

(No Model.)

J. A. MOSHER.
RAIL BOND.

No. 587,134.

Patented July 27, 1897.

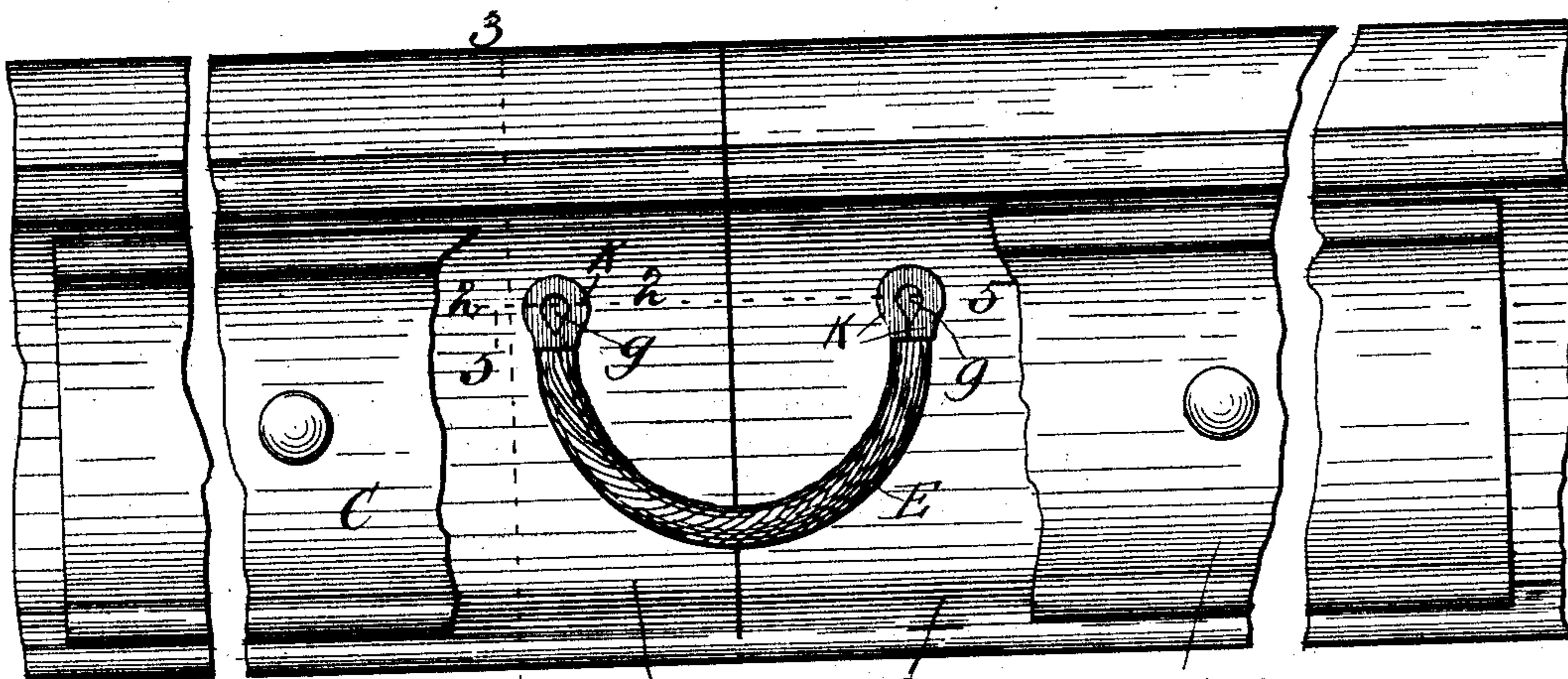


Fig 1

Fig 2

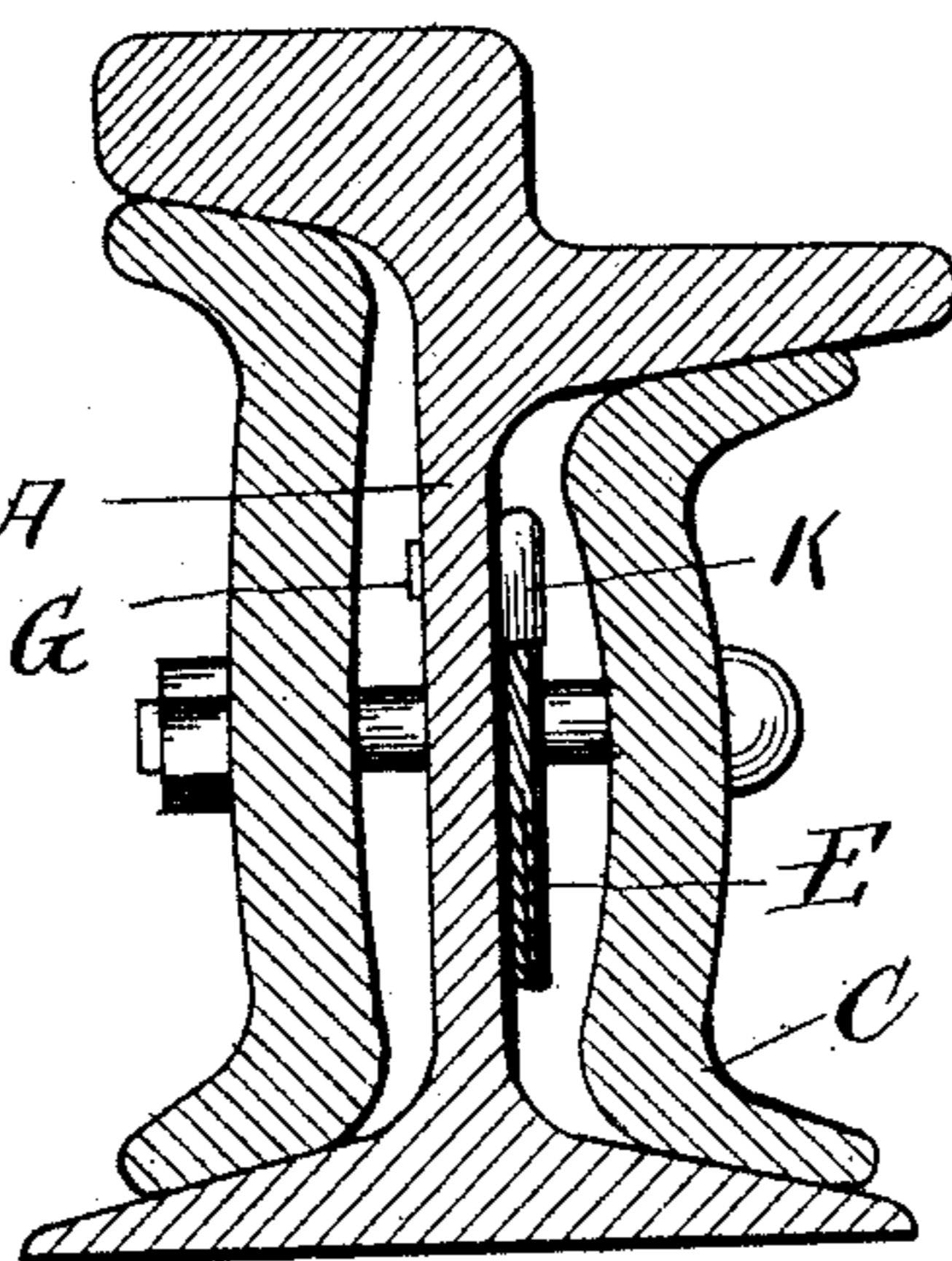
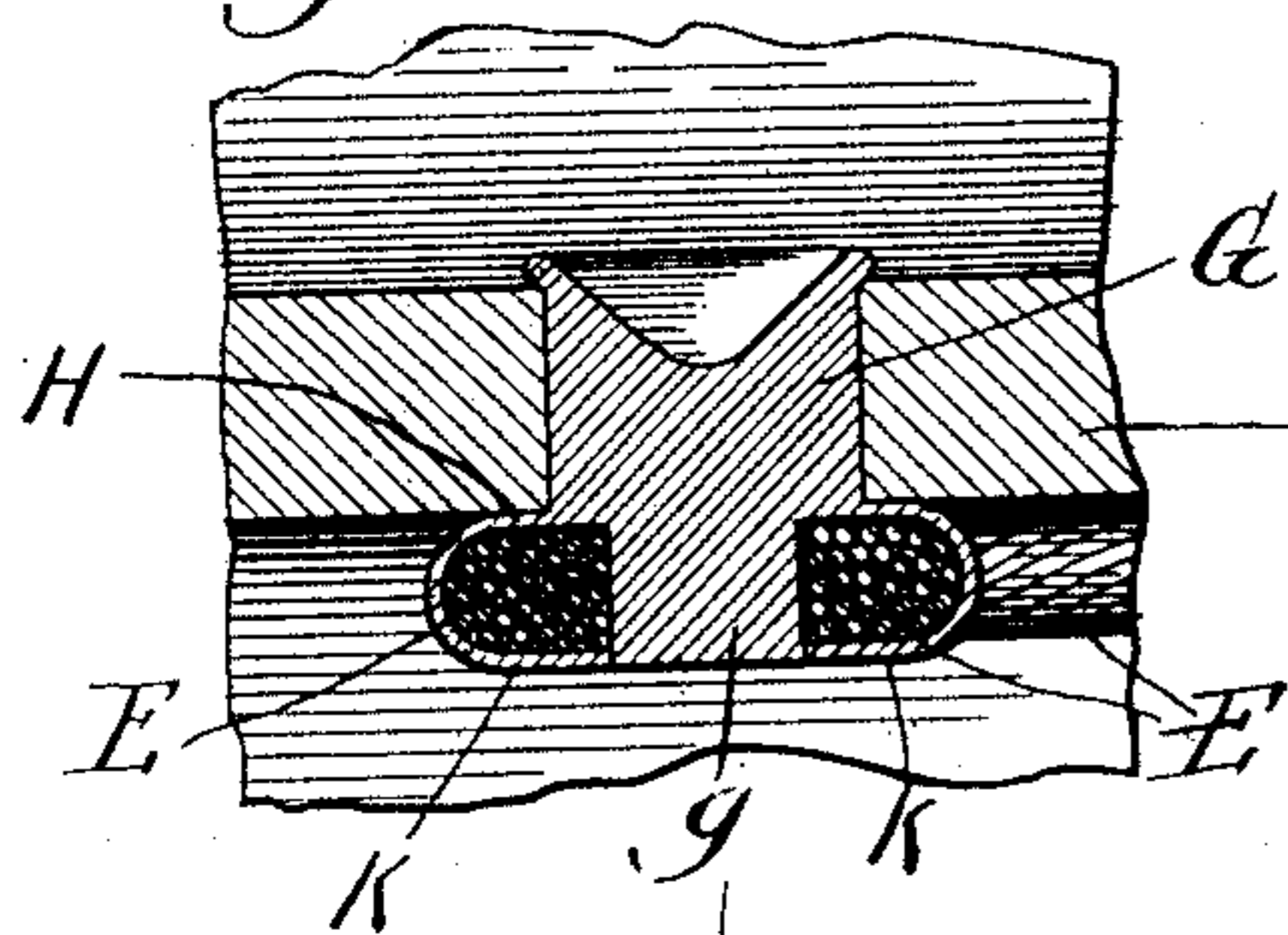


Fig 3

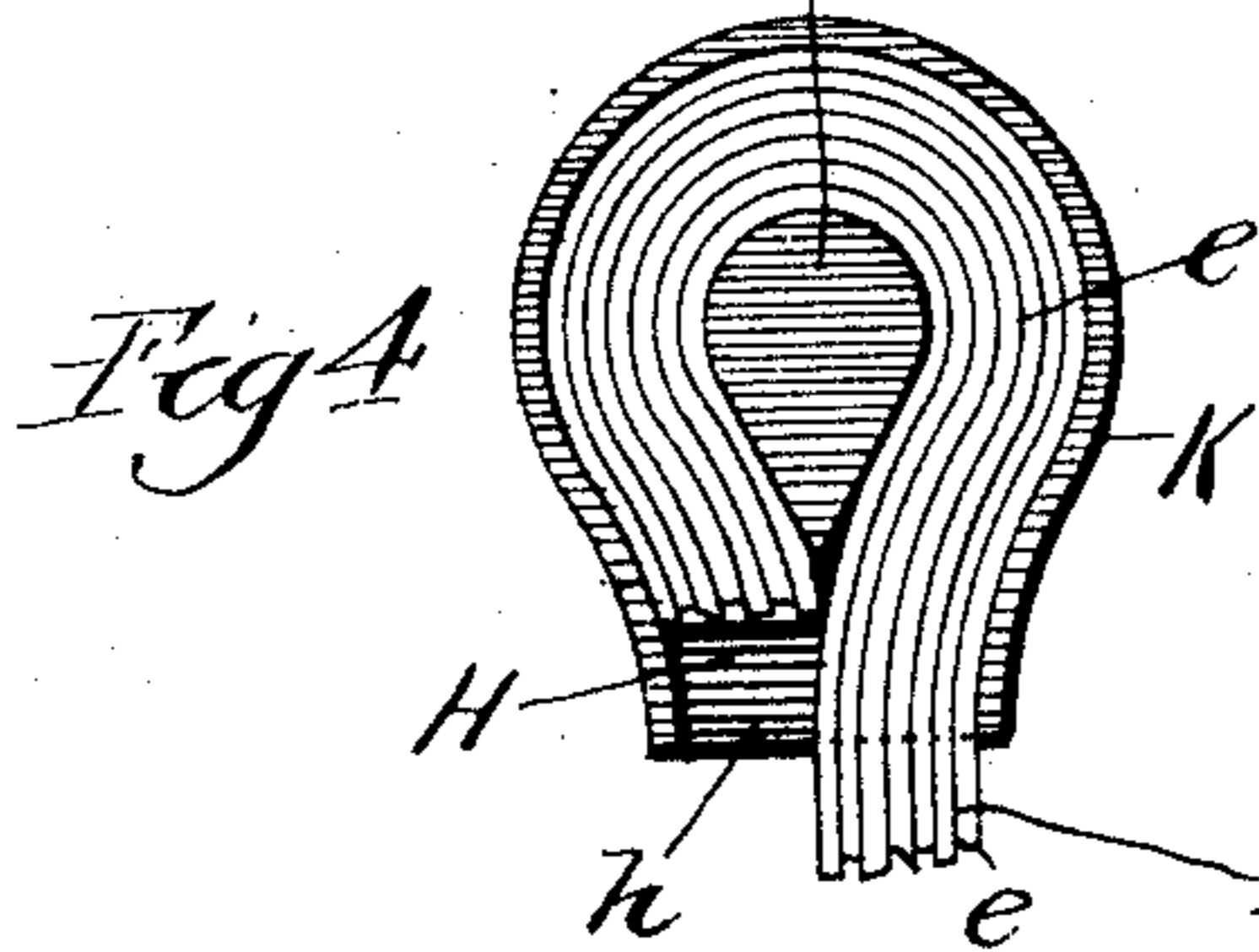


Fig 4

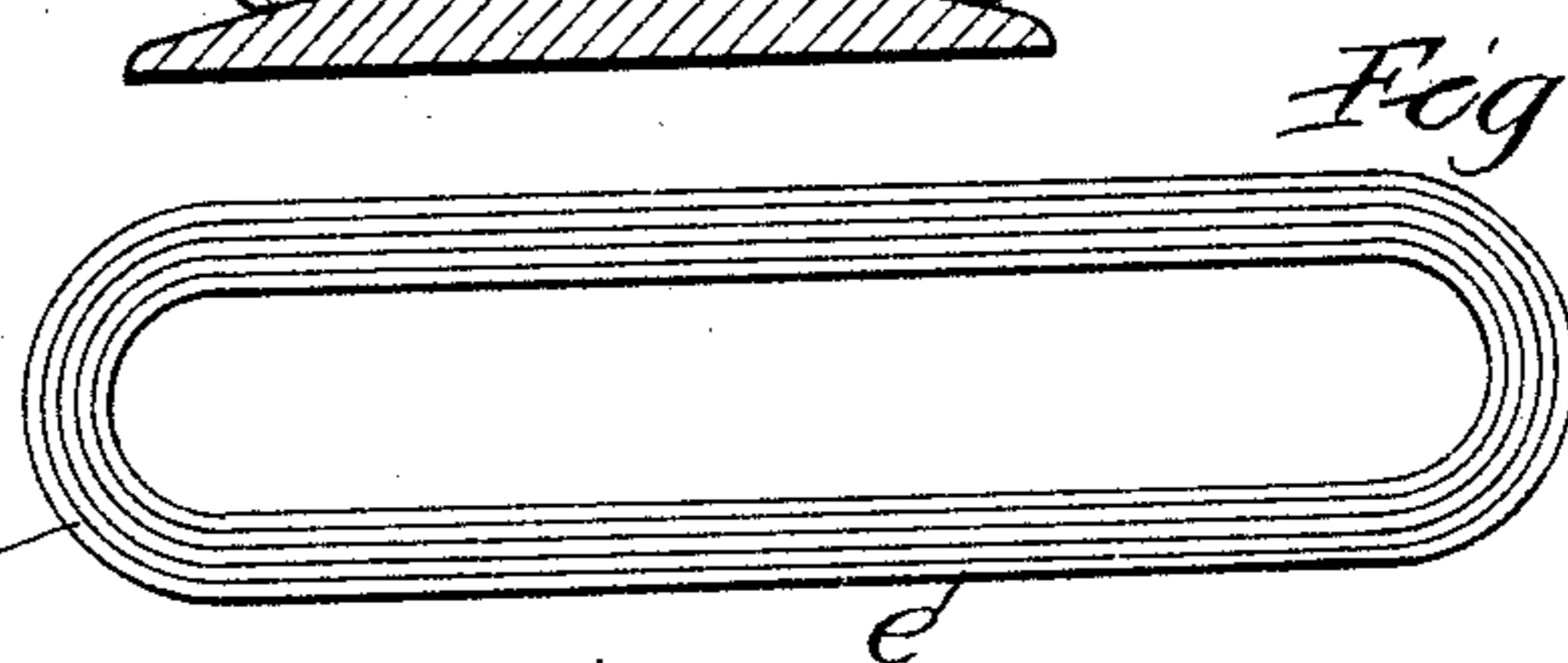


Fig 5

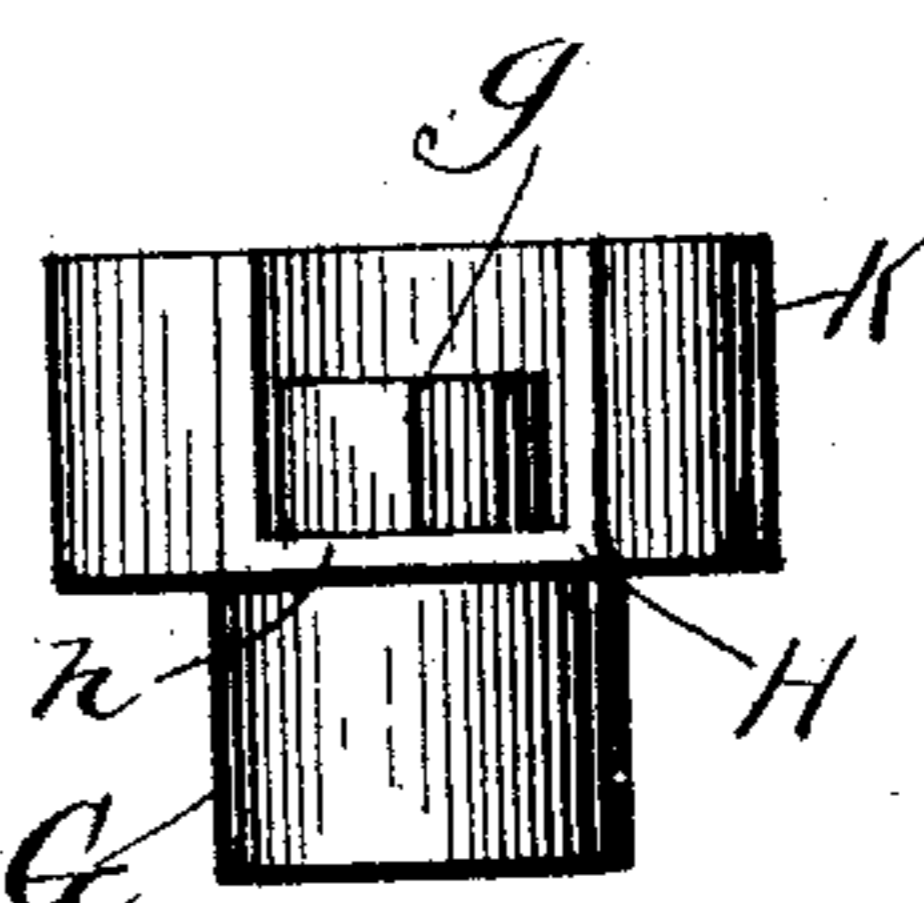
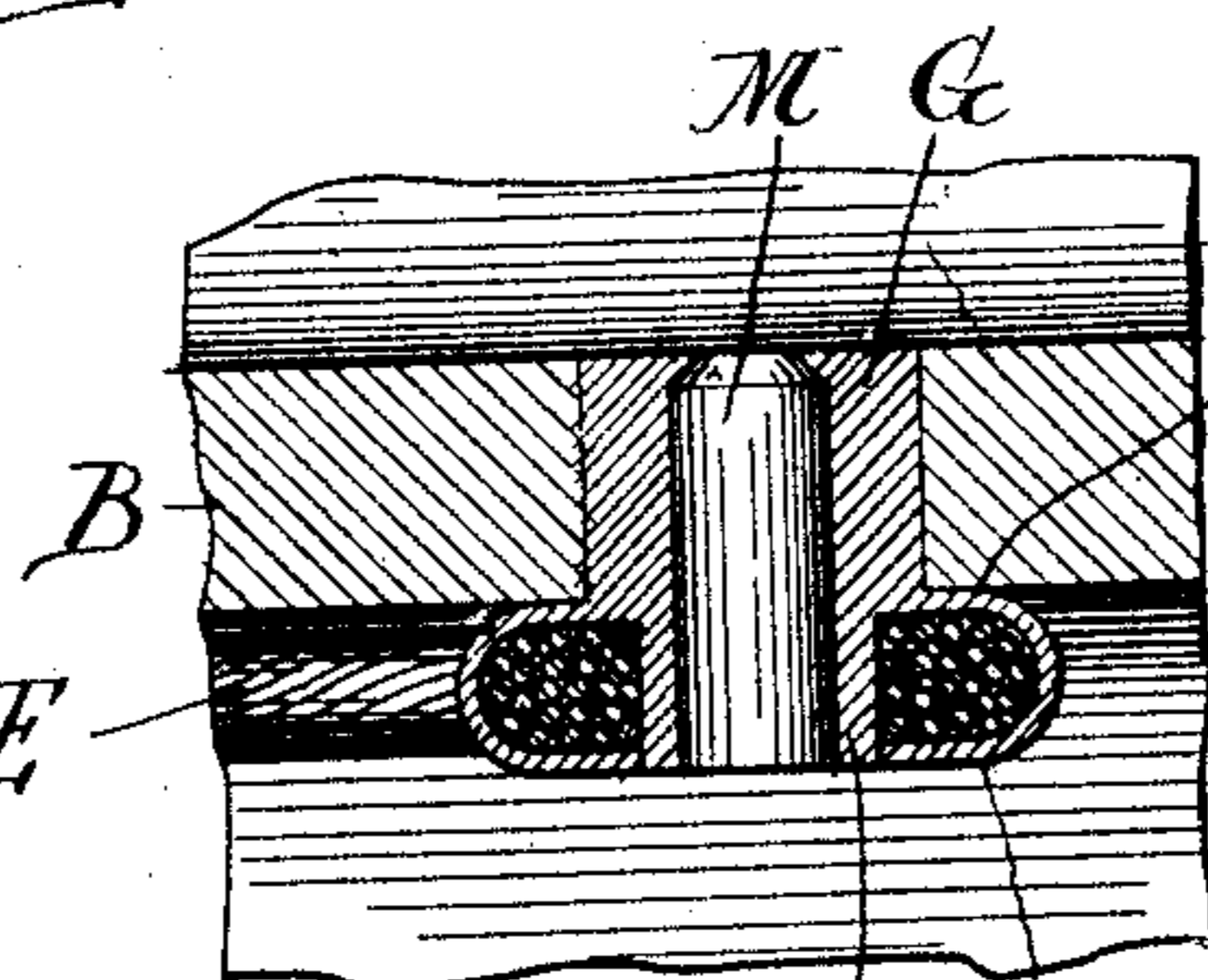
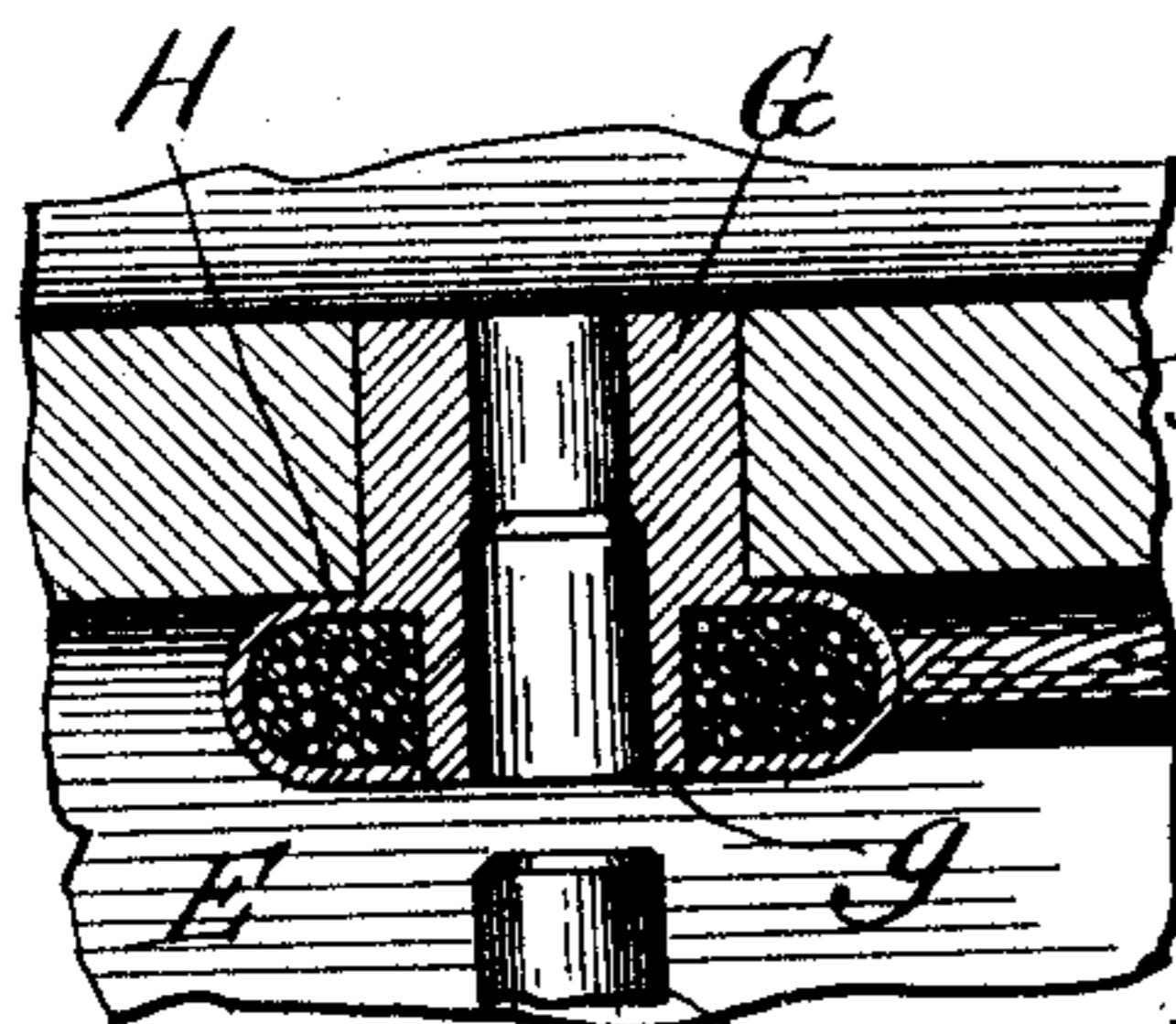


Fig 8

Witnesses,
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UNITED STATES PATENT OFFICE.

JOHN A. MOSHER, OF CHICAGO, ILLINOIS.

RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 587,134, dated July 27, 1897.

Application filed June 21, 1897. Serial No. 641,564. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. MOSHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rail-Bonds; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that type of connectors of the class named in which a flexible body portion is provided with solid ends having riveting-studs adapted to pass through the web of a rail and be secured thereto by an expanding pressure, either by longitudinal compression or the insertion of an expanding or rift pin into a relatively small aperture through the stud.

The objects of the invention are to secure a cheap construction, a secure attachment of the heads to the body portion, and high efficiency. These objects are attained by the construction hereinafter fully described, and illustrated in the accompanying drawings, in which—

Figure 1 is a detail elevation, partly broken away, of portions of adjacent railway-rails with my improved bond applied. Fig. 2 is a detail section on the line 2 2 of Fig. 1. Fig. 3 is a sectional view on the line 3 3 of Fig. 1, the broken-away portions being restored. Fig. 4 is a plan view of one of the end pieces with the body portion engaged therewith but not secured. Fig. 5 is a sectional view on the line 5 5 of Fig. 1, showing one form of attaching the bond to the rail, the attachment being incomplete. Fig. 6 is a similar view to Fig. 5, the attachment being complete. Fig. 7 is an elevation of one of the end pieces before being applied to the body portion, and Fig. 8 is a view of the body portion in an incomplete state.

It is not new to employ in rail-bonds a flexible body portion and to apply to it solid attaching ends having laterally-projecting studs adapted to pass through the web of the rails and to be made fast thereto by being ex-

panded, either by longitudinal compression, as by riveting or screw-pressure, or by the insertion of a rift or expanding pin into a longitudinal aperture in the stud of relatively small size. The body portion has also been made of a plurality of strands. Difficulty has arisen, however, in securely attaching the body portion to the end pieces in a cheap and effective manner, such attachment having been accomplished both by casting and welding, the one method being apt to result in poor electrical as well as mechanical connection, and the other being expensive in that it involves heating of the parts.

The body portion E of my improved bond is formed of a single strand *e* of wire, coiled to form an oblong loop. While it is not essential that the loop be of a single piece, it will usually be found most convenient to so make it. The end pieces each comprise a plate H, preferably circular in form, except as to a lip portion *h*, extending a short distance from one side, a stud G, projecting centrally from the face of the plate in one direction, a stud *g*, projecting centrally from the opposite side of the plate and having a lateral wedge-shaped projection directed toward the lip *h*, and a flange K, standing up at the margin of the plate so as to inclose, but being spaced apart from, the stud *g* and terminating at the outer angles of the lip *h*.

The end of the body portion is caught over the stud *g*, filling the channel surrounding it, and the flange K, being of sufficient height for the purpose, is folded over to the stud and forced down with sufficient pressure to make a close joint with it, as shown, and to firmly compress the strands of the loop to insure a good electrical contact.

The body portion is preferably twisted, if it is of wire, so as to make it more compact, and after twisting it may be flattened so that it will be better adapted to the space between the web of the rails A B and the fish-plate C.

In the operation of attaching the bond to the rail the stud *g* is laterally expanded slightly, still further compressing the strands surrounding it. The attachment is accomplished either by riveting, giving the result shown in Fig. 2, or by the use of a rift-pin, a tapering hole being drilled through the

studs *g* *G* to receive a steel pin *M*. In the latter method of attachment the diameter of the opening through the stud *g* should be but slightly less than that of the pin, so that the expansion of the stud will not be sufficient to open the joint at the juncture with it of the flange *H*.

The form of construction herein shown and described removes all danger of the disengagement of the strands, of which the body portion is composed, from the ends, and if the strands are bright and clean when the bond is made the electric resistance will be as low as if the ends and body were actually integral. The flange *H* may be closed down so tightly and closely upon the strands and against the stud that no moisture or dirt can get beneath it, and hence there will be no drop in conductivity with the lapse of time.

I do not limit myself to the construction of the body portion shown, as any construction in which a body portion is looped or hooked over a projecting portion of a solid end piece and securely held and brought into intimate electrical relation therewith by an overturned portion of the end piece being forced down upon it comes within the scope of my invention.

I claim as my invention—

1. A rail-bond comprising a body portion and end pieces, the body portion being looped or hooked over a projection of each of the end pieces and secured by an overturned portion of the end piece compressed upon it.

2. The combination in a rail-bond, of a flexible body portion having its ends in loop form, with end pieces having projections for engaging the loops of the body portion, and flanges adapted to be turned down upon the

loops of the body portion to hold them in engagement with the end pieces.

3. In a rail-bond the combination with a body portion having its ends in loop form, of end pieces each comprising a plate, a stud projecting from the plate and adapted to enter one of the looped ends of the body portion, and a flange rising from the plate and being folded over the loop in engagement with the stud.

4. In a rail-bond the combination with a body portion comprising an oblong coil, with a pair of end pieces each comprising a plate, a riveting-stud projecting from one face of the plate, an attaching-stud projecting from the opposite face of the plate and entering one end of the oblong loop, and a flange rising from the plate and overlapping the end of the loop in engagement with the attaching-stud.

5. The combination with a plate having a stud rising from each of its opposite faces and in alinement, a longitudinal aperture opening through such studs and the plate, a flange rising from the plate and inclosing one of the studs but being spaced apart therefrom, and an oblong flexible loop caught over such inclosed stud, the flange being folded over the portion of the loop in engagement with the stud, and an expanding-pin for entering the aperture of the studs but being of greater diameter than such aperture.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. MOSIER.

Witnesses:

LOUIS K. GILLSON,
HESTER BAIRD.