

(No Model.)

R. P. FRIST.  
INSULATOR.

No. 405,546.

Patented June 18, 1889.

FIG. 1.

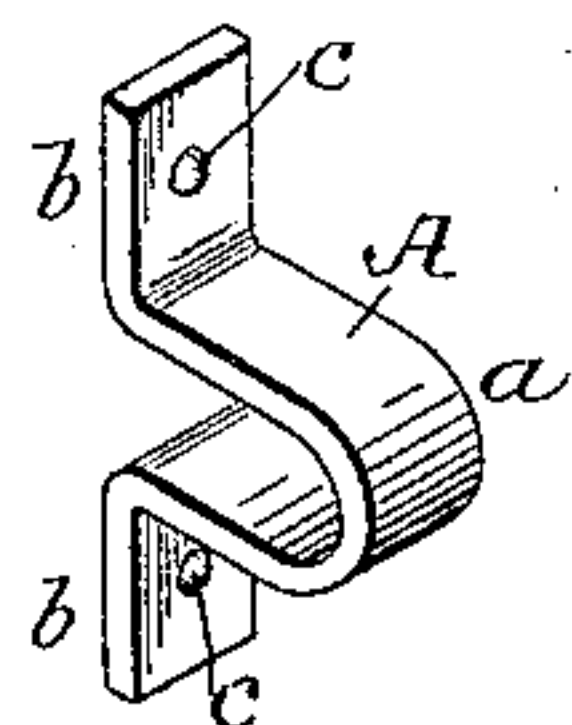


FIG. 2.

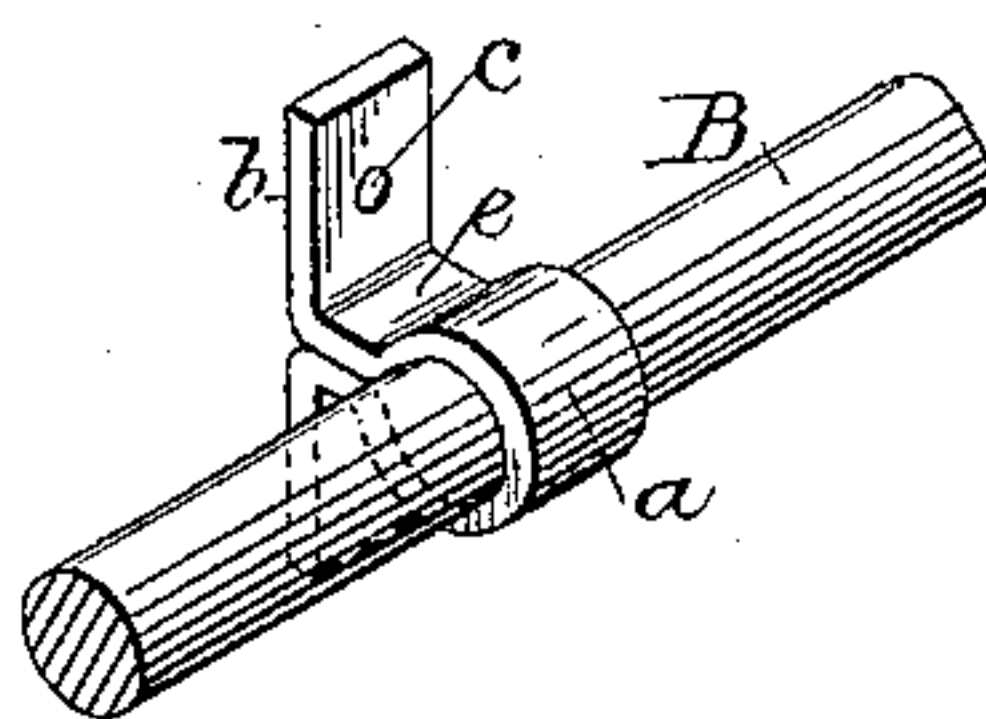


FIG. 3.

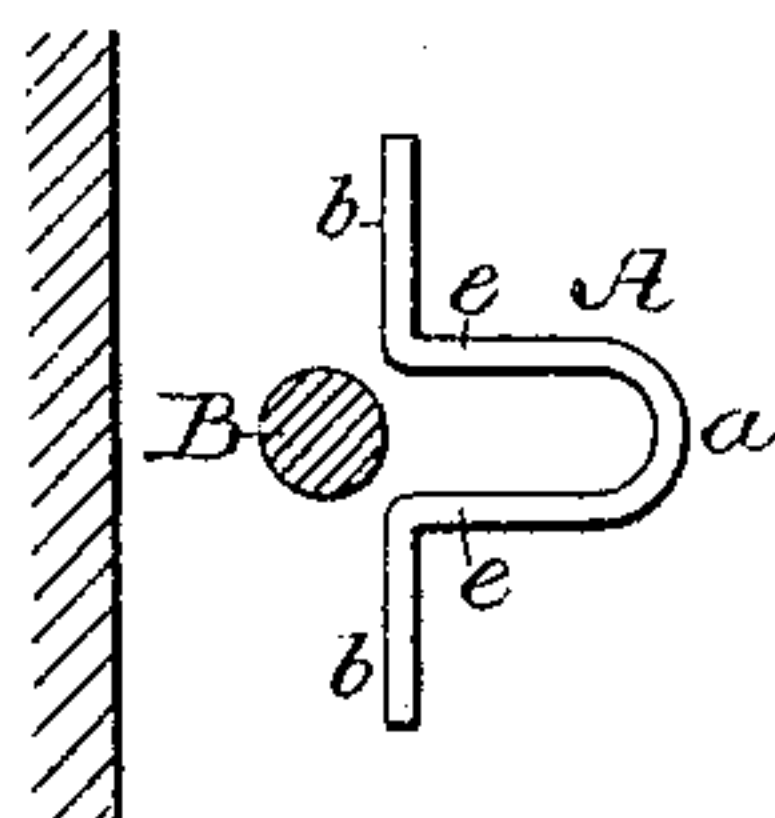


FIG. 4.

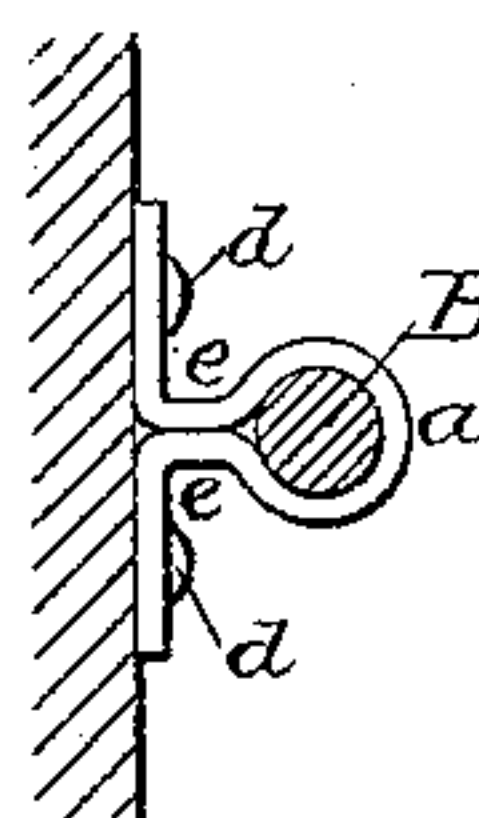


FIG. 5.

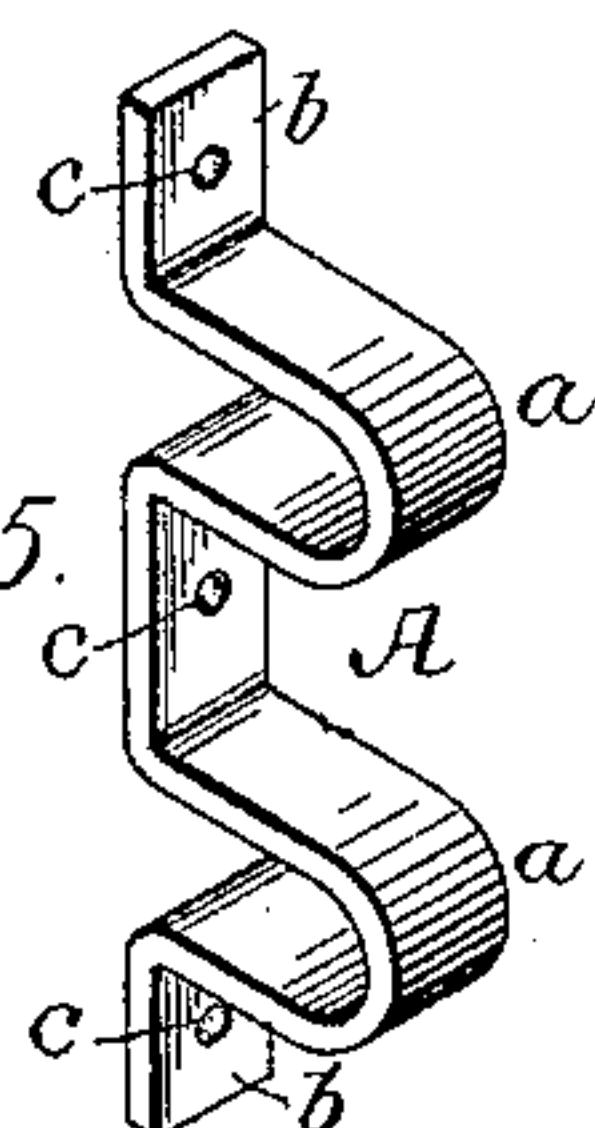


FIG. 6.

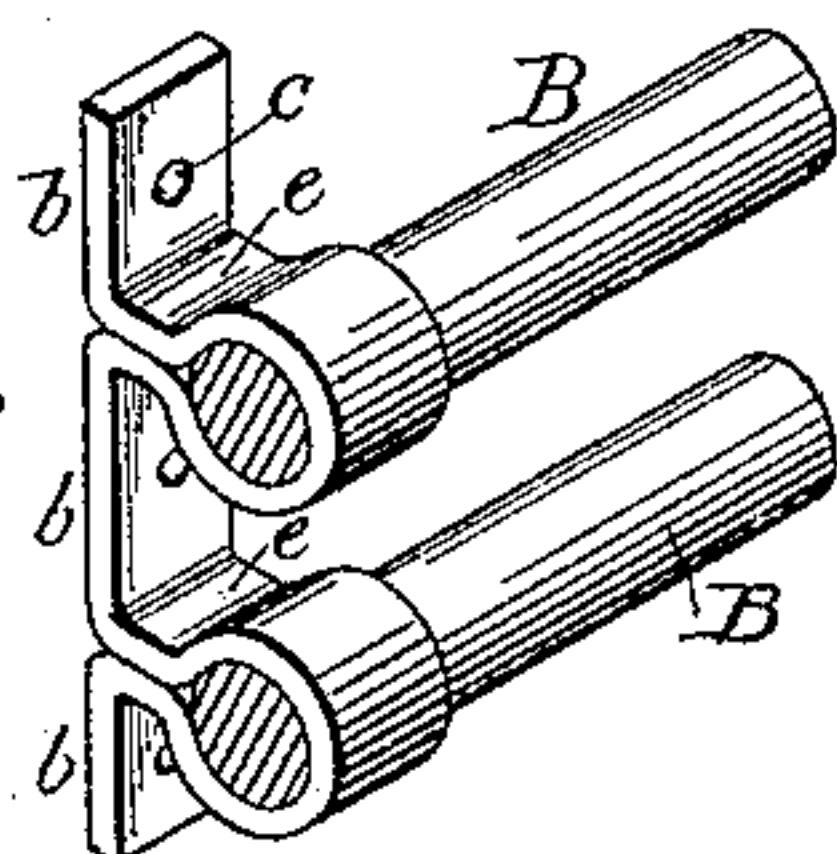


FIG. 7.

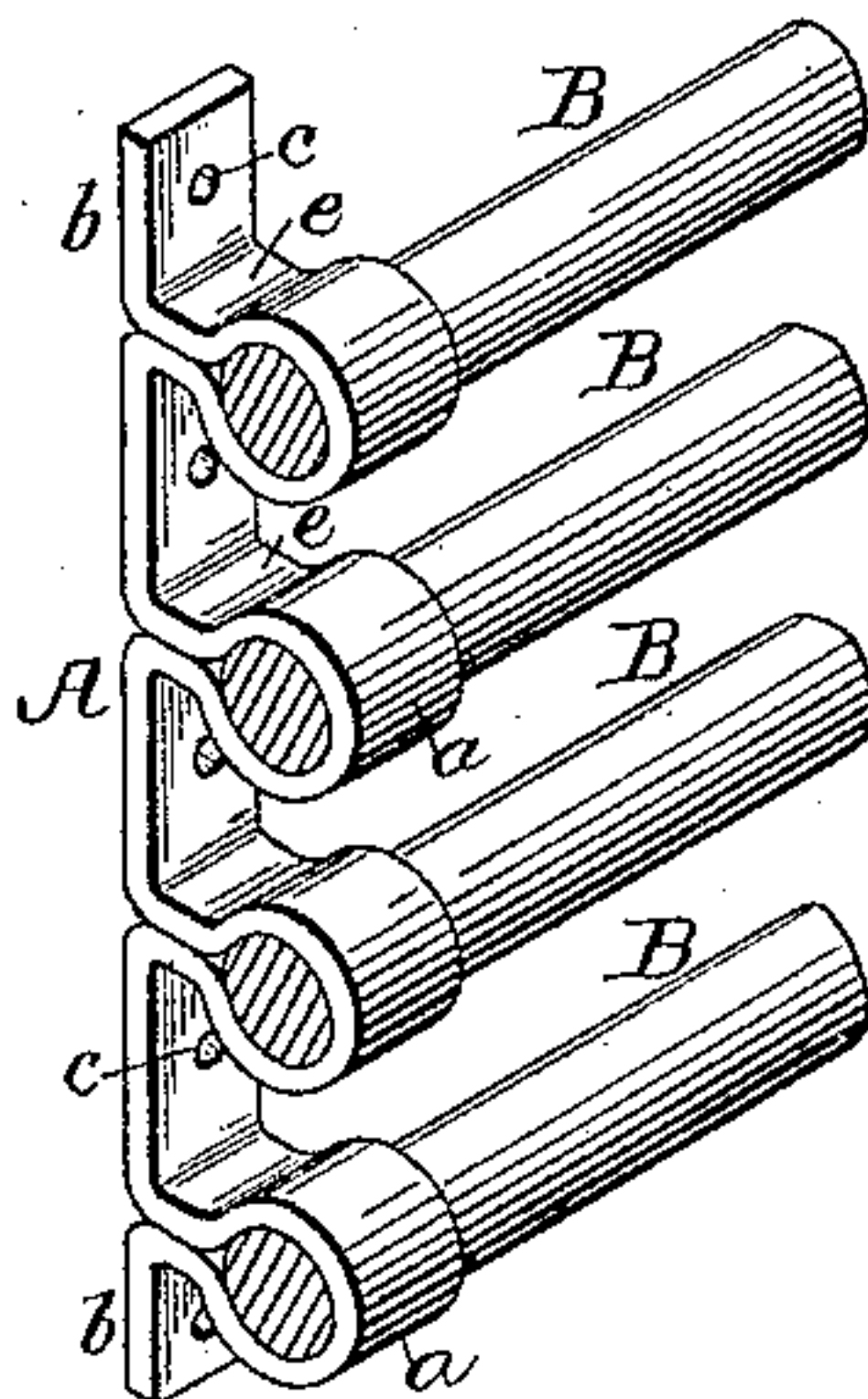


FIG. 8.

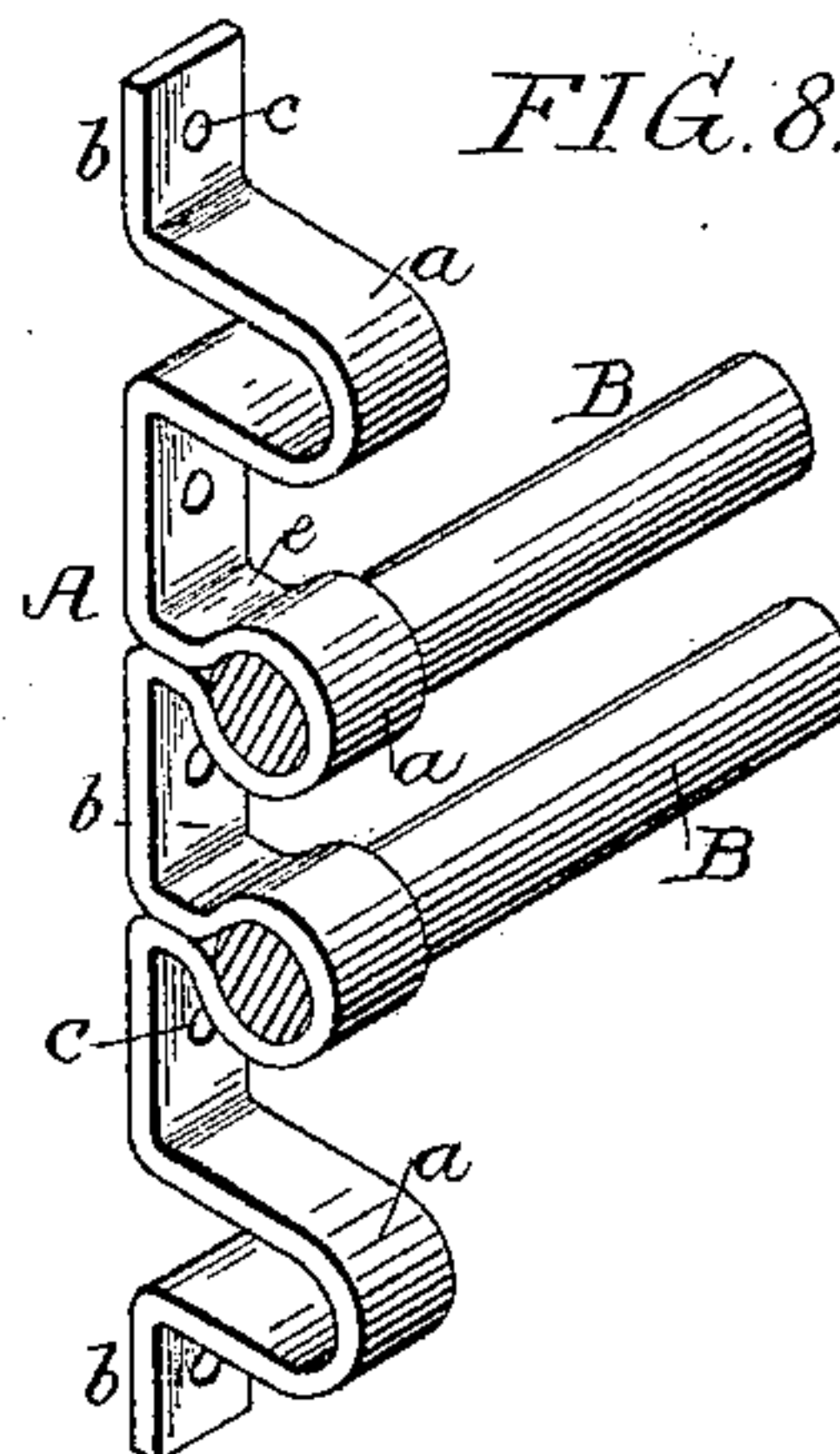


FIG. 12.

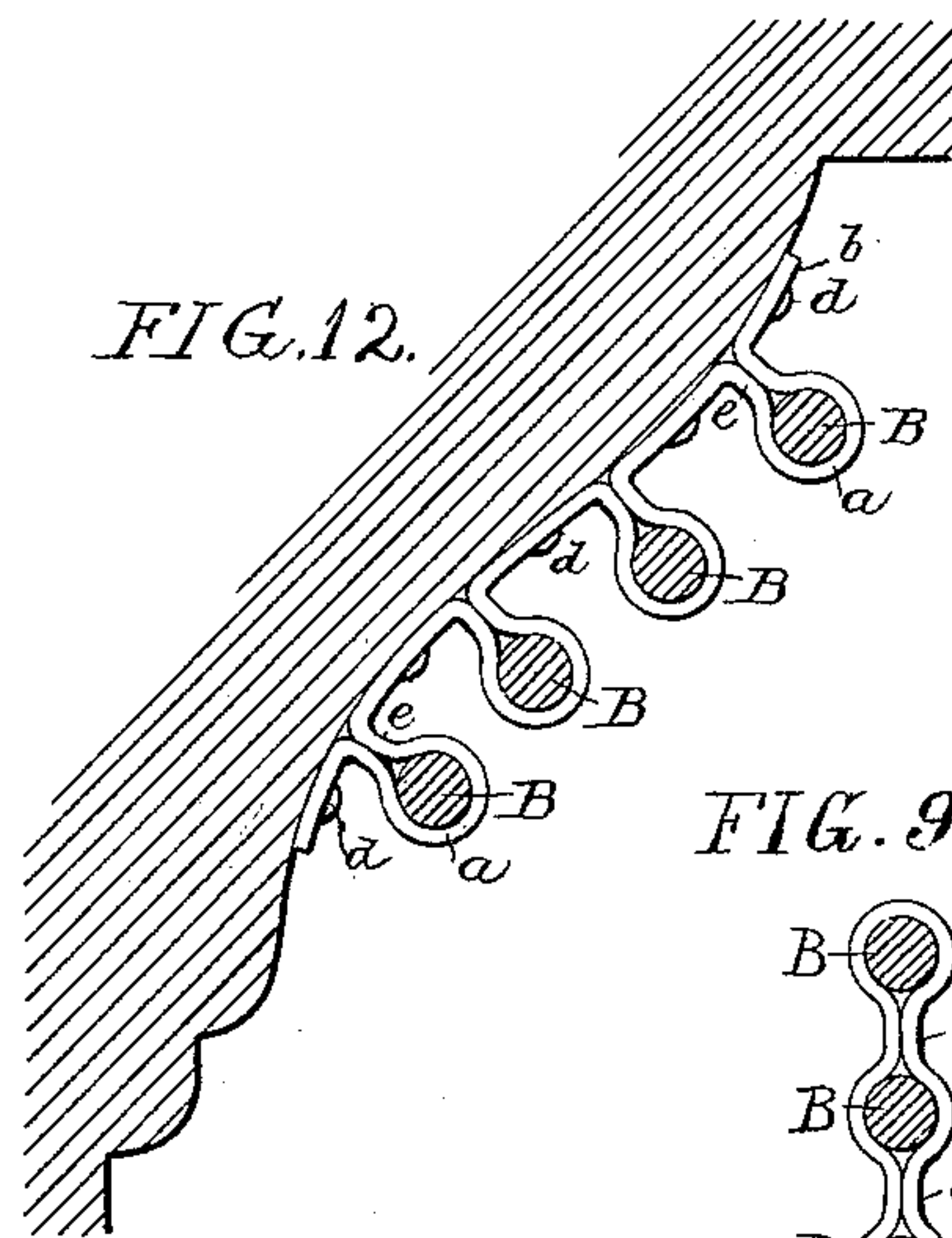


FIG. 9.

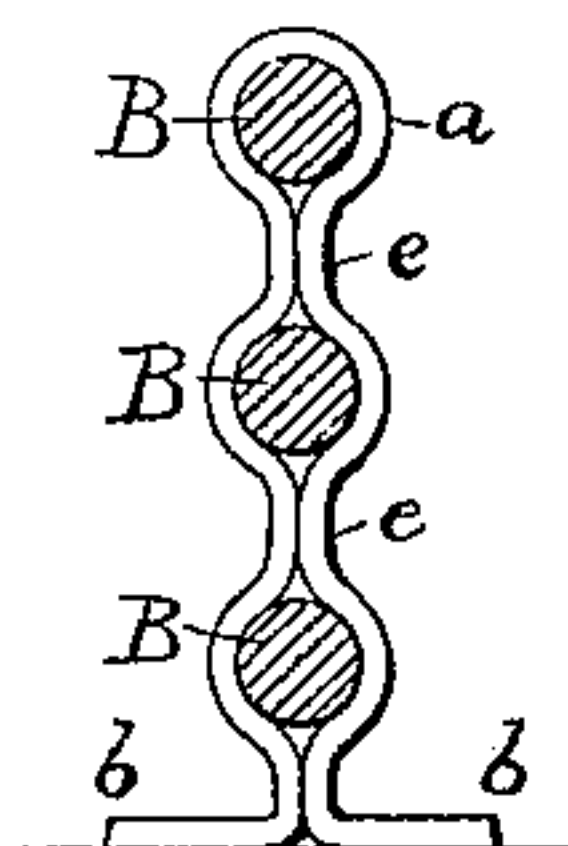


FIG. 10.

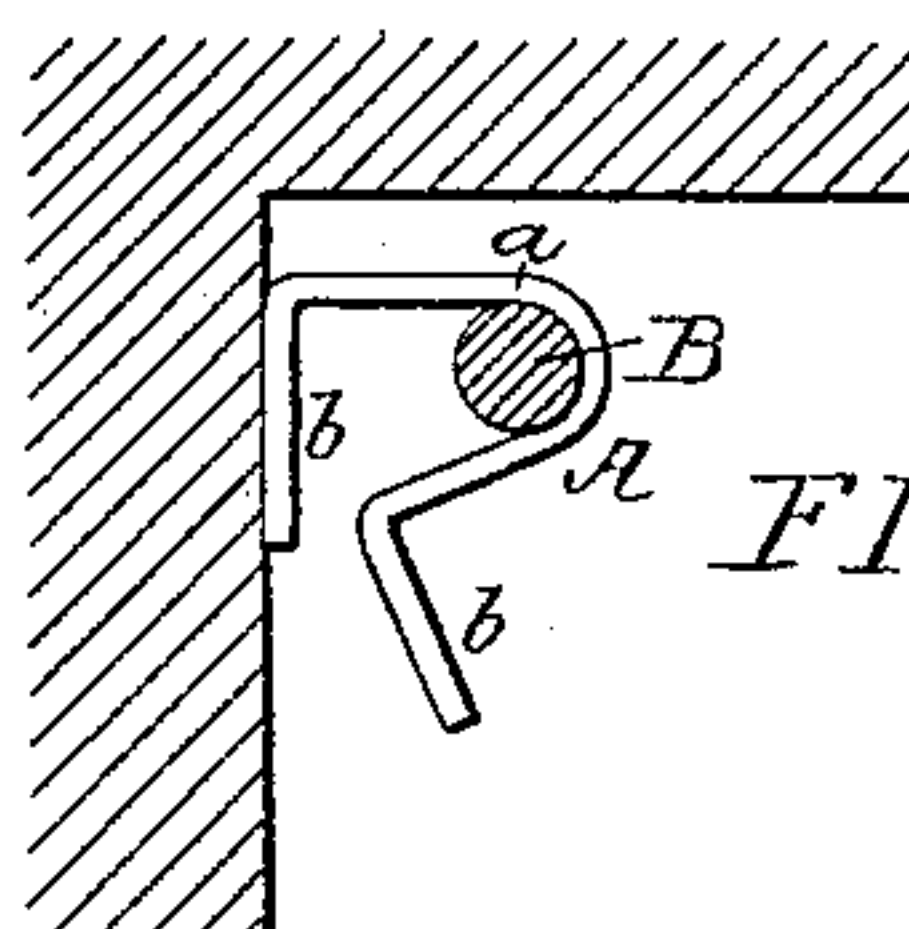
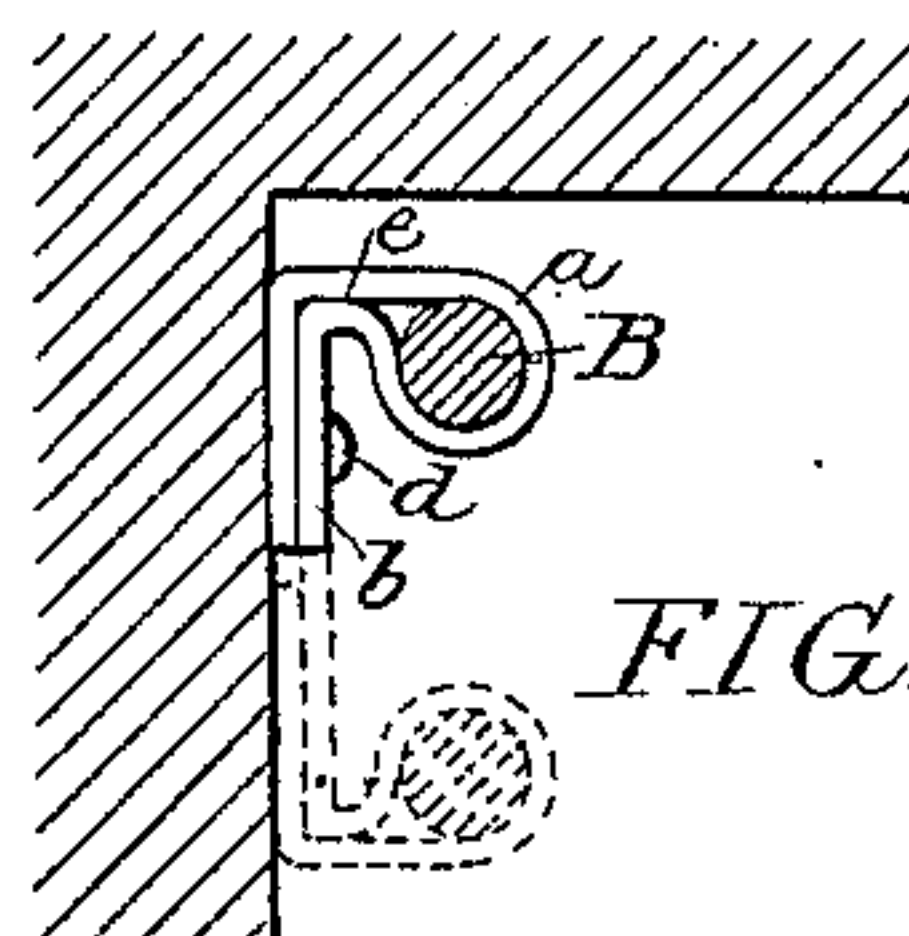


FIG. 11.



Witnesses:  
Hamilton D. Turner.  
William D. Banner.

Inventor:  
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Howson & Howson



# UNITED STATES PATENT OFFICE.

ROBERT P. FRIST, OF WILMINGTON, DELAWARE.

## INSULATOR.

SPECIFICATION forming part of Letters Patent No. 405,546, dated June 18, 1889.

Application filed April 13, 1889. Serial No. 307,141. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT P. FRIST, a citizen of the United States, and a resident of Wilmington, New Castle county, Delaware, have invented certain Improvements in Insulators for Electrical Conductors, of which the following is a specification.

The object of my invention is to construct from chemically-treated fiber, or like non-conducting material, a retaining and insulating device for electrical conductors.

In the accompanying drawings, Figure 1 is a perspective view of my improved wire holder and insulator. Fig. 2 is a perspective view showing the same applied to a wire and ready to be secured to a wall or other fixture. Fig. 3 is a sectional view showing the mode of application of the insulator to the wire. Fig. 4 is a sectional view showing a wire secured to a wall by means of the insulator. Figs. 5 to 11 are views of modified forms of the insulator, and Fig. 12 is a view showing the insulator applied to a curved surface.

Referring to Fig. 1, A is a strip of non-conducting material, by preference "Celluvert" fiber, which is one of the well-known brands of chemically-treated fiber having the property of an insulator of electricity. This strip is bent to the shape shown in Fig. 1, forming a loop *a* and ears *b b*, in which are formed openings *c c*, for the reception of the retaining pins, tacks, screws, or other fastenings *d*, as shown in Fig. 4.

The looped strip A is placed over the wire B, as shown in Fig. 3, and then pinched together back of the wire, as shown in Fig. 2, after which it is secured by the fastening devices in the position shown in Fig. 4, thus not only rigidly retaining the wire in position, but also maintaining it a certain distance from the wall or other supporting-surface, the portions *e e* being interposed between said surface and the wire, so as to effectually insulate the latter.

In Figs. 1 to 4 I have shown a single insulator—that is to say, an insulator for one wire; but in Figs. 5 to 9 I have shown com-

pound or multiple insulators, Fig. 5 showing a double loop prior to its being placed on the wires, and Fig. 6 showing the loop applied to the wire.

In Fig. 7 I have shown the insulator with four loops for the reception of four wires, and it will be understood that any number of wires may be employed, as circumstances require.

In Fig. 8 I have shown the four-loop insulator with two wires applied thereto, the two remaining loops being open, as shown, for the subsequent application of wires thereto.

In Fig. 9 I have shown a three-loop insulator, in which the loops are one above another, instead of side by side, but two fastening devices being required, one on each side of the loops.

In Figs. 10 and 11 I have shown a modified form of insulator, in which the ears *b b* of the loop lie one over the other, so that a single fastening tack or pin serves to secure the same. This insulator may readily be made in duplex form, as shown, for instance, by dotted lines in Fig. 12.

The chemically-treated fibrous substance is flexible, so that it can be bent as shown in Fig. 12, where it is required to secure the wires to curved surfaces—such, for instance, as the cornices of rooms.

In all cases some portion of the insulating-strip is interposed between the wire and the wall or other surface upon which it is applied; hence the wires are perfectly insulated, the insulator, moreover, being extremely cheap and easily applied.

I claim as my invention—

1. An insulator for electric wires, consisting of a strip folded to form a wire-receiving loop at the outer end and having fastening-ears at the inner ends, the intermediate portions being pressed together to bind the wire in the loop, substantially as described.

2. An insulator for electric wires, consisting of a strip of insulating material bent to form a series of loops for retaining the wires,

with spaces between the loops, through which the retaining nails or screws may be passed, substantially as set forth.

- 5 3. An insulator for electric wires, consisting of insulating material bent to form a series of wire-receiving loops located side by side, said insulator being flexible throughout its length, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT P. FRIST.

Witnesses:

WILLIAM D. CONNER,  
HARRY SMITH.