

H. G. LEHMAN.

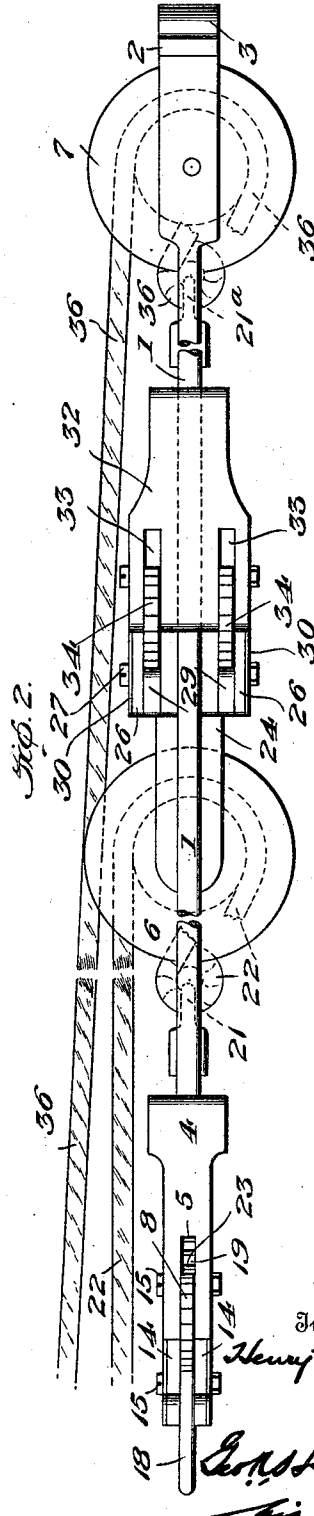
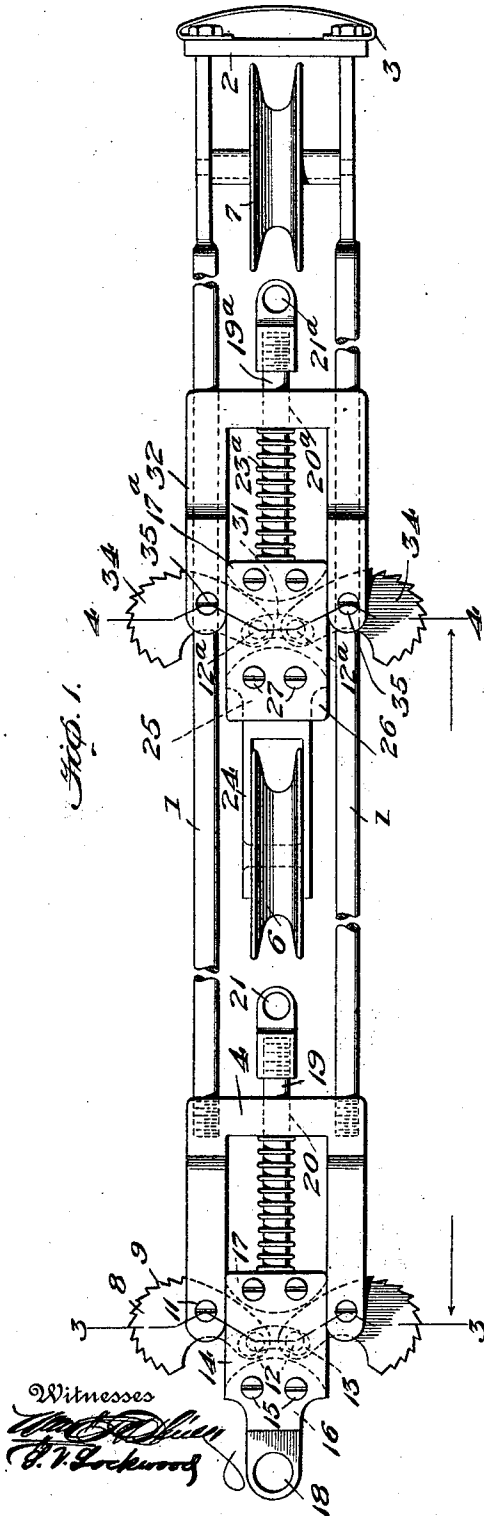
CONDUIT CREEPER.

APPLICATION FILED NOV. 6, 1909.

1,000,825.

Patented Aug. 15, 1911.

2 SHEETS—SHEET 1.



Witnesses
[Signature]
C. J. Lockwood

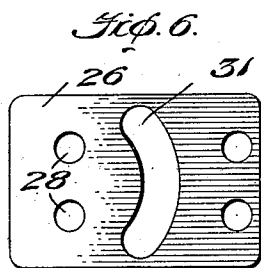
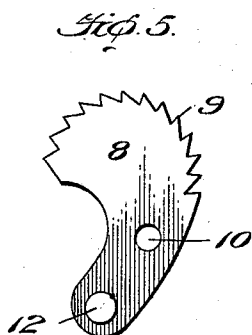
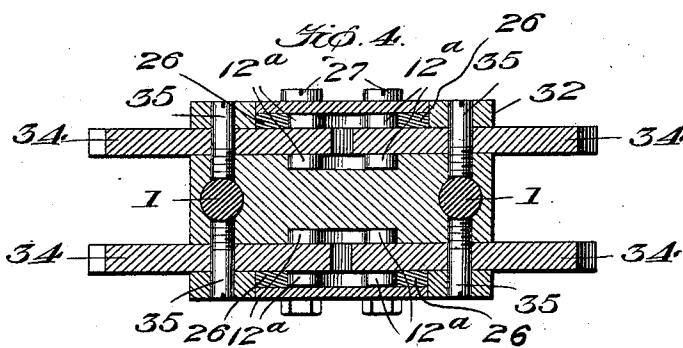
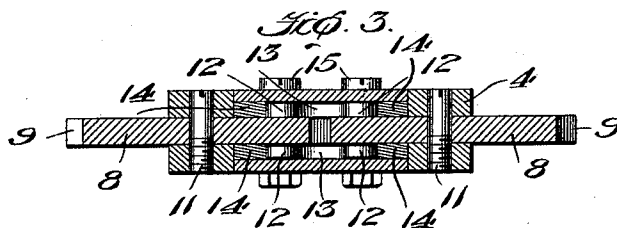
By

Inventor
Henry G. Lehman
[Signature]
Attorney

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G. V. Lukwood

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[Signature]
his Attorney

UNITED STATES PATENT OFFICE.

HENRY G. LEHMAN, OF WINDBER, PENNSYLVANIA.

CONDUIT-CREEPER.

1,000,825.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed November 6, 1909. Serial No. 526,657.

To all whom it may concern:

Be it known that I, HENRY G. LEHMAN, a citizen of the United States, residing at Windber, county of Somerset, and State of Pennsylvania, have invented certain new and useful Improvements in Conduit-Creepers, of which the following is a specification.

My invention relates to conduit creepers.

The present invention relates to that class of device which is known as a "conduit creeper" whose purpose is to travel along an electric conductor conduit or the like from one manhole to another and pull along a pilot wire or rope to which the cable may be subsequently attached and thus readily pulled through from one manhole to another.

The object of the present invention is the provision of a novel conduit creeper of simple, strong and durable construction which will be adapted for use in either circular or polygonal conduits, may be easily operated and will travel with relatively great speed, it having been found that in practice the device will travel considerably over one hundred feet per minute.

The invention consists in certain novel features of construction relating to the manner of mounting and actuating the grippers or jaws, and other features, all of which will more fully appear hereinafter.

In the accompanying drawings: Figure 1 is a plan view of the invention; Fig. 2, a side elevation; Fig. 3, a section on line 3—3 of Fig. 1; Fig. 4, a section on line 4—4 of Fig. 1; Fig. 5, a detail of one of the grippers or jaws; and Fig. 6, a detail of one of the cam plates for actuating the jaws.

The frame consists of parallel rods, which also serve as guides, 1 which are connected at their forward ends by a cross-piece 2 carrying a bowed member 3 which enables the device to be readily inserted in the conduit and, in connection with the tractive pulleys, keeps the creeper from turning when the conduit is polygonal in cross-section. At the other end the rods 1 are screwed into a bifurcated head 4, the ends of whose arms are slotted as at 5 (Fig. 2).

Tractive sheaves or pulleys 6 and 7, the former carried by a movable frame described later, and the latter carried by the rods 1, have their planes disposed at right angles to that of the frame composed of the rods 1 and the parts 3 and 4 and constitute both

traction wheels for the device and also sheaves over which certain cables run.

Grippers or jaws 8 of the form shown in Fig. 5, which have teeth 9 and pivot-holes 10, are received in the slots 5 and are pivoted to the head 4 by machine screws 11. These jaws carry pins 12 which project from opposite sides thereof and are received in curved slots 13 of the cam plates 14. The cam plates 14 are secured together by bolts 15, which pass through spacing members 16 and 17, the former being provided with an eye or ring 18 to which the cable or wire or the like, that is to be pulled through the conduit as a pilot, is attached. The spacing member 17 is attached to a pull rod 19 which passes loosely through the head 4 at 20 and has an eye 21 to which a cable or rope 22 is secured, said rope being jerked by the operator to cause the retraction of the jaws 8 against the expanding tendency of a spring 23 surrounding the rod 19 between the member 17 and the head 4, said spring keeping the jaws normally in the position shown in Fig. 1.

The cable or rope 22 passes around the tractive sheave 6 which is journaled in an arm 24 provided with an end 25 which is secured between cam plates 26 by bolts 27 which pass through openings 28 (Fig. 6), suitable spacing members 29 being provided to hold the cam plates in separated arrangement and caps 30 completing the structure. The cam plates (Fig. 6) have curved slots 31 which are disposed in coincidence.

A carriage 32 of the same general structure as the head 4, but which is slidable on the rods 1 so that it can play back and forth lengthwise of the main frame, has slots 33 in the ends of its arms in which are located the upper and lower jaws 34 which are of the construction shown in Fig. 5, previously described, the jaws or grippers being pivotally mounted on machine screws 35 which stop short of the rods 1 so as not to interfere with the free movement of the carriage 32 on said rods. The pins 12^a which are carried by the grippers or jaws 34, are received in the curved slots 31 and the jaws are spread or contracted by the movement of the cam plates in relation to the carriage 32, this being accomplished by a pull-rod 19^a which slides freely through the carriage at 20^a, is connected to the cam plates at 17^a and is encircled by a coil spring 23^a which tends

to keep the jaws 34 in normal spread condition, as shown in Fig. 1.

The eye 21^a is attached to a cord or rope 36 which passes around the tractive pulley or sheave 7 and is of sufficient length to be adapted to be jerked by the operator.

In using the device, the end having the member 3 is inserted in the conduit, the jaws 8 and 34 being pushed back as the creeper enters the conduit. Having been given a preliminary push into the conduit, the jaws 8 and 34 engage the walls thereof. The engagement of the jaws 8 will prevent backward movement so that when the cable 36, say, is pulled or jerked by the operator, the carriage 32 is slid along toward the forward end of the device and the pull exerted on the pull-rod 19^a causes the jaws 34 to be retracted, and when the rope 36 is released, they take a fresh bite or hold on the conduit so that the carriage 32 cannot move backward. The operator then gives a pull on the rope 22, but inasmuch as the carriage 32 cannot move backwardly, not only are the jaws 8 retracted to offer no hindrance to the forward progress of the creeper, but the head 4 and the rods 1 shoot forward in relation to the carriage 32, and on the release of the rope 22, the spring 23 throws out the jaws 8, which thereupon grip the conduit, thus preventing backward movement of the head 4 and rods 1, so that on the next jerk imparted to the cable 36, the carriage 32 is quickly drawn forward to enable the jaws 34 to take a fresh bite on the conduit, whereupon the rope 22 is jerked and the operation repeated. Thus the jaws 8 and 34 alternately engage the conduit to enable the creeper to leap forward on alternate jerkings of the ropes 22 and 36.

The disposition of the pulleys 6 and 7, crosswise in relation to the general plane of the machine, enables them to serve as traction wheels which minimizes friction and enables the device to proceed very rapidly, while the disposition of these tractive pulleys in connection with the member 3, enables the device to be used in square conduits without turning therein.

By taking off the member 3 and substituting a larger one therefor, the device may be used in square conduits of any size, provided the jaws 8 and 34 are replaced by ones of suitable size according to the conduit in which the machine is made to operate.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a conduit creeper, the combination with a frame and means carried thereby for releasably engaging the conduit, of a carriage movable in relation to the frame, means carried by the carriage adapted for releasably engaging the conduit, a tractive

pulley carried by the frame, a tractive pulley carried by the carriage, said pulleys being both adapted to travel on the conduit, a jerk rope connected to the frame and passing around the pulley on the carriage, and a jerk rope connected to the carriage and passing around the pulley on the frame.

2. In a conduit creeper, the combination with a frame, and releasable conduit engaging means carried thereby, of a tractive wheel adapted to travel on the conduit, said wheel being angularly disposed in relation to the releasable conduit engaging means to thereby enable the creeper to travel in the polygonal conduit without turning.

3. A conduit creeper provided with releasable conduit engaging means consisting of a laterally disposed gripping jaw, pivoted intermediate its ends, and a shiftable cam coöperating with the inner end part of said jaw.

4. A conduit creeper provided with releasable conduit engaging means consisting of a laterally disposed gripping jaw pivoted intermediate its ends, and a shiftable cam plate having a slot or groove coöperating with the inner end part of said gripping jaw.

5. A conduit creeper consisting of a frame member, laterally disposed gripping jaws pivoted to the frame member intermediate their ends and having inner ends extending toward each other, and a member movable in relation to the frame member and provided with means engaging the inwardly projecting parts of both the gripping jaws, whereby the latter are simultaneously actuated.

6. A conduit creeper consisting of a frame member, laterally disposed gripping jaws pivoted to the frame member intermediate their ends and having inner parts extending toward each other, and a member movable in relation to the frame member and provided with cam means engaging the parts of the gripping jaws which extend toward each other, whereby said jaws are simultaneously operable.

7. A conduit creeper consisting of a frame member, laterally disposed gripping jaws pivoted to the frame member intermediate their ends and having inner parts extending toward each other, a member movable in relation to the frame member and provided with means engaging the inwardly projecting parts of the gripping jaws, whereby the latter are simultaneously actuated, and spring actuated operable means coöperating with the member last-named for releasably holding the gripping jaws in laterally extended position.

8. A conduit creeper comprising a frame, a carriage movable in relation to the frame, releasable spring-actuated pivoted oppositely disposed gripping jaws carried by

both the frame and the carriage, tractive pulleys carried by the carriage and by the frame and both adapted to travel on the conduit, and jerk ropes operatively connected to the respective sets of gripping jaws and respectively passing over the aforesaid pulleys.

9. In a conduit creeper, the combination with the frame thereof and conduit gripping means, of a tractive device carried by the frame and adapted to travel on the conduit, and a member carried by the frame in

substantially right angular disposition to the tractive member aforesaid and adapted to travel on the conduit, whereby the creeper may be used in polygonal conduits without turning therein. 15

In testimony whereof, I hereunto affix my signature in presence of two witnesses.

HENRY G. LEHMAN.

Witnesses:

BLAINE BAREFOOT,
C. R. LA CHANCE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."