

No. 722,729.

PATENTED MAR. 17, 1903.

R. W. LYLE.
MANDREL FOR CONDUIT SECTIONS.
APPLICATION FILED JAN. 6, 1903.

NO MODEL.

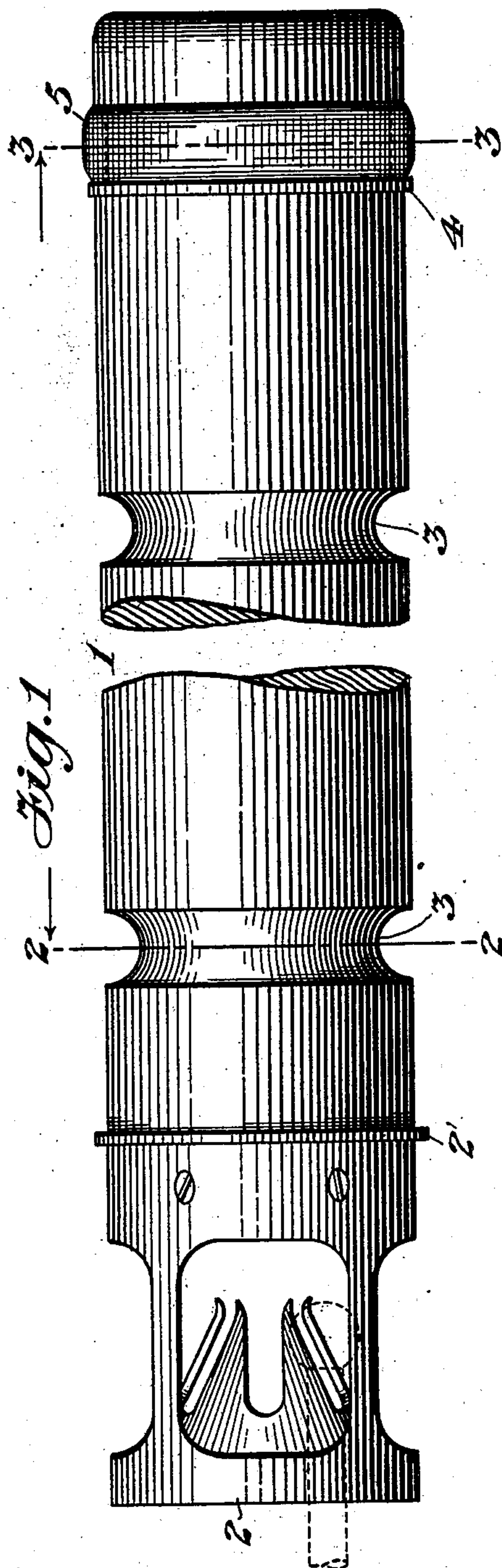


Fig. 1

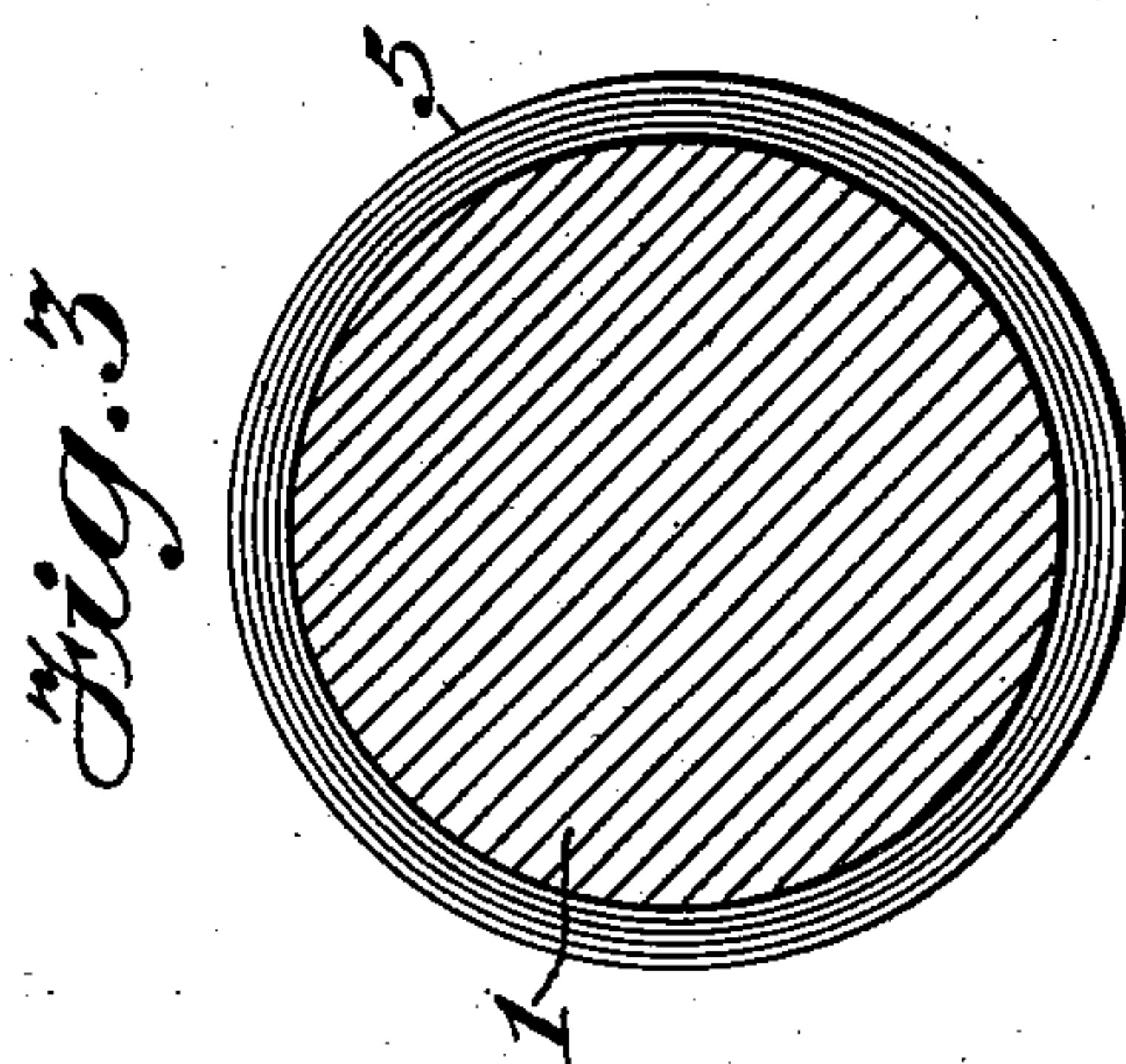


Fig. 3

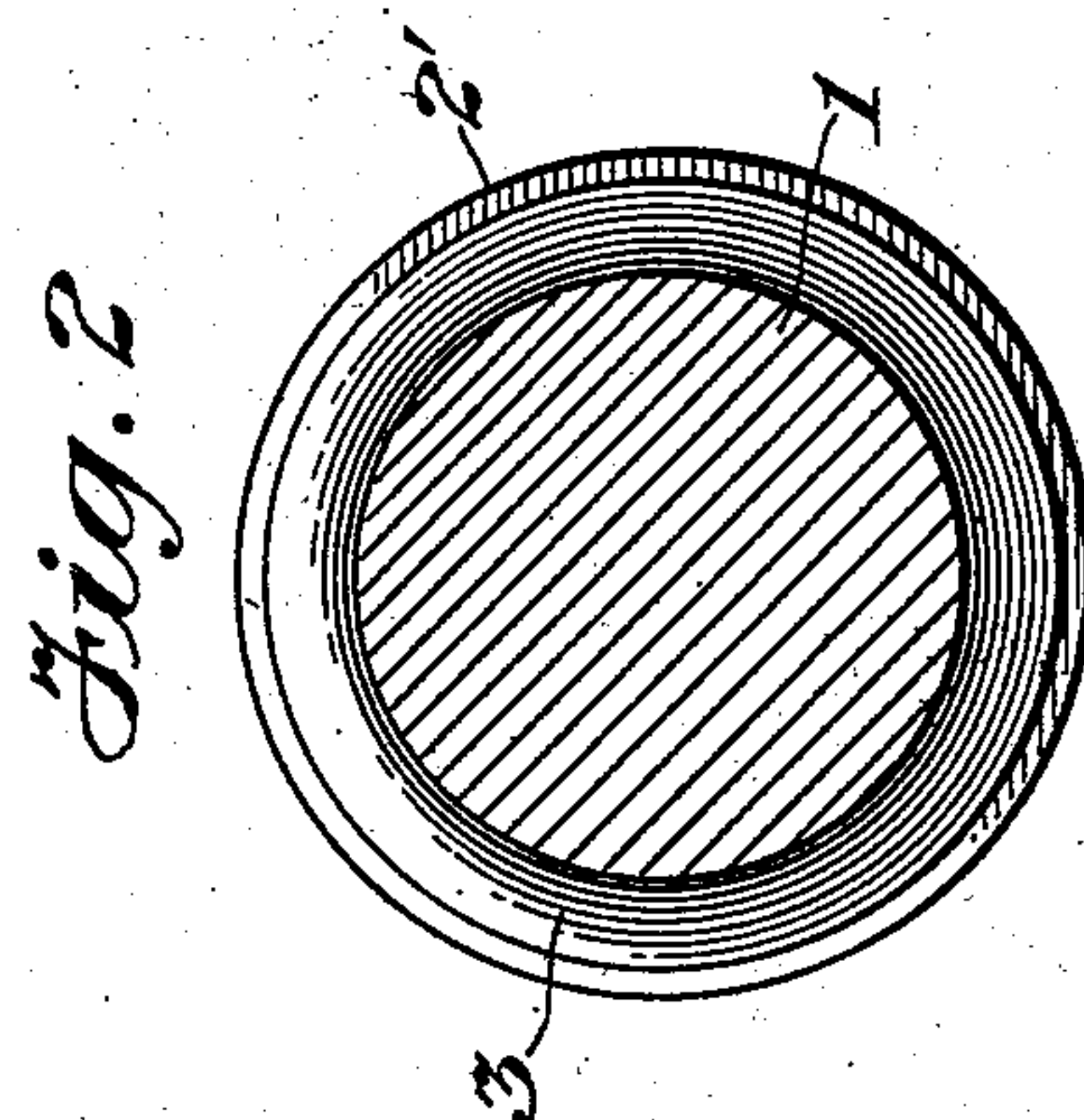


Fig. 2

Witnesses
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UNITED STATES PATENT OFFICE.

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

MANDREL FOR CONDUIT-SECTIONS.

SPECIFICATION forming part of Letters Patent No. 722,729, dated March 17, 1903.

Original application filed October 17, 1902, Serial No. 127,688. Divided and this application filed January 6, 1903. Serial No. 138,069. (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 was 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 explained hereinafter and as will be seen by reference to the drawings, in which—

Figure 1 is an elevation of the device; and Figs. 2 and 3 are cross-sections thereof through the lines 2 2 and 3 3, respectively, in Fig. 1.

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, and 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. At suitable positions along the body 1 recesses 3 3 are formed around the latter. These may be of any required number and cross-sectional form, two being shown in the drawings, both of them being semicircular in cross-section.

Situated near the scraper 4 and preferably between the latter and the rear end of the body 1 is shown a combined swab and guide 5, which encircles the body. This may be made of any preferred compressible or other material and cross-sectional form, either rubber, leather, or cordage being suitable for use in its construction, if desired.

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, while the combined swab and guide 5 should when free be of somewhat larger diameter than that of the scraper 4.

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 flange 2', and the member 5, and during said passage the scraper 4 clears the duct of surplus mortar or cement and other
5 foreign substances which may be carried in the recesses 2 2, the scraper being meanwhile maintained in a central position diametrically of the duct by the member 5, which not only acts as a guide for the scraper 4, but
10 also effectually swabs the duct after the passage of the scraper. The device is drawn forward by a rod, (not shown,) which has a head suitably formed to engage the grappling device 2.

15 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
20 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 varia-
25 tion 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—
30 ent—

1. The combination of a mandrel for aligning a conduit or for removing matter from a duct in said conduit and a grappling device rigidly attached to said mandrel and inter-
35 riorly carrying hook-connection grappling means.

2. The combination of a mandrel adapted

to pass through a conduit-duct; a rigid guiding-flange contacting with the interior walls of the duct and attached to the mandrel near
40 one end thereof; and a compressible guide-ring attached to the mandrel near its opposite end.

3. The combination of a mandrel adapted to pass through a conduit-duct; a rigid
45 scraper-flange extending radially from the body of said mandrel and a compressible guide-ring surrounding said body.

4. The combination of a mandrel adapted to pass through a conduit-duct; a rigid
50 scraper-flange extending radially from the body of said mandrel; and said body having recesses formed therein between the forward end thereof and the scraper.

5. The combination of a mandrel adapted
55 to pass through a conduit-duct; a scraper extending radially from the body of said mandrel; a rigid guiding-flange contacting with the interior walls of the duct and surrounding
60 said body and near one end thereof; and a compressible guide-ring surrounding said body and near the opposite end thereof.

6. A mandrel for conduit-sections comprising a body; a rigid guiding-flange contacting with the interior walls of the duct; and a com-
65 pressible member severally surrounding said body.

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

ROBERT W. LYLE.

Witnesses:

W. J. BURKE,

CHAS. H. DAVIDS.