

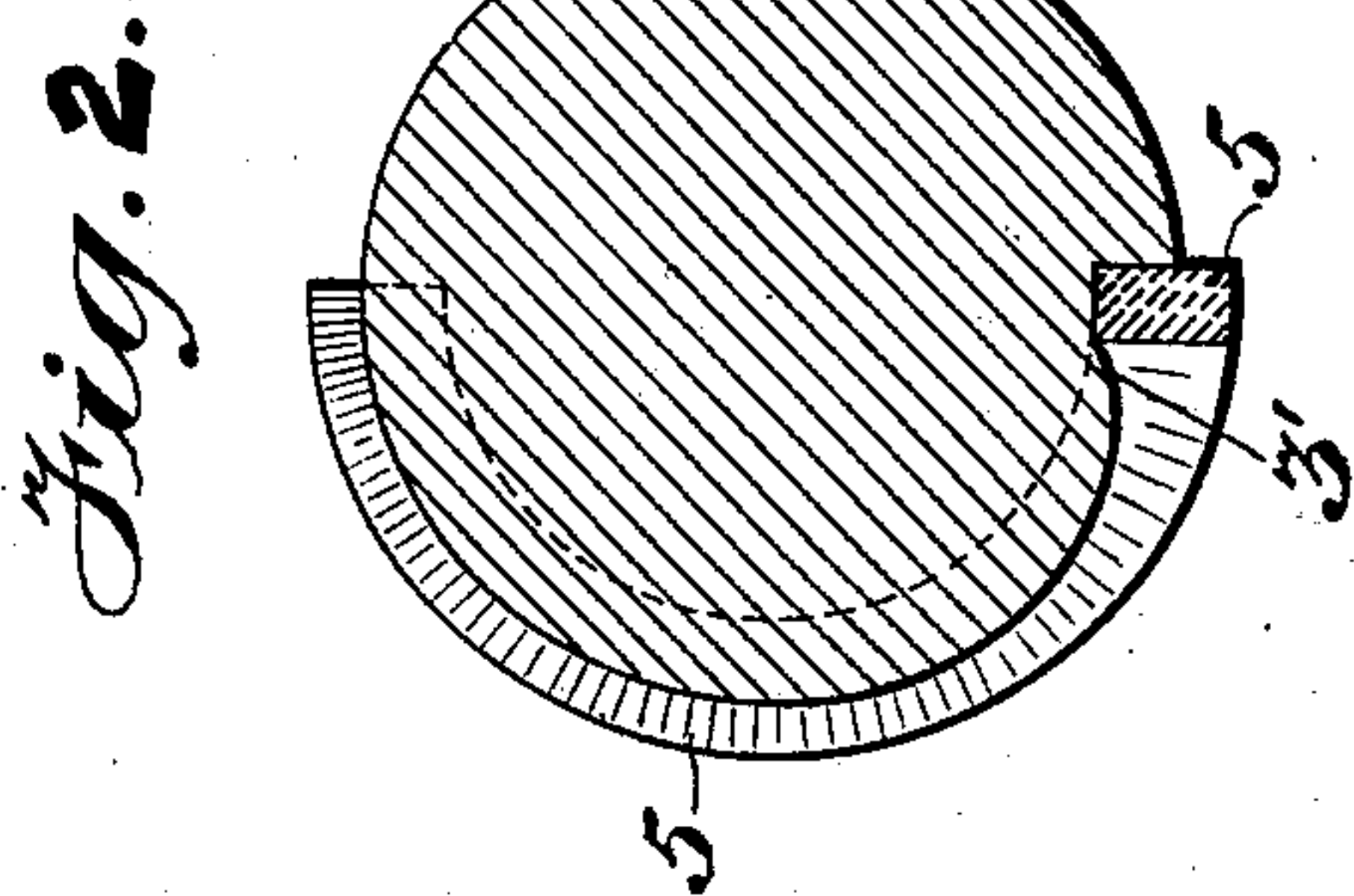
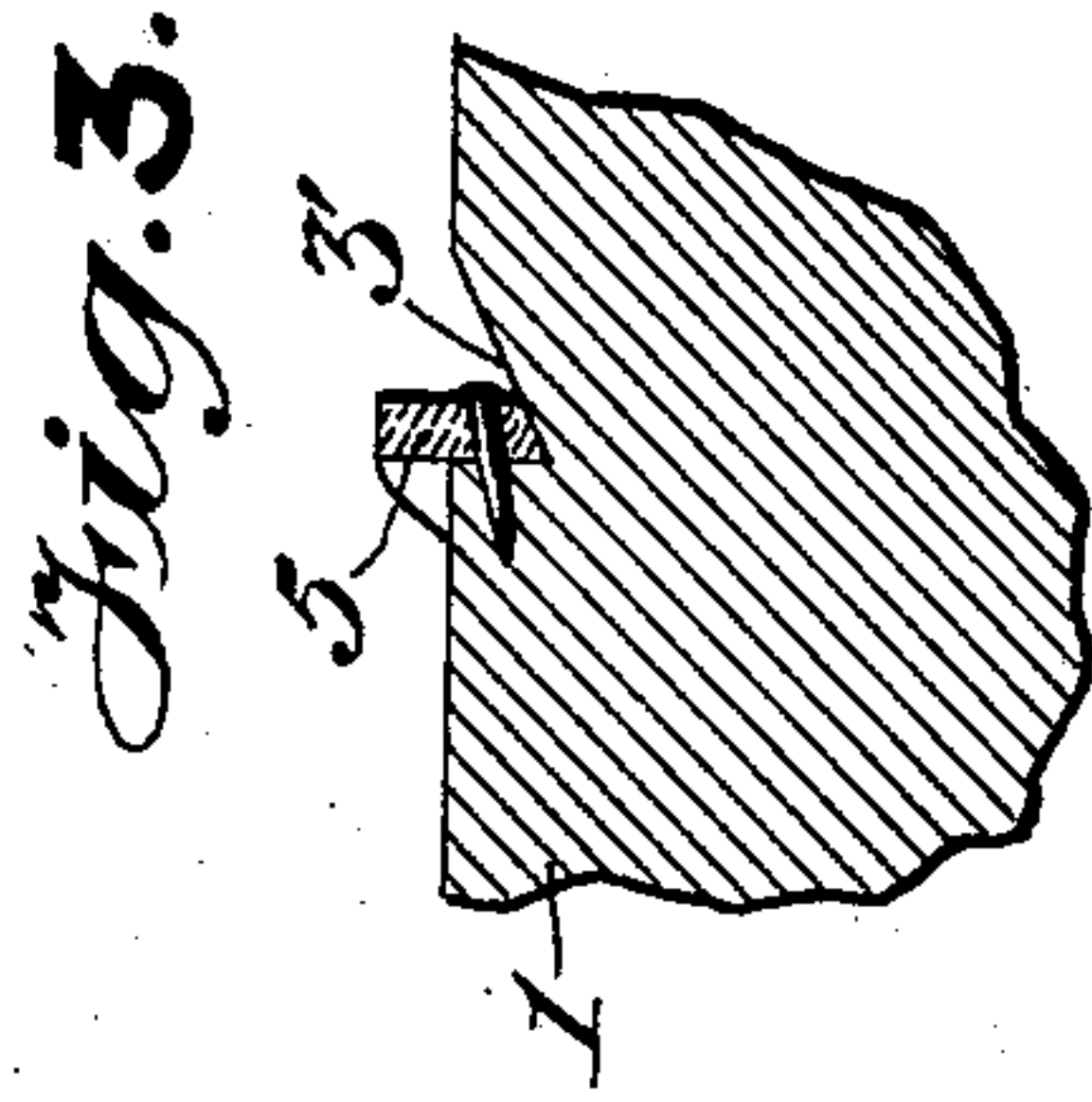
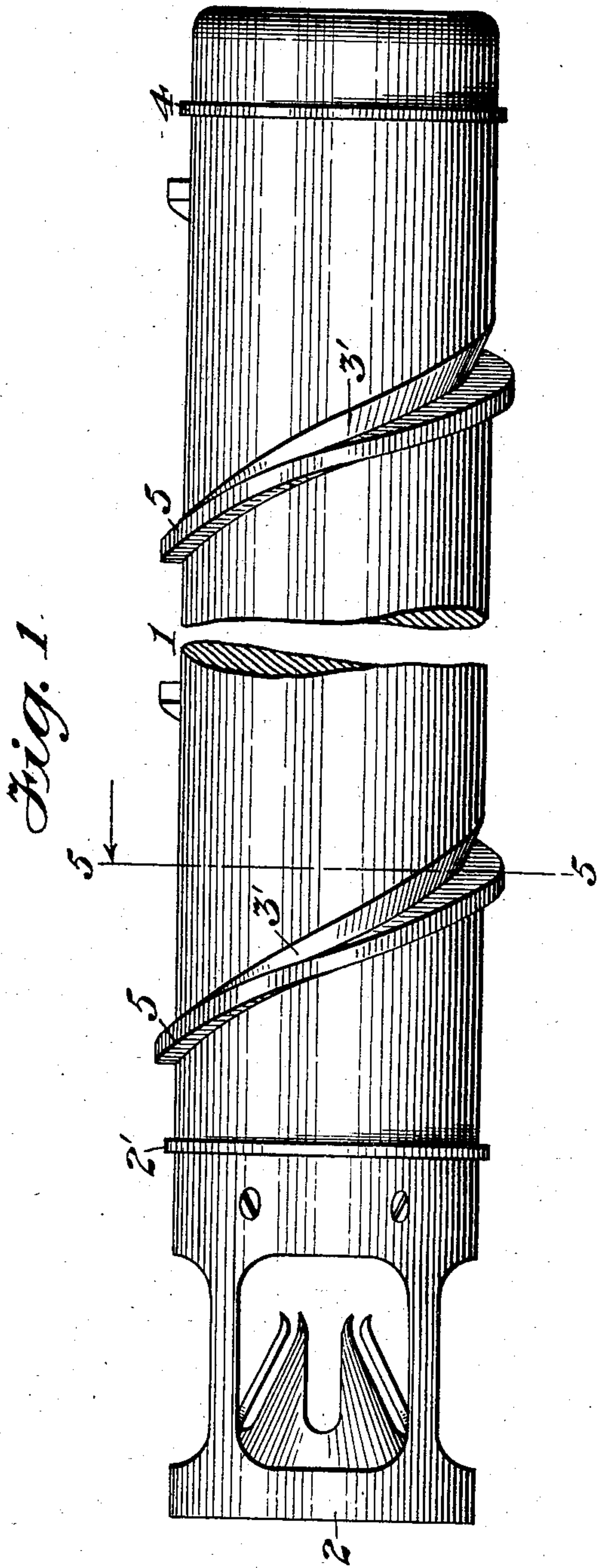
No. 720,369.

PATENTED FEB. 10, 1903.

R. W. LYLE.  
MANDREL FOR CONDUIT SECTIONS.

APPLICATION FILED OCT. 17, 1902.

NO MODEL.



Witnesses  
Chas. J. Clagett  
Chas. H. Davids

Robert W. Lyle,  
Inventor  
By his Attorney, J. R. Little



# UNITED STATES PATENT OFFICE.

ROBERT W. LYLE, OF NEW YORK, N. Y.

## MANDREL FOR CONDUIT-SECTIONS.

SPECIFICATION forming part of Letters Patent No. 720,369, dated February 10, 1903.

Application filed October 17, 1902. Serial No. 127,688. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. LYLE, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Mandrels for Conduit-Sections, of which the following is a specification.

This invention relates to an improved instrumentality for alining and clearing conduits, such as those laid underground to contain electric conductors. Such conduits are made in sections, which, for obvious reasons, should be laid in perfect alinement with each other, and it is a matter of great importance that all substances which may be contained within said conduits shall be removed therefrom before the latter are used for their designed purpose. The function of a scraper in an instrumentality of the kind mentioned is the removal of any portions of cement or mortar which may have exuded into a conduit in the process of laying the latter and also a general scraping of the inner surface of the conduit in order to clear the latter of all substances which may lie thereon or protrude therefrom and which might interfere with the insertion of electric conductors or other bodies or the free passage of the latter through the conduit. Therefore it necessarily follows that a rigid guide—such as the mandrel-body, which practically fills the duct of the conduit—cannot consistently be used as a guide for the scraper, as in the one instance it is evident that if it were possible for such a mandrel-body to pass through the duct the use of a scraper mounted on said body, except possibly at the front end, where it would not be guided thereby, would be unnecessary and superfluous, while in the other instance if the use of a scraper were necessary in order to clear the duct to its full capacity the close-fitting mandrel-body would not pass through the latter in front of the scraper.

The improved device which embodies my present invention possesses none of the before-mentioned disadvantages, as will be more fully hereinafter explained and as will be seen by reference to the drawings, in which—

Figure 1 is an elevation of the device, and Fig. 2 is a cross-section thereof through the line 5 5; and Fig. 3 is a partial longitudinal

section of a body, also showing a groove and a swab in cross-section.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring to the drawings, 1 designates the body of the mandrel, which may be formed of wood, metallic tubing, or other suitable material. At one end thereof, which in operation would be the front or leading end, is rigidly attached a grappling device 2, herein shown of a form which embodies the subject of a separate invention, for which on the 17th day of October, 1902, I applied for Letters Patent, the serial number of the application being 127,689. Therefore said device need not be specifically described herein. Near the rear end of the mandrel is mounted a scraper 4, which is preferably made of steel, suitably hardened and tempered. On the device is shown a guiding-flange 2', which encircles the body 1. The latter may be of any practicable diameter, according to the various conditions of its use; but the guiding-flange 2' should at least nearly fill and the scraper 4 should quite fill the whole diameter of the duct in which they are to be used.

One or more V-shaped helical grooves or recesses 3' may be formed in the body 1, and swabs or packing elements 5 are placed in one or more of said grooves 3', said grooves or interspaces between the turns of said swab serving to contain the debris before mentioned. The grooves 3', as shown, are interrupted longitudinally of the body 1, one full turn of a groove being made at either side of the transverse median line of the mandrel. The swabs 5 may be formed as radially-projecting helical flanges, of rubber or other suitable material, and they may be nailed or otherwise secured to the perpendicular face 3'' of each groove in which they are placed, and they may project a sufficient distance from the body 1 to require compression in order to enter the conduit.

The operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains.

The device is inserted in a duct in a section of conduit which has been placed in position, and as each additional section is attached the mandrel is drawn through the next preceding section or sections and into



the last one laid. Because of its form and rigidity the mandrel 1 in its passage from one section to another insures the alinement of the several sections of the conduit, being suitably guided by the body 1, the helical member 5, and the member 2', and during said passage the scraper 4 clears the duct of surplus mortar or cement and other foreign substances which may be carried in the helical recesses 3', the scraper being meanwhile maintained in a central position diametrically of the duct by the helical member 5, which acts as a guide for the scraper 4, but also effectually swabs the duct. The device is drawn forward by a rod (not shown) which has a head suitably formed to engage the grappling device 2.

By the term "mandrel" in the accompanying specification and claims is meant a device known in the art of conduit-laying which consists of a longitudinal body adapted for passage through the conduit and carrying media projecting from its surface for the purpose of interiorly clearing the conduit (during the process of laying) of accumulations of cement or other material at the joints between connecting-sections of the conduit.

I do not desire to be understood as limiting myself to the details of construction and arrangement as herein described and illustrated, as it is manifest that variations and modifications may be made in the features of construction and arrangement in the adaptation of the device to various conditions of use without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variation and modification as properly fall within the

scope of my invention and the terms of the following claims.

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

1. A mandrel for conduit-sections comprising a body; a guiding-flange; and a helical swab surrounding the body.

2. A mandrel for conduit-sections comprising a helically-grooved body; a guiding-flange; and a swab surrounding said body.

3. A mandrel for conduit-sections having a helically-grooved body.

4. A mandrel for conduit-sections comprising a helically-grooved body and radial swabs in the grooves.

5. A mandrel for conduit-sections having a body which is grooved helically; the median portion of said body having an uninterrupted periphery.

6. A mandrel for conduit-sections having a body which is grooved helically, the median portion of said body having an uninterrupted periphery; and one or more swabs secured in the grooves.

7. A mandrel for conduit-sections having a body which is grooved helically, the median portion of said body having an uninterrupted periphery, and one or more radial swabs secured in said grooves; and a scraper fixed upon the body.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

ROBERT W. LYLE.

Witnesses:

J. R. LITTELL,  
W. J. BURKE.