

(Model.)

S. D. STROHM.

METALLIC CIRCUIT FOR ELECTRICAL CURRENTS.

No. 272,792.

Patented Feb. 20, 1883.

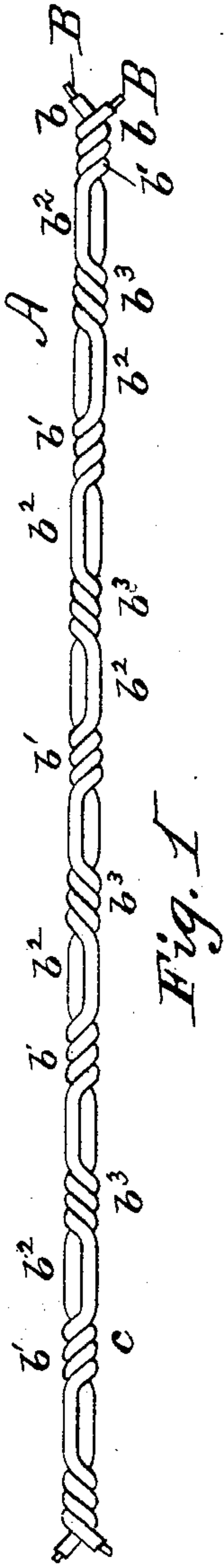


Fig. 1

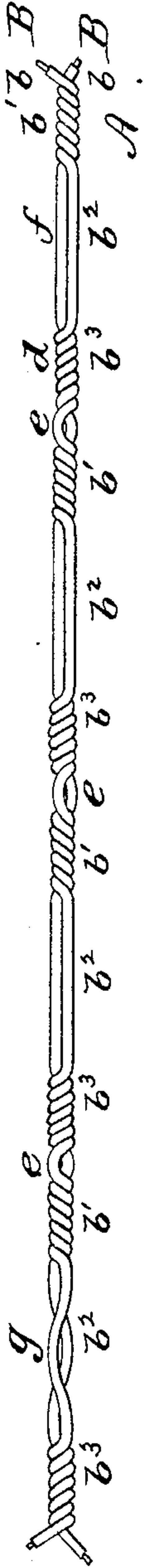


Fig. 2

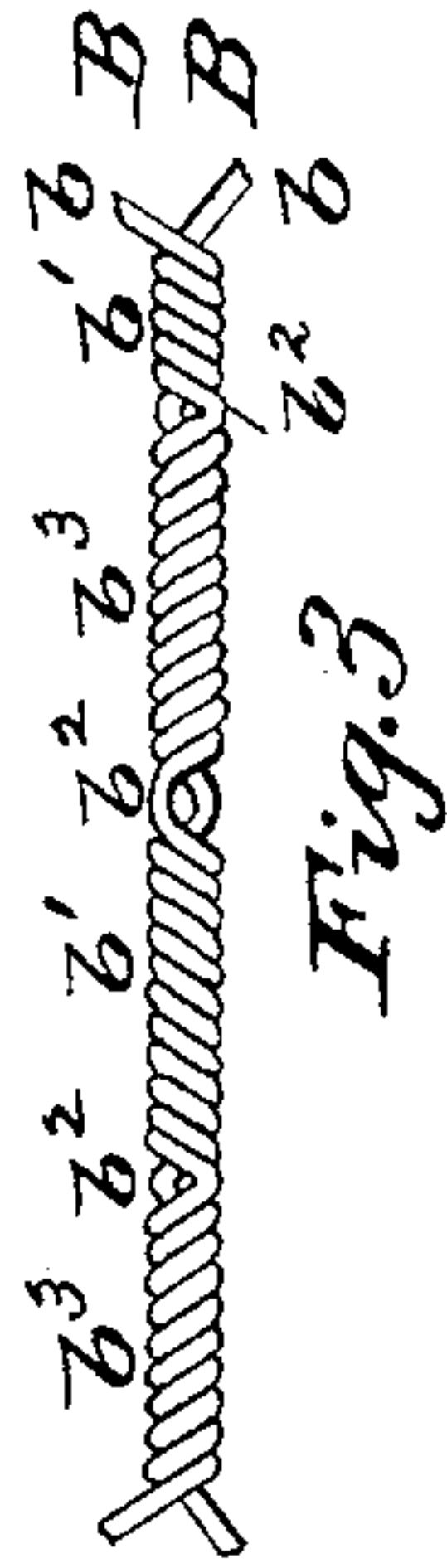


Fig. 3

Witnesses:

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UNITED STATES PATENT OFFICE.

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METALLIC CIRCUIT FOR ELECTRICAL CURRENTS.

SPECIFICATION forming part of Letters Patent No. 272,792, dated February 20, 1883.

Application filed July 27, 1882. (Model.)

To all whom it may concern:

Be it known that I, SAMUEL D. STROHM, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Circuits for Electrical Currents, of which the following is a specification, reference being had therein to the accompanying drawings, where-
10 in—

Figures 1, 2, and 3 are plans of metallic circuit embodying my invention.

My invention relates to that class of electric circuits wherein a metallic return-wire is combined with an operating or direct wire, for avoiding the interferences arising from the action and reaction upon each other of the derived or induced currents, and the retardation and prolongation of the signals proceeding therefrom, and has for its object to provide an organized circuit, which is easily and inexpensively manufactured, and which, when located for use, can be handled and drawn taut, or otherwise manipulated, without disturbing or
25 impairing the normal relation or arrangement of the wires.

My invention accordingly consists of the novel organization of the wires composing the circuit, as hereinafter specifically described and claimed, comprising, in general terms, two
30 wires of substantially the same thickness or resistance, which are alternately twisted in opposite directions throughout their length, whereby they are maintained in due relation with one another to form the circuit. Between the twists there is an interval wherein the wires, for a greater or less distance, run parallel or straight with each other; or they may overlap or cross each other, as desired.

Referring to the accompanying drawings, A represents a metallic circuit composed of two wires, B B, each of which is covered or provided with any suitable form of insulating material. Said wires are connected together, or
45 organized in due relation with each other, in substantially the following manner: The ends $b b$ are first twisted together, as shown at b' . Such twist is succeeded by an interval, as indicated at b^2 . The wires are then again twisted,

as illustrated at b^3 ; but the latter twist is in a reverse direction to that of the twist b' . Then succeeds another interval. Then another twist, which has a direction opposite to that of twist b^3 , and so on until the circuit is completed. It therefore consists of two wires having alternately opposite twisted sections $b' b^3$ and intervals $b^2 b^2$. The number of twists or coils in sections $b' b^3$ may be two or three, as shown at c , Fig. 1, or a greater number may be made, as indicated at d , Fig. 2. The intervals b^2 may
60 be in regular succession and of a short duration, as illustrated in Fig. 1, or their length may be increased to a greater or less extent, as shown in Fig. 2, and between each such extended length a smaller interval may be formed, as indicated at e , Fig. 2.

If desired, the wires at the intervals may be arranged side by side or parallel with each other, as shown at f , Fig. 2, or one of the wires may be corrugated and folded over the other, as illustrated at g , in said figure, or they may simply cross each other, as seen in Fig. 3.

From the foregoing it will be apparent that I do not limit my invention to any particular length of twisted sections, nor to the number
75 of the coils therein. Neither do I confine myself to the number or character of the intervals between the twists, as they may be varied without departing from the spirit of my invention. A circuit so constructed and arranged cannot
80 be readily disorganized by handling or in taking it from the reel when placing it in position for practical use, and it can be drawn taut without untwisting or disarranging the normal relation of the wires composing it. Another
85 advantage arising from such organized circuit is that the extra currents produced by the absorption of a portion of the current on the wires by the dielectric surrounding the circuit and the return of such absorbed current to the circuit are diminished or avoided, for the reason
90 that the sections $b' b^3$ being oppositely twisted, they produce equal and opposite effects in the dielectric adjacent thereto, and the latter being continuous, these effects of the current necessarily tend to neutralize each other, and thus
95 the extra currents in the circuit are greatly diminished, and the retardation and prolonga-

tion of the intervals between the transmitted signals arising from the presence of such extra currents is materially avoided.

It will be noticed that both wires of the circuit are coincidently twisted in the sections b' b^3 , and that the alternate sections have reverse or opposite twists.

What I claim is—

1. A metallic circuit consisting of a direct and a return conductor, both of which are coincidently twisted or coiled to form a series of sections alternately twisted or coiled in opposite directions, substantially as shown and described.

2. The electric conductor hereinbefore described, consisting of two wires having oppositely-twisted sections b' b^3 and intervals b^2 , substantially as specified.

3. The electric conductor hereinbefore set forth, consisting of two wires having oppositely-twisted sections with intervals between the sections.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL D. STROHM.

Witnesses:

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CHAS. F. VAN HORN.