

No. 628,555.

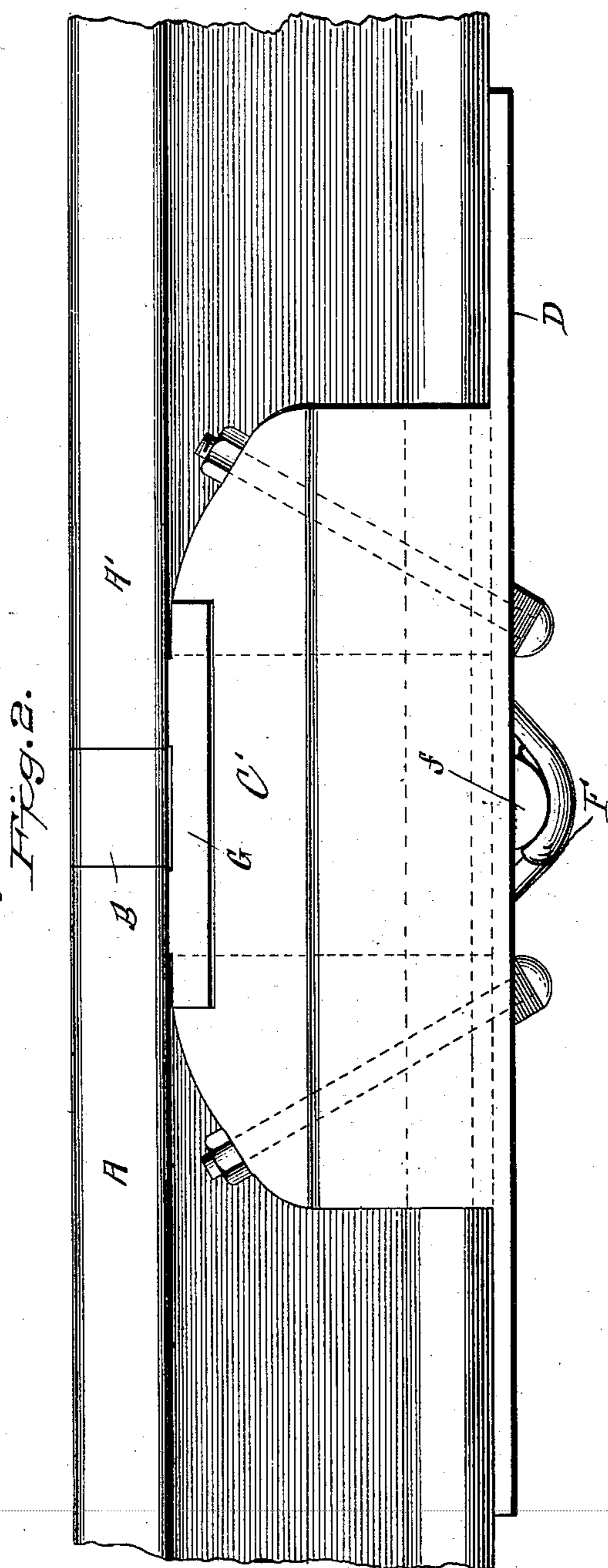
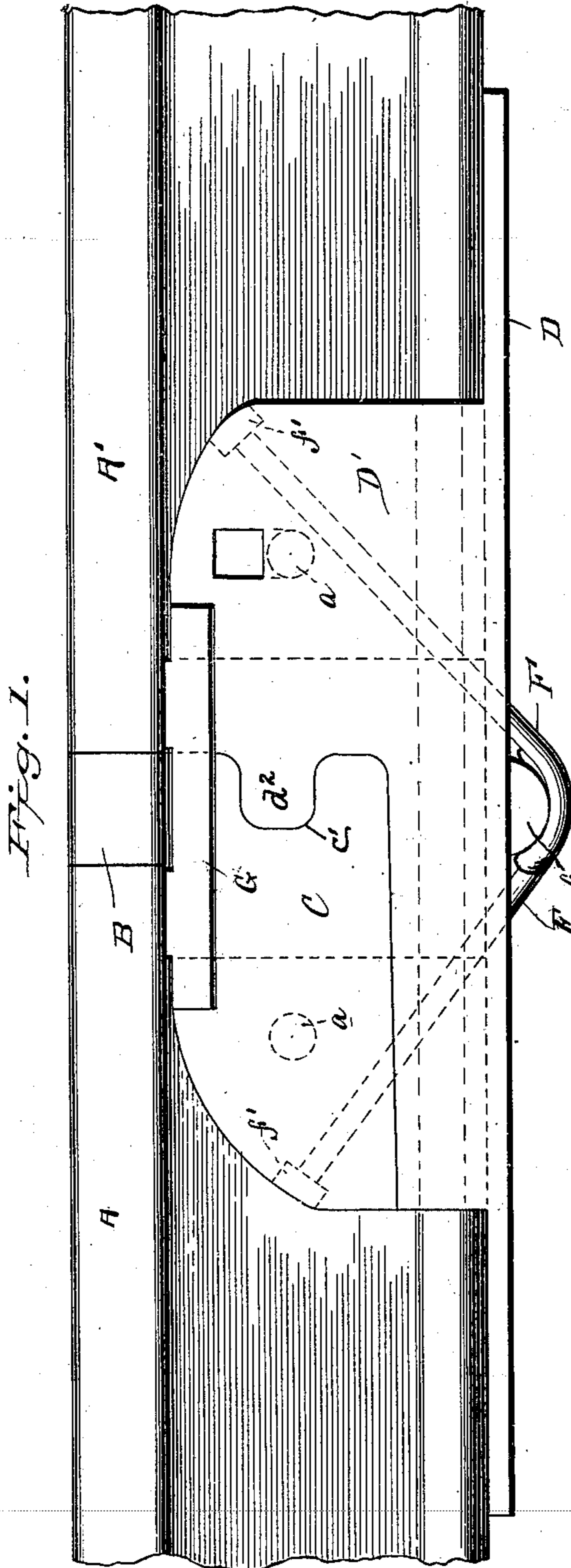
Patented July 11, 1899.

J. E. SMITH.
RAIL JOINT.

(Application filed Oct. 5, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
Geo. B. Byrne,
D. R. Hershey.

Inventor:
Jacob E. Smith,
34- John V. Thomas & Co.,
attorneys.

No. 628,555.

Patented July 11, 1899.

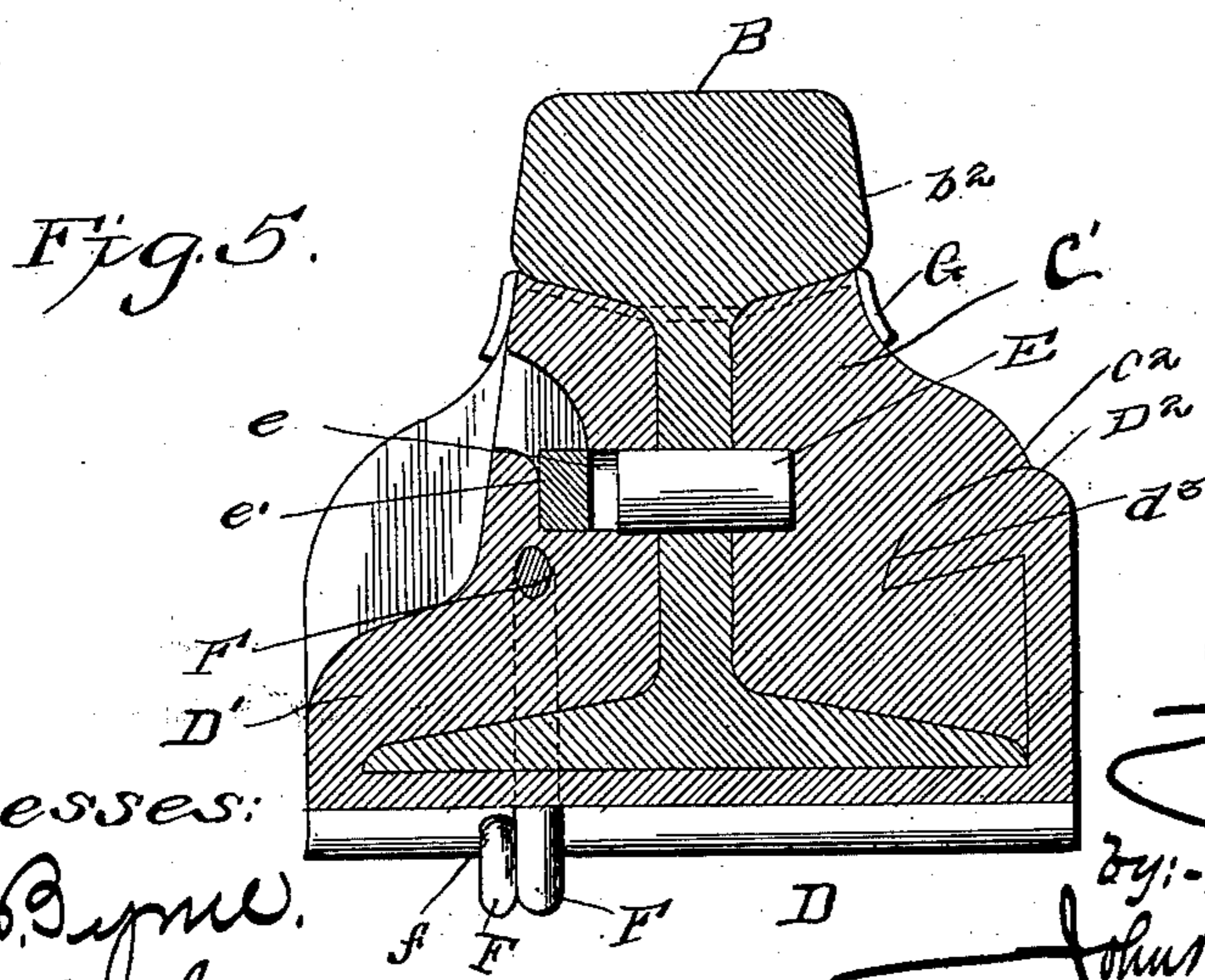
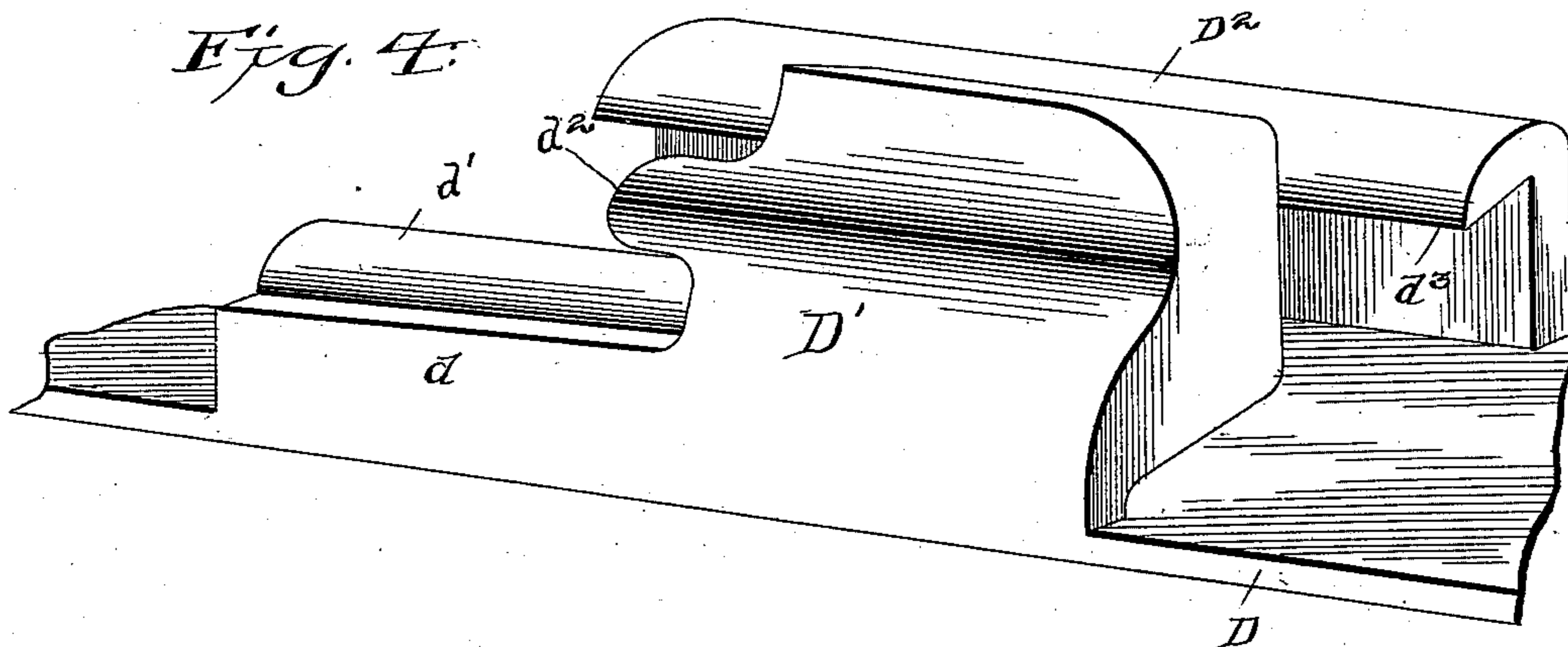
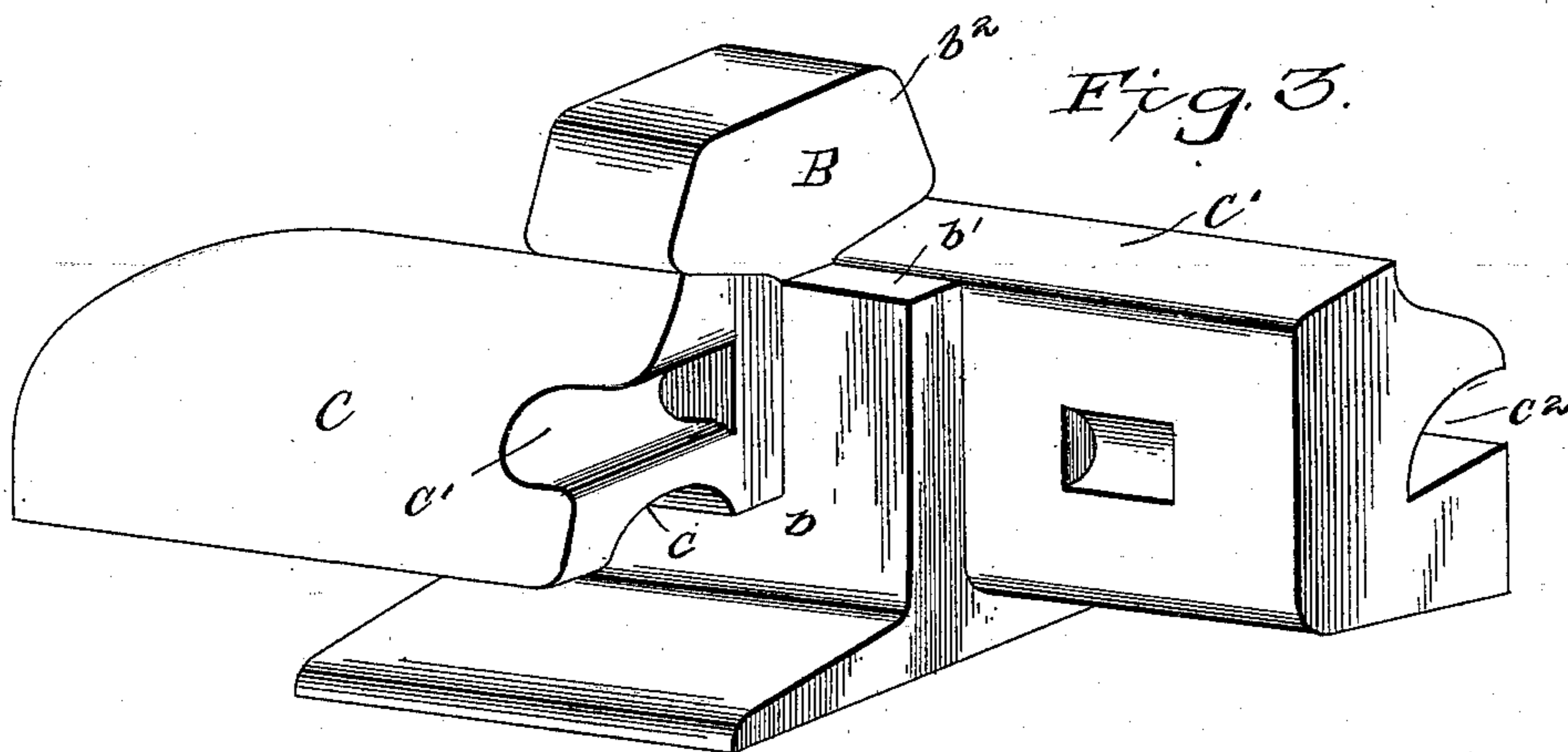
J. E. SMITH.

RAIL JOINT.

(Application filed Oct. 5, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

Geo. B. Dymal.
D. R. Hershey.

Jacob C. Smith,
Inventor:

by: John D. Thomas & Co.,
attorneys.

UNITED STATES PATENT OFFICE.

JACOB E. SMITH, OF HOMESTEAD, PENNSYLVANIA.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 628,555, dated July 11, 1899.

Application filed October 5, 1898. Serial No. 692,747. (No model.)

To all whom it may concern:

Be it known that I, JACOB E. SMITH, a citizen of the United States of America, residing at Homestead, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Rail-Joints; and I do hereby 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.

The object of my invention is to provide a simple, cheap, and effective joint for firmly uniting the meeting ends of railroad-rails and beams or joists used for structural purposes to prevent independent movement or vibration thereof.

The invention embodies a construction and arrangement of parts that greatly increases the efficiency and despatch in which the rails or beams are united and forms a solid bearing therefor without requiring a rest, brace, or other additional support.

The invention has in view the further object of reducing or dividing the space usually left between the ends of the rails or beams to permit of the expansion and contraction and includes the placing of a copper plate to insure a proper bond between rails when adapted for electrical railways.

To the above ends and to such others as the invention may pertain the same consists of parallel segments or side pieces connected by a transverse web or short rail-section positioned in use between the ends of the rails or beams, the said segments being interlocked with a segment and flange on a shoe, which forms a chair or binding-plate, and the rails prevented from "creeping" by means of lateral projections or movable pins which engage recesses therefor in the segments.

The invention further consists in certain details of construction and combination of parts, as fully described in the following specification and more specifically set forth in the appended claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of a joint constructed in accordance with my invention, showing its application to railroad-rails. Fig. 2 is a similar view look-

ing at the other side of the joint. Fig. 3 is a detail perspective view of one part of the joint. Fig. 4 is a detail perspective view of the other part of the joint. Fig. 5 is a vertical sectional view on the line 5 5 of Fig. 1.

My invention or improvement consists, practically, of two parts, which firmly embrace the adjoining ends of the rails and interlock with each other to provide a strong rigid connection, the said parts being shaped in a peculiar manner for this purpose.

Referring more particularly to the drawings, A and A' designate the rails, and B a short rail-section adapted to fit between the adjoining ends of said rails, the body *b* of the short rail-section being extended longitudinally to form shoulders *b' b'* at opposite sides of the head *b²*, and upon these shoulders rest the head or tread portion of the rails A A', the body and base-flange of each rail being cut away at its end for this purpose. The short rail-section B is formed integrally with and connects two segments C and C', which are adapted to embrace opposite sides of the rails A A', and are therefore shaped to receive said rails between them, with the tread portions bearing upon the upper edges thereof. The lower edge of the segment C terminates a short distance above the base-flanges of the rails, and said edge is provided with a longitudinal groove *c*, while the end of the segment which adjoins the short rail-section B has a transverse groove *c'* therein. The other segment C', properly a locking-plate, bears upon the base-flanges of the rails and body and tread portion thereof, the said locking-plate having a longitudinal groove *c²* in its outer side, the base of which is beveled downward, while the rear and upper walls are a continuous curve. (Clearly shown in the sectional view, Fig. 5.) The other part of the joint comprises a base-plate or shoe D, carrying a segment D' and locking-flange D², which are formed integrally therewith, the segment D' bearing against the body and tread portion of the rail A' and also against the base-flange, which fits into a longitudinal groove at the inner side of said segment. This segment D' is provided at its lower end with an extended member *d*, forming, with the shoe, a longitudinal recess to receive the base-

flanges of the rails A and B, the upper part of said extension being shaped to correspond with the lower edge of the segment C, with which it is slid into engagement in assembling the parts, and for this purpose has a raised portion or spline d' , fitting the groove c . The said segment D' is also provided with a projection d^2 , extending transversely and adapted to interlock with the segment C by engaging the transverse recess c' thereof. The locking-flange D^2 is located at the opposite side of the rail from the segment D' , extending vertically from the outer edge of the base-flange and terminating in an inwardly-projecting head d^3 , shaped to correspond with the groove c^2 of the locking-plate C' , with which it is slid into engagement.

The rails A and A' are provided at their adjoining ends with laterally-projecting pins a , which engage shallow recesses in the parts of the joint and serve to prevent creeping of the rails or excessive longitudinal movement. Instead of having these pins carried by the rails they may be and preferably are contained within recesses e in the segments to slide into engagement with openings or recesses in the rails. In this modification the pins are designated by the letter E and are held in engagement with the rails by a block e' .

The operation of assembling the parts in making a joint in accordance with my invention will be readily apparent from what is shown and described herein, for after fitting the part B C C' upon the end of the rail A the part D D' D², after being slipped upon the end of the rail A' to the required distance from the end thereof, is then slid into engagement with the part B C C' interlocking therewith, so that both parts will firmly embrace the ends of the rails and present a web or center piece between them. It will be noted, therefore, that in applying the joint it is not necessary to move the rails A and A' longitudinally, but merely to move the end portions laterally out of line sufficiently to permit the parts of the joint to be slipped upon the rails.

After making the joint as hereinbefore described the two parts comprising the same are strongly connected together by bent tie-rods F, which are passed up through openings therefor in the segments C D' and base-flanges of the rails, the rods having bent ends which engage a block f and are made taut by nuts f' , screwed upon the ends thereof and bearing in recesses in the segments.

In connection with my improved joint I employ a copper plate G to form a bond between the rails A and A', the said plate being shaped to be so applied as to contact with the rails A, A', and B between the overlapping tread portions of the former and shoulders of the latter, the side portions of the plate being bent down to lie between the segments and rails. To this end the plate is provided with a central opening receiving the tread portion

b^2 and is cut away at its ends to receive the webs of the main rails. This provides a conductor for the electric current which is thoroughly protected and will insure a positive contact.

Though I have herein particularly described the joint as applied for connecting railroad-rails, it is obvious that it could be employed with equal effect in connecting beams, joists, or the like which are used for structural purposes, for in both applications it forms a strong connection and can be placed in position without requiring a longitudinal movement of the rails or beams. When applied as a joint for railroad-rails, for which it is especially adapted, the center piece or short rail-section divides the space between the rails which is left for expansion and contraction of said rails, and will therefore relieve to a great extent the jolting occasioned by the wheels passing over the joint, and consequently remove the pounding to which the ends of the rails are subjected.

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

1. A rail-joint, comprising parts which embrace the rails, the tread portions of the latter being extended at their adjoining ends, and a short rail-section the web or body of which is extended longitudinally at each side of said web or head, substantially as shown and described.

2. In a rail-joint, the combination with the main rails having the tread portions thereof extended, a short rail-section having its web or body extended longitudinally at each side of the tread portion, and parts engaging the short rail-section and ends of the main rails, substantially as shown and described.

3. In combination with a rail-joint comprising the main rails having projecting tread portions, a short rail-section interposed between the ends of the main rails and having shoulders upon which the projections of the tread portions bear, and parts engaging the short rail-section and ends of the main rails; of a plate fitting upon the shoulders of the short rail-section, said plate having an opening through which the head of said section is passed, substantially as shown and for the purpose set forth.

4. In a rail-joint, the combination of the main rails and an interposed short rail-section, shoulders forming bearings for the tread portions, means connecting the short rail-section and main rails, and a plate located between the aforesaid shoulders, said plate having an opening through which the tread portion of the short rail-section is passed, substantially as shown and for the purpose set forth.

5. A rail-joint, comprising parts embracing the ends of the rails and interlocked by sliding one into engagement with another, bent tie-rods passing up through the parts, and a block for holding the tie-rods in place by en-

gaging the bent ends thereof, substantially as shown and described.

6. A rail-joint, comprising two parts one having a short rail-section formed integrally therewith, a locking-flange on one of the parts adapted to engage a groove in the other by sliding said parts together, and means for holding the parts against longitudinal movement, the said joint also forming a bearing for the tread portion of the rails, substantially as shown and described.

7. A rail-joint, comprising two parts one consisting of a short rail-section, segment and locking-plate, and the other consisting of a segment, base-plate and locking-flange, the segment of one closely fitting the segment of the other while the locking-flange engages the locking-plate; together with means preventing longitudinal movement of the parts, substantially as shown and for the purpose set forth.

8. In a rail-joint, the combination of the short rail-section B, segment C and locking-plate C' formed integrally therewith, the segment bearing against the tread portion of the rail and terminating at its lower end above the base-flange thereof while the locking-plate has a longitudinal groove in its outer edge; together with the shoe D carrying a segment D' having an extension at its lower end which fits under the segment C and upon the base-flange of the rail, a locking-flange D² also carried by the shoe and adapted to be slid into engagement with the locking-plate, and means

holding the parts against longitudinal movement, substantially as shown and described.

9. A rail-joint, comprising two parts, one part consisting of a short rail-section, segment and locking-plate, and the other part consisting of a segment, base-plate and locking-flange; one of the segments being provided with a transverse recess or opening through the same, a pin slidably mounted in the recess or opening, and means limiting the movement of the pin; together with means limiting the longitudinal movement of the parts of the joint, substantially as shown and for the purpose set forth.

10. A rail-joint, comprising two parts, one part consisting of a short rail-section, segment and locking-plate, the segment terminating above the base-flange of the rail-section and having a transverse groove at its inner end; and the other part consisting of a segment, base-plate and locking-flange, the segment having an extension fitting under the other segment and a transverse projection fitting the groove at the inner end of said other segment; together with means preventing longitudinal movement of the parts of the joint, substantially as shown and for the purpose set forth.

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

JACOB E. SMITH.

Witnesses:

W. L. McCONEGLY,
E. S. McCONEGLY.