(No Model.)

W. H. JOHNSTON.

APPARATUS FOR FEEDING CABLES INTO UNDERGROUND CONDUITS.

No. 594,020. Patented Nov. 23, 1897.

Fig. 1

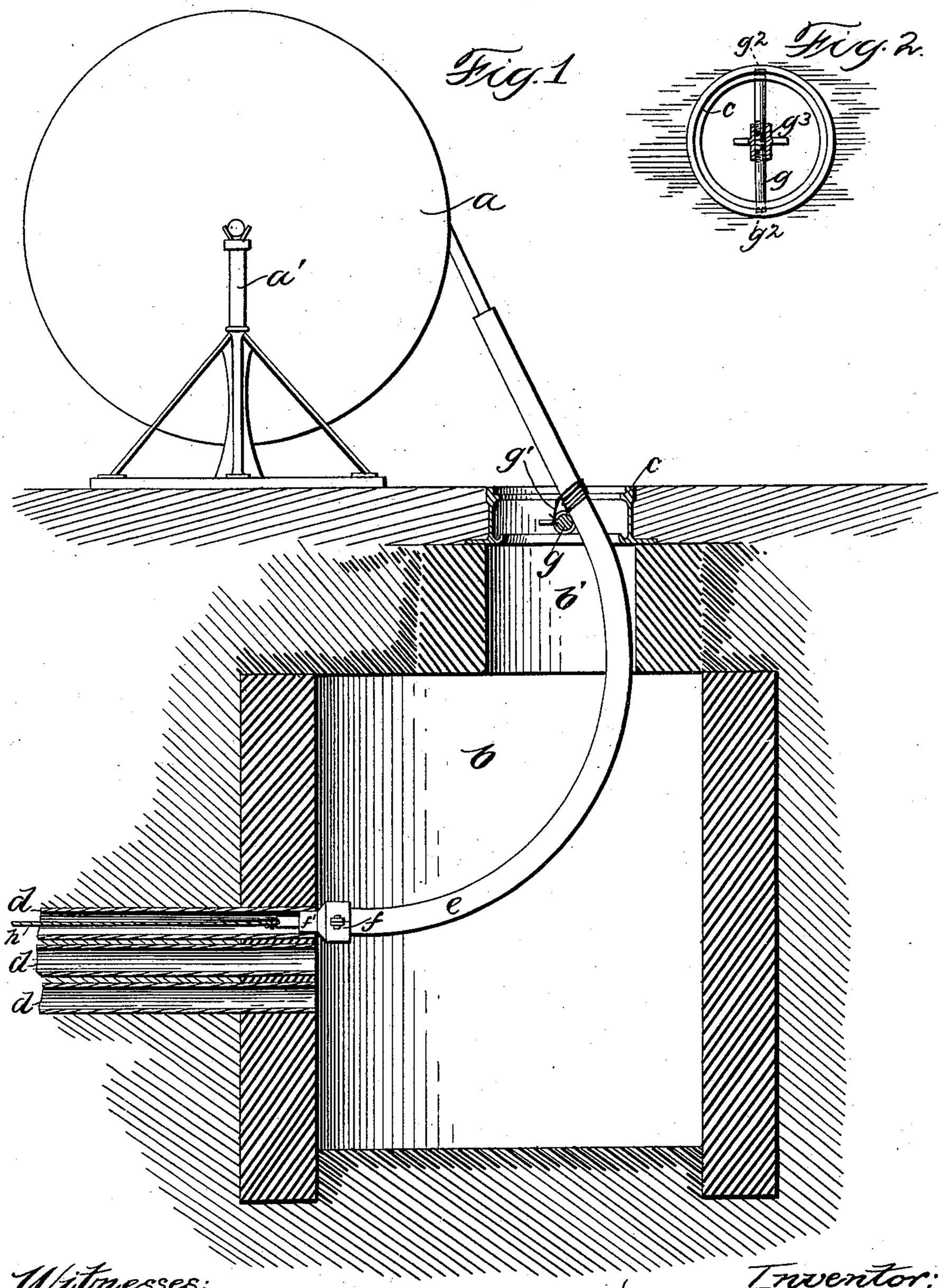

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLBUR H. JOHNSTON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE BELL TELEPHONE COMPANY OF MISSOURI, OF SAME PLACE.

APPARATUS FOR FEEDING CABLES INTO UNDERGROUND CONDUITS.

SPECIFICATION forming part of Letters Patent No. 594,020, dated November 23, 1897.

Application filed July 28, 1897. Serial No. 646,211. (No model.)

To all whom it may concern:

Be it known that I, WILLBUR H. JOHNSTON, a citizen of the United States, residing at St. Louis, State of Missouri, have invented a certain new and useful Improvement in Apparatus for Feeding Cables into Underground Conduits, (Case No. 3,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to apparatus for feeding cables into underground conduits. Prior to my invention the cable as it was paid out had to be carefully manipulated by the workman to direct it into the conduit. The cable as it was unreeled was frequently rubbed against the edges of the mouth of the conduit, manhole-cover, and other sharp edges, the metallic covering usually employed being thereby often injured.

In accordance with my invention I provide a tubular guide, preferably so arranged or constructed that it can be bent only into curves of comparatively large radius, means being provided for attaching the tubular guide at one end to the duct of the conduit through which the cable is to be threaded and for securing the same at the manhole-opening, whereby the cable may be drawn through the guide without being manipulated as it is uncoiled from the reel, while at the same time all injury to the covering of the cable is obviated.

I will explain my invention more particularly by reference to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a manhole and a portion of a conduit communicating therewith with the apparatus of my invention in position, a cable-reel being illustrated in complete elevation. Fig. 2 is a plan view of the frame about the upper portion of the manhole-opening, showing the means I prefer to employ for securing the tubular guide in position.

Like letters refer to like parts in both views.

The cable-reel *a* and standard *a'* therefor are of any well-known construction. The manhole *b* is provided with an opening *b'*, leading to the surface. A frame *c* surrounds the upper portion of the manhole and is designed to support a cover, as is well understood. Ducts *d d* of the conduit communicate with the manhole.

A tube *e*, composed of flexible material having a bore slightly larger than the diameter of the cable, is provided. This tube is preferably constructed so that it will flex or bend only into curves of comparatively large radius to prevent the cable from becoming kinked. To afford communication between the guide *e* and the duct through which the cable is to be threaded, I preferably provide a nipple or nozzle *f*, which in this instance is provided with a reduced end *f'*, which may be slipped within the duct. The tubular guide may be otherwise brought into communication with the duct, however.

I preferably lash the tubular guide near its upper end to the jack-bar *g* by a lashing-line *g'*. The tubular guide, however, may be otherwise secured in position. The jack-bar is preferably removable from the manhole-cover frame and is preferably constructed as shown most clearly in Fig. 2. I provide in the frame *c* two diametrically-opposed recesses g^2 g^2, which are adapted to receive the ends of the jack-bar. The jack-bar is preferably made in two sections, which are united at the middle by a sleeve g^3, provided with right and left hand threads engaging corresponding threads respectively upon the opposing ends of the sections of the bar. By rotating the sleeve in one direction the jack-bar may be shortened and then removed from the frame, while by rotating the sleeve in the opposite direction the bar may be lengthened after it has been placed in line with the recesses and thereby secured in position.

In practice I prefer to pass the cable through the tubular guide before it is inserted within the manhole, the end of the cable being projected slightly beyond the nozzle *f*, so that a rope *h* may be attached thereto in any well-known way. I then insert the reduced end of the nozzle within the duct, and having imparted the desired curvature to the guide lash the same to the jack-bar. After the tubular guide has thus been placed the reel and manhole may be relieved of all attention on the

part of the workman, all of the work being performed at the other end of the rope *h*. By lashing the guide to the jack-bar I am enabled to secure the same in position and at the same time permit it to change its position sidewise, and thereby keep it in line with the cable as it is uncoiled from the reel. Other means may be provided for permitting this sidewise movement to the tubular guide. The saving that I effect in labor and the rapidity with which the work is done will be apparent.

It is obvious that changes may be made from the preferred embodiment of my invention without departing from its spirit, and I do not therefore desire to be limited to the precise construction and arrangement of parts herein shown and described; but,

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

1. In an apparatus for feeding cables into underground conduits, the combination with a curved tubular guide through which the cable may be passed and adapted for insertion within the manhole, of means for bringing an end of said guide into communication with a duct communicating with the manhole, through which duct the cable is to be threaded, and means for securing the curved tubular guide in position at the manhole-opening, said means permitting the sidewise movement of the guide by the cable as it is unwound, whereby the guide is maintained in alinement with the unwinding cable, substantially as described.

2. In an apparatus for feeding cables into underground conduits, the combination with a flexible tubular guide for the cable constructed to flex only into comparatively large curves, and adapted for insertion within the manhole, of a nozzle provided upon one end of said guide for affording communication between the tubular guide and the duct communicating with the manhole, through which duct the cable is to be threaded, and means for securing the tubular guide in position at the manhole-opening, said means permitting the sidewise movement of the guide by the cable as it is unwound, whereby the guide is maintained in alinement with the unwinding cable, substantially as described.

3. In an apparatus for feeding cables into underground conduits, the combination with a flexible tubular guide for the cable constructed to flex only into comparatively large curves, and adapted for insertion within the manhole, of a nozzle provided upon one end of said guide for affording communication between the tubular guide and the duct communicating with the manhole, through which duct the cable is to be threaded, and a jack-bar adapted to be secured at the manhole-opening to support the upper portion of the tubular guide whereby the position of the tubular guide is fixed relative to the manhole-opening, substantially as described.

4. In an apparatus for feeding cables into underground conduits, the combination with a curved tubular guide for the cable adapted for insertion within the manhole, of a nozzle provided upon one end of said guide for affording communication between the tubular guide and the duct communicating with the manhole through which duct the cable is to be threaded, and a jack-bar adapted to be secured at the manhole-opening to support the upper portion of the guide, the guide being capable of movement sidewise upon the jack-bar whereby it is preserved in alinement with the cable as it is uncoiled, substantially as described.

5. In an apparatus for feeding cables into underground conduits, the combination with a curved guide at the manhole for directing the cable into a duct of the conduit, of means for securing the curved guide in position at the manhole-opening, said means permitting the sidewise movement of the guide by the cable as it is unwound, whereby the guide is maintained in alinement with the unwinding cable, substantially as described.

In witness whereof I hereunto subscribe my name this 24th day of July, A. D. 1897.

WILLBUR H. JOHNSTON.

Witnesses:
W. J. STEVENSON,
W. S. MORRIS.