

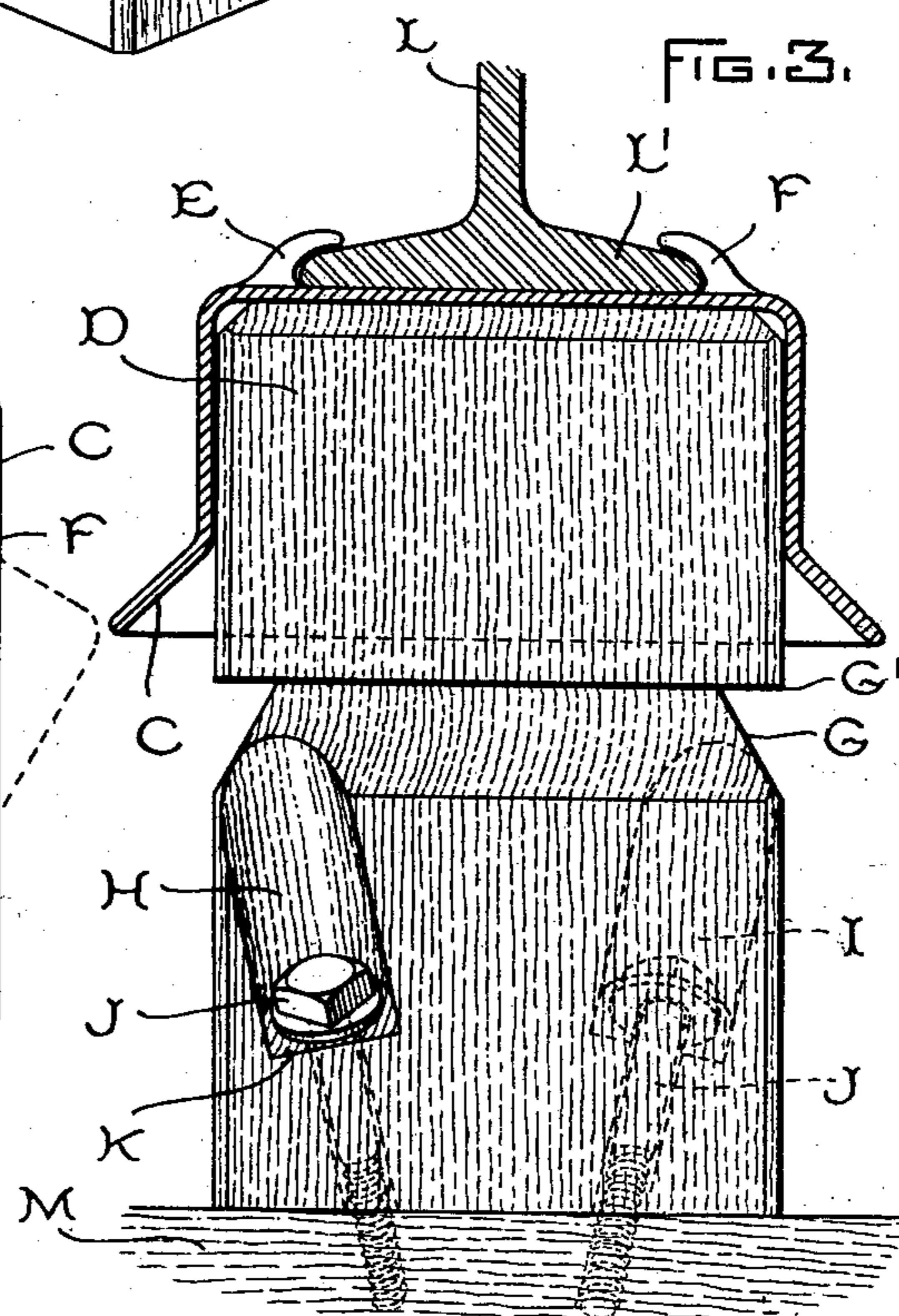
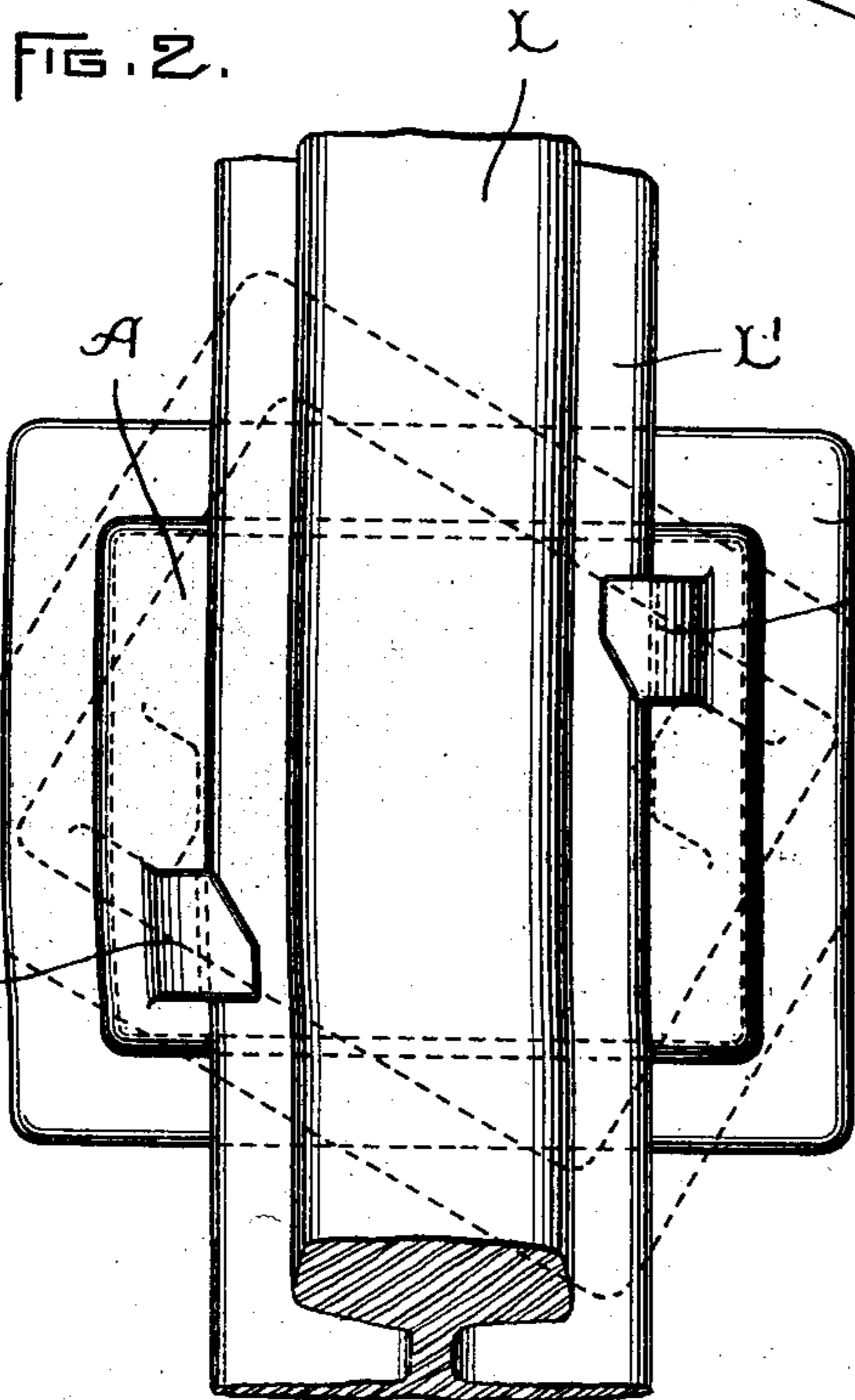
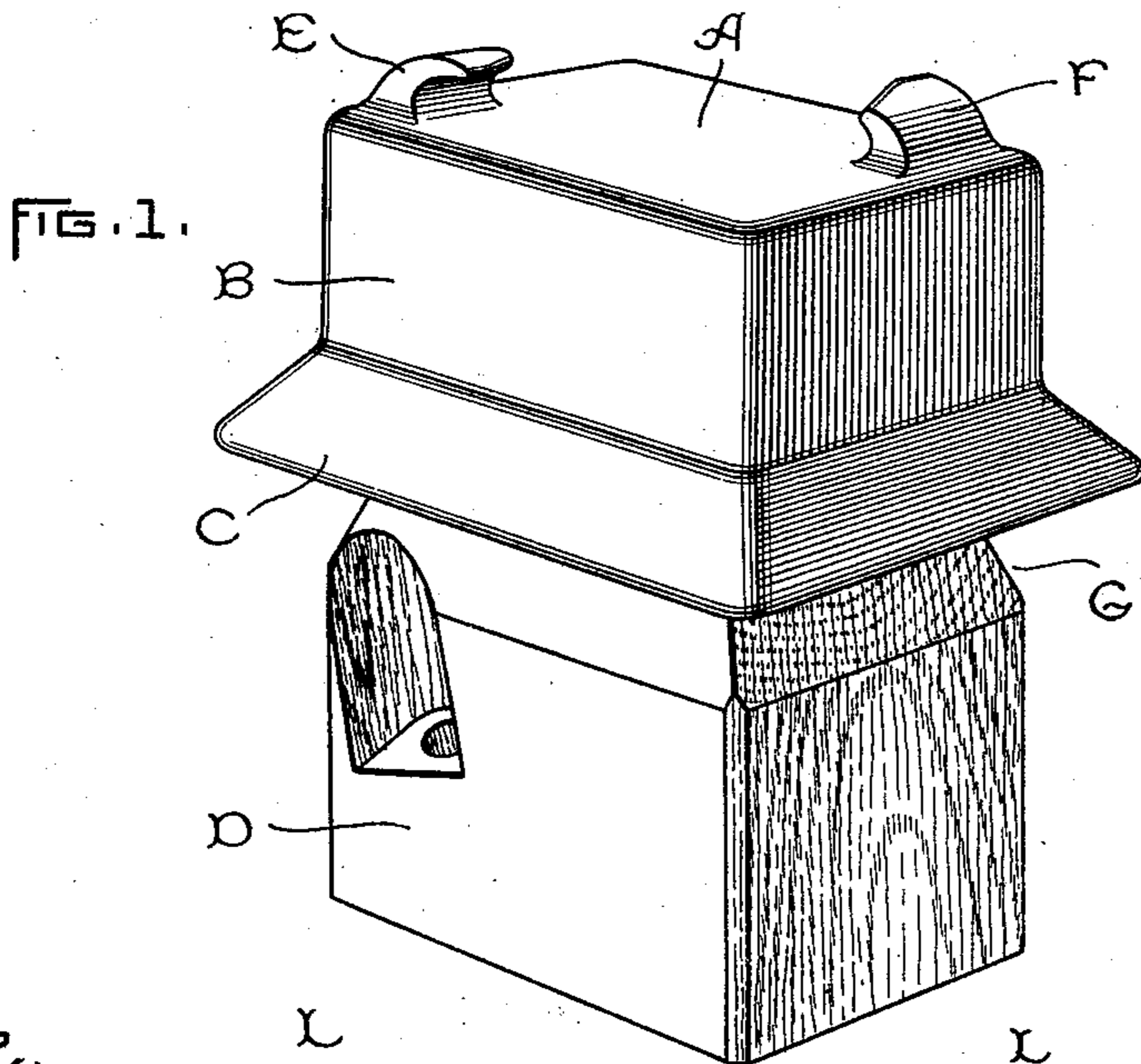
No. 606,830.

Patented July 5, 1898.

B. WILLARD.
INSULATOR.

(Application filed Apr. 18, 1898.)

(No Model.)



WITNESSES.

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A. F. Macdonald.

INVENTOR.

Ben Willard,

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Atty.

UNITED STATES PATENT OFFICE.

BEN WILLARD, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF NEW YORK.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 606,830, dated July 5, 1898.

Application filed April 18, 1898. Serial No. 677,936. (No model.)

To all whom it may concern:

Be it known that I, BEN WILLARD, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Insulators, (Case No. 814,) of which the following is a specification.

My invention relates to insulators which are designed to support a conductor-rail, such as that of the well-known tramway systems.

My invention has for its object to provide an insulator which is simple in construction, practically indestructible, and one which will permit the conductor-rail or its support to move slightly up and down without breaking the insulating medium employed in the insulator or being twisted out of position.

It is customary to mount the third-rail insulators on the same cross-ties which support the traffic-rails, and as the ties move up and down slightly as the trains pass over them it causes considerable strain on the insulators, since the pressure on the third rail is so very slight that it does not move up and down in a manner corresponding to the traffic-rails. To provide for this independent movement, I bolt one portion of the insulator to the cross-tie and secure the other portion to the conductor-rail, the two parts being so related to each other that they are capable of free independent movement in a vertical plane, but are prevented from independent movement in a horizontal plane.

In the accompanying drawings, which show an embodiment of my invention, Figure 1 is a perspective view of an insulator. Fig. 2 is a plan view of the same, and Fig. 3 is a side elevation with the cap in section.

The insulator is provided with a rectangular metal cap A, having downwardly-projecting sides B, which are flared at their lower extremity to form a water-shed C, so that the water will not run down the sides of the insulating-block D and cause the current to leak from the conductor-rail L to ground. In addition to forming a water-shed this construction also increases the creeping-surface of the insulator. On top of the cap and formed integral therewith are two lugs E and F, situated at diagonally opposite points and adapted to grip the lower flange L' of the conductor-

rail L. The lugs are cut away slightly on one corner to permit the cap to be secured to the rail by a slight rotary movement. The position of the cap at the time it is to be applied to the rail is shown in dotted lines in Fig. 2. The shape of the lugs is such that they will grip and securely hold the conductor-rail.

It is preferable to make the body D of the insulator of wood, as I find that it will stand an almost unlimited amount of abuse without breaking, as well as the strains to which it is subjected in ordinary use. If desired, however, porcelain or vitrified brick may be employed without departing from the invention. The insulating material is cut away at G, so as to increase the outer surface of the insulator over which the current must creep in order to form a leak. This arrangement also possesses the advantage that moisture will collect at the edge G' and drop instead of creeping down the entire side. The top of the block and also the corners are chamfered slightly to compensate for the rounded corners of the cap. It is intended that the fit between the body of the insulating material and the cap shall be such that the former is free to move into and out of the cap without binding. Situated on opposite sides of the block and at an angle to each other are holes H and I, arranged to receive the lag-screws J for securing the insulator to the cross-tie. The block is counterbored at K to receive the heads of the lag-screws. By staggering the lag-screws and arranging them so that they make an angle to each other the insulator can be very firmly secured in place.

The block, if of wood, is preferably prepared by soaking it in asphaltum and then coating it with japan. This prevents it from absorbing moisture and also increases its insulating properties.

The insulator is applied to the rail, as shown by the dotted lines in Fig. 2. It is then swung around to the position shown by the full lines and secured to the cross-tie M by the lag-screws J. The cap is prevented from turning by the angular surfaces of the insulating-block D, and since these surfaces are made large they are able to withstand all the strains to which the insulator is subjected. Nevertheless the body of the insulator is free to

move up and down within the cap as the cross-tie upon which it is mounted moves. By this arrangement the insulators are not subjected to strains as the trains pass by and
5 a certain amount of freedom of movement is permitted to all parts.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an insulator for an electric conductor,
10 the combination with a body of insulating material of a metal cap, free to move up and down on the insulating material, supporting the conductor, and means for preventing the cap from turning on the insulating material,
15 and means for securing the insulating material to a support.

2. In an insulator for an electric conductor, the combination of a metal cap having a receptacle which is other than round, with a
20 body of insulating material arranged to fit into the cap and be free to move in and out, but prevented from turning therein, and means for securing the insulator to a support.

3. In an insulator for an electric conductor,
25 the combination of a metal cap, lugs on the cap for holding the conductor, a receptacle formed on the under side of the cap which is other than round, a body of insulating material having a portion formed thereon which
30 corresponds to the receptacle in the cap, the arrangement being such that the cap and insulating material are capable of independent movement in a vertical plane, but not in a horizontal, and means for securing the body
35 of insulating material to a support.

4. In a third-rail insulator which is arranged to be applied to the rail by a slightly-rotary

movement, the combination of a cap having lugs thereon cut away at an angle for gripping the rail, a receptacle formed on the under side of the cap and provided with angular surfaces, a body of insulating material adapted to be secured to the cross-tie and provided with angular surfaces corresponding to the surfaces on the cap, the cap and body of
40 insulating material being so arranged that they are capable of free independent movement in a vertical plane, but not in a horizontal plane.

5. In a third-rail insulator adapted to be
50 secured to the rail by a slight rotary movement, the combination of a cap having cut-away lugs formed integral therewith, and a four-sided receptacle formed in its under side, a wooden base for supporting the cap, having
55 a notched or cut-away portion arranged to increase the creeping-surface, and lag-screws for securing the wooden base to the cross-ties.

6. As an article of manufacture, an insulating-cap comprising a body of metal having
60 rail-securing lugs E and F formed integral therewith, the lugs being cut away at an angle to receive the rail, a flaring flange C, and a receptacle formed in the under side of the cap having angular faces to prevent rotation
65 of the insulating-support when the insulator is assembled.

In witness whereof I have hereunto set my hand this 15th day of April, 1898.

BEN WILLARD.

Witnesses:

B. B. HULL,
G. HAYNES.