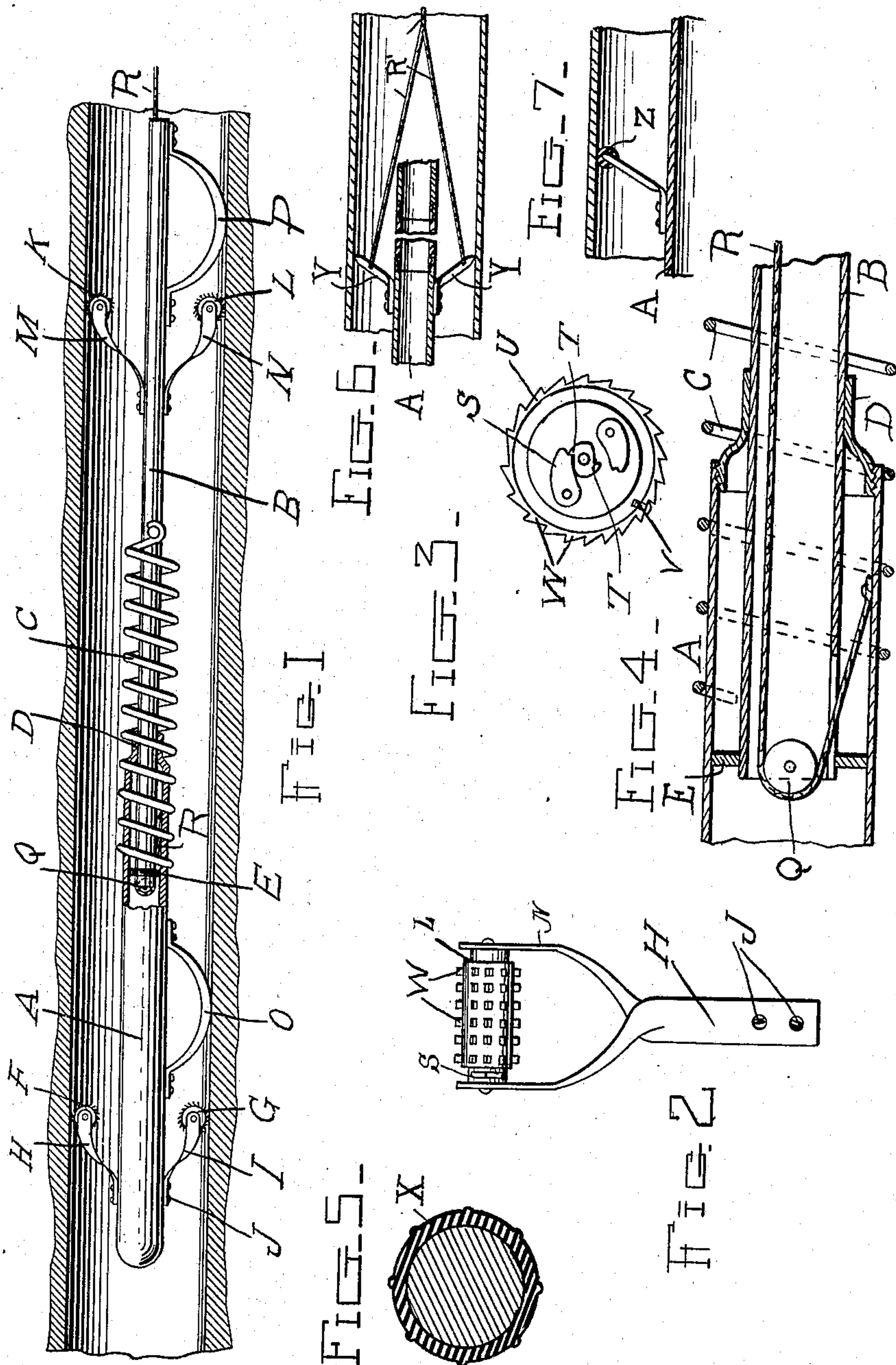


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CONDUIT THREADER.

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901,159.

Patented Oct. 13, 1908.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN C. DIETER, OF ANDERSON, AND SAMUEL BOWSHER, OF INDIANAPOLIS, INDIANA, AND
ENZLEY DAVIS, OF TOLEDO, OHIO.

CONDUIT-THREADER.

No. 901,159.

Specification of Letters Patent.

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Application filed March 11, 1907. Serial No. 361,817.

To all whom it may concern:

Be it known that we, JOHN C. DIETER, a citizen of the United States, residing at Anderson, county of Madison, State of Indiana, and SAMUEL BOWSHER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, and ENZLEY DAVIS, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Conduit-Threaders; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to conduit threaders, and has for its object to provide a device of this kind, by means of which the work can be quickly done and at a comparatively small cost.

The purpose of the invention is to draw a cord or thread through the conduit, the cord being used to draw a rope through, and the rope in turn being used to pull a cable through.

The present method of threading conduits is by the use of four-foot joined rods, which are successively joined together as they are inserted into the conduit, until the opposite end of the conduit is reached, when the rods are successively uncoupled and removed. A rope is secured to the last section and is pulled through the conduit, by means of the rod, the rope in turn being used to pull the cable through. This method is slow, and as can readily be seen, very expensive.

In the accompanying drawings, which illustrate the invention, Figure 1 is a longitudinal sectional view of a portion of a conduit within which is located the threader; Fig. 2 is an enlarged view of one of the rollers, and the means for supporting it, Fig. 3 is an end view of the ratchet mechanism upon one end of the roller. Fig. 4 is an enlarged longitudinal sectional view of the adjacent ends of the hollow rods or members; and Figs. 5, 6 and 7 are detail views of modifications.

Referring more particularly to the drawings, which are for illustrative purposes only, and are not therefore drawn to scale, A and B indicate two hollow rods, which are telescopically secured together and adapted to be moved in one direction by means of a

spring C, which is coiled around the rods and has its forward end secured to the rod A and the rear end secured to the rod B. The rear end of the rod A is preferably provided with a reduced portion D which is adapted to be secured thereto in any suitable manner, as by screw-threads, and the forward end of the rod B is provided with a collar E to prevent the accidental separation of the rods.

The forward end of the outer rod A is provided with two rollers F and G, which are journaled in the outer ends of yielding arms H and I, respectively, the inner ends of said arms being secured to the rod in any suitable manner, as by means of screws J. Corresponding rollers K and L are secured to the rod B near its rear end, by means of similar arms M and N, respectively. The supporting arms are preferably extended to the rear so that as the machine moves forward the rollers will more readily pass over any obstruction or inequality that may be met with in the conduit.

Shoes O and P are secured to the under sides of the rods so as to support the threader substantially axially within the conduit and thereby cause the upper rollers to always engage with the upper side of the conduit and cause the machine to move forward when it is operated.

A roller Q is journaled in the forward end of the inner or smaller rod B over which is passed a cord R, one end of which is secured to the rear end of the outer rod A, and after being passed forward over the roller Q is extended back through the rod B, and projects therefrom in position to be grasped by the operator and drawn back whenever it is desired to actuate the threader.

As above described, it is evident that when the two rods A and B occupy their proper or normal positions relatively to each other, the forward end of the rod B will be projected into the rod A nearly to its forward end. Now by pulling upon the cord R, the rods will be moved outward relatively to each other, and by fastening the rear rod B against rearward movement the outer or forward rod A will be forced forward to a distance equal to half the length of the cord that is drawn backward. As soon as the cord R is released, the strain which has been placed upon the spring C by this movement of the rods will immediately cause the rods

to move in the opposite direction, or be telescoped into their normal positions with the forward end of the inner rod near the forward end of the outer rod, and will also
 5 draw in the cord ready to be drawn backward again.

By holding the outer rod against rearward movement during the contraction of the spring, the inner rod will be drawn forward
 10 into its normal position, after which, a repetition of pulling upon the cord will cause the threader to move through the conduit step by step until it reaches the farther end, where it can be removed and the cable drawn
 15 through in the usual manner.

The locking of the rods against rearward movement is best secured by providing each of the rollers that engage with the conduit with a pawl S which is adapted to engage
 20 with shoulders T similar to the action of curtain rollers, and the engagement of the rollers with the conduit is insured by roughening or corrugating the surface of the rollers, preferably by providing each roller with
 25 a corrugated shell or cylinder U which is secured thereon by means of one or more small screws V. The periphery of the rollers may be provided with teeth W, as shown more clearly in the drawings, or the cylinder
 30 may be formed from rubber or other suitable material as shown at X in Fig. 5. Or the rollers may be omitted entirely and the ends of the legs or supports can engage with the wall of the conduit direct as shown at
 35 Y in Fig. 6, their tips or ends being preferably pointed for this purpose. Or they may be left blunt and covered with rubber as at Z in Fig. 7 to insure their engagement with the wall of the conduit.

40 The length of the machine may also be

made adjustable by making it in sections as shown in Fig. 6 and a second cord R' in Fig. 6 may be provided for engaging with the legs and collapsing them or bending them inward so that the device can be drawn
 45 backward out of the conduit in case it should be impossible for it to be passed through the conduit as by becoming inoperative from any cause.

Having described our invention, we
 50 claim:—

In a conduit threader two telescopic hollow members the rear end of the outer one having a reduced member to fit the inner member and the inner end of the inner one
 55 having a collar to fit the interior of said outer member, a coil spring surrounding and secured at its ends to said members, supporting shoes for each member, rearwardly extending flexible arms on said members,
 60 rollers mounted on said arms and having frictional engaging surfaces, a ratchet wheel on each of said rollers, a pawl for engaging said ratchet wheel to prevent retrograde movement of said rollers, and means for
 65 moving said members against the tension of the spring.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

JOHN C. DIETER.
 SAMUEL BOWSHER.
 ENZLEY DAVIS.

Witnesses to the signatures of J. C. Dieter and Samuel Bowsher:

MONROE HUNTZINGER,
 A. J. APPLEGATE.

Witnesses to the signature of E. Davis:

A. R. McCANDLISH,
 L. M. McILWANE.