

(No Model.)

D. WILLIAMSON.
INSULATING JOINT.

No. 354,291.

Patented Dec. 14, 1886.

Fig. 1

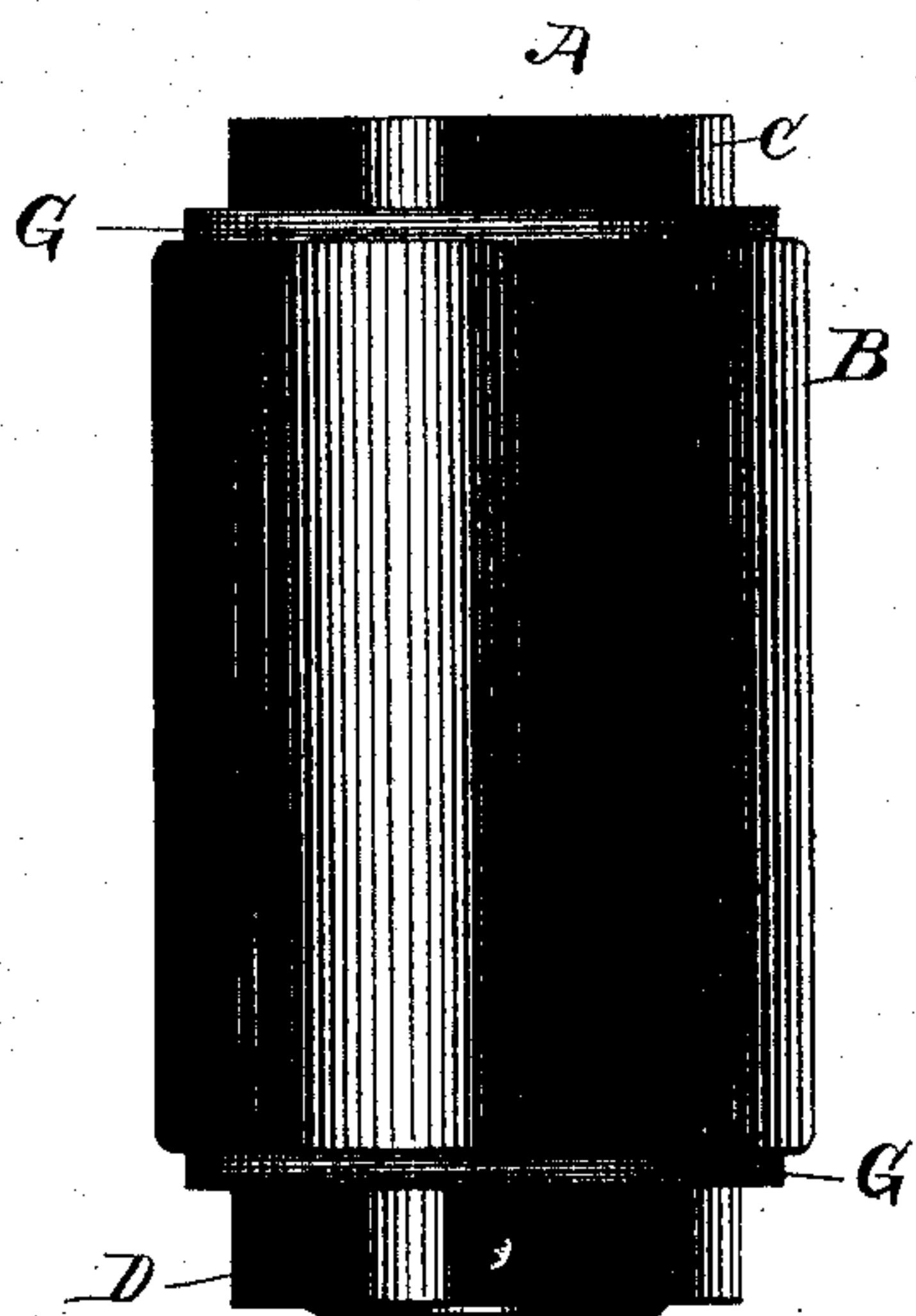


Fig. 2

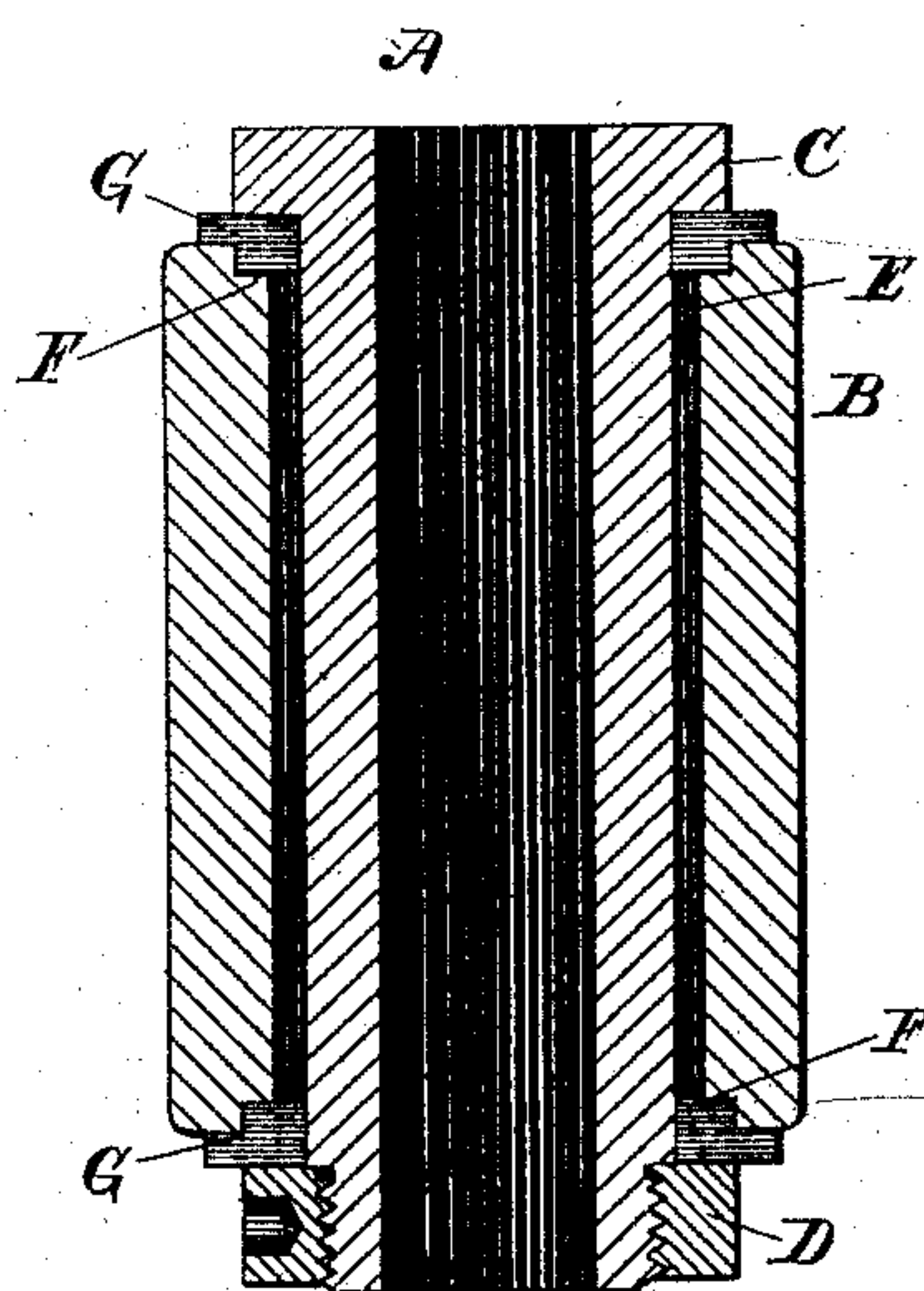
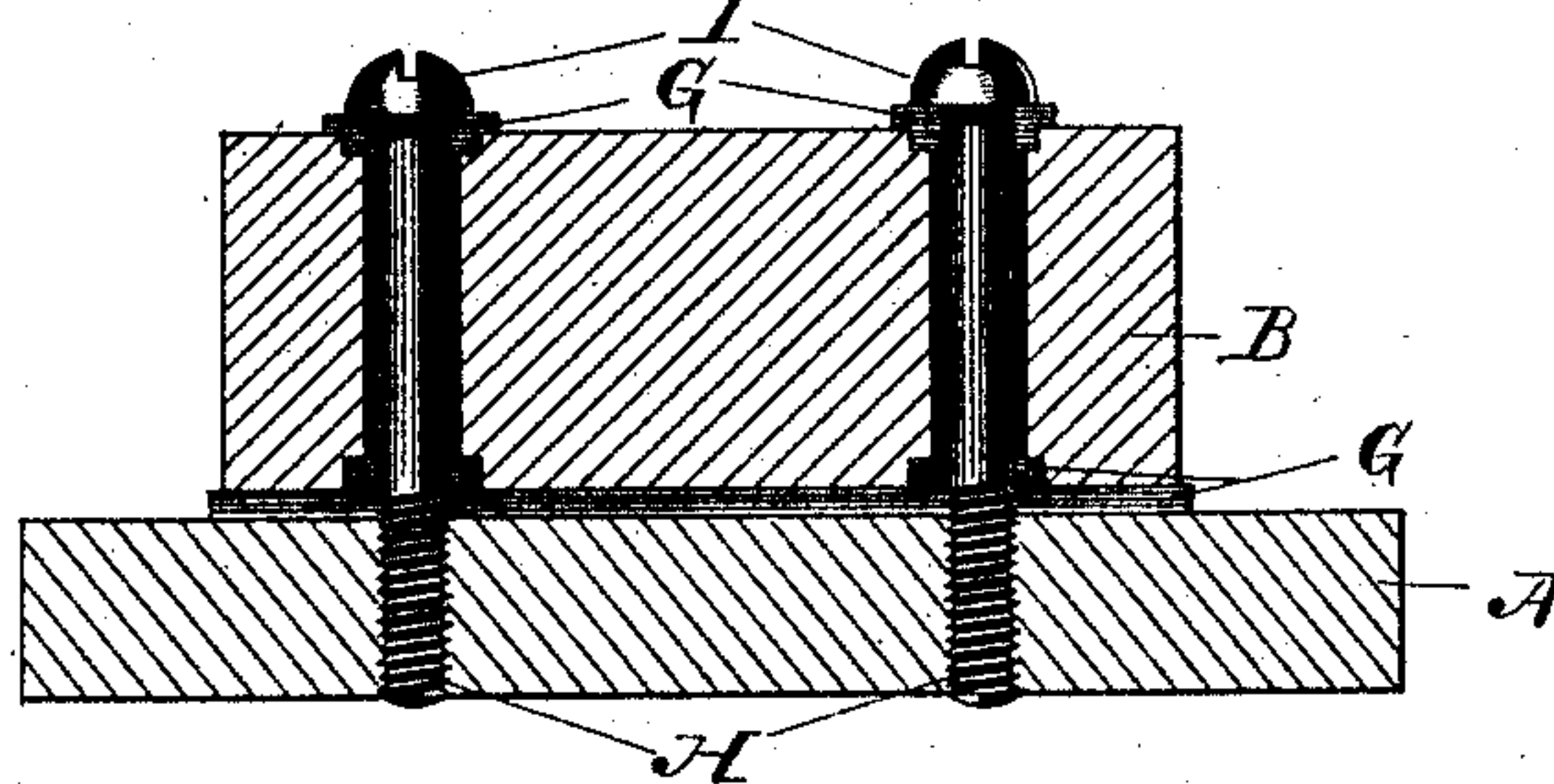


Fig. 3



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UNITED STATES PATENT OFFICE.

DAVID WILLIAMSON, OF HARTFORD, CONNECTICUT.

INSULATING-JOINT.

SPECIFICATION forming part of Letters Patent No. 354,291, dated December 14, 1886.

Application filed March 19, 1886. Serial No. 195,797. (No model.)

To all whom it may concern:

Be it known that I, DAVID WILLIAMSON, a citizen of the United States, residing in the city and county of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Insulating-Joints, of which the following is a specification, illustrated by the accompanying drawings.

My invention relates to the art of joining electrically-conductive solid bodies together in such a manner that said bodies when joined shall be mechanically immovable relatively to each other, and at the same time shall be electrically insulated from each other.

The object of my invention is to utilize mica, asbestos paper, and other laminated non-conductors whose individual laminations are mechanically weak and fragile, in the formation of an insulated joint which shall be strong and unyielding in all directions, and particularly in directions parallel to the length and breadth of such laminations. To accomplish this result the described laminations are applied in a peculiar form and manner between the otherwise contiguous portions of two conductors, while the latter are clamped upon said laminations by means of a screw.

The special merit of the invention is that certain fire-proof insulators which are commonly known or conveniently produced in laminated forms alone are thus utilized as practically entire and unlaminated insulators. The resulting insulated joint is adapted to be used in all situations in which other insulated joints have commonly been used.

By the aid of drawings I proceed to point out the best mode of constructing and applying my invention.

Figure 1 in the drawings is a side view of two hollow cylindrical conductors united by my improved joint. Fig. 2 is a section of Fig. 1 through the common axis of said conductors. Fig. 3 is a sectional view of two conductive blocks or plates united by my improved joint.

In these figures, A and B are two bodies which are to be joined together.

In Figs. 1 and 2 bodies A and B are hollow rods or cylinders, body A being smaller than body B. In Fig. 3 bodies A and B are blocks, slabs, or plates of conductive material having contiguous plane surfaces, but being in other

respects of any fortuitous size and shape. A and B, as presented in these views, are typical forms to which other joinable bodies may conveniently be reduced.

The typical forms of A and B, as presented in Figs. 1 and 2, will appear, from the following description, to be substantially the same typical forms which are presented by A and B in Fig. 3. To relative forms similar to those presented in one or the other of these instances, therefore, it is necessary to reduce any two bodies which are to be united by my improved joint.

In Figs. 1 and 2 one end of cylinder A is provided with a head or annular projection, C, while the other end of the same is threaded externally, as a screw, and is provided with a nut, D. Cylinder B surrounds the main part of cylinder A, leaving a space, E, which is filled with air, or with some other non-conductive substance, between said cylinders. An internal notch at each end of cylinder B presents a shoulder, F, which is at right angles with the common axis of said cylinders. At each end of cylinder B a number of washers, annular disks, or laminations of mica are fitted upon cylinder A, between said cylinder B and the projecting head C and nut D of said cylinder A. These disks may conveniently be formed of unequal sizes, some being smaller and located within cylinder B and adjacent to shoulder F, while others, being radially larger than the hollow interior of cylinder B, are located beyond the ends of that cylinder. The adjacent parts so separated by mica disks are firmly clamped together against such disks by means of nut D, which is screwed on tight for that purpose.

In Fig. 3 the bodies A and B are reduced to the typical form (already considered) by means of a contiguous perforation containing the screw H. If this screw, which extends through body B without contact therewith, and which is turned snugly into body A, be regarded as equivalent to body A in Fig. 2, and if body A in Fig. 3 be regarded as equivalent to nut D, it is evident that the joint in both cases is substantially the same.

As a modification of the simple joint already described, I have presented in Fig. 3 a double joint of the same character formed by repetition.

In order that any two conductors may be united by my improved joint, it is necessary that they should be reduced relatively to each other to the typical form which is illustrated in the drawings. When such conductors are so reduced to that typical form, as illustrated in Figs. 1 and 2, or as illustrated in Fig. 3, the formation of my improved insulating-joint requires that a number of disks of mica or laminations of other fire-proof insulating material surrounding one of said conductors should be placed one upon another in blocks or groups of any desired or convenient aggregate thickness, and should, by means of a screw or its equivalent, be clamped rigidly in position between said conductors.

Such being the manner of constructing my improved insulated joint, it is obvious that the same is mechanically firm and rigid, that the bodies A and B are effectually insulated from each other, and that the insulation will not be impaired by heat.

I claim as my invention and desire to secure by Letters Patent—

1. Between two electrical conductors, an insulating-joint composed of perforated disks which are formed of insulating material and are clamped together in groups, each of which is partly countersunk in one or the other of said conductors, substantially in the manner and for the purpose specified.

2. An insulating-joint formed between adjacent parts of two electrical conductors by means of mica disks which are of unequal area, and are clamped together upon a screw in groups, each of which is countersunk in one or the

other of said conductors, substantially in the manner and for the purpose specified.

3. Two electrically-conductive solid bodies which have a tubular and a cylindrical portion, respectively, in combination with disks or laminations of insulating material which are clamped together at right angles to the common longitudinal axis of said tubular and cylindrical portions in groups, each of which is partly within and partly without said tubular portion, substantially in the manner and for the purpose specified.

4. An insulating-joint consisting of a cylindrical conductor which is partly within a hollow or tubular conductor, and is separated therefrom by disks of fire-proof insulating material arranged at right angles with the longitudinal axis of such cylindrical conductor and clamped together in two groups, which are partly within said tubular conductor and partly without the same, severally, substantially in the manner and for the purpose specified.

5. An indefinite number of insulating disks or washers arranged at right angles with two electrical conductors and clamped between the same in a group, which is partly countersunk in one of said conductors, substantially in the manner and for the purpose specified.

In testimony whereof I have hereunto set my name in the presence of two witnesses.

DAVID WILLIAMSON.

Witnesses:

WESLEY H. HOLWAY,
WILLARD EDDY.