

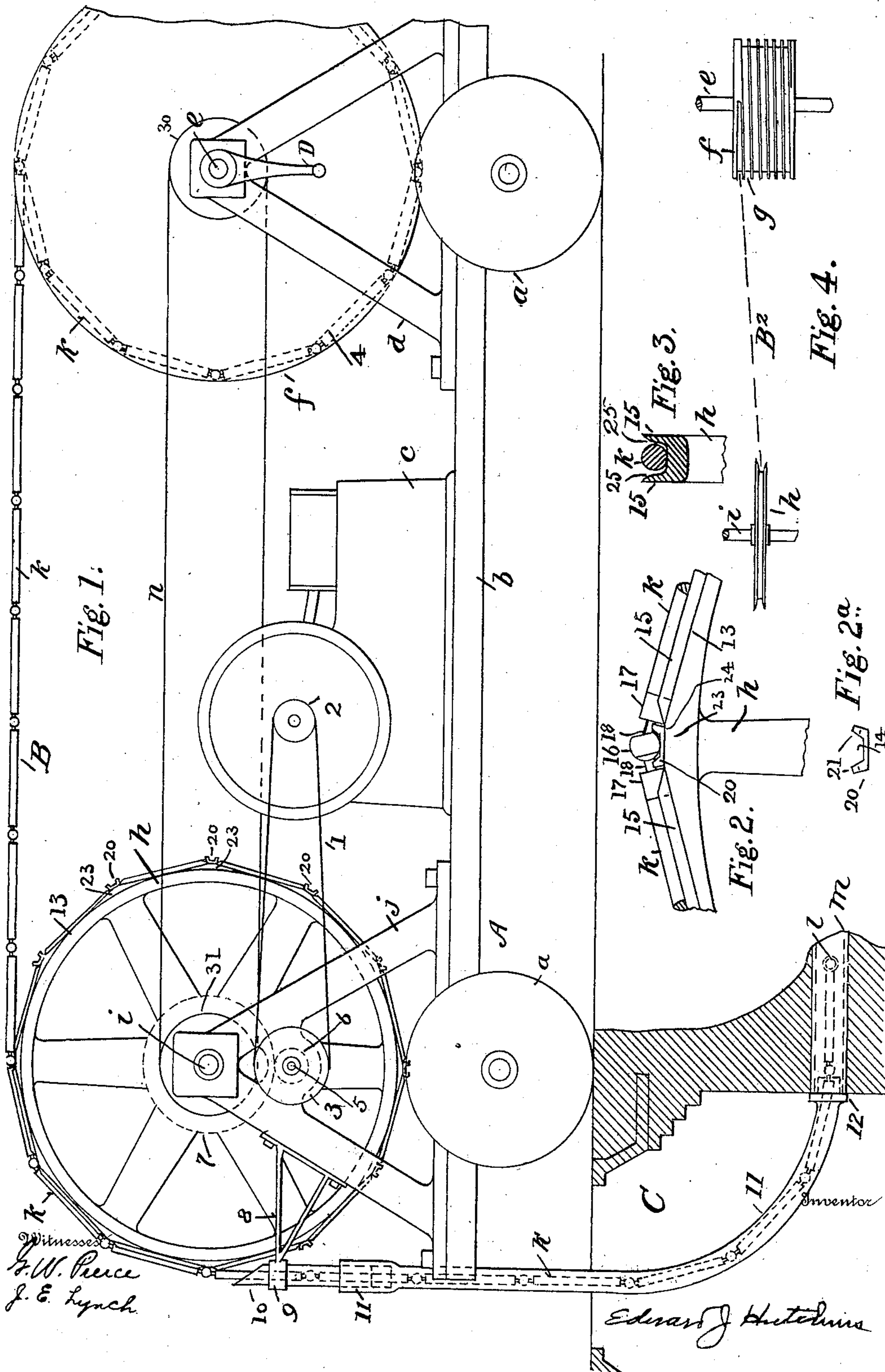
No. 855,952.

PATENTED JUNE 4, 1907.

E. J. HUTCHINS.

## APPARATUS FOR FEEDING CABLES INTO CONDUITS.

APPLICATION FILED AUG. 3, 1908.





# UNITED STATES PATENT OFFICE.

EDWARD J. HUTCHINS, OF NEW HAVEN, CONNECTICUT.

## APPARATUS FOR FEEDING CABLES INTO CONDUITS.

No. 855,952.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed August 3, 1906. Serial No. 329,021.

*To all whom it may concern:*

Be it known that I, EDWARD J. HUTCHINS, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain Improvements in Apparatus for Feeding Cables into Conduits, of which the following is a specification.

The present invention relates to means for introducing electric conductors, preferably inclosed in a sheath and forming a cable, into underground conduits.

As is well known underground conduits terminate at intervals of 150 or 200 feet in manholes where the cables may be interconnected as desired, and in the common practice when a cable is to be drawn from one manhole to another through a conduit, a system of "rodding," as it is called, is carried out, *i. e.* rods of say 10 feet long are introduced into the conduit at a manhole, each rod being locked to the one ahead, until the combined rods reach the second manhole, when a rope or steel wire is attached to the first rod and all of the rods are withdrawn to the first manhole, dragging the rope from the second manhole to the first manhole. And by means of the rope a cable is drawn from the second manhole to the first one.

The invention about to be described aims to greatly simplify the process described, and provides a flexible continuous linked or articulated rod wound upon a drum, adapted to be threaded through a conduit by means of a motor, and when its terminal or end has reached the second manhole and the rope or steel wire has been attached thereto, the motor is reversed and the said rod is withdrawn from the conduit drawing the rope or wire, and rewound upon the drum.

The invention also relates to certain details of construction all of which I will now proceed to describe and point out in the appended claims.

Reference is had to the accompanying drawings, in which Figure 1, is a side elevation of the device, showing a portion of a manhole in section. Figs. 2, 2<sup>a</sup>, and 3 are views of detached parts of the driving wheel, enlarged, and Fig. 4 is a plan of the reel and driving wheel to represent the mode of winding and unwinding to and from the former.

In the drawings A represents a carriage provided with wheels, *a*, whose axles support a frame *b*, upon one end of which is a reel *f* whose shaft *e* rests in standards *d*, and upon the opposite end of the frame is a driving

wheel *h* whose shaft *i* is supported by standards *j*; and *c* is a motor, represented as a gas motor, connected by a belt 1 from pulley 2 to pulley 3 carried by the spindle 5 which is supported in bearings on the standard *j*, upon said shaft is a pinion 6 which meshes with the gear wheel 7 upon the shaft *i*. Motion is thus conveyed from the motor *c* to the shaft *i* and rotates the driving wheel *h* in either direction, depending upon the motor. The wheel *h* has its periphery divided into plane surfaces 13, twelve being represented, and the meeting point of their angles is made flat, as 24 upon which is secured the member 20, having a horn or tooth 21 at each end; and rims 15 extend between each flat part and form short channels 25.

The reel *f* is represented as having a progressive or screw-threaded channel *g* in its periphery opposite the center of which is placed the wheel *h*, the channel being divided into plane surfaces 4, the articulated rod being represented by the dotted line B<sup>2</sup>.

B is a linked or articulated rod, normally wound in the channel *g* of the reel *f*, to which one end is secured, while the opposite end portion rests upon the top and one side of the wheel *h*, and the end of the rod may terminate in a ring *l* or a hook if preferred. Normally the terminal *l* of the rod rests in the tube 10 which is held in a ring 9 forming a part of the bracket 8 which is bolted to the standard *j*.

The flexible or articulated rod B is composed of links *k* secured to each other by ball-and-socket joints 16, made in a well understood manner, with extensions from each member of the joint to the metal ends 17 of the links, the main portion of which is preferably of some hard wood.

The cylindrical parts of the links *k* rest in the channel 25 between two of the members 20, while the globe or ball portion rests between the two horns 21 of a member 20, so that when motion is imparted to the wheel *h*, the rod B as a whole is moved, being carried by the members 20, in either direction depending upon the motor.

When the machine is to be used for the purpose intended the driving wheel is brought over a manhole C as shown in Fig. 1, and a curved extension pipe 11 is introduced into the manhole and its lower end 12 placed into the end of the conduit *m* into which a cable is to be drawn, while the upper end embraces the lower end of the pipe 10,



the motor *c* is set in motion and the articulated rod *B* is drawn from the reel *f* and passes down the pipe 11 into the conduit *m*, until its end *l* reaches the second manhole  
 5 where a rope or wire is secured thereto, and the motor reversed in motion, whereupon the rod *B* is pulled out from the conduit and rewound upon the reel *f*.

When the terminal *l* reaches the manhole *C*  
 10 the pipe 11 is removed from the conduit and the rope or wire is unfastened from the ring and the pipe 11 taken away. The process of drawing the cable through the conduit can then be performed.

15 In order that the reel *f* may revolve with the wheel *h* and in the same time I may put a pulley 30 upon the shaft *e* and another upon the shaft *i* and connect the two by means of a belt or a chain; or the same result may be  
 20 secured by means of a crank *D* upon the end of the shaft.

I claim as my invention:

1. The combination in a machine for the purpose described, of a reel, a driving wheel,  
 25 means for rotating the driving wheel, a flexible rod secured to and adapted to be wound upon the reel its opposite end portion passing over the driving wheel, with means upon the driving wheel coinciding with means upon  
 30 the rod, whereby the movement of the driving wheel will be communicated to the rod.

2. The combination in a machine for the purpose described, of a carriage, a reel and a driving wheel upon separate shafts supported  
 35 on said carriage means for rotating the driving wheel, a flexible rod secured to and adapted to be wound upon the reel its opposite end portion passing over the driving wheel, with means upon the driving wheel  
 40 coinciding with means upon the rod by means of which the rod may be carried in either direction.

3. The combination in a machine for the purpose described, of a carriage, a reel and a driving wheel upon separate shafts supported  
 45 on said carriage, a motor connected with said wheel, a flexible rod secured to and adapted to be wound upon the reel its opposite end portion passing over the driving wheel, with  
 50 teeth or members upon the driving wheel adapted to engage notches in the rod and carry the same along.

4. The combination in a machine for the purpose described, of a reel, a driving wheel, means for rotating the driving wheel, an artic-  
 55 ulated rod composed of separate pieces or links secured to each by ball-and-socket joints, connected with and adapted to be wound upon the reel, its opposite end portion  
 60 passing over the driving wheel, with means upon the driving wheel adapted to engage means upon the rod and communicate motion thereto.

5. The combination in a machine for the purpose described, of a carriage, a reel and a  
 65 driving wheel upon separate shafts supported upon said carriage, a motor connected with said wheel, means for rotating the said reel in either direction, an articulated rod composed  
 70 of separated pieces or links secured to each other by ball-and-socket joints connected with and adapted to be wound upon the reel, its opposite end portion passing over  
 75 the driving wheel, with teeth or members upon the driving wheel adapted to engage the ends of the links, as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 30th day of July 1906.

EDWARD J. HUTCHINS.

Witnesses:

G. W. PIERCE,  
 J. E. LYNCH.