

L. E. UNDERWOOD.
INSULATING STUD.
APPLICATION FILED MAY 5, 1908.

928,084.

Patented July 13, 1909.

Fig. 1.

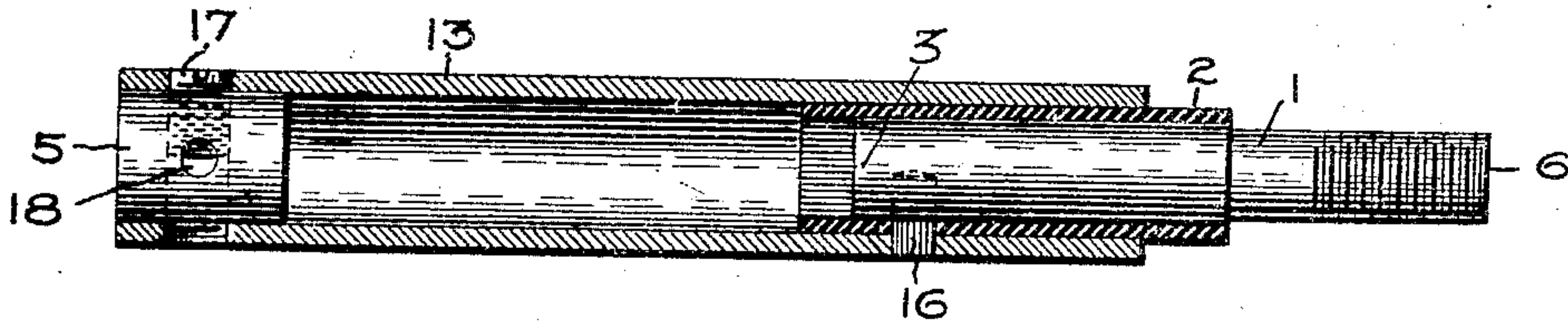


Fig. 2.

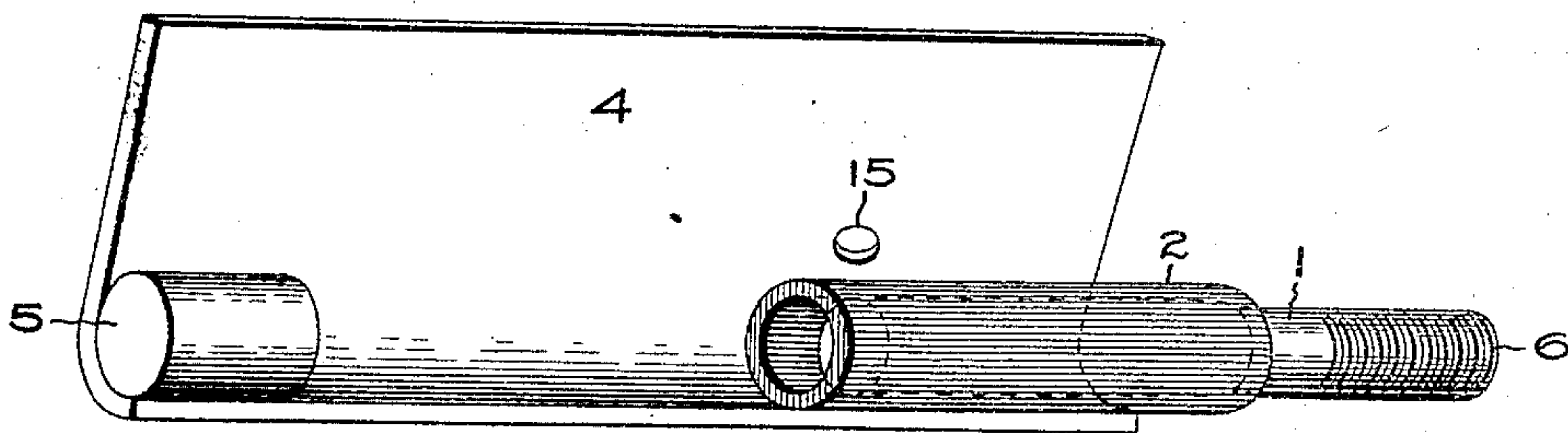


Fig. 3.

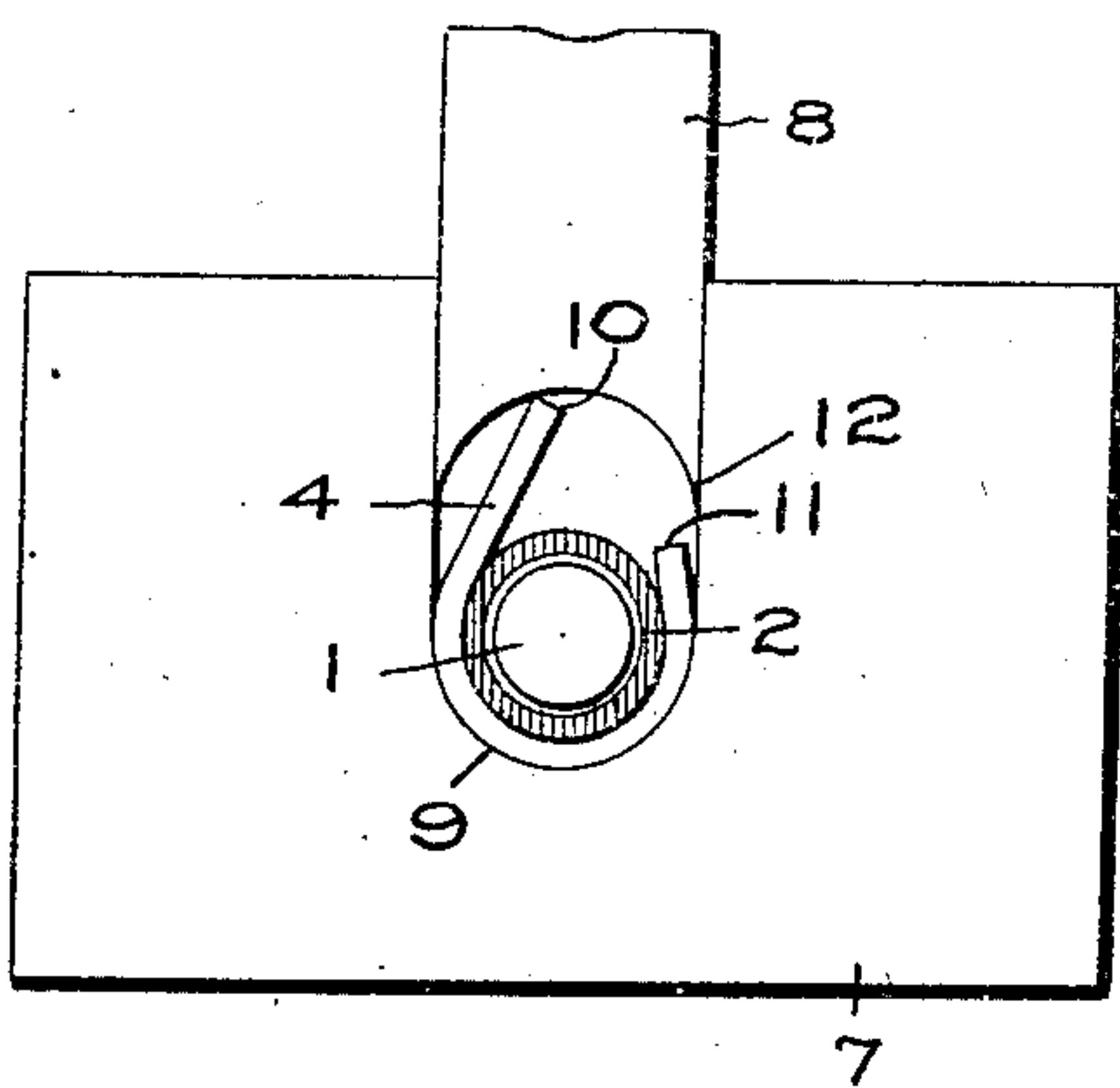
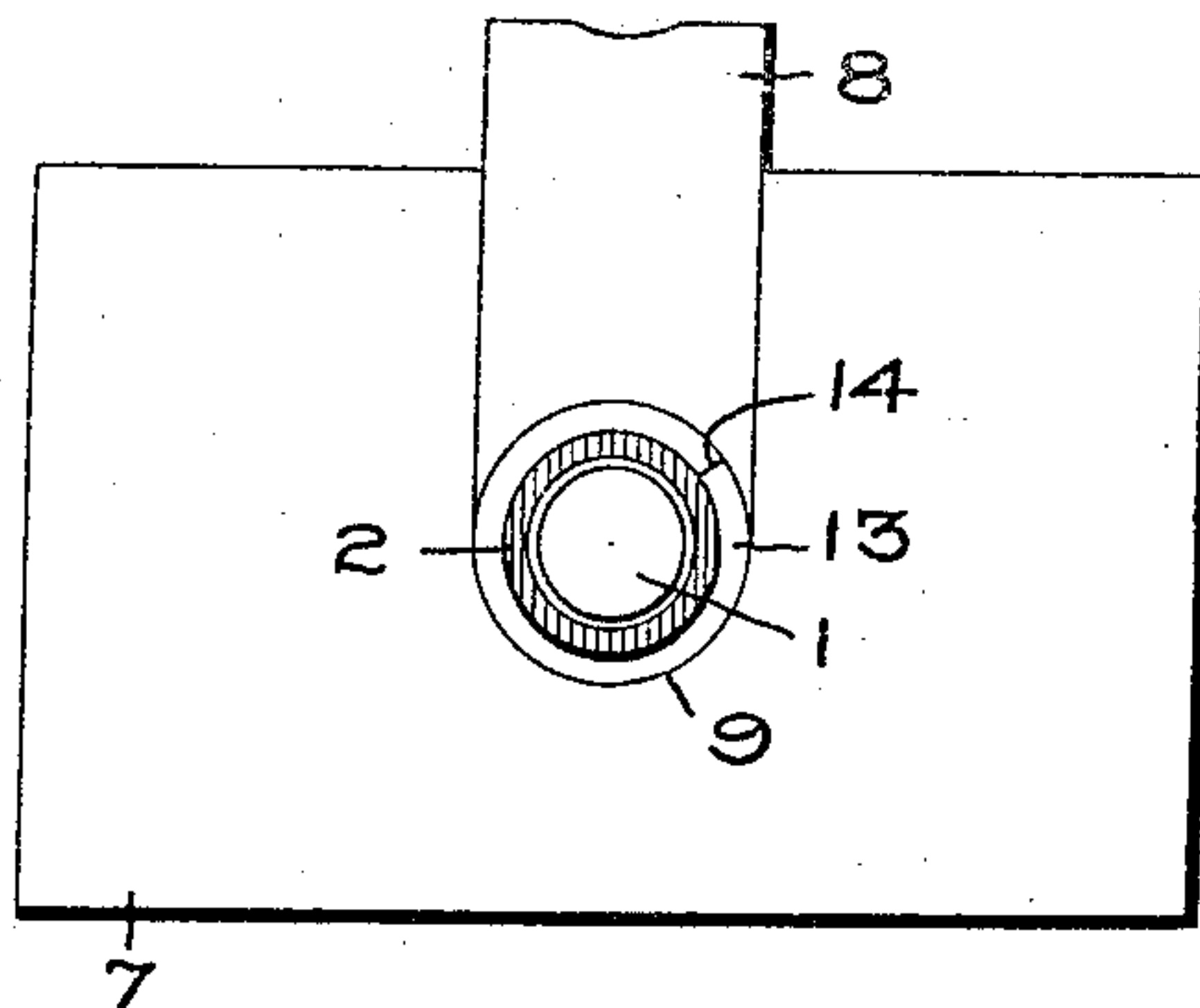


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

LOUIS E. UNDERWOOD, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

INSULATING-STUD.

No. 928,084.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed May 5, 1908. Serial No. 430,977.

To all whom it may concern:

Be it known that I, LOUIS E. UNDERWOOD, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Insulating-Studs, of which the following is a specification.

My invention relates to insulating studs and is particularly applicable to such studs when used to support brush-holders of dynamo-electric machines, and has for its object a simple, cheap and rigid construction.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of my invention, however, and the advantages possessed by it, reference may be had to the following description taken in connection with the accompanying drawing, in which—

Figure 1 is a sectional view of an insulating brush-holder stud embodying my invention; Fig. 2 is a perspective view showing a stud in the act of being assembled; Fig. 3 shows a die and a stud therein, the parts being in about the same condition of assembly as is shown in Fig. 2, and Fig. 4 shows another view of the die and the stud therein, the die having completed its work and the stud being completely assembled.

My brush-holder stud comprises a metal rod 1 upon which is forced an insulating tube 2, a plug 5, and a metal sheet 4 that is tightly wrapped about the insulating tube and the plug to form a tube 13. The plug 5 is preferably made of metal. The end 6 of the rod extends beyond the metal tube 13 and the insulating tube 2 and is threaded, so that it may be fastened to the yoke of the dynamo-electric machine.

The die forming my stud consists of a stationary base portion 7 and the movable member 8.

In wrapping the metal sheet 4 about the rod 1 the rod is suitably supported so that a space will be left between the under side of the tube 2 and the bottom of the groove 9 in the base portion 7 of the die. The plug 5 is similarly supported. The metal sheet is then inserted between the insulating tube 2

and the plug 5 and the wall of the groove 9. The movable member 8 of the die is then forced downward by suitable means, the sheet 4 engages the wall of the groove, and is gradually curled up until the edges 10 and 11 meet. The movable part of the die is so arranged that the edge 12 thereof will engage the edge 11 of the sheet when the latter is partly wound in place, which is a position slightly beyond that shown in Fig. 3. When the member 8 is further depressed the wrapping of the sheet around the tube 2 and plug 5 is completed, as is seen in Fig. 4, the sheet 4 forming a tube 13. The stud is then removed from the die and the seam 14 in the metal tube 13 is either welded, brazed or otherwise closed to prevent dirt or other foreign matter from entering the seam. The parts may be further held together by first-forming a hole 15 in the metal sheet 4, and subsequently drilling the insulating tube 2 under the hole in the sheet after it is wrapped about the insulating tube and also drilling it partially into the rod 1. The chips are then cleaned out and a plug 16 made of fiber or other insulating material is driven into the hole. By this method of procedure the danger of short-circuiting the rod 1 and the tube 13 is reduced to a minimum.

In the plug 5 and tube 13 a hole 18 is drilled, which is of the proper size to receive the lead which transmits the current from the stud to the external circuit. The tube and plug are drilled to receive the set screw 17 for holding the above mentioned lead in place.

By extending the insulating tube beyond the inner end 3 of the rod and the end of the tube 13, the surface is greatly increased over which the current must pass in order to short-circuit the rod and the sheet.

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

1. An insulating stud comprising a supporting rod, a metal tube carried thereby, and an insulating tube interposed between the rod and the tube and extending beyond the rod at one end and beyond the tube at the other end.

2. An insulating stud comprising a sup-

porting rod, a metal tube carried thereby, a
plug in the end of said metal tube, and an
insulating tube interposed between the rod
and the tube and extending beyond the rod
5 at one end and beyond the metal tube at the
other end.

In witness whereof, I have hereunto set

my hand this twenty-fourth day of April,
1908.

LOUIS E. UNDERWOOD.

Witnesses:

JOHN A. McMANUS, Jr.,

CHARLES A. BARNARD.