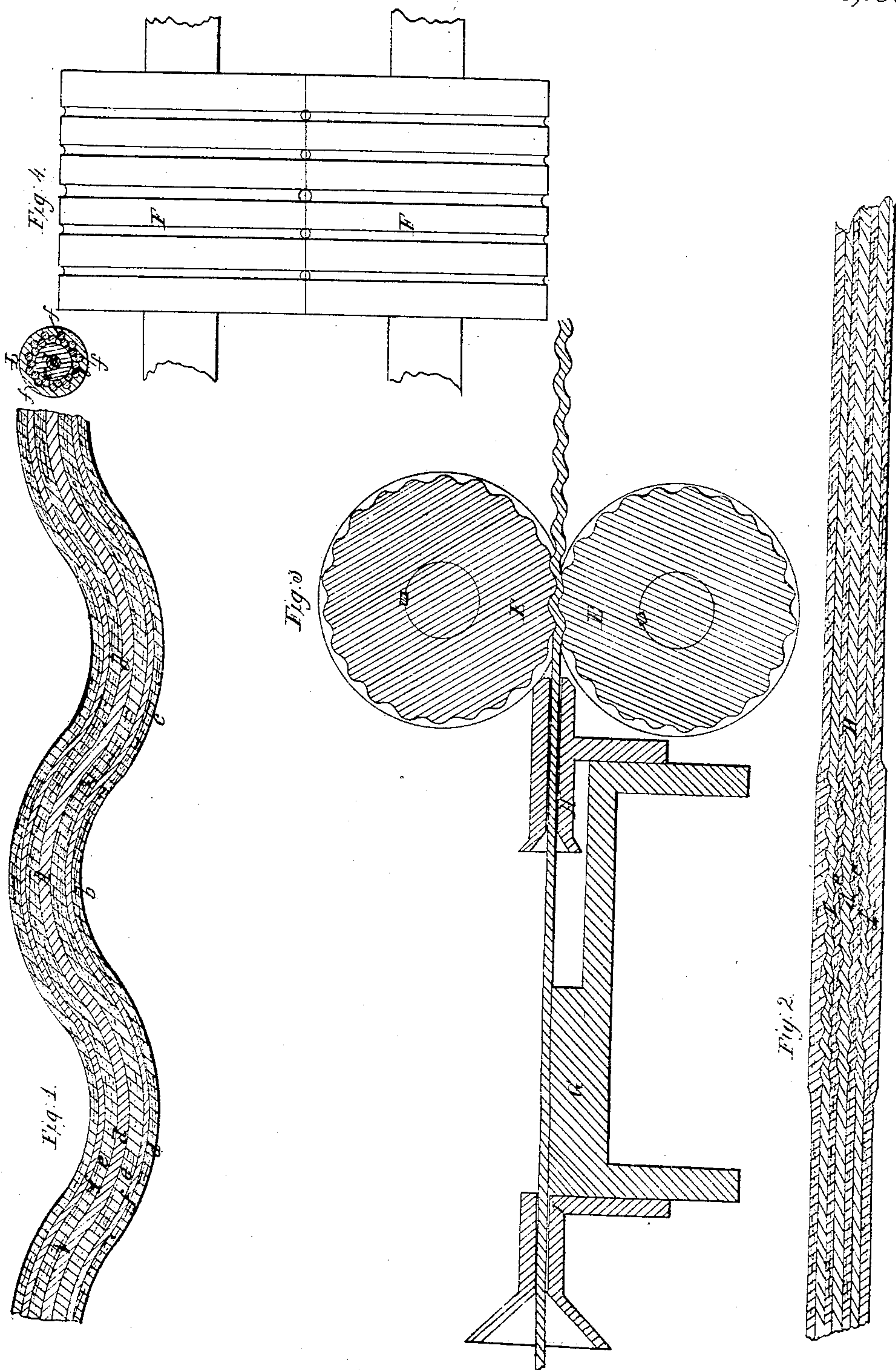


J. Absterdam.

Telegraph Cable.

N^o 19,116.

Patented Jan. 19, 1858.



UNITED STATES PATENT OFFICE.

JOHN ABSTERDAM, OF BOSTON, MASSACHUSETTS.

IMPROVED CONSTRUCTION OF TELEGRAPHIC CABLES.

Specification forming part of Letters Patent No. 19,116, dated January 19, 1858.

To all whom it may concern:

Be it known that I, JOHN ABSTERDAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Electric-Telegraph Cables to be Submerged in Water; and I do hereby declare that the same is fully described and represented in the following specification, and the accompanying drawings, of which—

Figure 1 is a longitudinal section of a telegraph-cable containing my invention, the figure marked B, adjacent to Fig. 1, being a transverse section of such cable. Fig. 2 is a section of another form of cable having my invention. Fig. 3 is a sectional view of the mechanism that may be employed for corrugating the cable or the circuit-wires, or the covering-wires thereof. Fig. 4 is a side view of such mechanism.

The nature of my invention consists in an electric-telegraph cable as made, so as practically to be elastic lengthwise, such cable, or the metallic parts thereof, being constructed with corrugations or flexures such as will enable the cable, when subjected to a longitudinal strain, to have an elastic property such as will permit it to extend under such force or strain. An elastic cable of such kind has an advantage over a cable practically inelastic lengthwise, for by means of the former a much better bearing on the bottom of the sea may be obtained than by the latter; and besides this, the elastic-cable is not so liable to be broken under sudden and violent strains. In the process of submerging a telegraph-cable of the ordinary kind it generally rests on the bottom of the sea only at intervals, there being spaces where it is unsupported by direct contact with the said bottom, the cable stretching from point to point, and over the ground, somewhat as the chord of an arc of a circle does with respect to the arc, the said chord touching the arc only at their extremities. An elastic telegraph-cable, in consequence of its elastic property, will be stretched by its weight so as to take a more uniform and better bearing along the surface of the bottom of the sea.

In Fig. 1 A represents a cable formed with corrugations or flexures, as shown at a b c. In this figure d is the circuit-wire or strand, while e e represent an insulating covering of gutta-percha or other suitable flexible material, such

covering being surrounded by or having wound on it a metallic covering, f f, formed of twisted strands of steel wire in the usual way. These strands may be covered by gutta-percha or tarred hemp. The metallic portion of the cable, being practically inelastic with reference to its insulating and protecting covering, I form either the whole with corrugations or flexures, as shown in Fig. 1, or I make the metallic parts only with flexures, as shown in the cable D of Fig. 2. These flexures may be arranged at intervals in the cable, or there may be a series of them disposed throughout its entire length, it being understood that when a cable is to be made with its metallic circuit-wires and covering-wires, provided with corrugations or flexures to give them the property of longitudinal elasticity, the insulating covering, as well as the other protecting coverings not made of metal, should be formed of a flexible or an elastic material capable of stretching more or less without being ruptured. The ability of the insulating material to stretch lengthwise without rupture should be equal to if not greater than that of the circuit or covering wires.

In order to corrugate the wire or strand previous to its being used in the construction of the cable, rollers E F (as shown in Figs. 2 and 4) and guides H I, applied to a stand, G, (as shown in Fig. 3,) may be employed, the wire on being drawn through such guides and between such rollers having a serpentine or corrugated form given to it, as shown in the said Fig. 3.

I am aware that in the ordinary process of constructing electro-telegraphic cables the various wires or strands of wires, when twisted together or upon one another, are bent more or less, or of necessity receive flexures. These flexures, however, by contact with other wires, are deprived of their elastic properties, or, in other words, so have them neutralized as to prevent the cable from being elastic to any considerable extent in a longitudinal direction. My invention, therefore, has no reference to such flexures in the wires as may result from simply twisting two or more wires together so that they may be incapable of extension and contraction lengthwise otherwise than may be produced by variations of temperature.

I would also remark that a cable composed of corrugated metallic wire and a flexible covering of gutta-percha or other suitable material may be used to advantage for standing rigging for navigable vessels as well as for various other useful purposes, the elastic property of the cable in a longitudinal direction tending to keep the rigging drawn straight, and to operate with good effect in several other respects.

I claim—

As a new or improved manufacture, an electric-telegraph cable, (or one constructed in part of metallic wire,) as made so as to be elastic

lengthwise, or with such corrugations or bends in the circuit wire or wires and its or their external covering, or simply in the circuit wire or wires, or in the circuit and other wires, as will insure elasticity of the cable in a longitudinal direction, as specified.

In testimony whereof I have hereunto set my signature this 12th day of August, A. D. 1857.

JOHN ABSTERDAM.

Witnesses:

R. H. EDDY,

ARTHUR NEILL.