

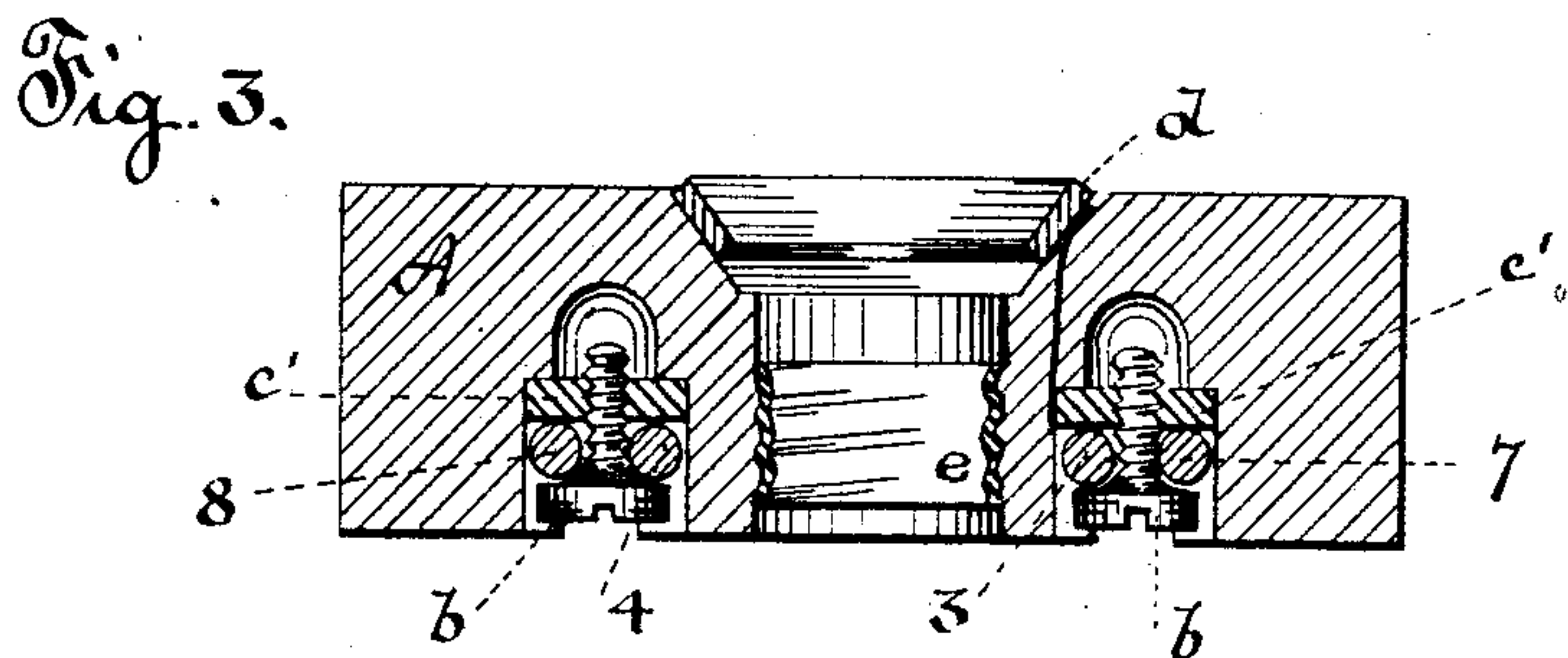
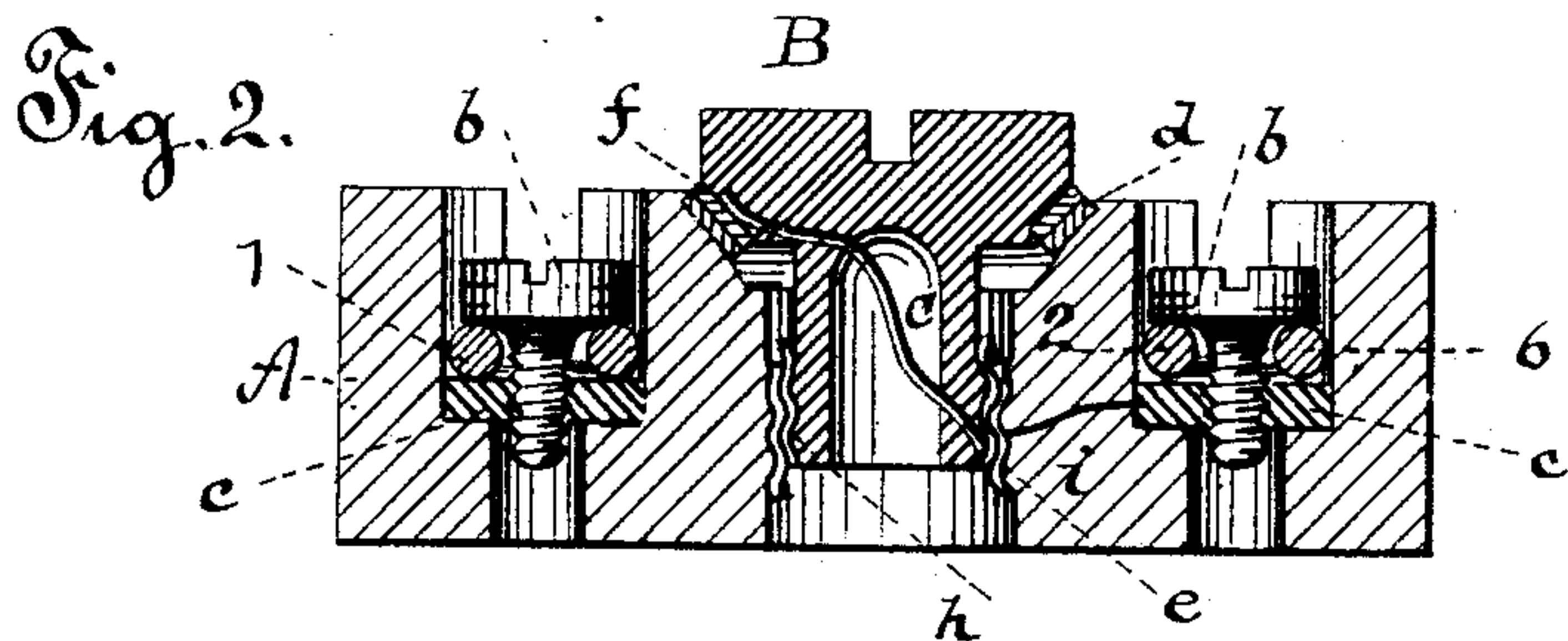
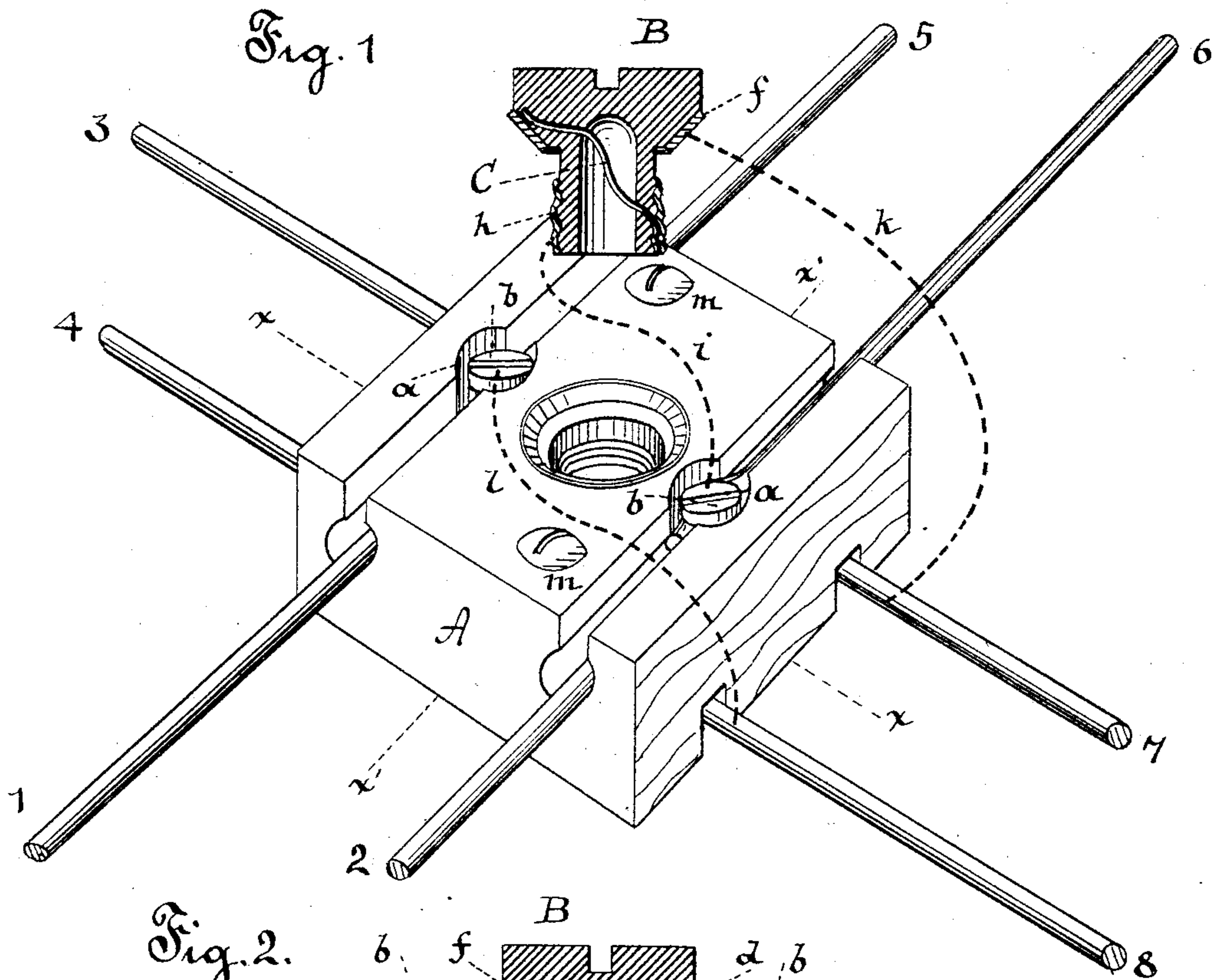
(No Model.)

E. H. JOHNSON.

CONNECTION FOR ELECTRIC CIRCUITS.

No. 264,299.

Patented Sept. 12, 1882.



WITNESSES:

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EDWARD H. JOHNSON, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
SIGMUND BERGMANN, OF SAME PLACE.

CONNECTION FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 264,299, dated September 12, 1882.

Application filed November 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. JOHNSON, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Connections for Electrical Circuits; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The objects of my invention are, first, to furnish means by which a pair of electrical conductors in a house-circuit of an electric lighting system may be made to cross another pair without danger of an improper electrical connection between them; second, to connect the positive and negative conductors of one pair with the positive and negative conductors of the other, respectively, the latter in this case forming two branch circuits from the former, such connections being made through a single safety-catch, which safety-catch shall be so placed as to be easily inserted and replaced when necessary, and all the circuits being controlled by the same circuit-controller; and, third, to provide a simple device for joining the ends of the wires in such circuits; and my invention consists in the novel devices employed by me to accomplish these objects, as hereinafter fully set forth and claimed.

In the drawings, Figure 1 is a perspective view and partial section of my invention, some of the connections being shown in dotted lines. Fig. 2 is a section on the line xx of Fig. 1, and Fig. 3 a section on the line $x'x'$ of Fig. 1.

It is here desired to extend two branch circuits in multiple arc in opposite directions from the main circuit.

A is a block of wood or other suitable insulating material. In each face of the block are cut two grooves, those on one face being at right angles to those on the other.

1 5 is the positive and 2 6 the negative conductor of the main circuit.

3 is the negative and 4 the positive conductor of one multiple-arc circuit, and 7 the negative and 8 the positive conductor of the other. Each of the main conductors is composed of two wires joined together at their ends, as follows: The grooves in which these

wires are laid are enlarged at their bottoms, and also have circular enlargements aa at their middles. The ends of the wires extend beyond the enlargements a in opposite directions, and between them (the ends being bared of insulation) are inserted bevel-headed screws $b b$. These are forced down tightly, so as to bend the wires apart and hold them between the screw and the sides of the circular pit a in such manner that they cannot be pulled out, and are electrically connected through the screw-head. In the bottom of each of the depressions $a a$ is secured a metal plate, c , Fig. 2. The wires 3 7 4 8 of the derived or branch circuits are laid in a similar manner in the lower grooves of the block, Fig. 3, their ends being connected and secured and firmly clamped against metal plates $c' c'$ by bevel-headed screws $b' b'$. It is, however, evident that each of the conductors might consist of a single wire only, laid in a groove, and, if necessary, clamped down to the metal plates $c c'$.

In the center of the block A is a circular hole, around whose interior are two metal bands or rings, $d e$, the lower one, e , being screw-threaded. In this hole fits a plug, B, provided with corresponding bands or rings, $f h$. The rings $f h$ are connected through the interior of the plug by a piece of lead wire, C, forming a "safety-catch."

The connections from the main circuit to the branch circuits pass through the wood of the block, but for convenience are shown in Fig. 1 as dotted lines. These connections are as follows: From the plate c , with which the conductor 2 6 is in contact, a wire, i , runs through the wood to the ring e of the block, and thus to the ring h of the plug. From the ring h the safety-catch wire C runs to the rings f and d , and from d a wire, k , runs to the branch conductors 3 7, which convey the current in the two directions in which they lead. From the plate c , on which the conductor 1 5 rests, a wire, l , runs to the branch conductors 4 8. It is to be understood that in describing these connections I suppose the plug B to be in its place in the block, as shown in Fig. 2. Thus two multiple-arc circuits are formed from the main circuit, viz: first, a circuit leading from conductor 2 6 by plate c , wire i , rings eh ,

safety-catch C, rings *f d*, wire *k*, wire 7, through lamps or other translating devices placed in multiple arc, to wire 8, then wire 7 to plate *c* and main conductor 1 5; and the second has 5 similar connections in the block, but includes the wires 3 4 instead of 7 8. All the connections are made and broken by screwing in or out the plug B, and should the safety-catch melt a new plug can easily be substituted for 10 the old one. Other advantages of the removable plug are that after a building is wired, the plugs having been all omitted, they may be put in place one or a few at a time, beginning at the points nearest the source of supply, so that 15 the circuits may be tested a little at a time for crosses or short circuits, instead of sending the current through the entire building at once; also, that a safety-catch of the proper size can be placed in each circuit, according to the number of lights to be placed in such circuit, all 20 the plugs being made of the same size, but with different-sized safety-catches, so that the proper one can be selected for each circuit.

Screws *m m* may be provided for attaching 25 the block to a wall or other object.

What I claim is—

1. The combination of crossing electrical circuits, a block of insulating material having grooves in opposite surfaces, in which the wires 30 of the circuits are laid, and multiple-arc connections between such circuits within the block, substantially as set forth.

2. The combination, with the wires of a main circuit laid in grooves in a block of insulating 35 material and the wires of derived circuits therefrom laid in other grooves in said block, of means within said block for connecting said

main circuit with said derived circuits, and a removable circuit-breaker controlling both the main and derived circuits, substantially as set 40 forth.

3. The combination, with a main circuit and one or more derived circuits therefrom, of a single safety-catch included in all such derived circuits and adapted to connect the de- 45 rived and main circuits, substantially as set forth.

4. The combination, with the wires of a main circuit and those of derived circuits therefrom laid in grooves in a block of insulating mate- 50 rial, of means within said block for connecting the main circuit and derived circuits, a removable circuit-breaker controlling all the circuits, and a safety-catch carried by the circuit-breaker, substantially as set forth. 55

5. The combination, with a block having a socket provided with circuit-terminals, of the hollow plug B, of insulating material, having two exterior terminals connected by a safety- 60 catch or fusible conductor within the interior of the plug, substantially as set forth.

6. The combination, with the block of insulating material provided with interior terminals, of the plug having corresponding terminals and fitting the interior of the block, the 65 terminals of the plug being connected by a safety-catch, substantially as set forth.

This specification signed and witnessed this 19th day of September, 1881.

EDWARD H. JOHNSON.

Witnesses:

H. W. SEELY,
RICH. N. DYER.