July 7, 1925. 1,544,856

J. F. MURRAY

REMOVING CORES

Filed Sept. 9, 1924

Fig. 1.

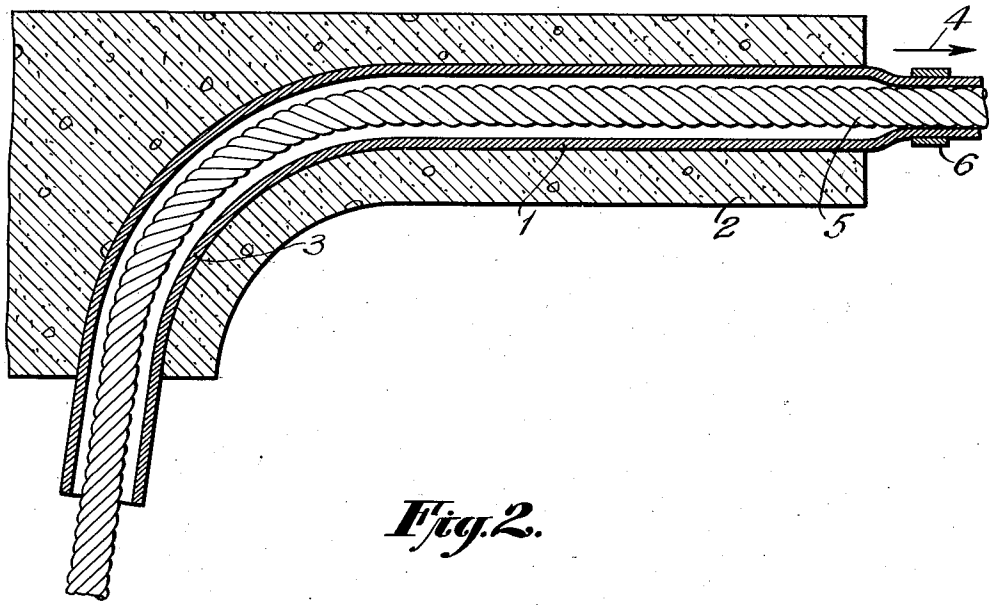
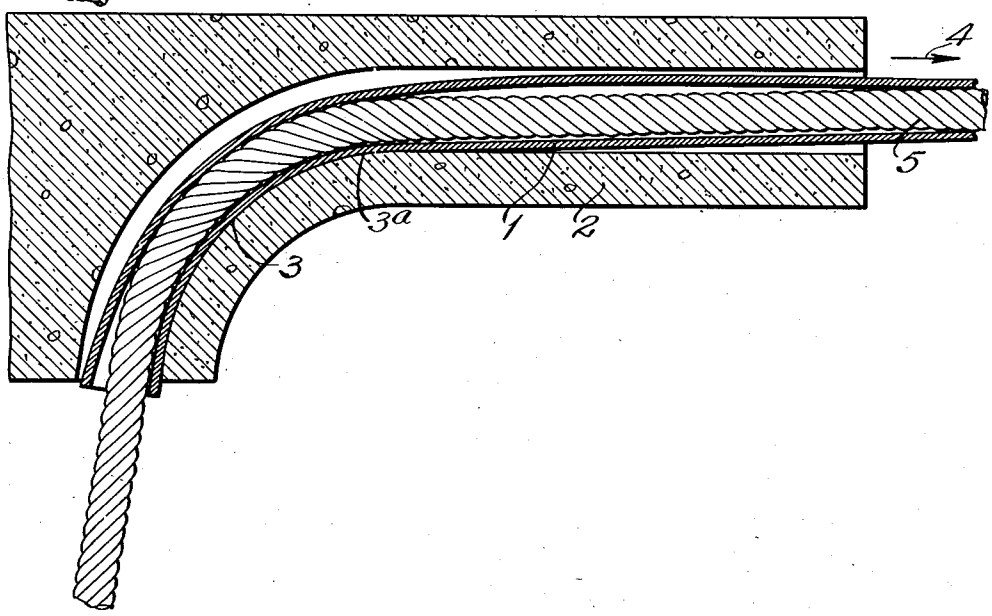


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN F. MURRAY, OF BROOKLYN, NEW YORK.

REMOVING CORES.

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To all whom it may concern:

Be it known that I, JOHN F. MURRAY, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Removing Cores, of which the following is a specification.

In the application of Thomas E. Murray for Patent No. 670,423 there is described and claimed the forming of openings in molded materials, and particularly the forming of conduits in concrete for carrying electric cables or wires, by means of a rubber tube of sufficient thickness to support the molded material and of such a composition that when pulled it will contract in a transverse direction sufficiently to break its adhesion to the surrounding molded material and to permit its withdrawal and adapted when released to resume its normal shape so that it may be used repeatedly in the same way.

When we have a considerable length of such a tubular core, and particularly when it has been used in the molding of a conduit which is curved lengthwise, the withdrawal of the core requires a very considerable pull and puts a considerable strain on the material of the core. According to my present invention a supplemental means is provided which will take part of the strain of removing the core and will thus permit the use of cores made of rubber of a high degree of purity and a correspondingly high resiliency. The accompanying drawings illustrate an embodiment of the invention. Figs. 1 and 2 are sectional views of successive stages in the withdrawal of a core.

The core 1 has been used to form a conduit in a body 2 of concrete with a curve 3. This, and the length of the conduit, make it necessary to exert a powerful tension in the direction of the arrow 4 on the core in withdrawing it.

A rope 5, or similar flexible member, is located within the core, either before the casting of the concrete or afterward. The rope is so much smaller than the core as to present no great difficulty in passing it through the core. At the same time it is nearly as large as the internal diameter of the core, so that when the latter is contracted sufficiently in the transverse direction it will grip the rope. The rope, while capable of some longitudinal extension, and while adapted to contract in length somewhat when the pull on it is released, is sufficiently different from rubber in this respect as to be practically non-resilient.

When the core is to be withdrawn, the projecting end of it is squeezed together by a clamp 6 on to the projecting end of the rope. The rope is then pulled. It will extend the length of the rubber and contract the diameter of the latter back of the clamp 6 to such an extent that the rubber will closely engage the rope (see Fig. 2). This part of the rubber will thereafter be carried along with the rope without substantially lengthening the rubber or contracting its diameter; so that the strain put on it is limited to that which will reduce its diameter to a close fit on the rope. This reduction of diameter will take place progressively backward from the clamp 6 as the pulling movement of the rope is continued.

As soon as the strain is transmitted back to the beginning of the curve, say, at the point 3^a, Fig. 2, the effect of gripping the rubber on the rope is intensified or quickened and the rubber is held in shape by the rope and also pulled by its adhesion to the rope around the curve.

The diameter of the rope is less than the inner diameter of the tubular core by an amount determined by the elastic limit of the rubber. The rope must be large enough to prevent contraction of the rubber core beyond a safe limit to be predetermined. When this safe limit is reached the core embraces the rope and the further pulling strain is transferred to and carried by the rope.

Though I have described with great particularity of detail certain embodiments of my invention, it is not to be understood therefrom that the invention is restricted to the particular embodiments disclosed. Various modifications thereof may be made by those skilled in the art without departing from the invention as defined in the following claims.

What I claim is:

1. The combination with a resilient tubular core of a flexible member normally located within the same and adapted to be used for withdrawing the core, said inner member being substantially non-resilient and inextensible and of slightly smaller diameter than the inside of the core so that a pull on the end of the core causes it to grip said inner member progressively along the

length of the latter and a pull on the inner member withdraws the core.

2. The method of forming conduits in plastic material which consists in setting in place a resilient tubular core with a flexible inner member substantially non-resilient and inextensible and of slightly smaller diameter than the inside of the core, casting the plastic material around the core and withdrawing the core by pulling it lengthwise so that it contracts and engages the flexible inner member and then withdrawing the inner member and the core adhering thereto.

In witness whereof, I have hereunto signed my name.

JOHN F. MURRAY.