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F. H. PIETZSCH
DRAFT KEY RETAINER

2,653,505

Filed March 7, 1951

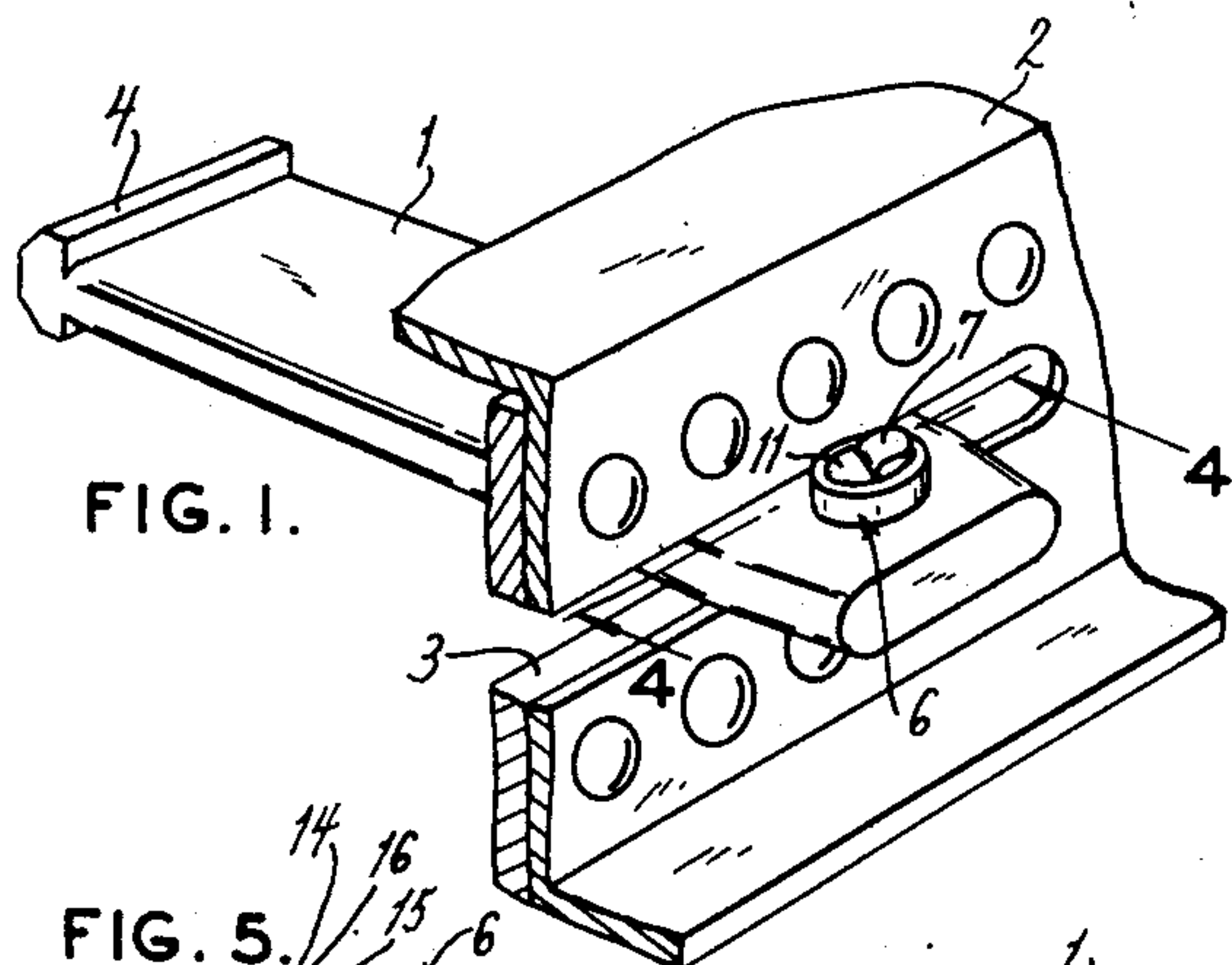


FIG. 1.

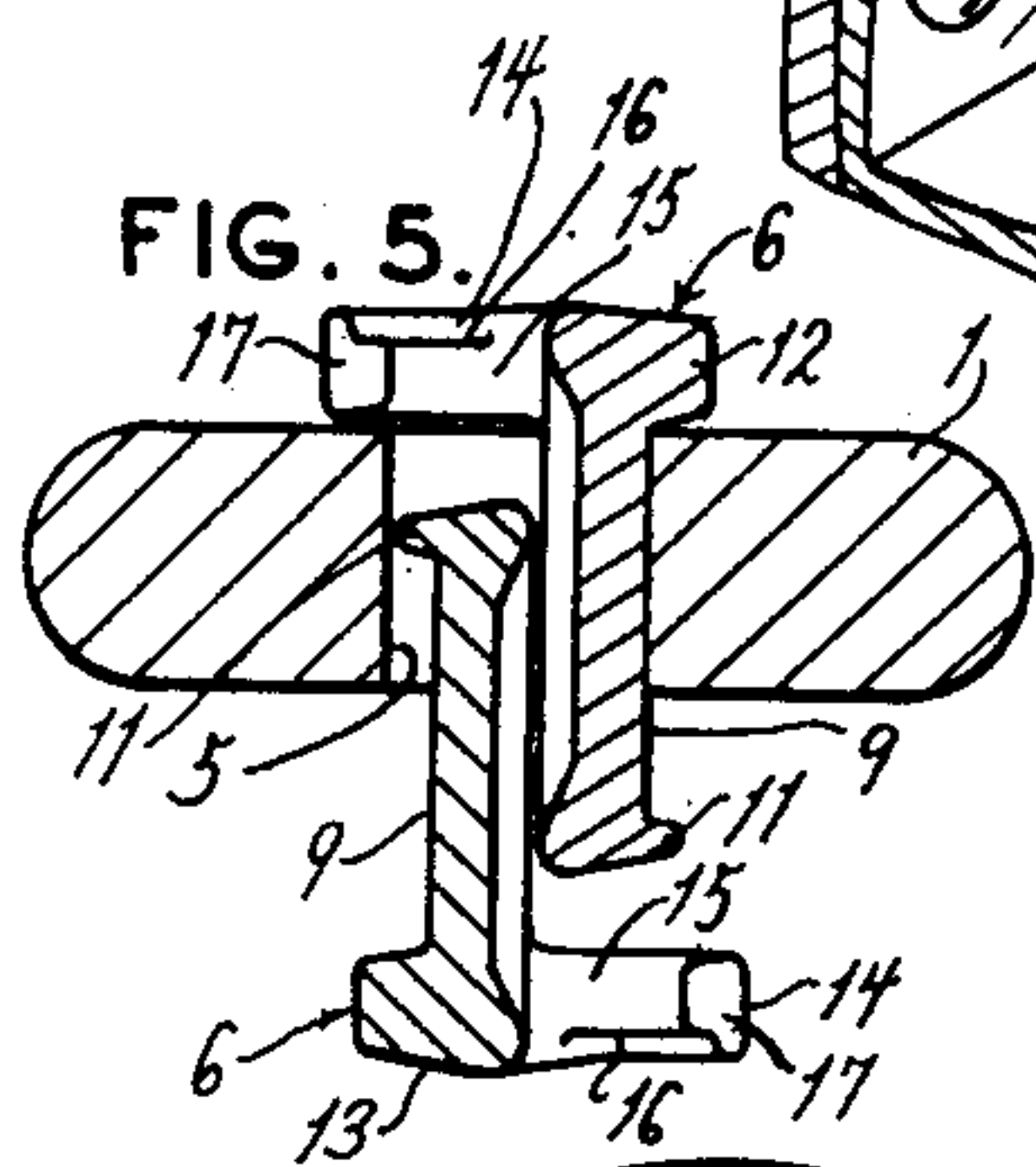


FIG. 5.

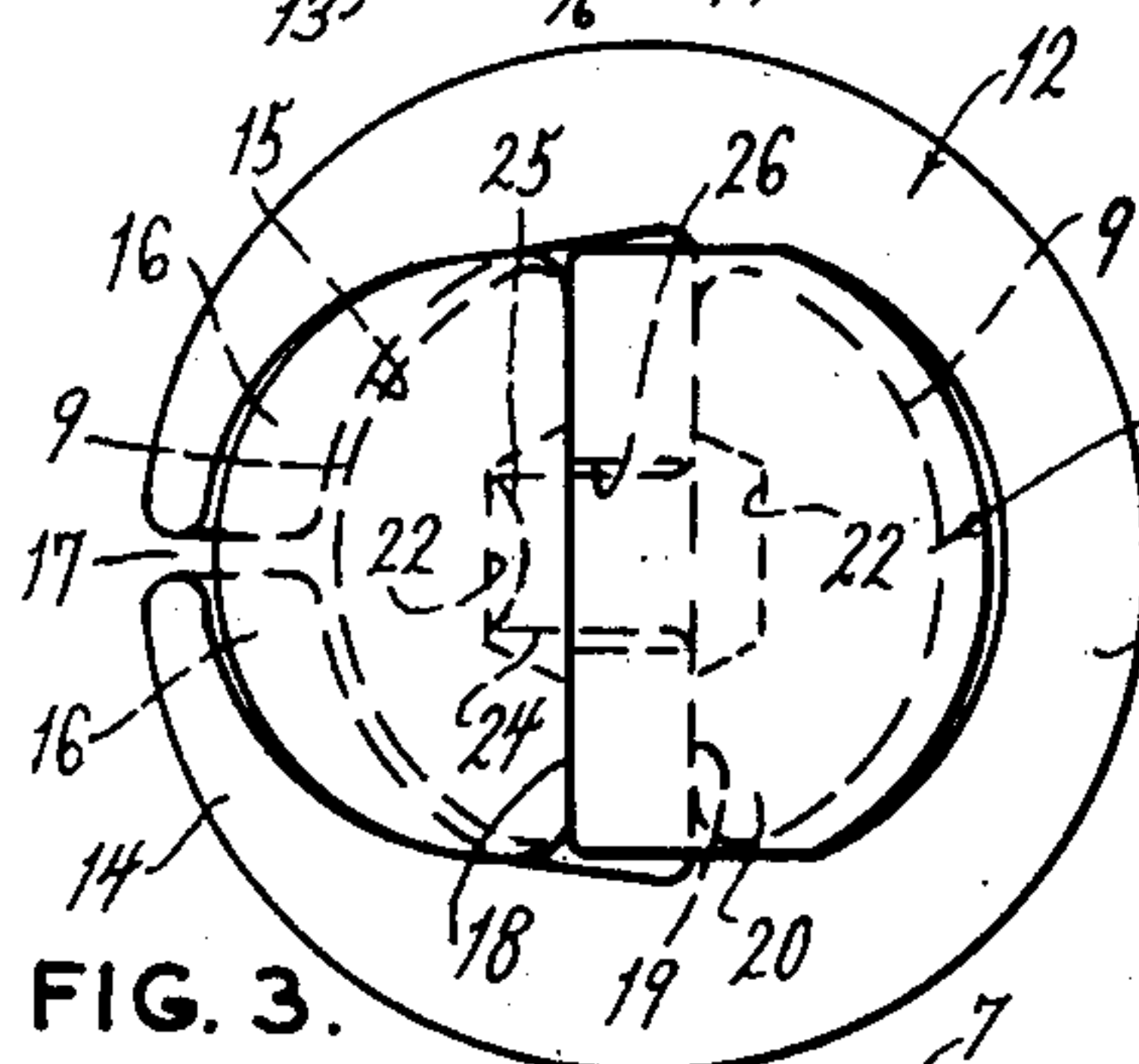


FIG. 3.

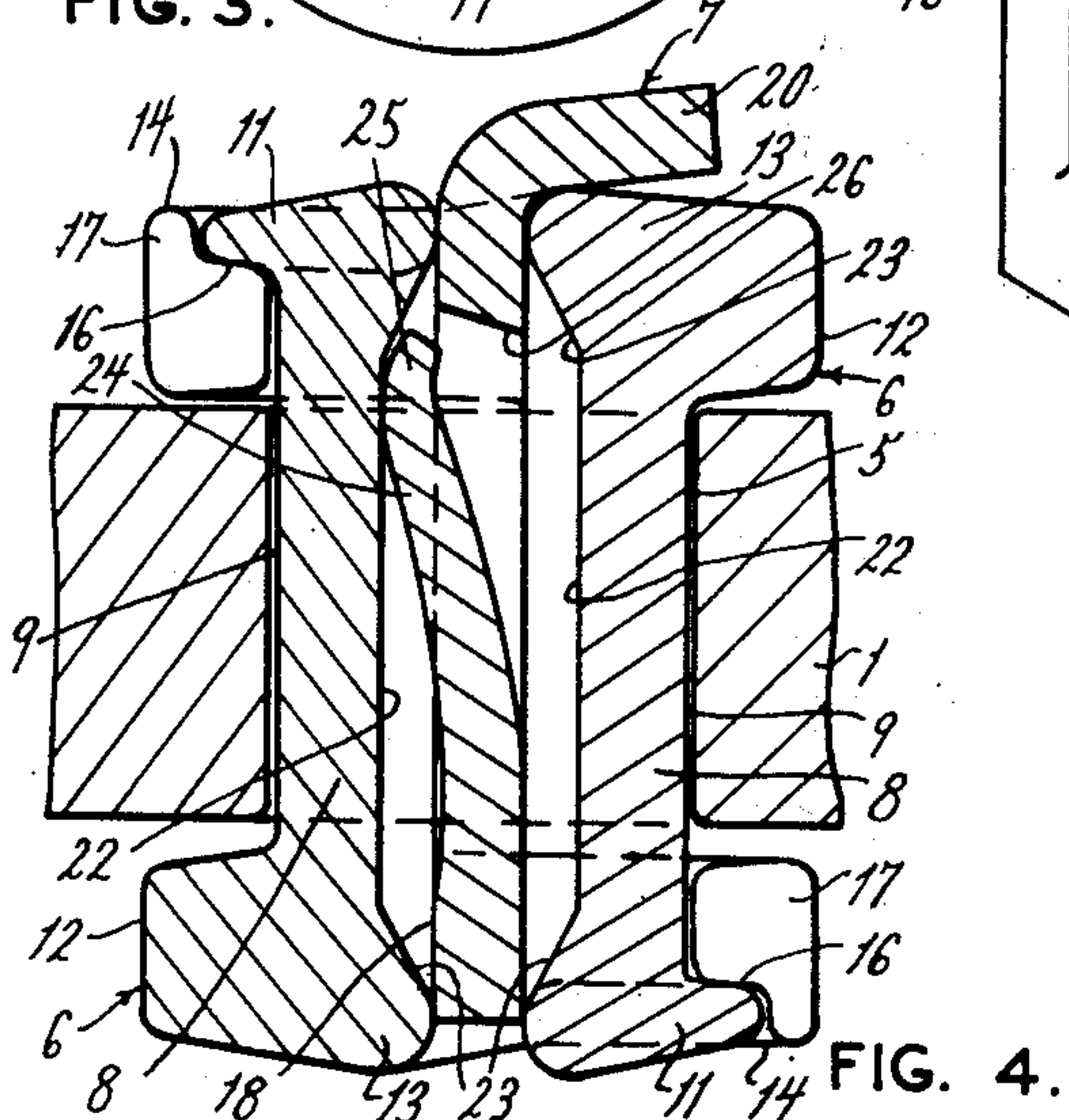


FIG. 4.

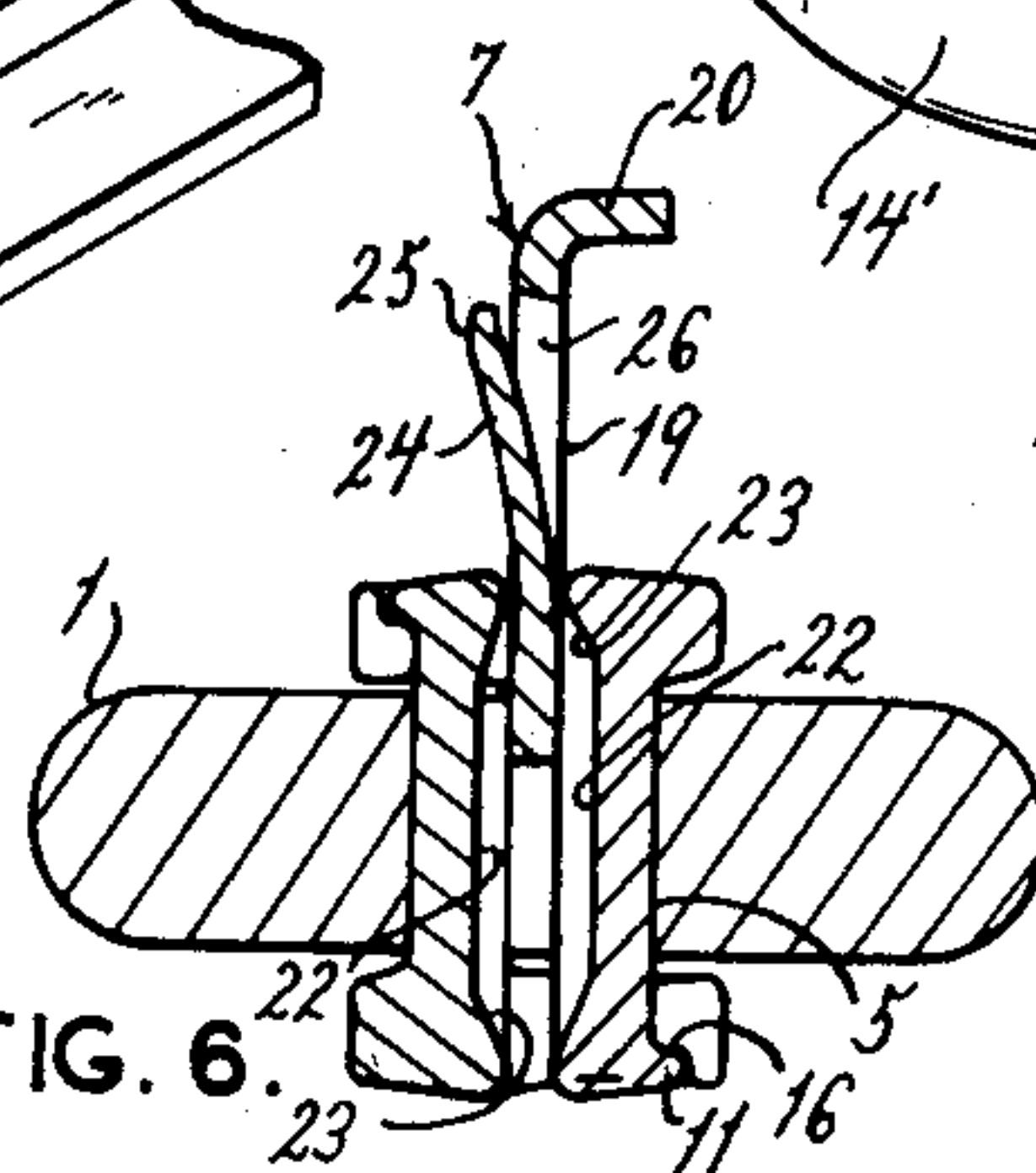


FIG. 6.

FIG. 2.

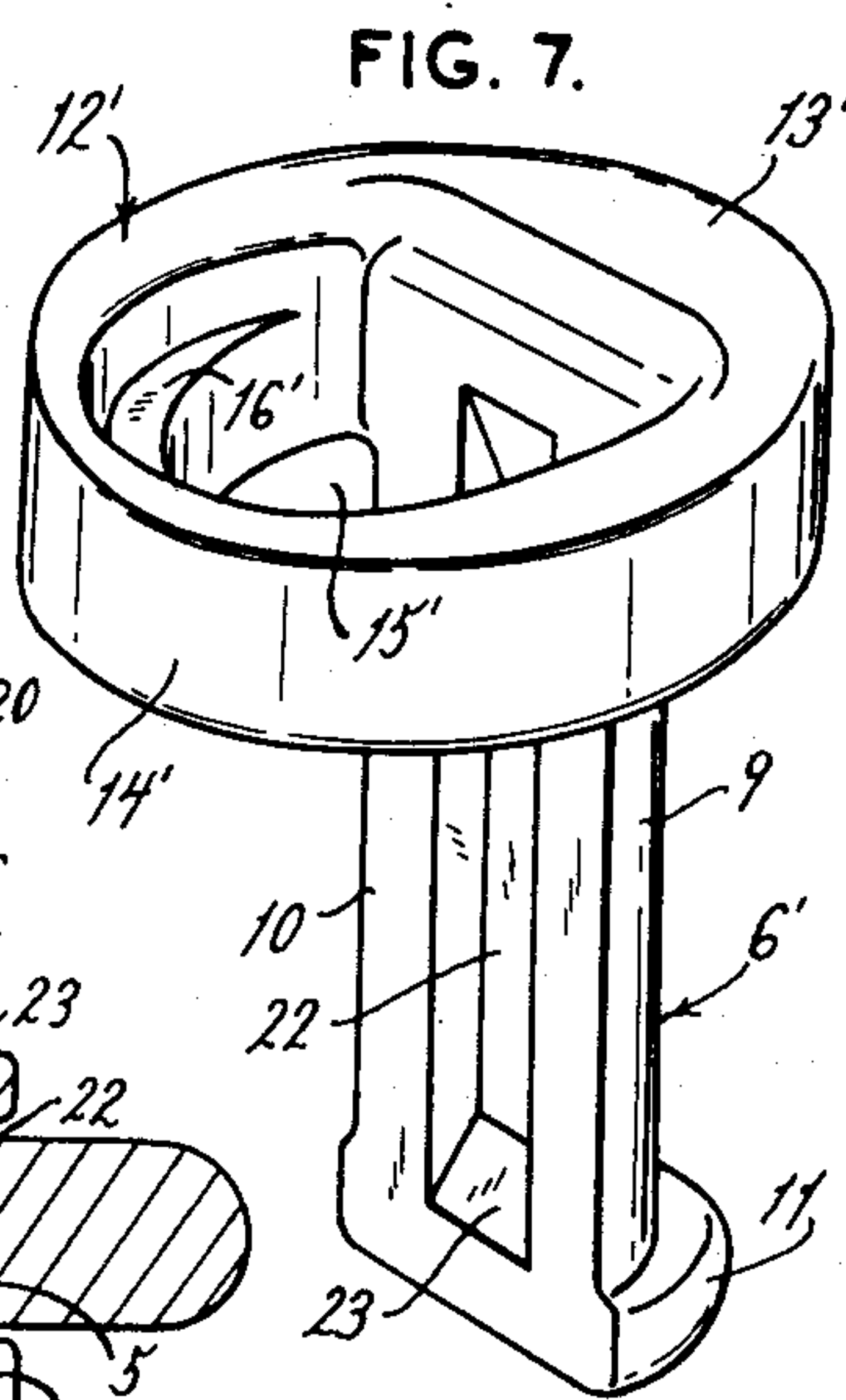
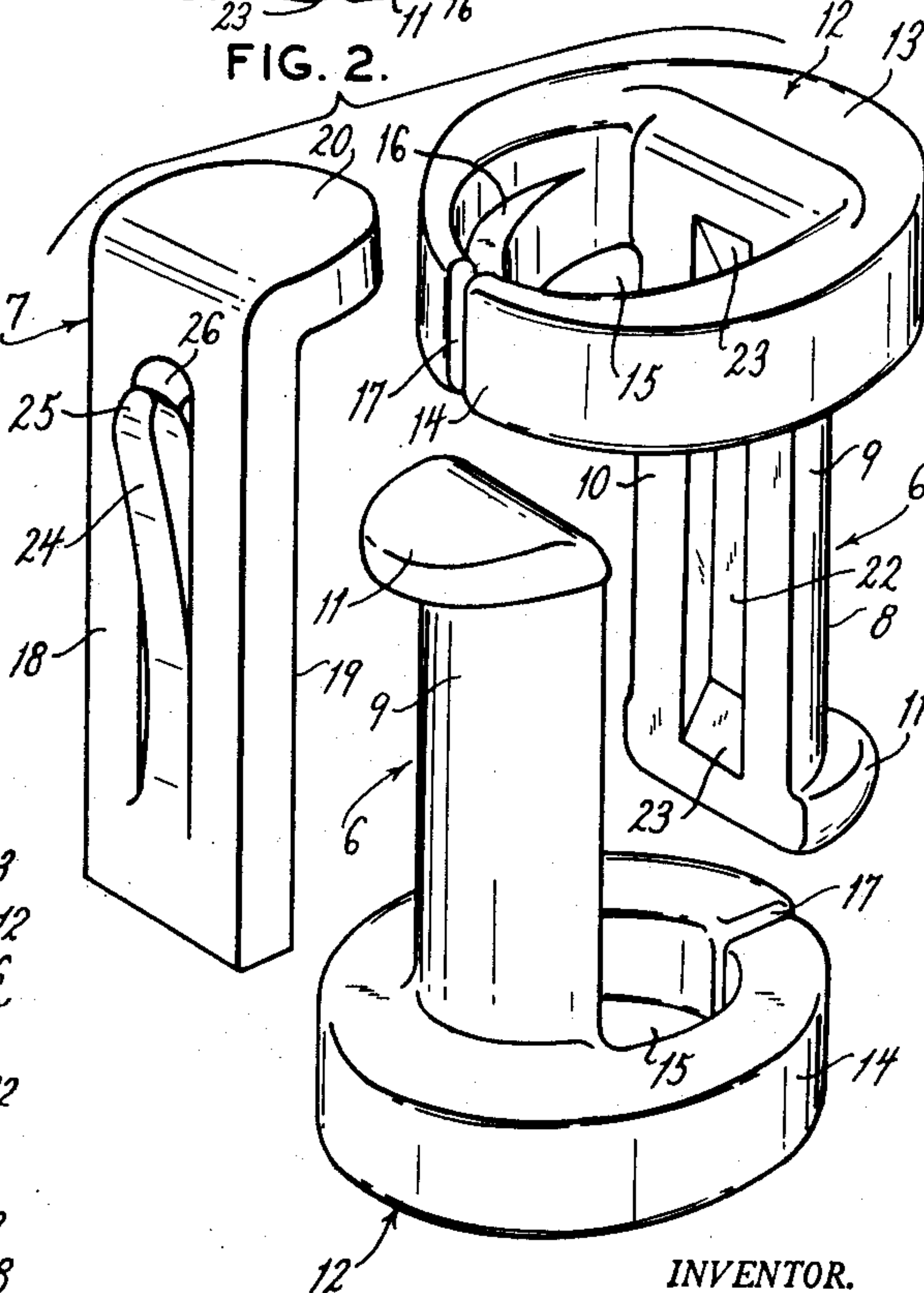


FIG. 7.



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2,653,505

DRAFT KEY RETAINER

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3 Claims. (Cl. 85—8.3)

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This invention relates to draft key retainers for railway car coupling assemblies and it is more particularly directed to retainer means which may be used in connection with either new or used draft keys.

The present invention is an improvement over and a continuation, at least in part, of a prior invention disclosed in an application for patent of Frank H. Pietzsch, now issued as 2,593,790 on April 22, 1952, for Railway Car Draft Key Retainers.

It is an important object of this invention to provide an improved draft key retainer which is economical to manufacture and simple to assemble in that the parts of the draft key retainer inter-fit in a plurality of ways, all of which are proper, thereby practically eliminating the chances of having an improper assembly.

It is another important object of this invention to provide a multi-part draft key retainer which easily and securely retains itself in assembly within the retainer opening in a railway car draft key, thereby assuring full and continued operativeness of the retainer throughout its useful service life.

It is a further advantage to provide a retainer of improved construction so that there is provided increased bearing area for withstanding shock loads in service, and in which the increased bearing area is provided by means of enlarged head portions which are provided with apertures for receiving and maintaining in interlocked relation a companion part of the assembly.

An additional object may be found in the provision of relatively resilient or deformable enlarged head portions on inter-engaging portions of the draft key retainer, which resilient head portions readily adapt the retainer to a less exact manufacturing tolerance and possess the advantageous characteristic of retaining the original form or shape.

The invention consists in the provision of a draft key retainer characterized by a pair of identically formed side members which are assembled in oppositely related positions and are adapted to have an inter-engaged relationship, and a retainer key member which is slidably disposable between the respective side members for retaining the latter members in expanded spaced relation within the opening provided in the draft key for the retainer assembly.

The invention furthermore consists in the parts, and arrangement and assembly of parts hereinafter more specifically described in con-

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nection with the accompanying drawing, wherein:

Fig. 1 is a fragmentary perspective view of a portion of a railway car draft gear, showing the draft key provided with the quick attachable and detachable retainer embodying the present invention,

Fig. 2 is an exploded perspective view of the several parts of a preferred form of the present draft key retainer,

Fig. 3 is a top view of the present draft key retainer shown in assembled position,

Fig. 4 is a greatly enlarged, but fragmentary sectional elevation taken along the line 4—4 of Fig. 1.

Figs. 5 and 6 are sectional views of the draft key retainer, Fig. 5 showing a manner of assembly of the reversible side members of the retainer, and Fig. 6 showing a manner of expanding the side members into final position by means of the retainer key member, and

Fig. 7 is an enlarged perspective view of a draft key retainer side member showing a modified form thereof.

In the accompanying drawing, the invention is illustrated in connection with a draft key 1 of the type used in connection with the usual railway car coupler assemblies (not shown), the draft key being adapted to connect the car coupler with the car draft sills, one of which being indicated at 2. It is the usual practice to provide in the draft sill a longitudinal opening or slot 3 to receive the end portion of the draft key 1. One end of the draft key is usually provided with an integrally formed head 4 while its opposite end is provided with an opening 5, shown more particularly in connection with Figs. 4 and 5, for the mounting of the draft key retainer assembly now to be described in detail.

With particular reference to Figs. 2, 3 and 4, the present draft key retainer comprises a pair of identically formed side members 6 and a retainer key member 7 which is adapted to retain the side members 6 in a proper inter-engaged relation when mounted within the opening 5 in the draft key 1. As may be seen in Fig. 2, each of the side members consists of an elongated body having a semi-cylindrical form in cross section to provide a curved or arcuate outer surface 9 and an inner substantially flat or planar face 10. At one end of the elongated body 8 there is provided a laterally projecting tongue 11 which is integrally formed and rigid therewith, and at the opposite end of this body there is provided an enlarged head 12 having a solid portion 13

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connected with the elongated body and a semi-annular portion 14 disposed laterally of the solid portion 13 formed with the opening or aperture 15. The enlarged head 12 in the zone of the opening or aperture 15 is provided with an internal shoulder 16 which is located in the outer peripheral portion opposite the solid head portion 13. In the preferred construction shown in Fig. 2, each of the enlarged heads 12 is provided with a slot 17 extending through the periphery thereof in the zone of the opening 15, this slot 17 rendering the adjacent semi-annular portions 14 of the head relatively resilient so that the retainer side member may more easily resist shock loads imposed thereon while in service and thereby easily conform itself to the reception of the tongue element 11 formed on the oppositely assembled side member. The provision of this slot 17 furthermore makes it unnecessary, in the manufacture of these draft key retainers to adhere closely to given manufacturing tolerances, thereby permitting the manufacture by methods which greatly reduce cost. It should also be pointed out that the provision of slot 17 in the portion 14 of the enlarged head, within the zone of the opening or aperture 15 therethrough, allows the three parts of the retainer assembly, to have a relatively loose interfitted relation when originally assembled. Thereafter, operating shocks and loads in service will have the advantageous effect of causing the enlarged slotted head portions to close around the laterally projecting tongue and adjacent body portion of the mating side member, automatically compensating for wear between the parts. This automatic compensation maintains the draft key retainer in a desired operative inter-engaged relation, thereby permitting the retainer to revolve or rotate in the opening 5 of the draft key 1 more freely so that no single area or portion of the retainer assembly is subjected to continuous operating shock loads.

Still with reference to Figs. 2 and 4, it may be seen that the retainer key member 7 is formed from a heavy gauge sheet or plate stock to provide relatively flat side faces such as that indicated at 18 and 19 in Fig. 4, which flat faces are adapted to be presented to the flat faces 10 of the cooperating side members 6. One end of the retainer key 7 is provided with a laterally extending and rigid flange 20 which is adapted to limit the inward movement of the key between the cooperating side members as is clearly shown in connection with Fig. 4, wherein the flange 20 is adapted to engage with and rest upon the enlarged head 12 of one side member.

The retainer key member 7 and each of the side members 6 are adapted to be held in operative assembly in the manner now to be described. It may be seen that each of the side members 6 is formed with a recess 22 directed lengthwise of the elongated body and located in the flat face 10 thereof. Each of these axially directed recesses 22 is provided with beveled end faces 23, which faces constitute cam surfaces. The retainer key member 7 of the present assembly carries a locking detent 24 which projects laterally from one flat face thereof, as the face 18, for the purpose of entering either of the longitudinal recesses 22 of the side members 6. The detent 24 on member 7 is provided with a curved end surface 25 which engages a beveled or cam face 23 at one end or the other of either of the recesses 22, depending upon the position assumed

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by the key 7 when the key is withdrawn from its assembled position between the side members 6. The withdrawal of the retainer key 7 causes the detent 24 to be moved into the plane of the body of the key 7, thereby permitting the key to be withdrawn. A preferred key and detent construction is to form the detent 24 as an integral part of the retainer key 7, which may be accomplished by a punching operation resulting in the detent 24 becoming an outstruck portion of the retainer key. The operation, of course, does not completely sever the detent 24 from the key body. This formation of the detent 24 automatically provides a slot 26 in the body of the retainer key 7 so that there is a space therein to receive the detent when it is forced into the plane of the key body during the act of inserting or removing the key relative to the two side members 6.

Reference to Figs. 5 and 6 will now be had for an understanding of one way by which it is possible to dispose the presently improved draft key retainer in the opening 5 of the draft key 1. The first step of this assembly has been shown in connection with Fig. 5 wherein one of the side members 6 has been disposed within the draft key opening 5 from the top thereof and has been moved laterally within the opening to bring its curved outer surface 9 against the inner wall of the opening. This lateral movement of the side member 6 first to be inserted is necessary so that the cooperating side member which is oppositely inserted from below the draft key 1 may be provided with sufficient clearance to permit its laterally extending tongue 11 to pass through the opening 5. It should be understood that the order of assembly of the side members 6 may be other than that shown in connection with Fig. 5, since the pair of side members are of identical form and shape and are adapted to interengage without regard to which of the side members has its enlarged head up or down and in which position the aperture 15 thereof finds itself with respect to its aligned relation over or under the draft key opening 5. On reference to Fig. 6, it will be observed that the side members 6 have been placed in their proper interengaged relation with the laterally projecting tongues 11 thereof engaging on the shouldered portions 16. This inter-engaged relationship of the side members 6 is attained during the slidable disposition of the retainer key member 7 therebetween. As this key member 7 moves downwardly between the side members, the detent 24 thereon is gradually forced into the slot 26 so that it is temporarily confined within the plane of the key until the end 25 of the detent passes into the zone of the beveled cam face 23 at the adjacent end of one of the recesses 22. Thereafter, the detent 24 springs outwardly and assumes a position within the adjacent recess 22, so that it acts to prevent the key being dislodged or displaced from its position between the side members 6 unless an external force is applied thereon. This external force is usually applied by hand or through the use of a prying lever, one end of the lever being inserted under the rigid flange 20 of the key 7.

A modified form of the retainer side members is disclosed in connection with Fig. 7. This modified form of the retainer side member possesses the general characteristics of the side members 6 disclosed in Fig. 2, with the difference residing in the provision of an enlarged head 12' having the peripheral portion thereof in the zone of the aperture 15' formed as a solid or unslotted rim

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14'. The aperture 15' is provided with an internal shoulder 16' which extends about a portion of the internal periphery thereof and is unbroken, since the enlarged head 12' is not provided with a slot in its periphery. In other respects the modified form of the side member includes the elongated body having its outer surface 9 curved or arcuately shaped and its inner face 10 constituted by a relatively flat surface having the elongated recess 22 and the beveled or cam end faces 23 therein. The use of a side member of the modified type requires adherence to certain definite manufacturing tolerances. However, both forms of the retainer side members have the common advantage that the enlarged head thereon embraces the opposite end of the cooperating side member provided with the laterally extending tongue, thereby making it possible to retain the side members as a unitary assembly, irrespective of the size of the opening provided in the draft key of the usual railway car coupling.

The maintainance of a unitary assembly has the advantage that as the opening in the draft key enlarges due to wear the presently improved draft key retainer maintains its operative assembled relation within the opening, since the key member 7 retains the side members 6 in an expanded spaced relation and each of the side members 6 presents an enlarged head at one side of the draft key so that there is almost no possibility for the draft key retainer to be dislodged or dropped from the opening therein because of enlargement of such opening.

Having now pointed out the characteristic features and preferred forms which my invention may take, I wish it to be understood that certain modifications and changes may be made therein without departing from the intended scope of the invention defined by the claims hereafter appearing.

What I claim is:

1. A retainer for a railway car draft key having an opening therethrough to receive the retainer: said retainer comprising a pair of side members each having an elongated body portion, a rigid tongue adjacent one end of said body portion to project laterally thereof for interlocking said side members and an enlarged head adjacent the opposite end of said body portion, each of said enlarged heads having an aperture therethrough located at one side of and clear of said body portion, and further each enlarged head having a slot through the head extending into the aperture in said enlarged head; and a key member for said side members, said side members fitting together in the draft key opening with said laterally projecting rigid tongues on each side member engaging the other side member through said enlarged head aperture in the latter side member for interlocking the side members and said key member slidably fitting between said side members to spread said side members in the draft key opening and maintain said rigid tongues in engagement with said enlarged heads.

2. A retainer for a railway car draft key having an opening therethrough: said retainer comprising two identically formed side members, each side member having an elongated body portion, an enlarged head at one end with an aperture through the head, opening at one side of said body portion, a slot through the periphery

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of said enlarged head in the zone of said aperture, a laterally projecting tongue fixed at the opposite end of said body portion for interlocking said side members, and an elongated recess in said body portion with beveled faces at the opposite ends of the recess, said side members fitting together in the draft key opening with said elongated recesses in facing relation and each of said laterally projecting tongues extending through the aperture in the enlarged head of the other side member to engage the latter enlarged head for interlocking said side members; a retainer key member having a rigid flange at one end; and a detent carried by said key member in position to project laterally thereof, said key member slidably fitting between said side member body portions through either of said enlarged head apertures and being located by said rigid flange, and said detent projecting from said retainer key to fit into one of said elongated recesses, said detent projecting sufficiently for forcing said side members apart within the draft key opening to hold said tongues and enlarged heads in engagement and said detent being displaceable by engagement with one of said beveled end faces to allow movement of said key member into and out of a position between said side member body portions.

3. A retainer for a railway car draft key having an opening to receive the retainer: said retainer comprising a pair of side members each having a body portion with a flat face, a rigid tongue adjacent one end of the body portion and an enlarged head adjacent the opposite end of the body portion projecting laterally thereof and having a semi-annular portion to provide an aperture therethrough, said semi-annular portions of said enlarged heads of the side members each have a slot opening into the aperture dividing the semi-annular portions into resilient portions yieldable upon impact and internally located shoulders engaged by one of said rigid tongues upon expanding both of said side members to prevent separation of said side members in the direction parallel with said flat faces on the body portions, said side members fitting in the draft key opening with said flat faces in adjacency and the rigid tongues located in the semi-annular portions of the enlarged heads engaged upon said shoulders therein; a key member having opposite flat faces and an end flange at one end, said key member slidably fitting between said side members adjacent said flat faces and expanding the body portions of said side members in the draft key opening; and a resilient detent on said key member projecting outwardly from a flat face thereof to engage one of said body portions and urge the key member against the other body portion to retain said body portions in expanded relation.

FRANK H. PIETZSCH.

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