

T. GUILLEAUME.
ELECTRIC CABLE.

No. 483,285.

Patented Sept. 27, 1892.

Fig. 1.

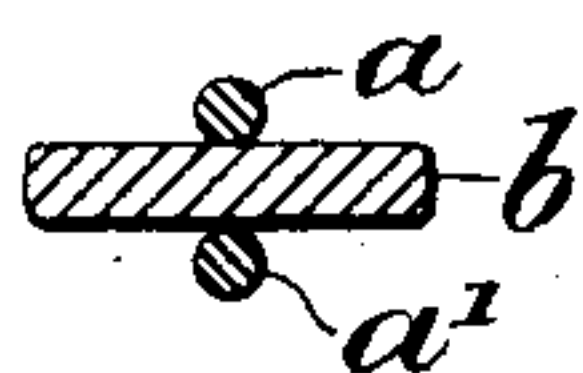


Fig. 2.

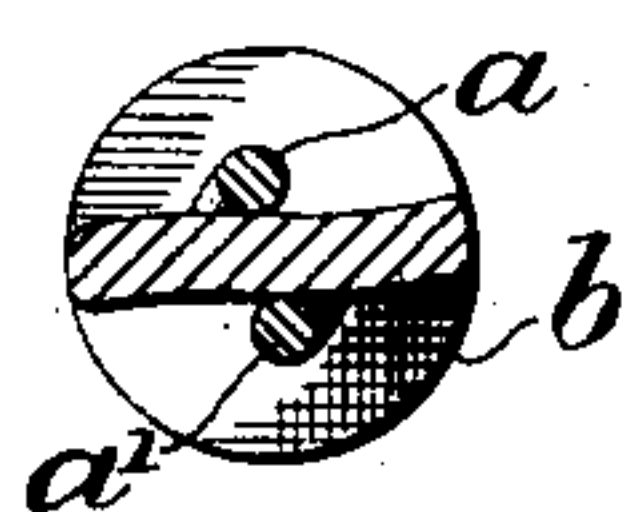


Fig. 3.

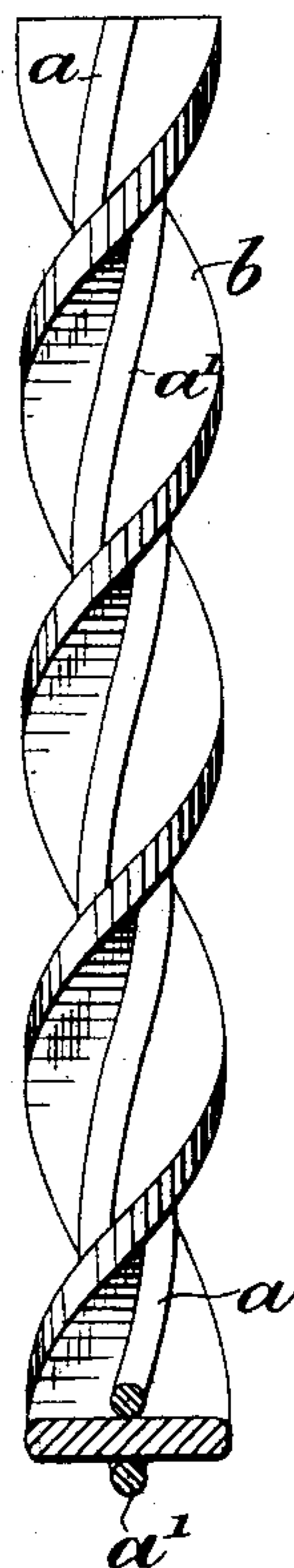
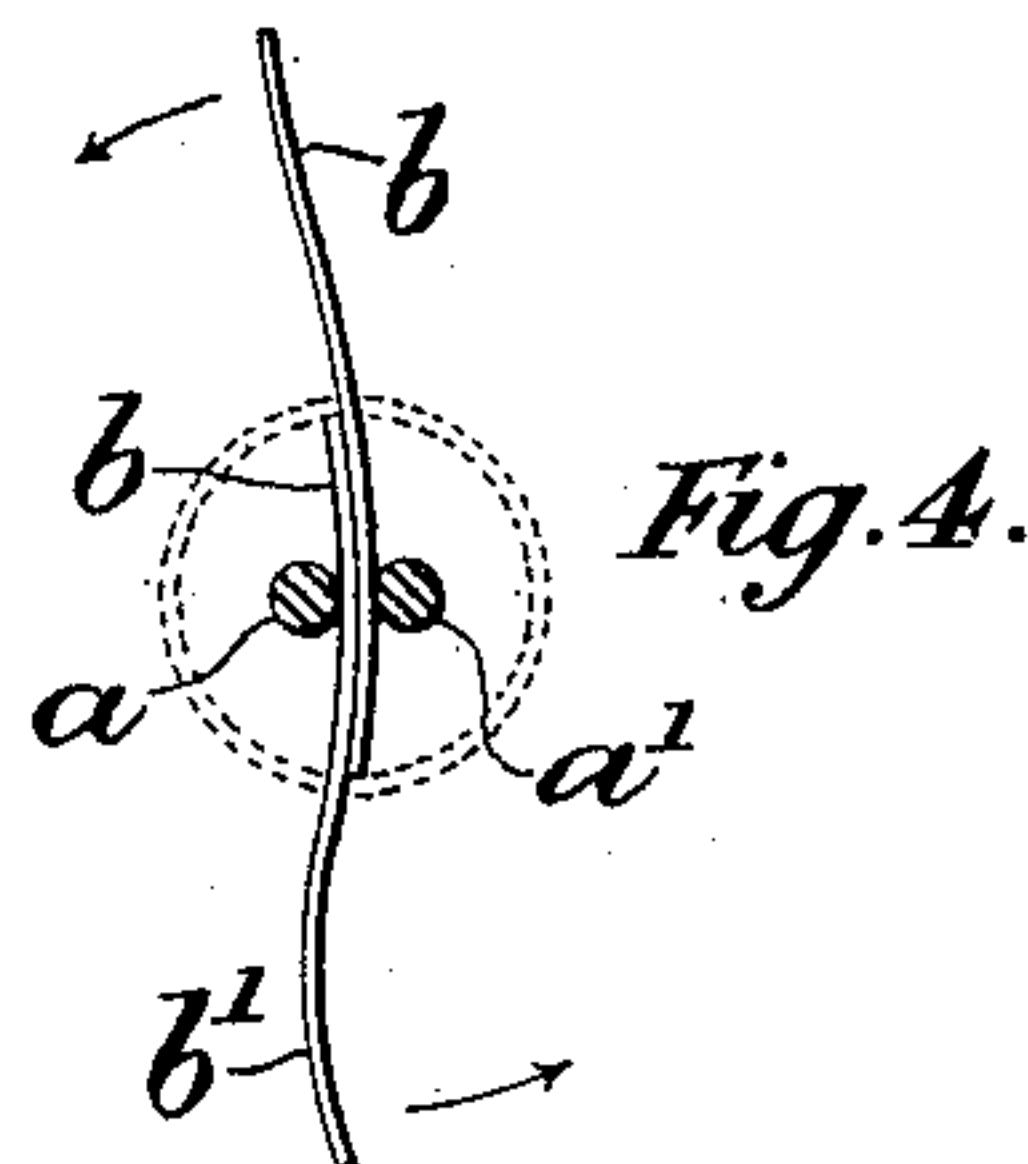
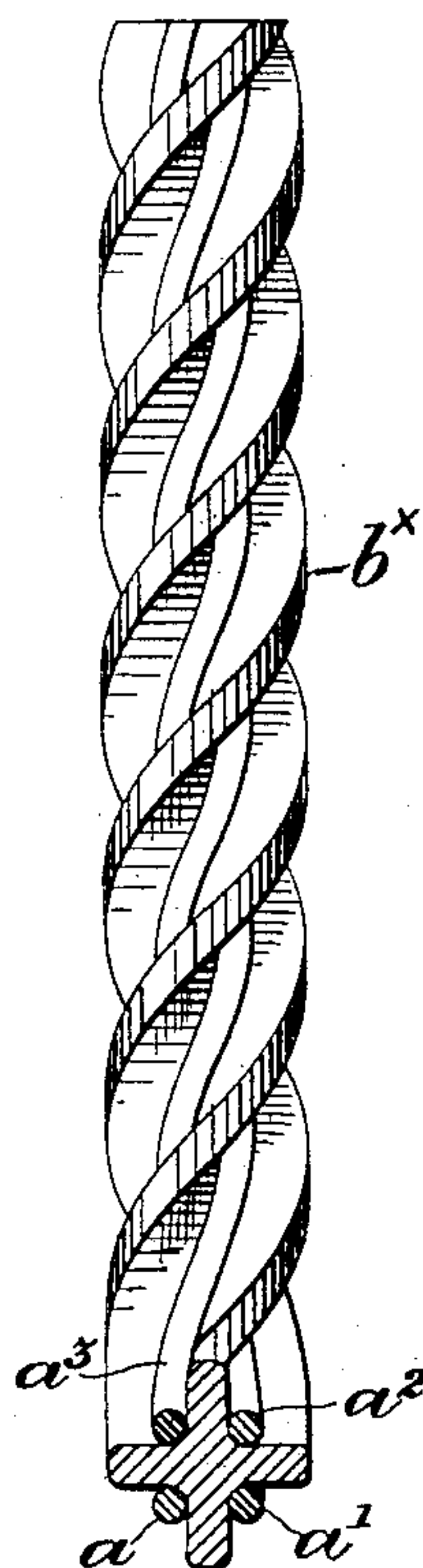


Fig. 5.



Witnesses:
Rich. Schuller
L. Ziesenis

Inventor:
Théophile Guilleaume

(No Model.)

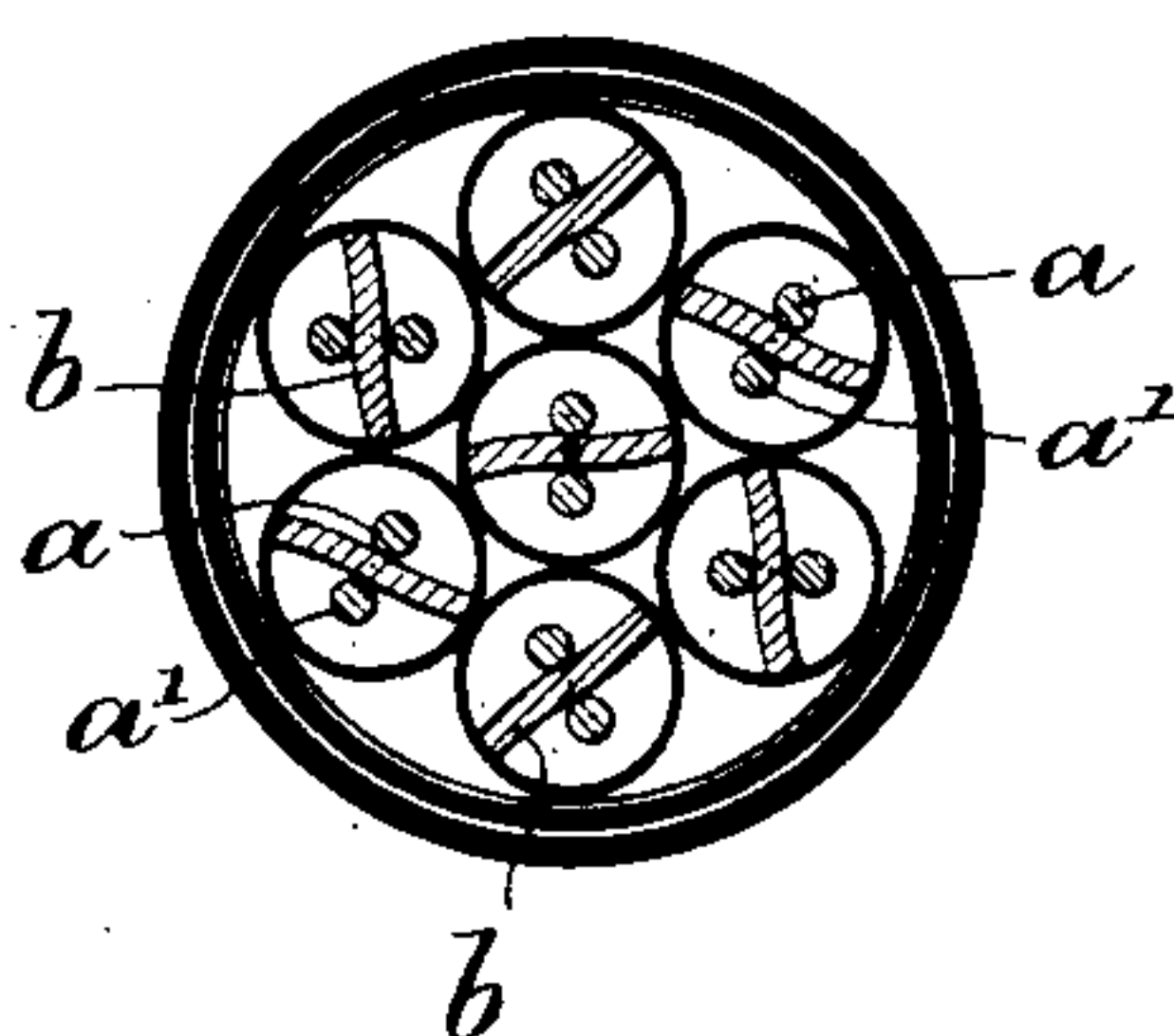
2 Sheets—Sheet 2.

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Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODORE GUILLEAUME, OF COLOGNE, GERMANY.

ELECTRIC CABLE.

SPECIFICATION forming part of Letters Patent No. 483,285, dated September 27, 1892.

Application filed May 6, 1892. Serial No. 431,927. (No model.)

To all whom it may concern:

Be it known that I, THEODORE GUILLEAUME, a subject of the German Emperor, residing at Cologne, in the German Empire, have invented
5 new and useful Improvements in Electric Cables, of which the following is a specification.

This invention relates to electric cables or conductors, particularly such as are intended for use in telephonic transmission, where reduction of capacity to the utmost degree is highly advantageous, the objects of the present improvements being to reduce the capacity by means of comparatively large air-spaces, to simplify the construction, and to obtain compactness.
15

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a transverse section of a strand at an initial stage of manufacture and comprising two conductors
20 separated by a strip of non-conducting material. Fig. 2 represents the same parts after having been twisted together. Fig. 3 is a longitudinal elevation corresponding with Fig. 2. Figs. 4 and 5 show modifications. Fig. 6 is a
25 transverse section of a cable comprising seven strands, such as illustrated in Figs. 2 and 3.

According to the preferred mode of carrying out this invention two conductors a and a' are separated by a strip b of non-conducting
30 material, which may be paper of the required thickness. The strip of non-conducting material, with the two conductors disposed one on each side thereof, as shown in Fig. 1, are then twisted together, as represented in Figs.
35 2 and 3, the two conductors a and a' being thereby insulated from one another and protected from contact with any other body, owing to the manner in which the edges of the strip b of non-conducting material project.
40 The twisting of the flat strip about its own axis causes two spiral grooves to be formed by the strip, one on each side thereof, the conductors lying in these grooves. The greater part of the insulation of the conductors consequently consists of the air contained in the
45 grooves. The strand, group, or core thus produced may be further protected by a layer or layers of insulating material—for instance, by a strip of paper wound round the twisted
50 strip. It may also be provided with a metallic or other protective covering.

Several strands, groups, or cores, such as above described, may be united to form a cable in the usual way, as represented in Fig. 6. The twist of the several strands when laid
55 up to form a cable may be right hand and left hand alternately.

The twisted insulating-strip b may be furnished on one or both edges with a projecting part b' , Fig. 4, which during or after the
60 twisting operation may be laid over the grooves or air-spaces for the purpose of closing them.

Instead of a flat strip of insulating material, with a conductor on each side, a strip b^x , Fig. 65 5, cross-shaped in transverse section, having a conductor a , a' , a^2 , or a^3 in each of its grooves, may be employed. One or more or each of the edges of this strip may have a projecting part, such as b' , for covering the
70 grooves.

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

1. An electric cable or strand for the same, consisting of one or more pairs of naked con-
75 ductors, the conductors constituting each pair being separated by a strip of non-conducting material, the conductors and the intervening non-conducting material being twisted together, substantially as herein described.
80

2. In an electric cable, a strip of non-conducting material twisted about its own axis to form spiral grooves or air-channels in which conductors may lie, substantially as herein
85 described.

3. In an electric cable, a strip of non-conducting material twisted about its own axis to form spiral grooves or air-channels and provided with a radially-projecting part, which can be laid over the said grooves or
90 channels for the purpose of closing them, substantially as herein described.

4. In an electric cable, the combination, with the conductors a and a' , of the non-conducting strip b , substantially as and for the
95 purposes herein set forth.

THEODORE GUILLEAUME.

Witnesses:

EVA HAUSEN,
H. A. MAXWELL.