

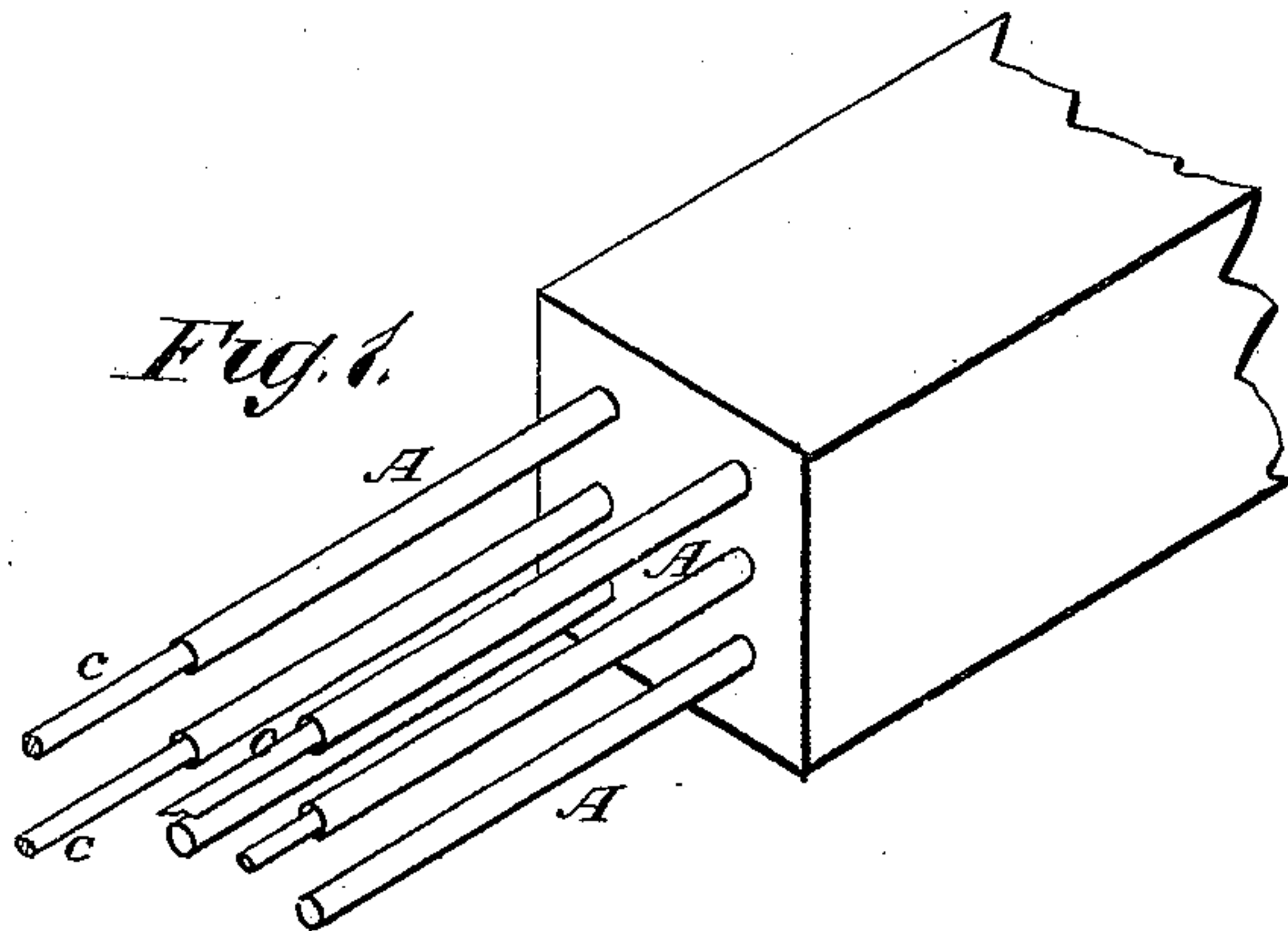
(No Model.)

S. E. CODDING.

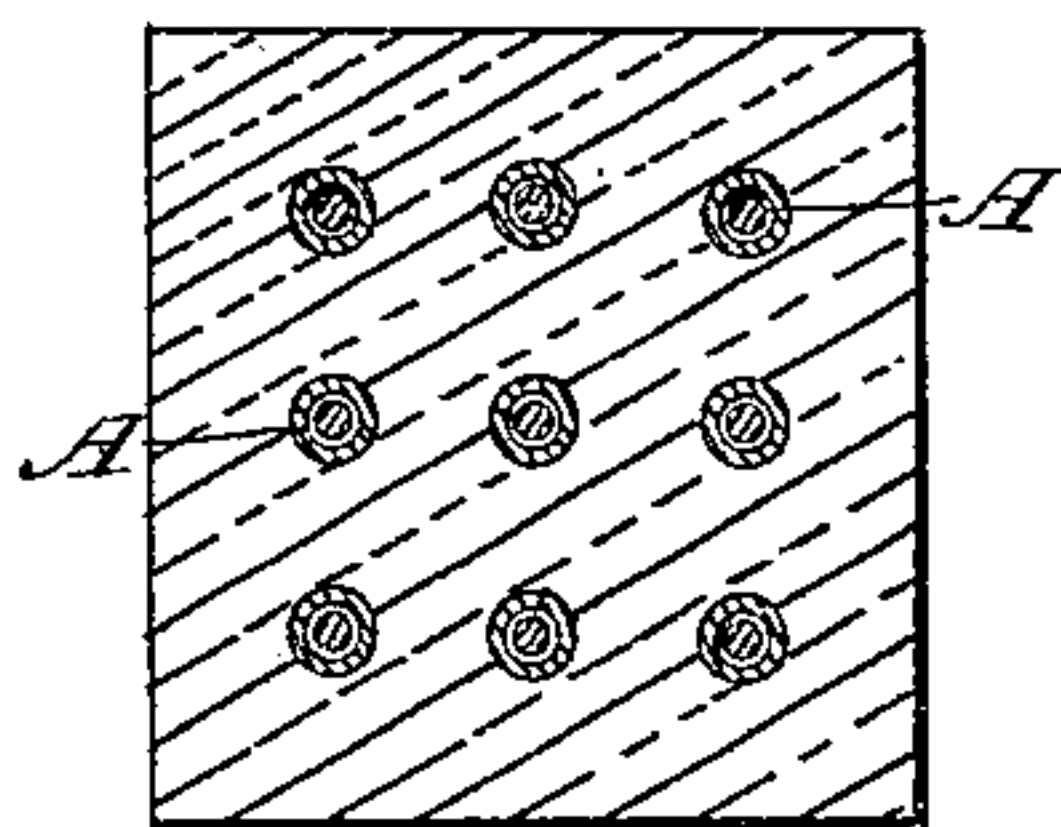
UNDERGROUND CONDUIT FOR TELEGRAPH CONDUCTORS.

No. 249,008.

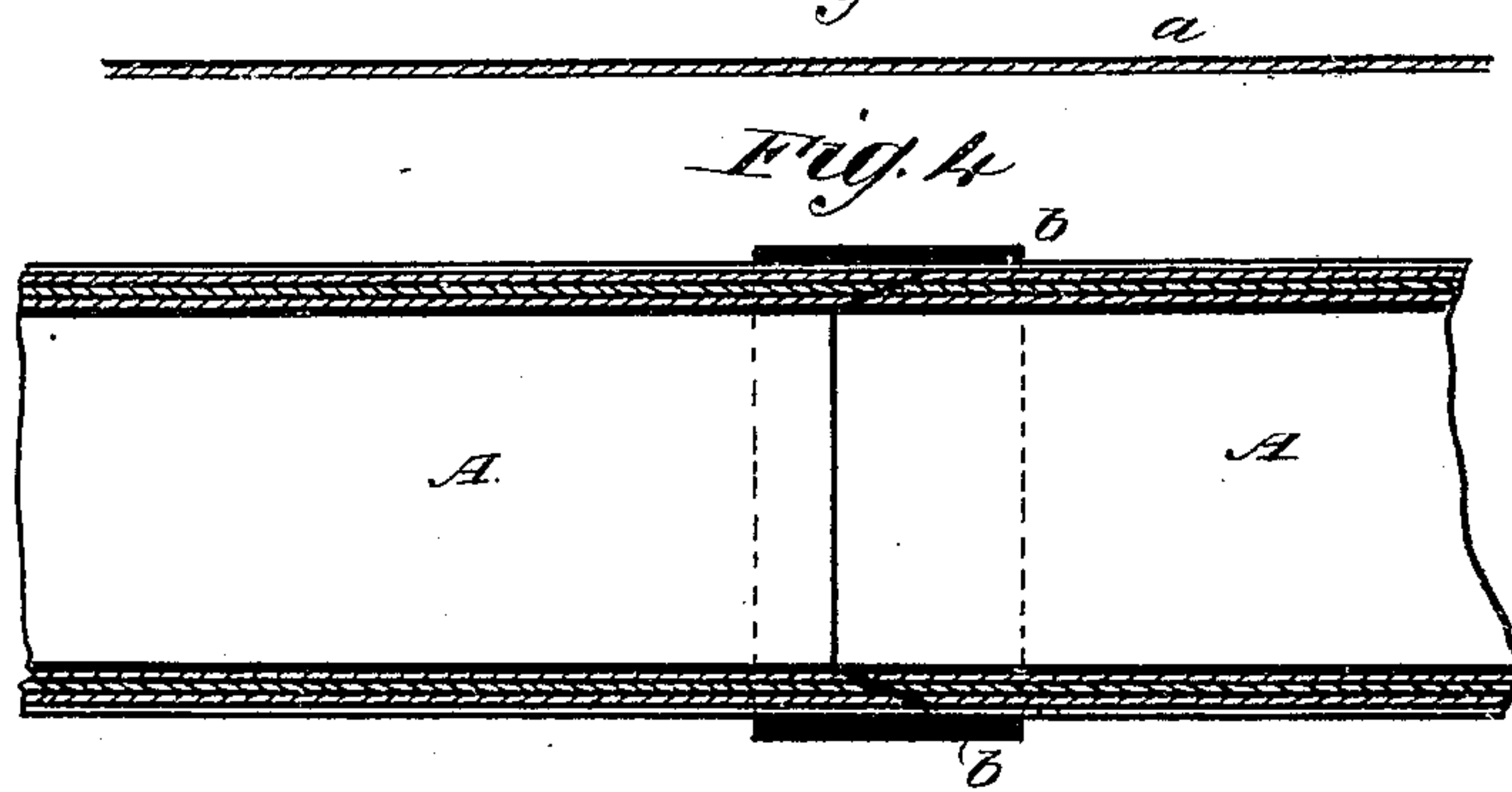
Patented Nov. 1, 1881.



*Fig. 2.*



*Fig. 3.*



WITNESSES:

*Francis McArdle.*  
*C. Seagwick*

INVENTOR:

*S. E. Coddington*  
BY *Mum Co.*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

SETH E. CODDING, OF NEW BEDFORD, MASSACHUSETTS.

## UNDERGROUND CONDUIT FOR TELEGRAPH-CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 249,008, dated November 1, 1881.

Application filed April 8, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, SETH E. CODDING, of New Bedford, Bristol county, Massachusetts, have invented a new and Improved Under-  
5 ground Conduit for Telegraph-Conductors, of which the following is a specification.

My invention relates to the laying of underground conduits for telegraph wires and cables.

The present invention is an improvement  
10 upon the method described in Letters Patent granted to me August 24, 1880, which consisted, essentially, in manufacturing such conduits in a box or trench, with concrete or cement around a mandrel or core moved progressively.

15 The object of the present invention is to obtain more complete insulation of the conduits; and it consists in hollow mandrels prepared from paper coated and saturated with suitable material, which mandrels are laid in concrete  
20 and cement and left therein to form the conduit, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view, showing the conduits in course of manufacture. Fig. 2 is a cross-section of a completed conduit. Fig. 3 is a section  
25 of the material used for forming the hollow mandrels, and Fig. 4 is a longitudinal section of the mandrel.

Similar letters of reference indicate corresponding parts.

30 The mandrels are made from building or asbestos paper, cloth, or canvas, which is first coated thickly with asphaltum. The asphaltum is first melted and mixed with brick-dust, asbestos-powder, sawdust, charcoal-dust, or similar materials of a durable character, and then applied to the surface of the paper or cloth to form a coating, as shown at *a* in Fig. 3. Before  
35 the coating hardens the hollow tube or mandrel is formed by rolling or winding the material upon a former in two, three, or more thicknesses. The tubes may be of any convenient length. Such tubes or mandrels are shown at *A*. They are of a diameter for containing a single wire  
40 or cable, and will preferably be tapered at the

inside and outside at opposite ends, so as to fit together, as shown in Fig. 4. The tubes made of the material named and in the manner described are inexpensive and give thorough insulation.

I do not limit myself to the materials named, as others may be used. For instance, resin can be mixed with the asphaltum when it is desired to have the tubes dry quickly, or a paint can be made of asphaltum, resin, and linseed-  
50 oil.

To lay or make the conduits, the trench is first prepared and the tubes *A* laid in cement or concrete. The material will be rammed closely around the tubes, and in case they are  
60 not strong enough to withstand the ramming, rods will be used in the tubes, as shown at *c* in Fig. 1, which will be drawn along as the work progresses. The ends of the tubes will be fitted with sleeves of the same material, put on to  
65 make a tight joint, as shown at *b* in Fig. 4.

If the wires or cables are not put in as the work progresses, the tubes should be lined on the inside with soapstone mixed with asphaltum or black-lead to form a smooth and slippery  
70 surface, so that the cables can be pulled through with as little friction as possible.

With these mandrels laid in cement or concrete, durable and highly-insulated conduits are produced and the work can be carried on  
75 with great expedition. Any desired number of conduits can be formed at one time, and the wires or cables pulled through from time to time, as required by the increase of business.

Having thus described my invention, I claim  
80 as new and desire to secure by Letters Patent—

In underground conduits for cables or telegraph-wires, a lining formed of paper saturated with water-proof material, substantially as described.

SETH EVERETT CODDING.

Witnesses:

EDWIN A. DOUGLASS,  
CLIFFORD P. SHERMAN.