

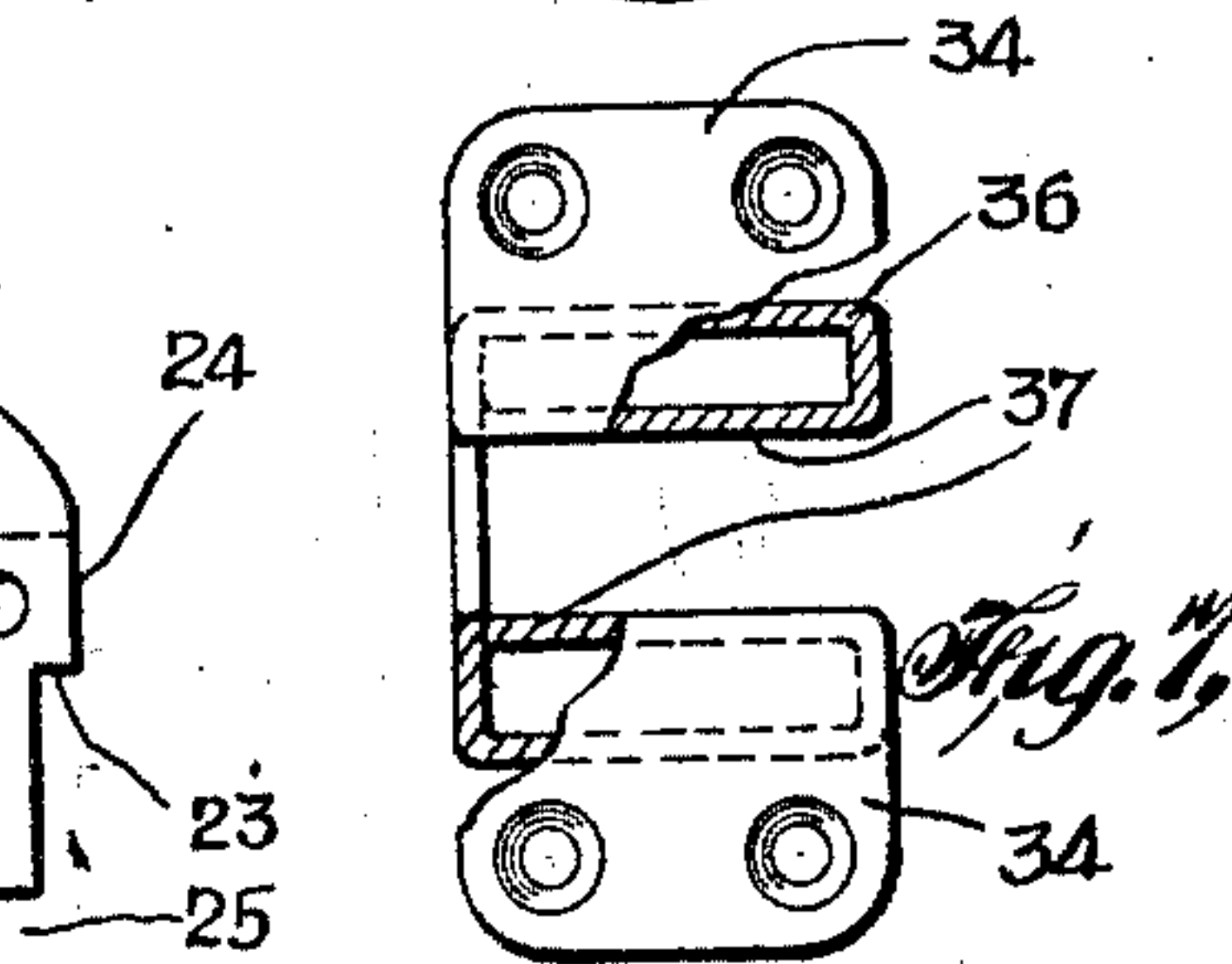
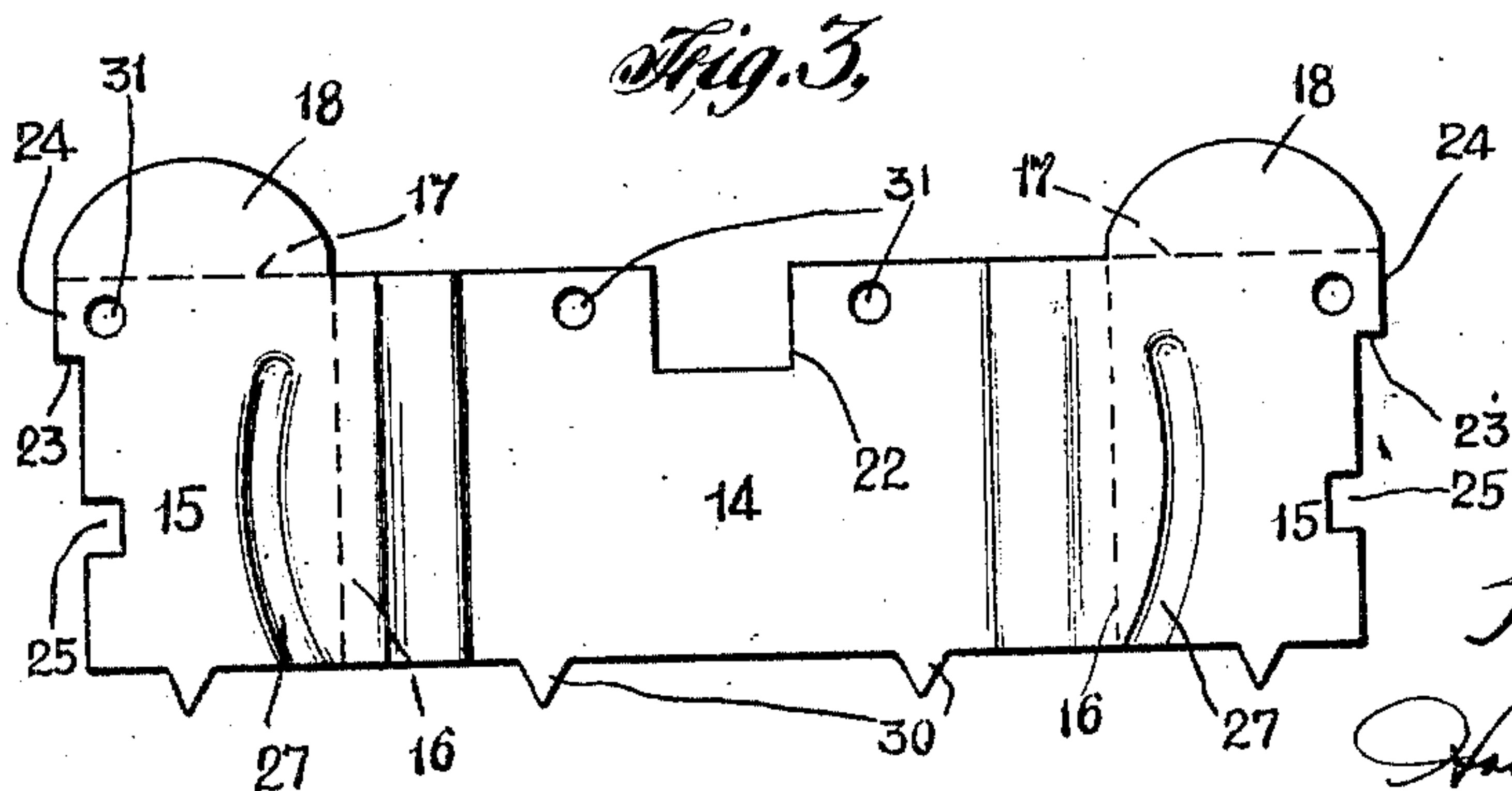
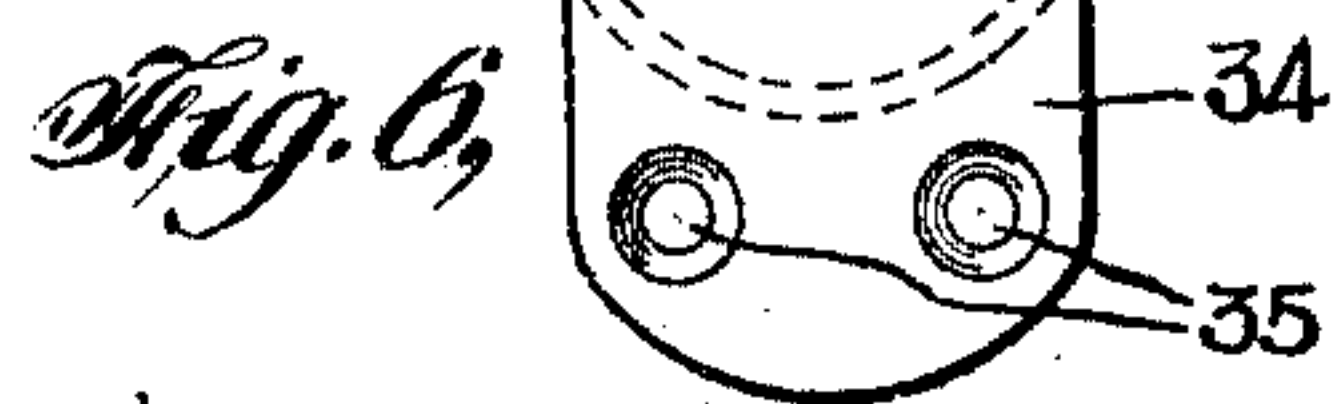
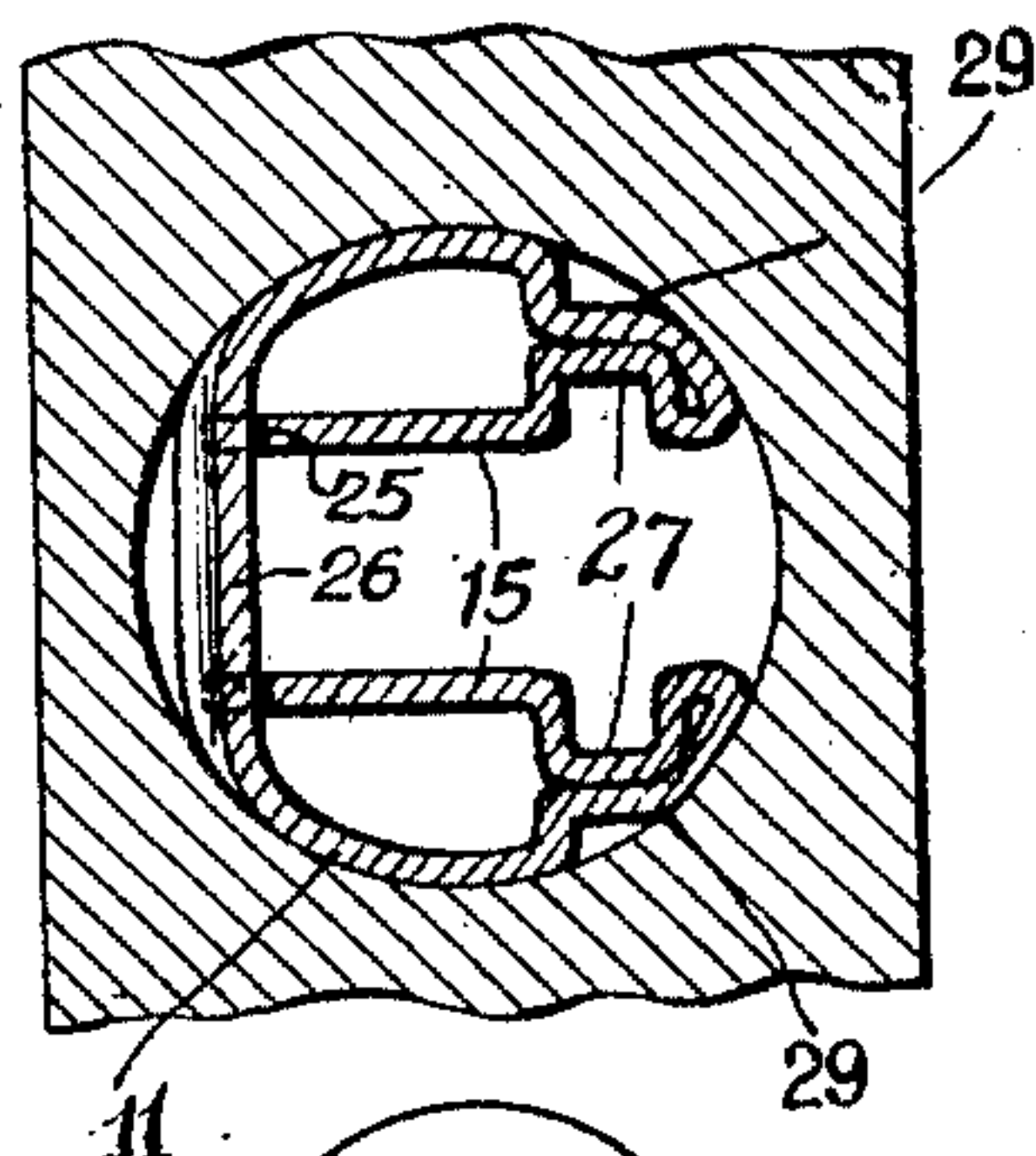
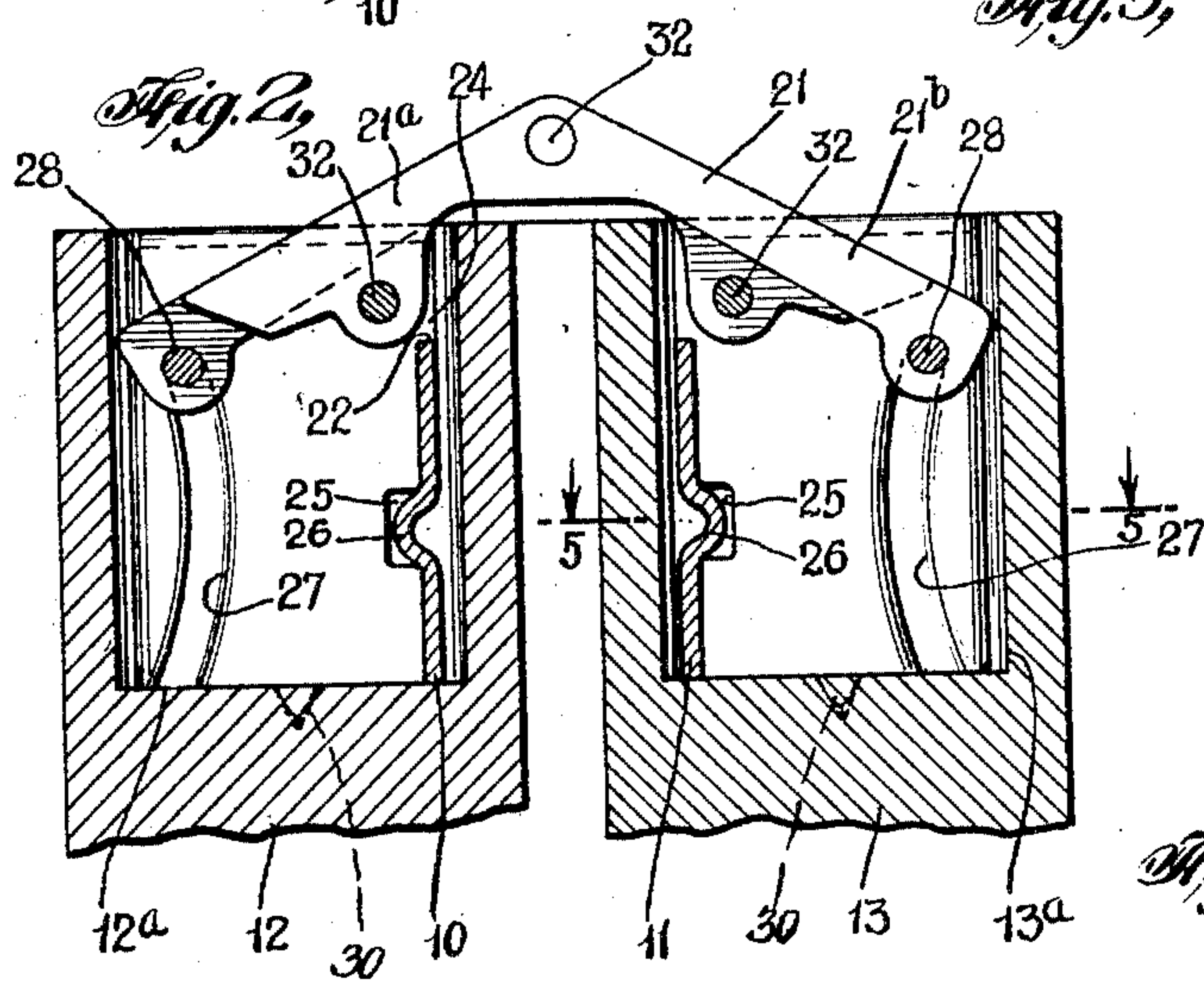
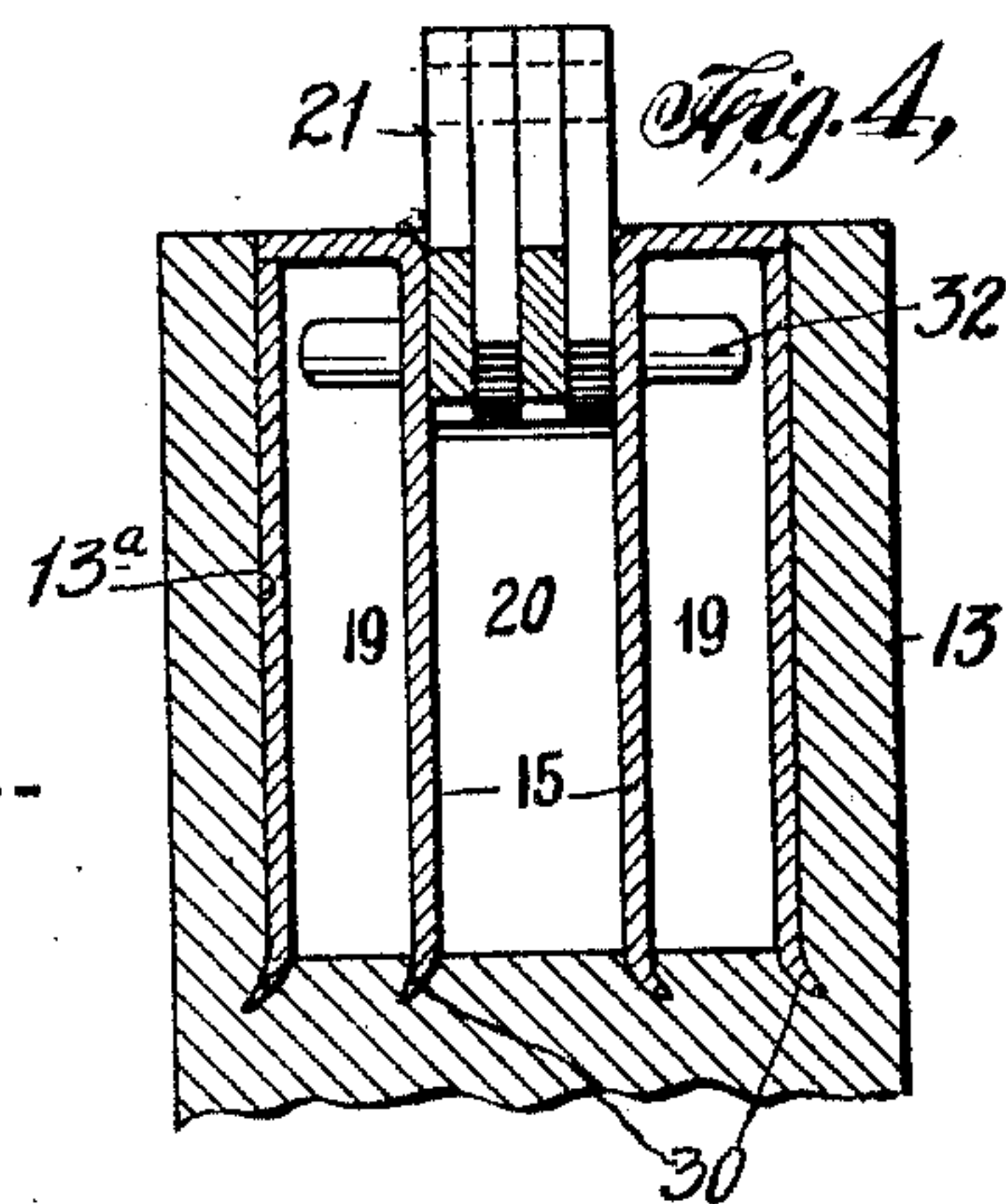
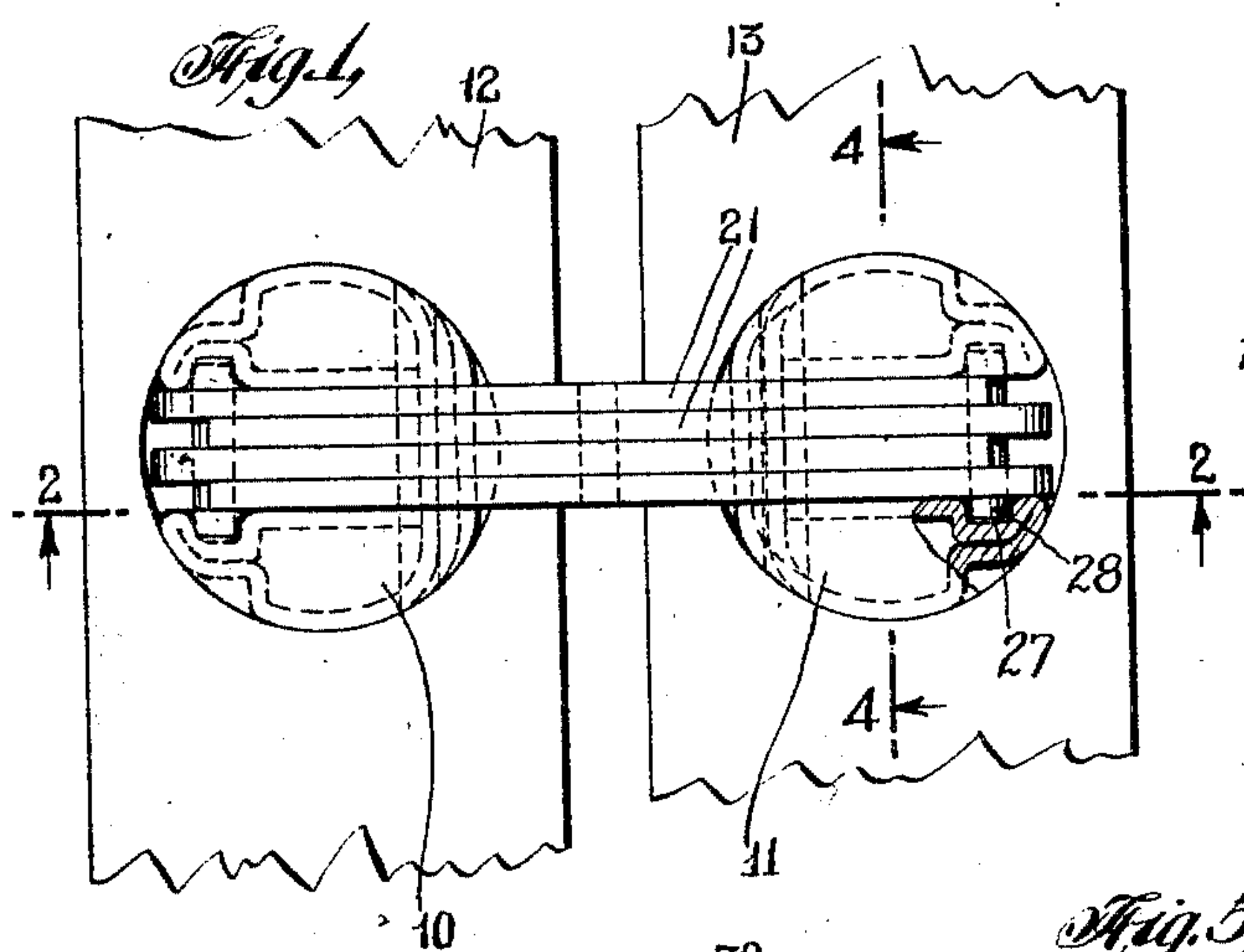
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J. SOSS

INVISIBLE HINGE

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INVISIBLE HINGE.

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This invention relates to invisible hinges and particularly to hinges of this class employing two substantially similar butt members coupled together by one or more link members, and the object of the invention is to construct a substantially hollow butt member from a single piece of sheet metal which is blanked to the desired form and folded, rolled and otherwise fashioned to form the butt; a further object being to provide a sheet metal butt of the class described with means for supporting the pivot of the links in connection therewith and with grooves for guiding said links in their movement; and a still further object being to provide a butt of the class specified which may be cylindrical in form or substantially cylindrical to facilitate its mounting in connection with the swinging member and stationary support or in the provision of a substantial square butt; and with these and other objects in view the invention consists in a device of the class and for the purpose specified which is simple in construction, efficient in use and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is an edge view of a stationary support and swinging member showing my improved hinge mounted in connection therewith;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of a blank from which one of the butts of my improved hinge is formed;

Fig. 4 is a partial section on the line 4—4 of Fig. 1;

Fig. 5 a partial section on the line 5—5 of Fig. 2; and

Figs. 6 and 7 are face views of two modified forms of butts which I employ.

In the construction shown in Figs. 1 to 5 inclusive my improved hinge butts are substantially circular in form. In Figs. 1 and 2, I have shown two butt members 10 and 11 mounted in connection with a stationary support 12 and swinging member 13 respectively, or in circular apertures 12^a—13^a in said support and said member, and each

of the butts 10 and 11 are fashioned from a single piece of sheet metal, a blank for one of which is shown in Fig. 3 of the drawing, said blank comprising a central body part 14 from which the cylindrical body of the butts are formed, and the end portions 15 foldable on the central body 14 along the lines 16 in the formation of the cylindrical body to form the bearing plates within the cylindrical body of the butt and arranged in spaced and parallel relation, said bearing plates being designated by the numeral 15 in the completed butt shown in said figure. Foldable upon the end portions 15 on the lines 17 are semi-circular members 18 which, in the form of construction shown, are adapted to lie upon the outer edge of the cylindrical portion of the butts formed by the central part 14 and also to cover and enclose the chambers 19 formed between the bearing plates 15 and the cylindrical walls of the butts. The spaced arrangement of the bearing plates 15 also form a channel 20 centrally of the separate butts in which the link members 21 of the hinge are movably mounted.

One side of the central part 14 of the blank is notched as shown at 22 to register with the channel 20 when formed, and the ends of the blanks are also notched as shown at 23 whereby the projecting flanges 24 are adapted to enter the notch 22 as seen in Fig. 2 of the drawing, the ends of the blank are also provided with other notches 25 which are adapted to engage an inwardly pressed rib 26 on the cylindrical portion of the butt, the rib 26 being preferably formed after the cylindrical portion of the butt has been partially or wholly produced and serves to reinforce the casing.

The end portions 15 forming the bearing plates of the butt are provided with arc-shaped depressions or recesses 27 forming recesses for guiding pins 28 carried at the free ends of the links 21 in the respective butts 10 and 11, and in the formation of the butt it is preferred that the walls of the cylindrical portion be depressed adjacent the grooves or recesses 27, as shown at 29 in Fig. 5 of the drawing, to reinforce and strengthen this part of the butt, and to give strength and durability to that portion of the separate butts in connection with which the pins 28 operate.

One side edge of the blank is provided

with spaced prongs 30 which are adapted to be driven into the supports 12 and 13 for mounting the butts in position. It will be understood, however, that if the butts are mounted in connection with metallic supports, other securing means may be provided, without necessitating any change or reconstruction of the butts.

I also form in the blank from which the butts are made a plurality of apertures 31 which are adapted to be arranged in common or axial alinement when the butt is formed, and mounted in position in these apertures is a pivot pin 32 which may be retained in place by riveting the ends thereof, or in any other desired manner and, in practice, the separate links 21 are mounted upon the pin 32 and these links, in addition to being mounted upon the pins 28, are also pivoted together or pivoted to one another by a pivot pin 33 passing through all of the links.

The general arrangement of links is old and well known in the art but, in the present construction, the side portions of each link diverge in angular relation, and the short arms 21^a of each link are mounted on the pins 32 in the respective butts 10 and 11, while the long arms 21^b are mounted upon the pins 28 of said butts, it being seen upon a careful consideration of Fig. 2 of the drawing that the short arm of one link is pivoted to one butt and the long arm of said link is movably mounted in the other butt upon the pin 28 slidable in the recess 27 of such other butt. By providing the arc-shaped recesses 27 in the particular link construction employed, I can produce a door opening of one hundred and eighty degrees and still provide for the swinging action of the hinge.

In assembling the hinge it will be understood that the pins 28 with the links 21 thereon are passed into the recesses 27 through the rear ends of the butts, after which the pins 32 are passed through the separate links and secured in position, and the separate butts 10 and 11 may then be mounted in connection with their supports and retained in connection therewith by the prongs 30 or in any other desired manner. It will be understood that the links 21 fit snugly in the channel 20 between the bearing plates 15 and yet move freely therein, said plates 15 forming a bearing therefor, and further said plates fitting snugly within, and secured within, the cylindrical portion forms a strong and durable support and hinge butt construction, and by reason of the construction employed hinge butts of very small diameter or cross sectional form may be made in a productive and commercial manner with the required accuracy, strength and durability of devices of the class under consideration.

It will also be understood that I am not

necessarily limited to the exact form of blank herein shown and described, nor to the particular manner of fashioning said blank, and various changes in the construction may be made, and in Fig. 6 of the drawing I have shown a slight modification in which the members 18 instead of being semi-circular in form are substantially rectangular in form as seen at 34 in said figure, in other words these members are extended to form the attaching flanges which project beyond the cylindrical portion of the butt of the hinge, in which are formed countersunk holes 35 for receiving screws or other attaching devices.

In Fig. 7 of the drawing I have shown a butt having the flanges 34 as shown in Fig. 6 of the drawing but in this modification the body 36 of the butt is made substantially rectangular in form in cross section instead of circular, the bearing plates 37 being equivalent to the plates 13 shown in Figs. 1 to 5 inclusive. Of course, the showings in Figs. 6 and 7 are purely diagrammatic to illustrate the general contour only of the butt, the structural details being the same or substantially the same as the butt or butts above described and shown in Figs. 1 to 5 inclusive.

It will also be understood that I am not limited in any way to the specific manner of mounting the pivot and guide pins of the links employed nor am I limited to the use of the links for movably coupling the separate parts of the butts, and various changes in and modifications of the construction herein shown and described may be made, within the scope of the appended claims, without departing from the spirit of invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A hinge butt comprising a casing one side and one end of which are open to give access to a channel in said casing, bearing members within the casing and in spaced and parallel relation, said casing and bearing members being formed from a single sheet of metal, and flanges integral with said bearing members and arranged at right angles thereto and overlying the edge of the casing and within the boundary of said casing.

2. A hinge butt comprising a casing one side and one end of which are open to give access to a channel in said casing, bearing members within the casing and in spaced and parallel relation, said casing and bearing members being formed from a single sheet of metal, flanges integral with said bearing members and arranged at right angles thereto and overlying the edge of the casing, said bearing members being apertured to receive the pintle pin of the hinge,

and the adjacent faces of said members having recesses opening into the channel for receiving and guiding other hinge pins.

3. A hinge butt fashioned from a sheet metal blank comprising two elongated body portions joined by a crosshead connecting the long sides of said body portions, the blank being folded at said sides to bring the body portions in substantially parallel relation to form a U-shaped butt, and the narrow sides of the body portions at one end of the blank having flanges extending laterally and at right angles to said body portions.

4. A channel hinge butt formed from a single piece of sheet metal folded to form a casing portion and a bearing portion within the casing adjacent which the channel of the butt is arranged, and the bearing portion of the butt being provided on the inner end

thereof with prongs for engagement with the support in connection with which the butt is mounted.

5. A sheet metal hinge butt of the class described comprising a tubular casing, bearing members in said casing and arranged in spaced and parallel relation, and a channel extending longitudinally through said tubular casing, means for supporting and guiding a hinge member in connection with the bearing members of said butt, and said bearing members having integral flanges arranged at right angles to the longitudinal plane of the butt casing, and overlying one edge of the casing.

In testimony that I claim the foregoing as my invention I have signed my name this 19th day of Nov., 1925.

JOSEPH SOSS.