No. 721,713. PATENTED MAR. 3, 1903.

R. W. LYLE.

GRAPPLING DEVICE FOR MANDRELS FOR CONDUIT SECTIONS.

APPLICATION FILED OCT. 17, 1902.

NO MODEL

Fig. 1.

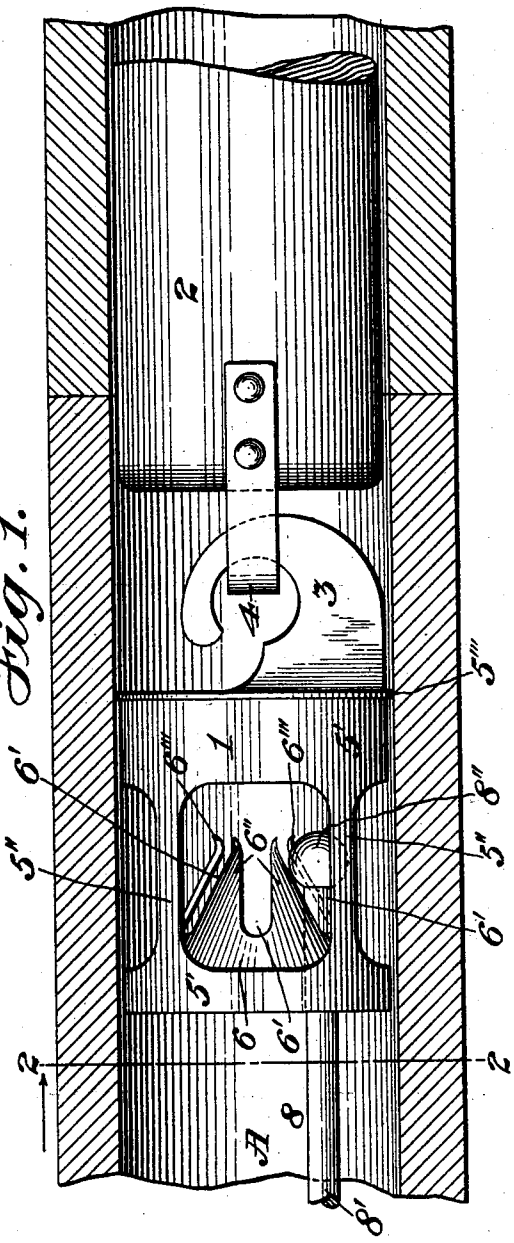



Fig. 3.

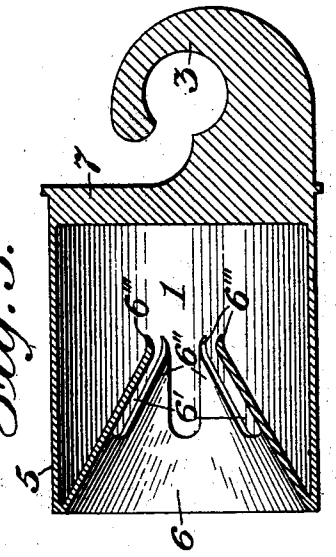
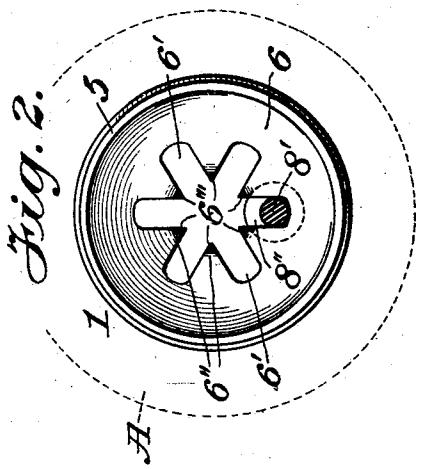



Fig. 2.




Witnesses
Chas. F. Clagett
Chas. H. Davis

Robert W. Lyle.
Inventor

By his Attorney, J. R. Littell

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

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

## GRAPPLING DEVICE FOR MANDRELS FOR CONDUIT-SECTIONS.

SPECIFICATION forming part of Letters Patent No. 721,713, dated March 3, 1903.

Application filed October 17, 1902. Serial No. 127,689. (No model.)

*To all whom it may concern:*

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

The object of this invention is to provide a more efficient grappling device for mandrels for conduit-sections and one to and from which a draw-rod may be more readily attached or detached, as may be necessary.

In using devices of the class mentioned, especially in conduits which have ducts which are circular in cross-section, the angular position of the engaging web or faces of the device relative to the duct cannot ordinarily be ascertained by inspection nor in any other manner except by repeated tests or attempts to couple with and by the enlarged or engaging end of the draw-rod. These tentative tests or attempts frequently cause the loss of much time, and inasmuch as they must be repeated after the laying of each section the loss of time becomes a matter of considerable importance.

It will be evident to those skilled in the art to which my present invention appertains that the subject of the latter embodies desirable improvements in respect of the matters mentioned, as will be more fully explained hereinafter, and is plainly shown in the drawings which accompany this specification, and in which—

Figure 1 is an elevation of the improved grappling device and of a mandrel of conventional form, with a vertical longitudinal section of a conduit. Figs. 2 and 3, respectively, are an end elevation and a longitudinal section of the grappling device.

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

Referring to the drawings, A is a conduit. 1 and 2, respectively, are a grappling device and a mandrel inclosed in said conduit.

3 is a hook, and 4 is an eye, both of which may be severally interchangeably attached to either of the devices shown in the conduit; but in this particular instance the hook 3 is shown attached to the grappling device 1 and the eye 4 attached to the mandrel 2.

The grappling device 1 may be made of any suitable material, but preferably of metal, either sheet or cast, and may be said, in a general way, to consist of an outer cylindrical casing 5, conically-shaped member or funnel 6, and a base 7, the hook 3 being shown attached to the latter. The casing 5 may be formed either with a continuous periphery throughout its length, or it may consist of the annuli 5′ 5′, which may be connected by webs 5″ 5″, and it may be of a diametrical dimension adapting it to approximately fill the duct *a* of the conduit, or it may be provided with a flange 5‴ to act as a guide for the device when in use. The funnel 6 is formed as a truncated cone, in the periphery of which several longitudinal slots 6′ 6′ are formed in such a manner as to leave the several remaining parts 6″ 6″ angular in form and converging in their general direction, the apices of the angle pieces or members 6‴ 6‴ being recurved, however, as shown in Fig. 1, for a purpose hereinafter explained. The slots 6′ should each be wide enough to readily admit the body 8′ of the draw-rod 8, (see Fig. 2,) but should not be sufficiently wide to permit the head 8″ of said draw-rod 8 to pass through them.

The operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains. The grappling device being attached to the mandrel by the hook and eye and both being passed into a duct of a conduit, the grappling device foremost, the draw-rod 8 may be attached to the device by simply passing the head 8″ into the funnel 6 as far as possible and permitting it to drop loosely toward the bottom of the device or moving it in any angular direction, when the body 8′ will pass into a slot 6′ and the head 8″ will engage two of the members 6″ and cannot be disengaged therefrom by a direct pull on the draw-rod. When, however, it is desired to disengage the draw-rod from the grappling device, the former may be moved backwardly and upwardly until the head 8″ is approximately opposite the center of the grappling device, when the rod may be readily drawn clear of the latter, being guided by the recurved points of the members 6‴. It should be noted that the recurved points exercise a dual function, inasmuch as they

serve to guide the body 2′ into the slots 6′ when the draw-rod 2 is to be connected with the grappling device, and also to guide the head 2″ out of the grappling device when the draw-rod is to be disconnected therefrom.

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. An improved grappling device of the class described, comprising a body, means for attaching it to a mandrel, and a slotted funnel attached to the body and arranged to engage the head of a draw-rod.

2. An improved grappling device of the class described, comprising a body, means for attaching it to a mandrel, and a slotted funnel attached to the body and formed of pointed members.

3. An improved grappling device of the class described, comprising a body, means for attaching it to a mandrel, a slotted funnel attached to the body and formed of pointed members the points thereof being recurved.

4. An improved grappling device of the class described, comprising a body having a base and a slotted funnel attached to the body and formed of pointed members.

5. An improved grappling device of the class described, comprising a body having a base, and a slotted funnel attached to the body and formed of members having recurved points arranged to guide a draw-rod either into or out of engagement with the grappling device.

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.