No. 36,630. PATENTED OCT. 7, 1862.

L. ANDREWS.

TELEGRAPH CABLE.

Fig. 1.

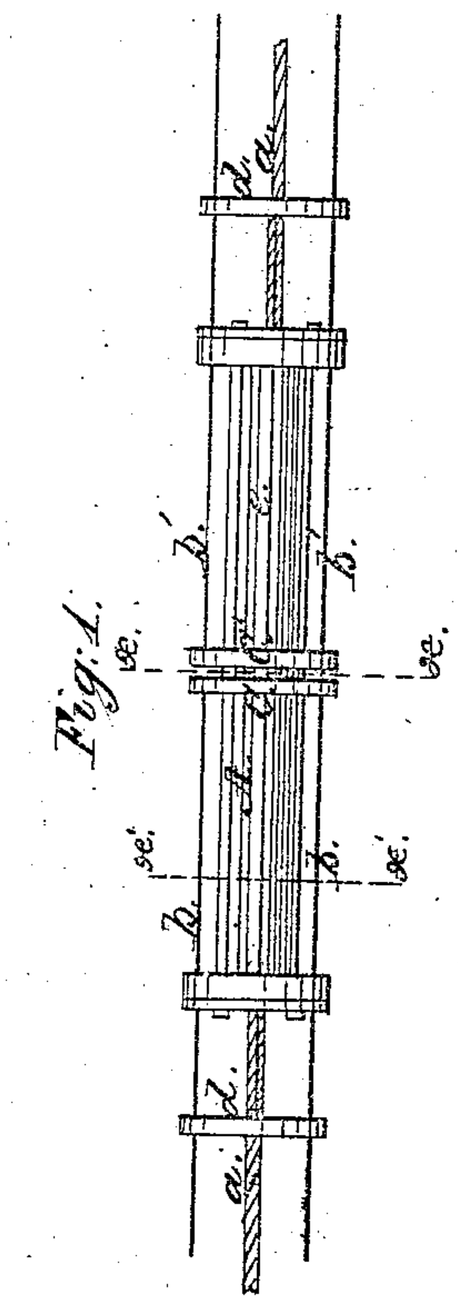


Fig. 2.

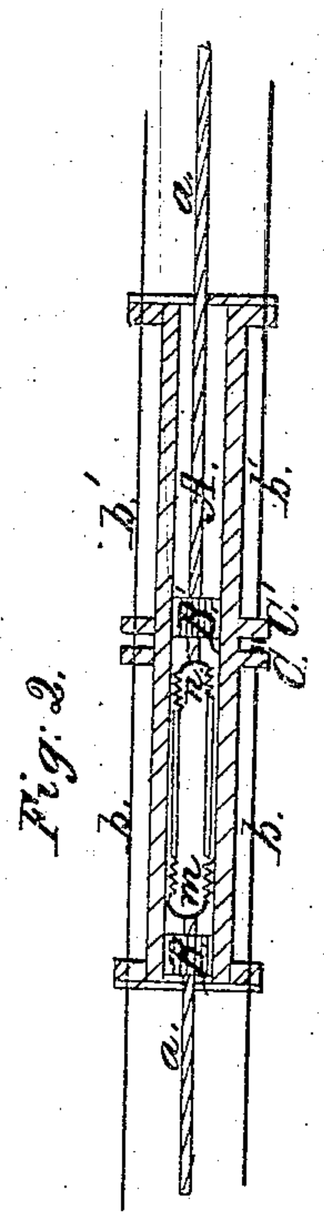


Fig. 3.

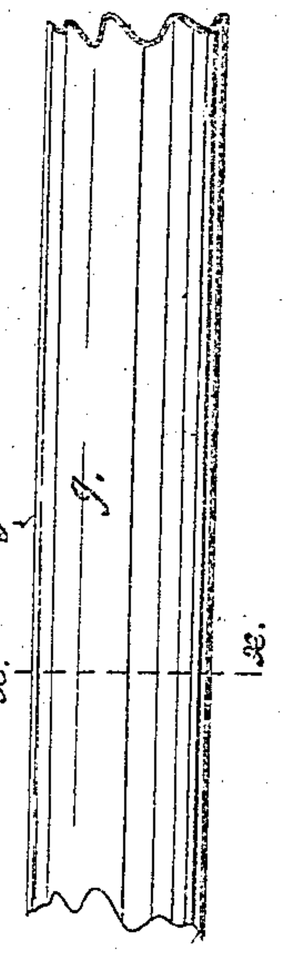


Fig. 4.

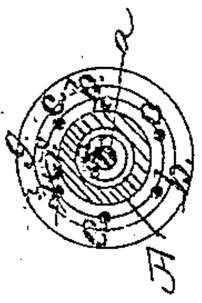
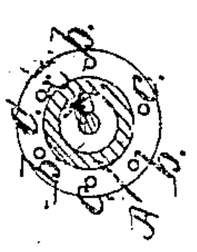


Fig. 5.



Witnesses:

W. C. Marrs

Lewis L. Coburn

Inventor:

Luman Andrews

UNITED STATES PATENT OFFICE.

LUMAN ANDREWS, OF DE KALB, ILLINOIS, ASSIGNOR TO HIMSELF AND PHINEAS STEVENS, OF SAME PLACE.

IMPROVEMENT IN TELEGRAPH-CABLES.

Specification forming part of Letters Patent No. **36,630**, dated October 7, 1862.

To all whom it may concern:

Be it known that I, LUMAN ANDREWS, of De Kalb, in the county of De Kalb and State of Illinois, have invented a new and useful Improvement in Submarine Telegraphic Cables; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters and figures marked thereon, forming a part of this specification.

In the said drawings, Figure 1 represents a side view of my invention; Fig. 2, a longitudinal section through the center; Fig. 3, a transverse section at the line *x*; Fig. 4, a similar section at the line *x'*; and Fig. 5 represents the cable when complete.

Similar letters in the different figures denote corresponding parts of my invention.

The object of my invention is to obtain a device to be used in the construction of submarine telegraphic cables, for preventing the breaking of the same, by allowing the cable, when any pressure may be applied to it, as by the anchor of an anchored vessel, to stretch or yield, and so prevent the breaking of the cable.

To enable those skilled in the art to make and use my invention, I will now proceed to describe the same with particularity.

A in the drawings represents a cylinder made of the best quality of iron or other suitable metal, and should be about a foot long, though the precise length is entirely immaterial. This cylinder is to be lined or coated on the interior surface with some non-conducting medium, the internal diameter of the cylinder being sufficient to allow the cable, which passes into or through it, to have free movement within the cylinder.

B B' are valves fitting closely into the cylinder, so as to be water-tight. Through these valves passes the main cable or electric conductor, the cable being insulated from the same, and the valves being fixed immovably upon the cable, the cable being represented by *a*.

Within the cylinder there is a sliding joint in the cable, as shown in Fig. 2. This joint is constructed as follows: The cable after passing through the valves in each end of the cylinder divide into as many separate branches as there are small wires entering into the cable or twisted together to form it, the branches from the left hand passing to *n*, and those from the right hand passing to *m*. The branches from the left hand are coiled around the branches from the right hand at *n*, and the right-hand branches are coiled about the others at *m*. By this arrangement, when any strain comes upon the central cable, it stretches the distance between the points *m* and *n*, the valve B' sliding in the cylinder A and the wires within sliding upon each other until the point *m* is brought to *n*, the electrical communication being kept perfect all the time.

b b' are wires used to strengthen the cable, and are attached to the movable rings C C'. These rings C C', when any strain is applied to the cable, slide upon the cylinder in a manner to correspond with the sliding of the valve B B' within it; and by these two devices, the sliding of these rings and the sliding joint in the inner cable—the whole cable—an extension is given to the length of the cable about equal to one-half the length of the cylinder.

C are rods passing parallel to the cylinder through the heads thereof, and through the sliding rings C' C, and are fastened to the supports *d*. The arrangement of *c* and *d* is simply for the purpose of strengthening the device, and preventing the rings C C' from turning on the cylinder.

About the cylinder and under the wires *b c* is a coating of rubber, (marked *e* in Fig. 4.) Around and upon this and outside the wires *b c* is another coat of rubber, *f*, making the whole diameter equal to the diameter of the heads of the cylinder, when around the whole is the rubber coating *g*, when the entire device is covered, and appears as shown in Fig. 5.

This device or invention may be inserted in the cable at such distances from each other as may be desirable, from one-fourth of a mile to one mile, as may be deemed best.

Another advantage of my invention is, that if the cable should by any means break, the water could not penetrate and destroy the cable for a greater distance than between these cylinders, they being made water-tight.

The cable *a* is to be insulated in any suit-

able manner throughout its entire length, the insulated interior of the cylinder insulating that part of the cable inside the cylinder.

I claim as my invention—

1. In combination with the cylinder A and the valves B B′, the sliding joint *m n* in the cable *a*, constructed and operating substantially as set forth.

2. The arrangement of the cylinder A, the movable rings C C′, and wires *b′ b*, in combination with the sliding joint *m n*, operating as described.

LUMAN ANDREWS.

Witnesses:

W. E. MARRS,

LEWIS L. COBURN.