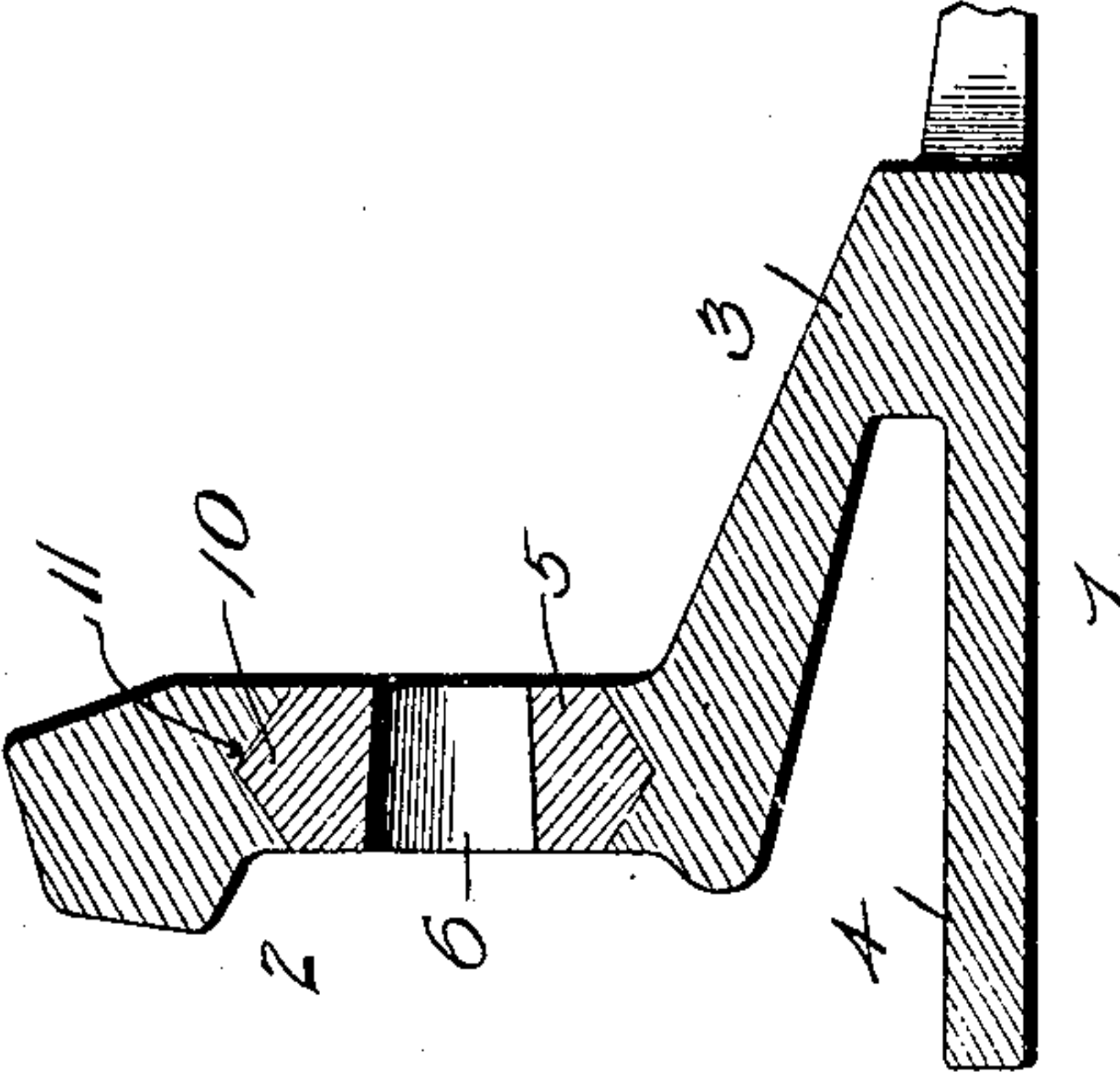
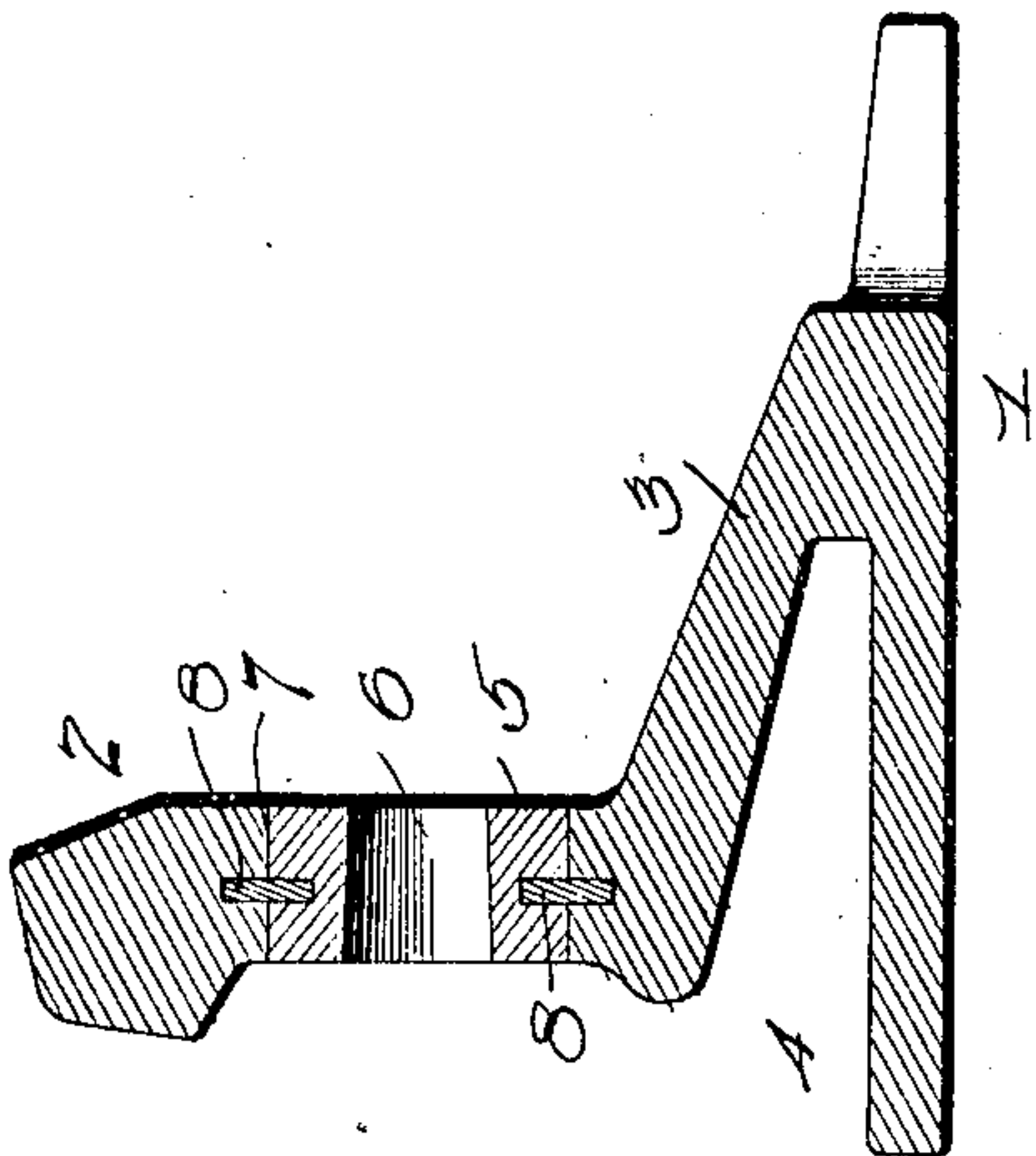


Fig. 3.



Witnesses

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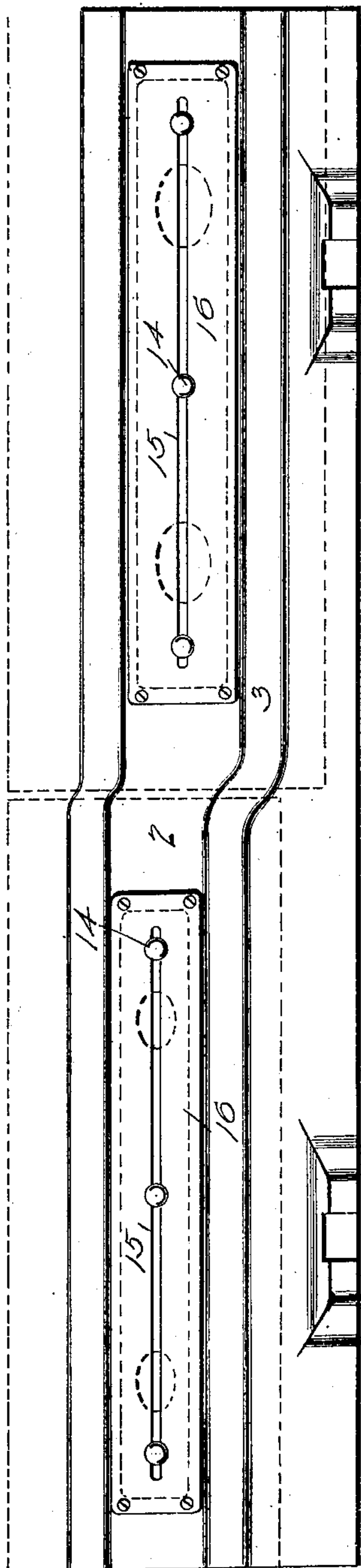
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4 SHEETS—SHEET 3.

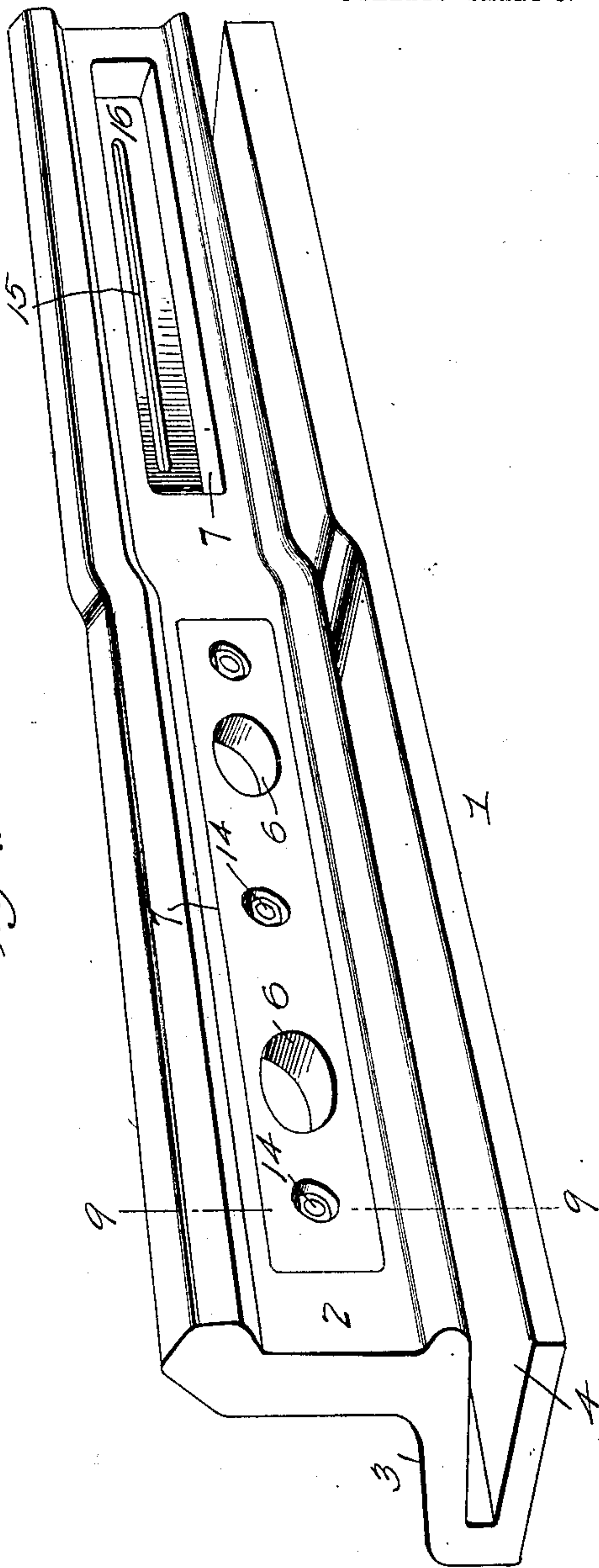
Fig. 6.



Witnesses

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Fig. 7.



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4 SHEETS—SHEET 4.

Fig. 8.

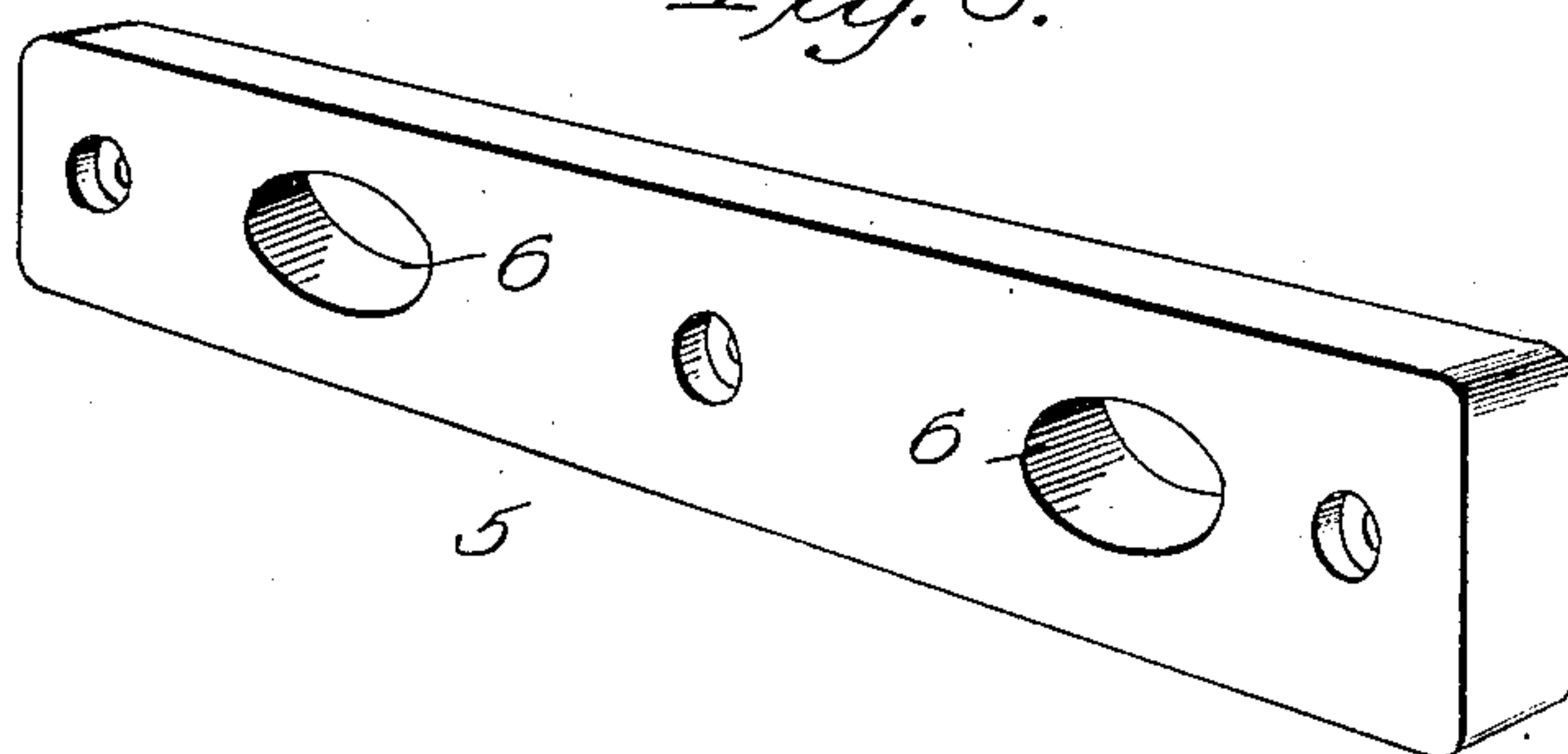


Fig. 9.

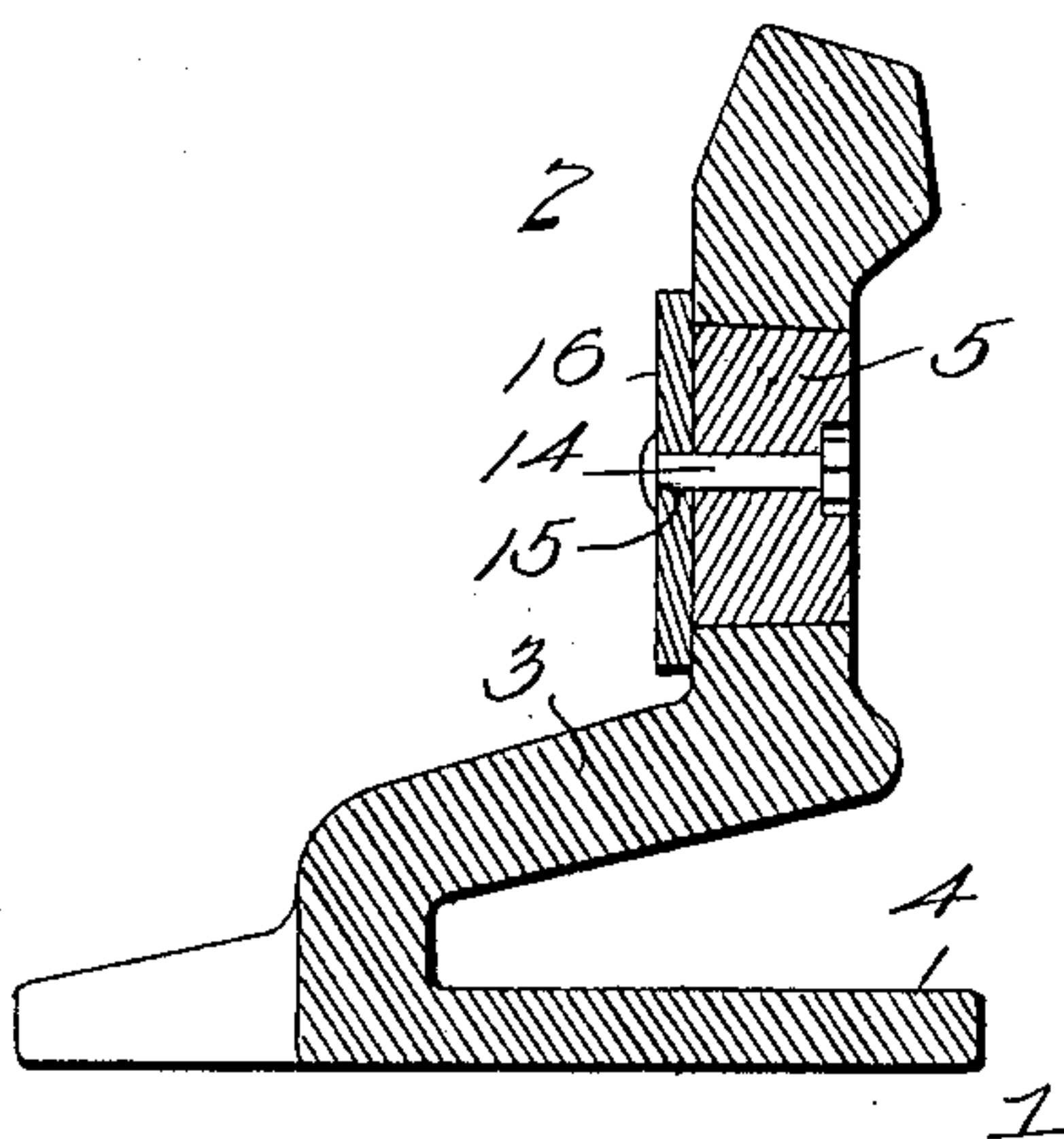
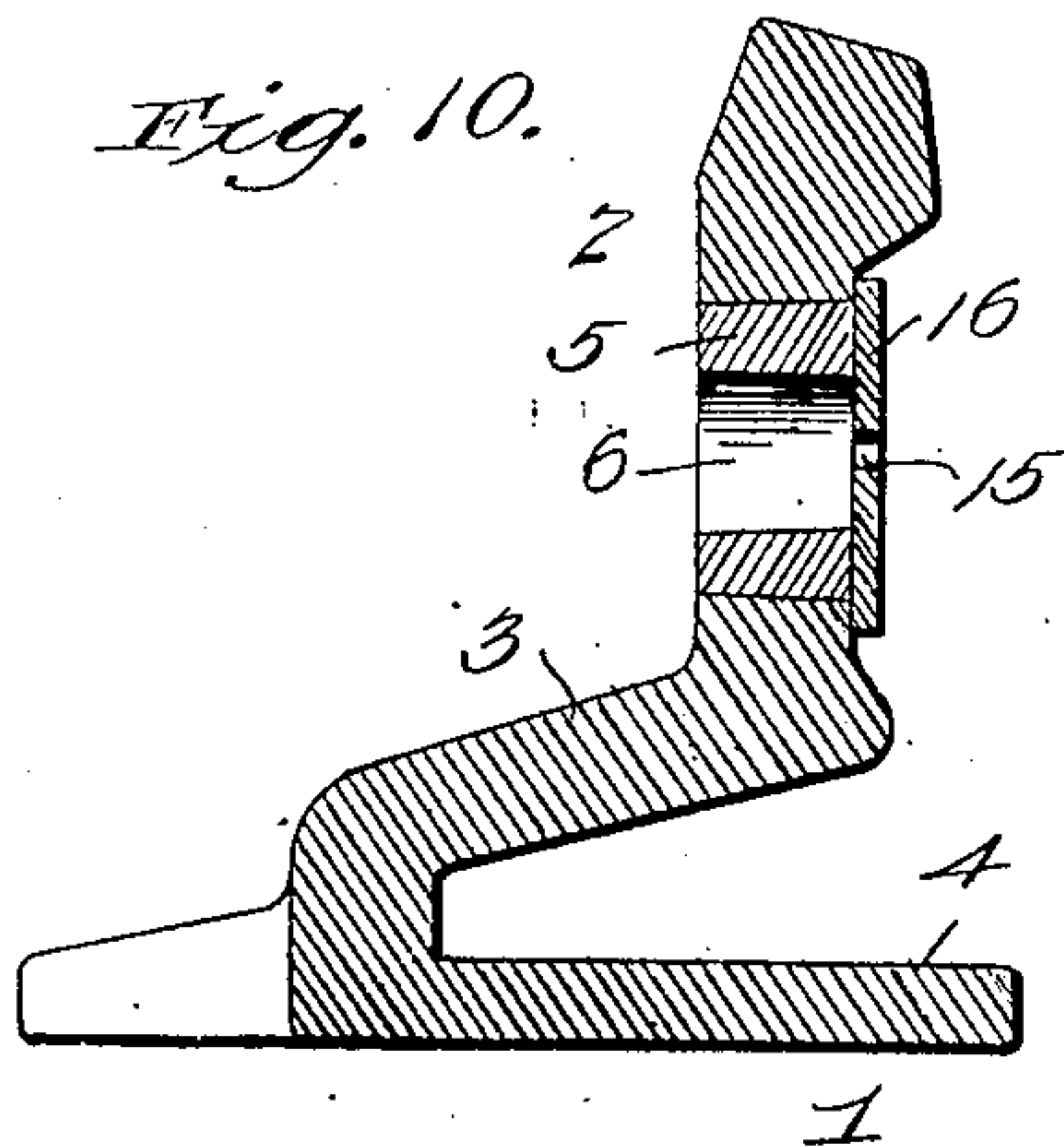


Fig. 10.



Witnesses

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UNITED STATES PATENT OFFICE.

BENJAMIN WOLHAUPTER AND BANCROFT G. BRAINE, OF NEW YORK, N. Y., ASSIGNORS TO
THE RAIL JOINT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RAIL-JOINT PATTERN.

No. 925,738.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed January 2, 1908. Serial No. 408,981.

To all whom it may concern:

Be it known that we, BENJAMIN WOLHAUPTER and BANCROFT G. BRAINE, citizens of the United States, both residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Rail-Joint Patterns, of which the following is a specification.

10 This invention relates to the manufacture of rail joints, and has special reference to an improvement in the patterns usually employed in carrying out the process of casting rail joint members or plates.

15 The primary object of the invention is to provide a rail joint pattern with adjustable means for accurately locating the bolt hole positions of the pattern at points corresponding exactly with the bolt hole positions in the rail ends to be joined by the rail joint. In carrying out this object, the invention is specially useful in the manufacture of the cast bars for step or compromise rail joints, though possessing utility in its general application to rail joint bars of any type or design.

As a general object, the invention contemplates an improvement in rail joint patterns intended to simplify and expedite the casting operation while at the same time designed to obviate the objections to the ordinary process of casting rail joint bars in molds formed with the usual patterns. In this connection, it may be noted that in the manufacture of compromise rail joints, the joint bars are generally made of steel or malleable iron castings, and of a design and configuration corresponding to that of the rail sections to be united, so that the difference in the height and section of the two rails is compensated for. In addition to this variance in the two rails, there is also a variance in the position and size of the bolt holes therein, which condition has ordinarily been met, in the usual mode of manufacture, by making a new and separate pattern to cover each variation, and consequently, on account of the large number of rail sections in use having this variance in position and size of the bolt holes, the expense of providing separate patterns for each separate rail joint is necessarily considerable. These objections to the ordinary foundry practice in the manufacture of rail joint bars, particularly of the step or compromise type are

obviated by the present invention through the provision of a pattern having adjustable bolt hole locating and forming means so that the same pattern can be utilized in the manufacture of rail joint bars for any of the ordinary standard rails of varying height and section, and also having bolt holes in varying positions and of different sizes.

The essential features of the invention, involved in carrying out the foregoing objects are necessarily susceptible to a wide range of structural modification without departing from the scope of the invention, but certain preferred and practical embodiments of the latter are shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a rail joint pattern of the compromise type equipped with the removable bolt hole locating members contemplated by the present invention; the view indicating by dotted lines the relation of the pattern to the differential rails in a compromise joint. Fig. 2 is a perspective view of a rail joint pattern embodying the same form of the invention shown in Fig. 1. Figs. 3, 4, and 5 are cross sectional views illustrative of various modifications that may be resorted to in the removable mounting of the inserted bolt hole locating members. Fig. 6 is a view similar to Fig. 1 showing another modification of the invention in the construction and mounting of the inserted locating members. Fig. 7 is a perspective view of the pattern illustrated in Fig. 6 and showing one of the bolt hole locating members removed from the body of the pattern to expose the seating recess or opening therefor. Fig. 8 is a detail in perspective of one of the locating members of the design employed with the pattern shown in Fig. 7. Fig. 9 is a cross sectional view of the pattern on the line 9—9 of Fig. 7. Fig. 10 is a view similar to Fig. 9 showing a modification involving the arrangement of the supporting plate at the inner side of the pattern body instead of at the outer side.

Like references designate corresponding parts in the several figures of the drawings.

In carrying out the invention, no special change is required in the design or use of the ordinary patterns such as are commonly employed in the process of casting steel or malleable iron rail joint bars or plates. Hence, for illustrative purposes, there is shown in the drawings a design of pattern

designated by the numeral 1 which is employed in the manufacture of compromise joints of the continuous type. This class of joints comprise oppositely arranged angle bars having main splice bar portions and integral base plate portions extending beneath and supporting the rail bases, and to provide for properly stepping differential rails, the rest or supporting faces of the base plates for the separate rail ends are arranged at different elevations, that is, lie in different horizontal planes. Though possessing special utility in connection with the manufacture of rail joint bars of the character referred to, it is obvious that the invention is applicable for use as a pattern for any cast rail joint bar or member where it is necessary to provide for locating the bolt hole positions with facility and accuracy, and for expeditiously forming the bolt holes in the casting operation.

In the exemplification of the invention shown in the drawings, the continuous design of pattern illustrated, and designated by the numeral 1, includes a main body member 2 for shaping the splice bar or bolt plate member of the joint, a flange element 3 for shaping the foot flange of the joint bar, and a base element 4 for shaping the rail supporting base section of the joint bar. These elements of the pattern correspond in shape and relative positions to the corresponding parts of a compromise joint bar of the continuous type, but the distinctive feature of the present invention resides in associating with the pattern adjustable bolt hole locating means so that the one pattern can be utilized in the manufacture of rail joint bars having bolt holes in varying positions and of different sizes.

To secure the results indicated, the present invention contemplates equipping the pattern 1 with removable bolt hole locating members which are interchangeable with similar members differing only in the position and size of the holes which locate the bolt hole positions in the mold. The said bolt hole locating members are designated by the reference numeral 5, and various expedients may be resorted to in the removable mounting of these members on the pattern so that the same may be readily replaced by or interchanged with the similar members having differently proportioned and differently positioned holes as above referred to, but certain preferable and practical means for thus mounting the bolt hole locating members are suggested in the drawing.

In the embodiment shown in Figs. 1, 2, and 3 of the drawings, it will be observed that the bolt hole locating members 5 are preferably designed to be arranged within the opposite end portions of the main body member 2 of the pattern so as to occupy positions corresponding to the general loca-

tion of the bolt holes in the rail joint bar. Each bolt hole locating member 5 comprises what may be termed a former consisting of a filler piece or block usually of a rectangular oblong form and provided therein at predetermined points with suitably proportioned forming holes 6 for those parts of the mold which provide for making the bolt-holes in the casting. In the form of the invention shown in Figs. 1 to 4 inclusive of the drawings, these holes 6 are through-holes opening respectively through opposite sides of the pattern and providing for the complete formation of the bolt holes in the sand without stoppings or fillings being required in either the cope or drag.

Each filler piece or block 5 constituting both a locating member and a bolt hole former as explained, is designed to be removably seated in a seating opening or recess 7 formed in the body member 2 of the pattern. The said seating opening 7 for each member 5 corresponds in shape and size to such member so that the latter can preferably have a perfectly flush seat therein and thereby constitute a part of the pattern itself. To provide for securely holding each member 5 in place within its seat 7, various retaining means may be utilized, such for instance as fitting guiding feathers 8 to the pattern and to the upper and lower edges of the member 5, thus permitting the latter to be slid endwise into and out of the seat 7. This retaining and guiding means is shown in Fig. 3 of the drawings and serves to accurately guide the member 5 into its seat while also preventing lateral displacement thereof; longitudinal displacement of the member 5 being prevented by various means, that shown in the drawings being an end retainer plate 9 screwed or otherwise detachably fastened to the end of the pattern body 2 over the open end of the seat 7 as plainly shown in Figs. 1 and 2 of the drawings.

Instead of the feathers 8 shown in Fig. 3, each locating member 5 may be provided at its upper and lower edges with angular or any suitably shaped guide ribs 10 slidably interlocking with correspondingly shaped guiding grooves 11 formed in the upper and lower edges of the seat 7. Or, as a modification of the details already described, each member 5 may be inserted laterally into its seat 7 as suggested in Fig. 5, in which case both the seat and the member 5 are tapered in a lateral direction, and the member 5 removably held in place by a detachable side retainer plate 12 fitted to the outside of the pattern and provided with a former hole 13 so as not to interfere with the through-hole feature of the locating and forming member 5.

A further modification of the invention is shown in Figs. 6, 7, 8, and 9 of the draw-

ings, wherein each member 5 is illustrated as being removably fitted laterally into the seating opening or recess 7 and detachably secured in position through the medium of a plurality of holding bolts 14, one end portion of which bolts are engaged in the longitudinal slot or slots 15 of a supporting plate 16 suitably secured upon the outside of the pattern body 2, all of which is plainly illustrated in the several figures referred to. It is preferable in this construction to arrange the supporting plate 16 on the outside of the pattern body, but the parts may be reversed and the said plate arranged on the inside of the pattern body as suggested in Fig. 10 of the drawings. In the arrangement shown in Figs. 6 to 10 inclusive, the supporting plate covers one side of the forming holes 6, but this only requires the filling or stopping, in the sand, of the print or recess made by said supporting plate particularly when the latter occupies the position shown in Figs. 6 and 9.

No claim is made herein to any particular construction of mold that may be employed in connection with the improved pattern, nor to any special manner of forming or setting up the mold. It is therefore understood that in forming the mold the opposite sides of the pattern are respectively utilized to impress upon the opposite faces of the molding sand the configuration of the outside and inside surfaces of the casting, and ordinarily the pattern is placed in the drag with the outside of the pattern uppermost so that the bolt hole elements of the mold will be formed in the drag by the forming holes 6 of the members 5. However, the molder can employ the improved pattern in any available or preferable manner without affecting the invention.

Other modifications than those described

can be resorted to without affecting the invention or sacrificing any of its advantages.

We claim:

1. A rail joint pattern having a flush-seated removable member comprising means for both locating and forming in variable positions in the mold, the bolt-hole-forming elements of the latter.

2. A rail joint pattern provided in its body portion with a seating opening, and a bolt hole locating member comprising a former seated in said opening and provided with openings therein to form the bolt-hole-forming element of the mold.

3. A rail joint pattern provided in its body portion with a seating opening and a former detachably locked within said opening and provided with openings to form bolt holes.

4. A rail joint pattern provided in its body portion with a seating opening, a flush seated former slidably interlocked with the pattern body and fitting said opening, said former being provided with openings to form bolt holes.

5. A rail joint pattern having a removable member provided with through-holes for locating and forming the bolt holes.

6. A rail joint pattern provided in its opposite end portions with seating openings, and a former removably seated in each of said openings and comprising means for locating and forming the bolt holes.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

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BANCROFT G. BRAINE.

Witnesses:

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