

(No Model.)

E. H. JOHNSON.
ELECTRICAL CONDUCTOR.

No. 354,320.

Patented Dec. 14, 1886.

Fig. 1.

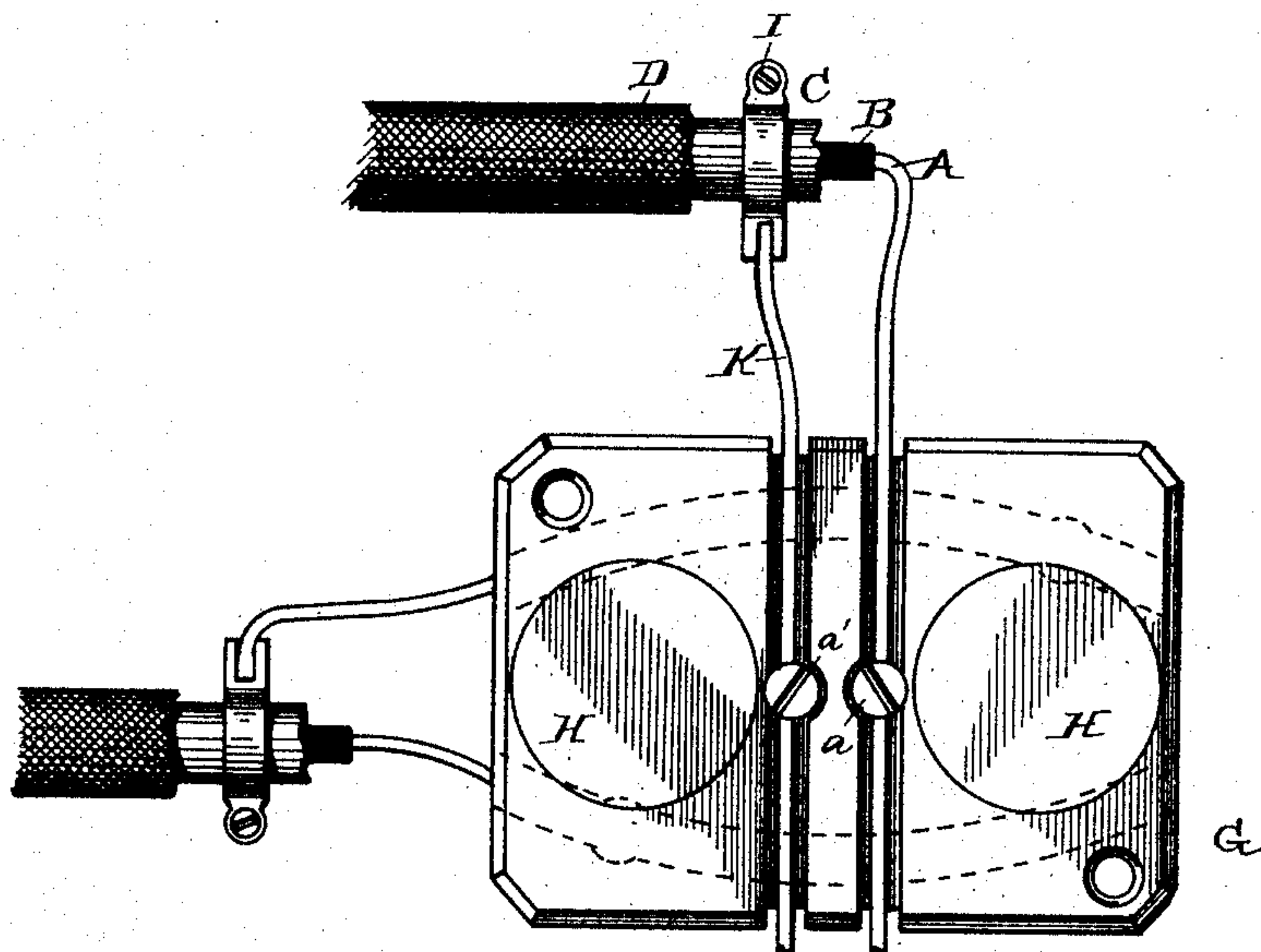


Fig. 2.

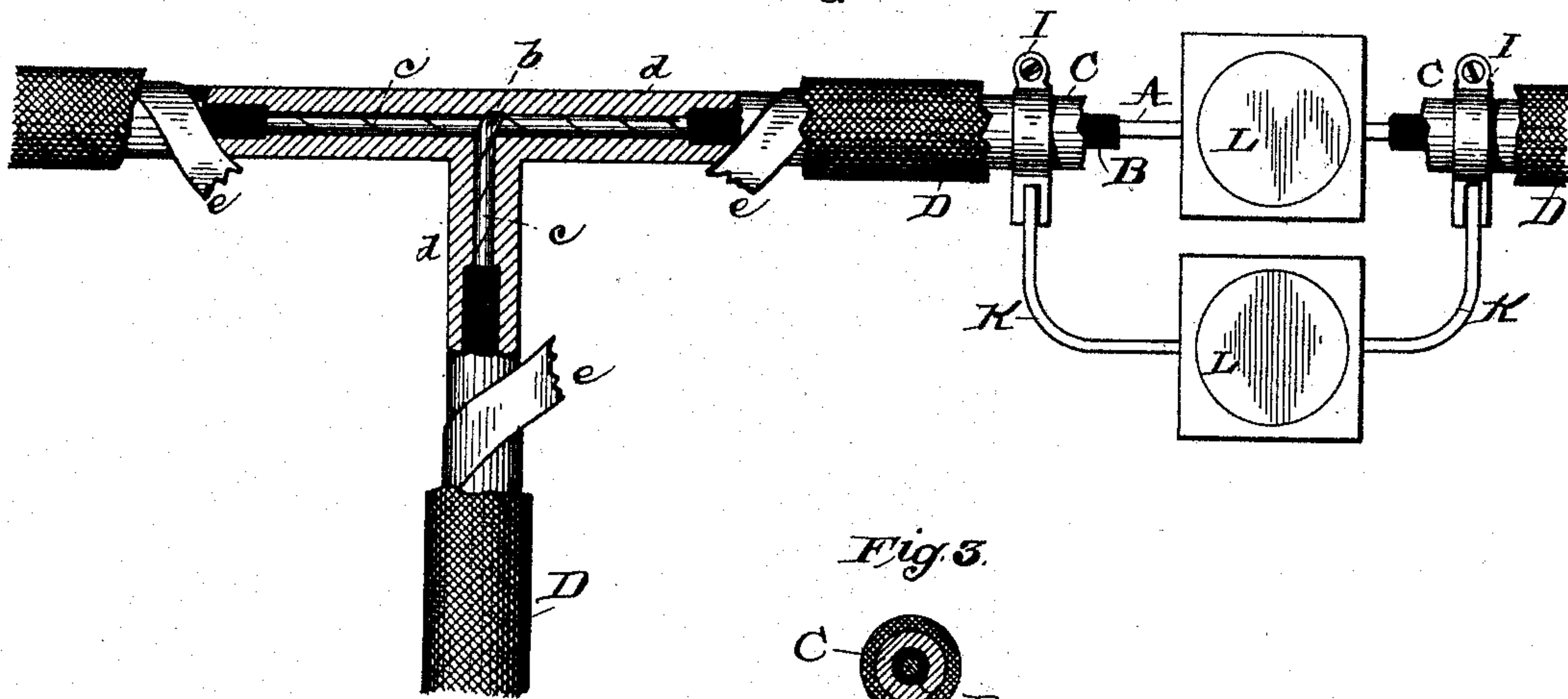
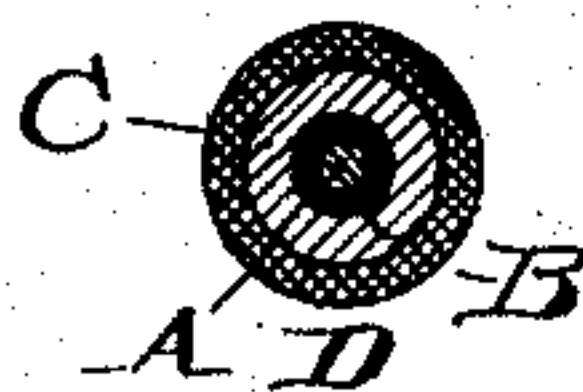


Fig. 3.



ATTEST:

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att'y.

UNITED STATES PATENT OFFICE.

EDWARD H. JOHNSON, OF NEW YORK, N. Y.

ELECTRICAL CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 354,320, dated December 14, 1886.

Application filed January 20, 1886. Serial No. 189,149. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. JOHNSON, of New York city, in the county and State of New York, have invented a certain new and
5 useful Improvement in Electrical Conductors, of which the following is a specification.

The object of my invention is to produce electrical conductors especially adapted for the wiring of houses, ships, and other structures
10 for electric-light purposes, and for wiring electric-light fixtures; and said invention consists in the novel devices and combinations of devices employed by me in accomplishing this object, as hereinafter described.

15 My invention is illustrated in the annexed drawings, in which—

Figure 1 is a view illustrating compound conductors embodying my invention, showing the connection of a main and a branch circuit
20 through a safety-catch; Fig. 2, a view of such conductors connected directly, a safety-catch being shown in the main circuit; and Fig. 3, a cross-section of one of said compound conductors.

25 A is a copper wire, which forms one side of a circuit. B is insulating material placed upon said wire. It is preferably a water-proof material, such as any fibrous substance impregnated with a bituminous substance or a
30 drying-oil.

C is a tube, of lead or other readily-fusible metal, which is flexible, and which completely incloses the inner insulated conductor, A; or a wrapping of lead strips may be used instead.
35 An outer inclosing insulation, D, is placed upon the lead covering, such insulation being preferably a fire-proof one, such as a covering impregnated with white lead or other non-inflammable substance. The lead tube C forms
40 the other side of the circuit, and is of a conducting capacity equal to that of the inner copper conductor, A.

As I have stated, this form of conductors is especially intended for use in house wiring
45 for electric-lighting systems, wherein safety-catches are included in the conductors, and act to break the circuit when a short circuit or cross occurs between the two sides of the system. Sometimes, however, an arc may
50 occur between the two sides of the system of insufficient conductivity to cause the fusing

of a safety-catch, and in this case such arc will continue to pass across, and may set fire to the insulation of the wires and to surrounding parts or objects. With my com- 55 pound conductor, however, if by reason of a defect in the insulation B or from any other cause an arc occurs between the wire A and the lead tube C, the lead is at once fused and the wire and tube are thus soldered together, 60 producing a sure connection or short circuit of the lowest possible resistance between them, and making the burning of the safety-catches in circuit a necessary result. The conductors being inclosed by the fire-proof insulation D, 65 there is no danger of any injury to external objects by the heat of the arc or the fusing of the lead.

The compound conductor is flexible, and therefore well adapted for the purpose men- 70 tioned.

In Fig. 1, G represents an ordinary safety-catch block, and H H are the plugs which carry the fusible strips or wires. The external parts are removed from end of wire A, and 75 this is connected with the safety-catch block by screw *a* in the ordinary manner. To connect the lead conductor C, I may place upon it, first removing the covering D, a clamp, I, which may be soldered, if desired, to improve 80 the connection, and from this clamp I a wire, K, may extend to the block, being held by screws *a'*. Connections may be made in a similar manner wherever it is desired to take off a circuit from the compound conductor, or 85 they may instead be made as shown in Fig. 2. In forming this connection, wires A of the main and branch circuits are first bared and then the end of the branch wire is soldered to the main at *b*. Wires A are then wrapped 90 with insulating-tape *c*. After this lead *d*, preferably in sheet or strip form, is wrapped tightly upon the insulating-tape *c*, extending to the points at which lead tube C has been cut away on each circuit, and these joints are 95 then carefully soldered by passing a hot iron over them. Thus the lead conductors of main and branch circuits are connected together. Any suitable insulation, which may be a wrapping of tape, *e*, is then placed upon the lead *d*. 100

LL are the plugs of a main-line safety-catch. To connect with them, insulation is removed as

before and wires A are run directly to one of the plugs. Lead conductors C C are connected to the other plug by clamps I and wires K, the same as in Fig. 1.

5 I do not claim herein placing the two conductors of a round metallic circuit in such proximity that they will be fused or soldered together by the passage of an arc between them, since this feature is claimed in my prior
10 application, filed August 13, 1884.

What I claim is—

1. A compound electrical conductor having in combination an inner insulated wire and an inclosing-envelope of readily-fusible metal,
15 each forming one side of a circuit, substantially as set forth.

2. A compound electrical conductor having in combination an inner insulated wire and an inclosing-envelope of readily-fusible metal,
20 each forming one side of a circuit, and an external fire proof insulation, substantially as set forth.

3. A compound electrical conductor having in combination an inner wire provided with a water-proof insulation and an inclosing-en- 25
velope of readily-fusible metal, each forming one side of the circuit, and an external fire-proof insulation, substantially as set forth.

4. A flexible compound electrical conductor having in combination an inner insulated wire, 30
a lead tube inclosing the same, and an external fire-proof insulation, substantially as set forth.

5. The combination of compound conductors, one forming a main and the other a branch circuit, the inner wires of the two being secured 35
together and covered with insulation and the outer conductors being connected by a conducting-wrapping, substantially as set forth.

EDWARD H. JOHNSON.

Witnesses:

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