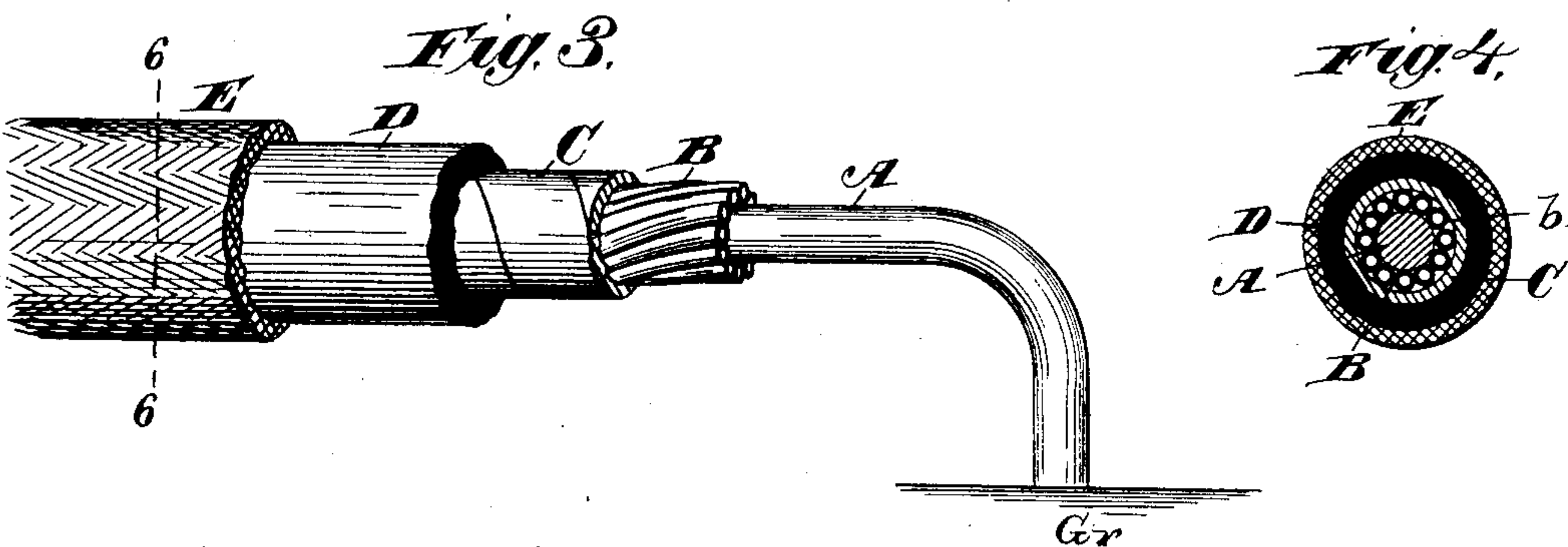
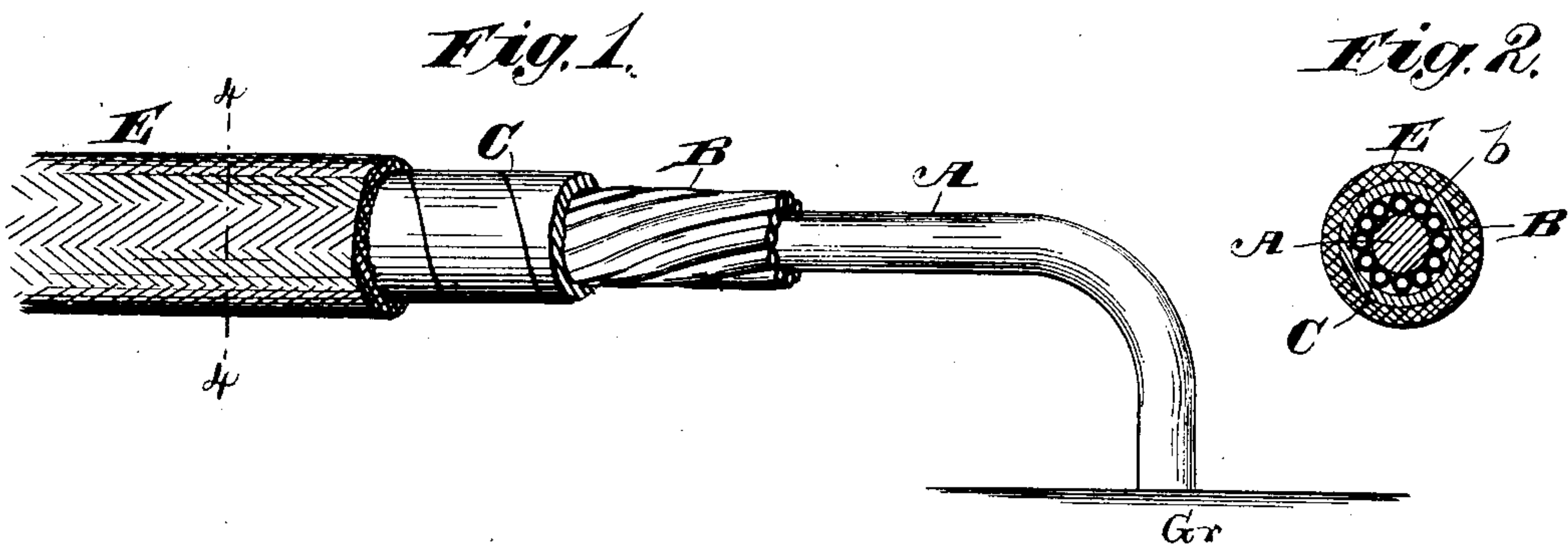


(No Model.)

H. A. CLARK.  
ELECTRICAL CABLE.

No. 310,879.

Patented Jan. 20, 1885.



Witnesses,  
Robert Everett,  
J. A. Rutherford.

Inventor,  
H. A. Clark,  
By Brown Bros.

Atty.

# UNITED STATES PATENT OFFICE.

HENRY A. CLARK, OF BOSTON, MASSACHUSETTS.

## ELECTRICAL CABLE.

SPECIFICATION forming part of Letters Patent No. 310,879, dated January 20, 1885.

Application filed February 18, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. CLARK, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and  
5 useful Improvements in Electrical Cables, of which the following is a full, clear, and exact description.

This invention relates to a cable for telephonic, telegraphic, and electric purposes  
10 generally, the object being to provide a cable in which leakage shall be prevented and inductive effects of any wire upon the others obviated so far as possible.

To these ends it consists in the cable constructed as more fully hereinafter described  
15 and claimed.

In the drawings, Figures 1 and 3 are side views of a cable embodying the invention, while Figs. 2 and 4 are sections thereof on  
20 lines 4 4 and 6 6, respectively.

A is the core-wire of the cable, of any suitable size and material, so that it is a good or fair conductor of electricity. Upon and around it are spirally wound the conductors  
25 B, each of which is provided with its own insulating-coating *b*, so that each is independently insulated from all the others and from the core-wire A. This insulation may be of any of the well-known insulating materials  
30 —such as rubber, kerite, gutta-percha, &c., either alone or in any of the usual combinations of such insulating compounds. Upon these wires B is laid a conducting-strip, C, which may be spirally wound thereon, or laid  
35 or folded longitudinally, as may be desired. This strip C may be of foil, or of sheet metal thin enough to be flexible. This in turn is protected by the exterior covering, E, braided, spun, or woven thereon in any of the well-  
40 known ways of applying a fibrous jacket or casing to wires. When desired, however, to insulate the covering C and the interior cable more thoroughly than would be accomplished by this fibrous jacket or casing E, a covering  
45 of insulating material, D, of gutta-percha, kerite, or equivalent insulating compound, is first applied to and over C, and the jacket or casing E applied upon the exterior thereof, as shown in Figs. 3 and 4.

In practice the wires B are used as the circuit-wires for conveying the impulses necessary for the desired signaling or communications, and A and C are connected to the ground at each end by suitable electric conductors. In such construction the circuit-wires B are  
50 thoroughly insulated each from the others and from the air and other conducting mediums, so that leakage therefrom is practically avoided, while the inductive influence of any wire when in use is expended upon the wire-  
55 core A and metallic covering C, by which, they being in connection with the ground, the induced currents are conveyed to the ground, and the danger of disturbance of any wire by induction from another or the others is re-  
60 duced to a minimum and in practice entirely obviated. At the same time the cable is flexible, and adapted to be used under any conditions, and in any position or relation, underground, overhead, or submarine.  
65

I am aware that it is old to construct a cable with alternate groups of insulated and naked wires wound in opposite directions and with the naked wires connected to the earth; and also to make a single insulated  
70 conductor of a wire covered with an insulation and having a coating of foil upon such insulation, the foil in turn being covered by an insulating-coat; and also to make a cable having a core of a number of wires surrounded  
75 by a series of insulated wires wound around the core of central wires, a covering being then wound around both to hold them in a rope, and also to apply a continuous close coating of gutta-percha to a series of wires, hence I claim  
80 none of these things; but

What I do claim is—

1. An electrical conducting-cable consisting of a central naked conducting-core, a series of independently-insulated wires wound  
85 spirally therearound, a conducting-strip of foil or thin sheet metal applied thereover, and a braided or woven fibrous jacket inclosing and protecting the wires and foil, the inner core and the foil or sheet metal being adapted  
90 to be connected to the earth, substantially as described.

2. An electrical conducting-cable consist-



ing of a naked conducting-core, a series of  
wires each independently insulated and spi-  
rally wound around the core, a strip of foil  
or other thin sheet conductor wound or  
5 folded thereupon, a coat of insulating mate-  
rial placed over and around the foil or sheet  
conductor, and a braided or woven fibrous  
protecting-jacket inclosing the whole struc-  
ture, substantially as described.

In testimony whereof I have hereunto set to  
my hand in presence of two subscribing wit-  
nesses.

HENRY A. CLARK.

Witnesses:

EDWIN W. BROWN,  
WM. F. BELLOWS.