

(No Model.)

T. L. REED.
COVERED ELECTRIC CONDUCTOR.

No. 465,888.

Patented Dec. 29, 1891.

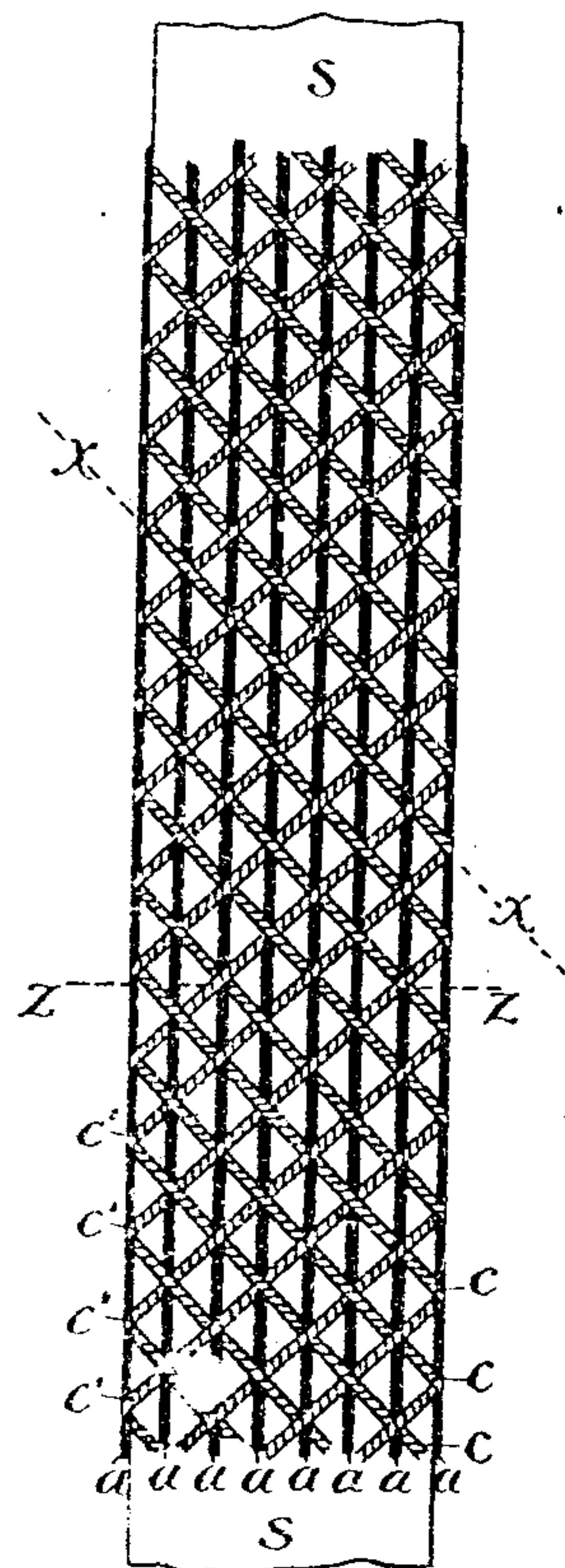


Fig. 1.

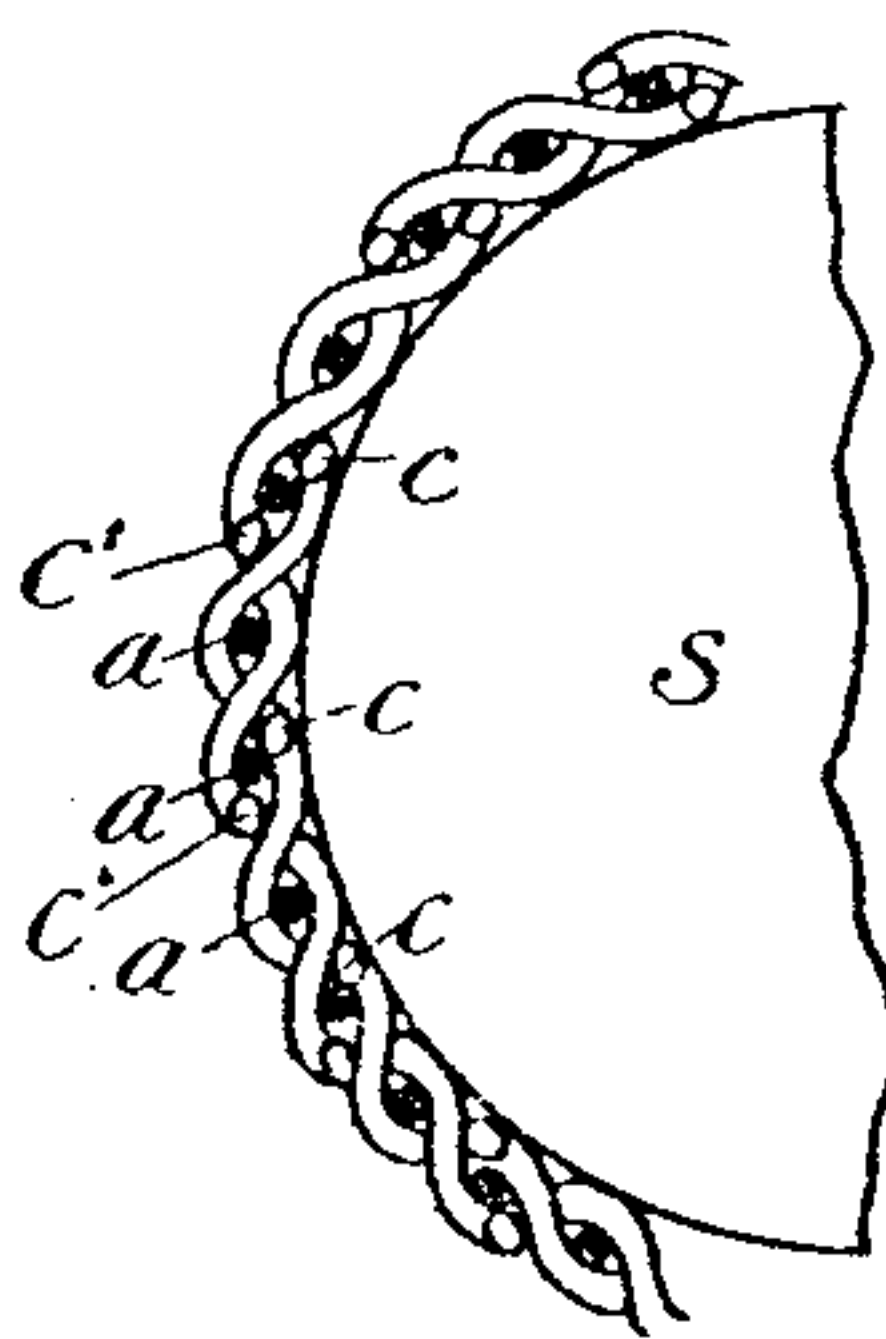


Fig. 2.

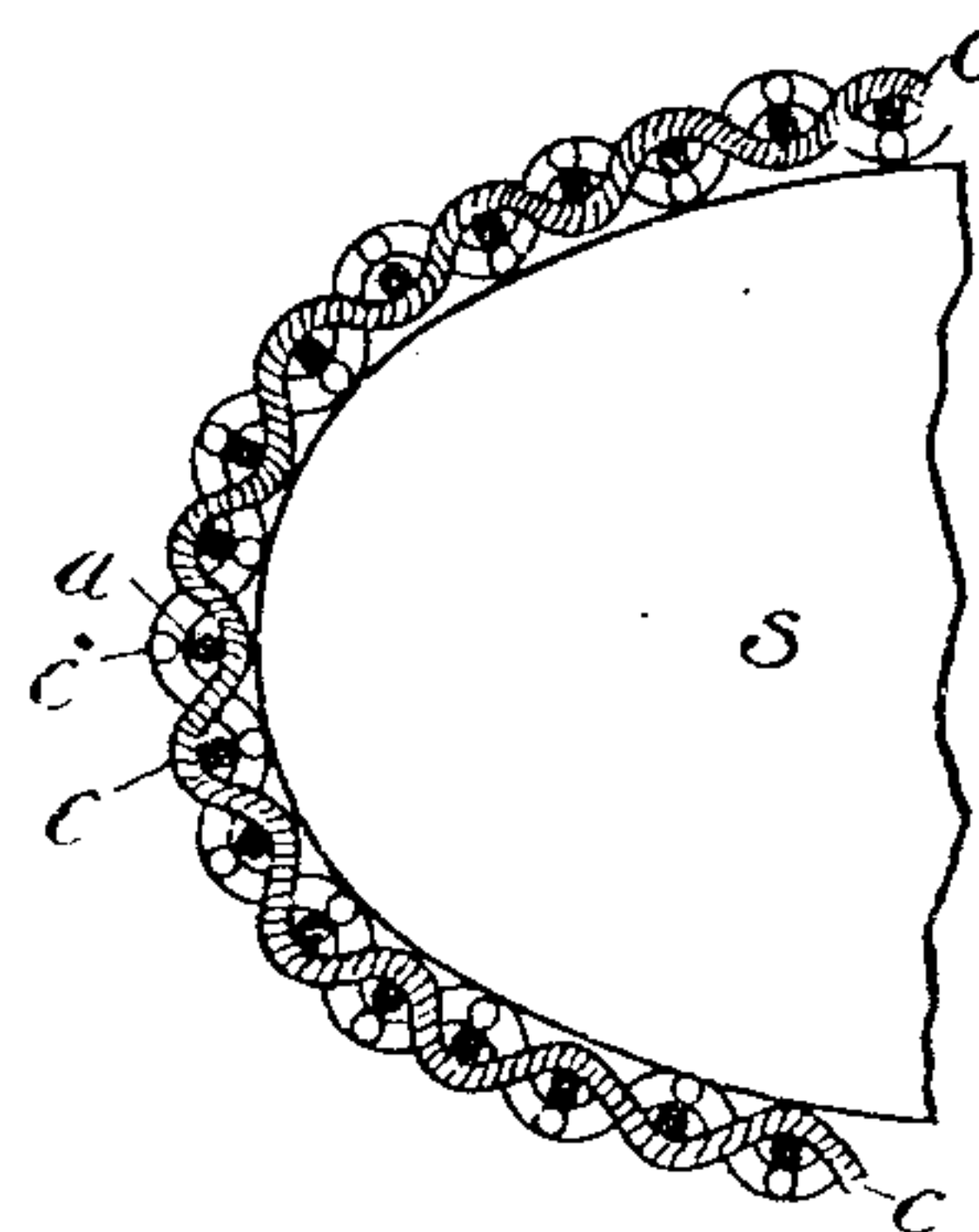


Fig. 3.

WITNESSES:

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COVERED ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 465,888, dated December 29, 1891.

Application filed November 18, 1890. Serial No. 371,834. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. REED, of Providence, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in Covered Wire; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference
10 marked thereon, which form a part of this specification.

This invention refers more especially to that class of covered wires made for electrical uses, though applicable to other purposes, and it
15 may be produced as a single covered wire or as a covered cable containing one or more wires with insulating material—such as rubber or the like—surrounding them. It partakes of the nature of a woven covering, in
20 that it has longitudinal strands, though these strands are held and covered on both their inner and outer surfaces by strands braided in the usual way, the object in combining the longitudinal strands with the braided
25 ones being to avoid the stretchiness, so to speak, of the usual braided covering and strengthen the wire or cable by adding the strength of these strands to that of the article covered, and they also help to keep the braided
30 covering from being stretched independently of the wire, which sometimes causes ruptures in the insulating material underneath the braid and which are not easily detected. It is illustrated in the accompanying drawings.
35 Figure 1 is a representation of a piece of wire or cable with the improved covering, the strands being made wide apart to show their relative positions and directions, instead of being drawn close together, so as to make a
40 close covering, as is done in practice. Fig. 2 shows a cross-section of the covered wire or cable taken on dotted lines $z z$, Fig. 1. Fig. 3 is a part of a diagonal section taken across between two of the threads $c c$ on line $x x$,
45 Fig. 1.

In Fig. 1 one set of the braided strands that run in one direction around the wire s are marked cc , and those strands that pass around in the other direction are marked $c' c'$. These

two sets are braided over the wire in the usual way. The warp or lengthwise strands
50 $a a$ are placed intermediate between the two sets of braided strands $c c'$, where they cross each other in the process of braiding. The order of the strands in the operation is as follows: One of the strands c passes, say, first
55 under one of the strands c' , with one of the strands a between the two. Then the same strand c passes over the next strand c' , with another of the strands a between the two
60 strands, crossing as before, and this order of the strands—a strand c passing alternately over strands c' , with a lengthwise strand a between them where they cross—is continued through the whole covering. By this it will
65 be easily seen that as there is always a c strand or a c' strand under and over the strands a where they cross the strands a will be straight in the direction of the length of the wire. This combination has a great advantage over
70 the usual braided covering or even the woven covering, as these straight strands a receive the initial strain of any force exerted on the wires in the direction of its length and add their strength to that of the wire to resist
75 breaking, and as there are a number of them the additional strength thus afforded to the wire is very great.

As before mentioned, the diagonal position of the usual braided strands allows them to
80 stretch and prevents them from affording this resistance to the tensile strain, and a woven covering has its warp-strands bent in and out more or less in passing under and over the filling-thread, which prevents these
85 warp-strands from being straight and gives them a certain amount of stretch when drawn on lengthwise, and this straight position of the lengthwise strands a , not being required to bend to accommodate the braided strands,
90 enables me to use a stiffer, harder, and less yielding material with greater strength for that purpose.

Even common wire can be used to form the lengthwise strands where there is no objec-
95 tion to a partially-metallic covering. The number of strands a may be more or less, as it may be found best, as it is not necessary

to put one between every crossing of the strands *c c'*.

Having thus described my improved covering, I claim as my invention—

5 As a new article of manufacture, a wire for electrical purposes having a covering composed of braided strands and straight wire-

strands not braided inclosed between the two sets of braided strands, substantially as set forth.

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Witnesses:

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