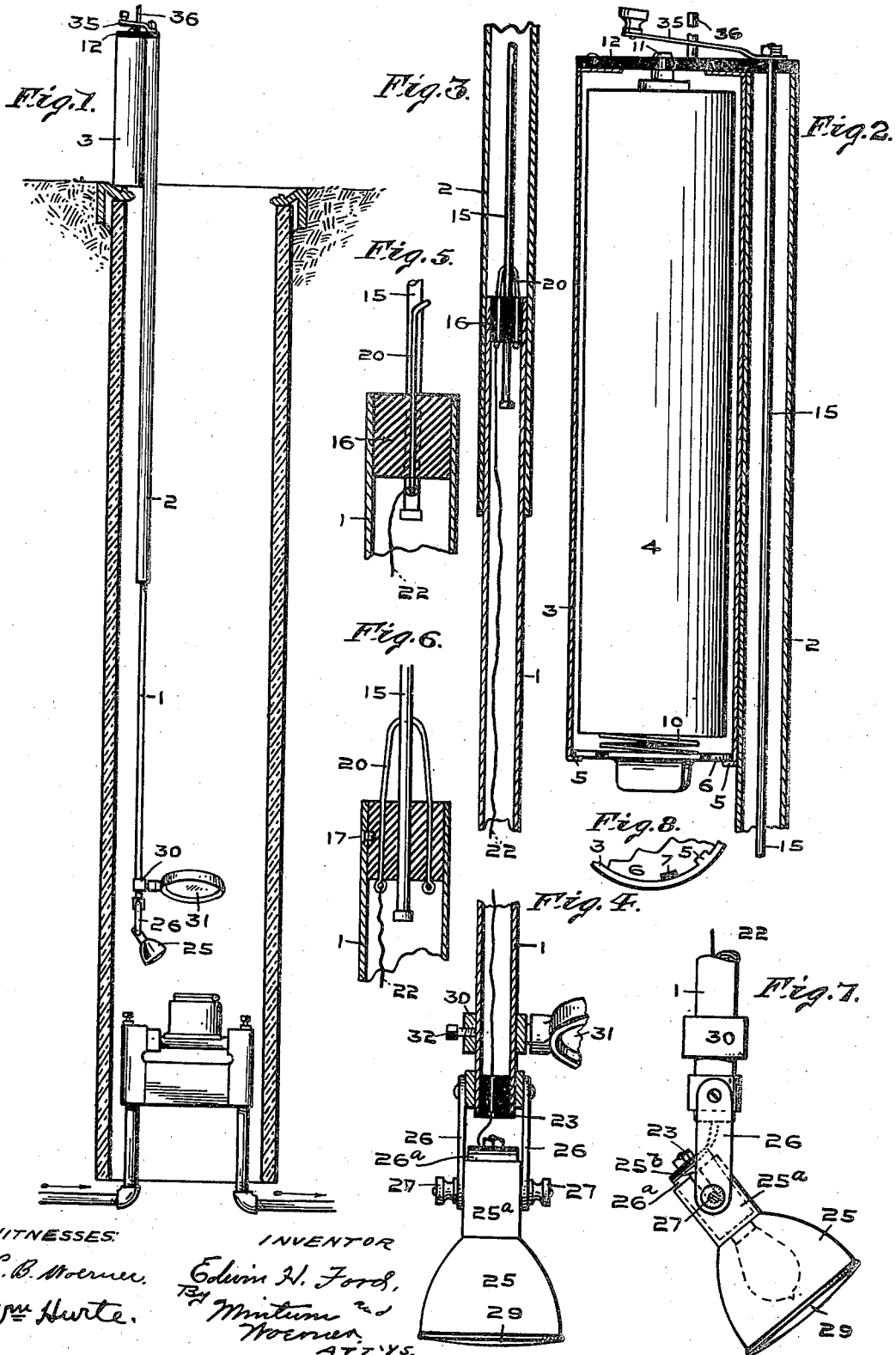


E. H. FORD.
LAMP.

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1,013,542.

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WITNESSES:
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UNITED STATES PATENT OFFICE.

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LAMP.

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Specification of Letters Patent.

Patented Jan. 2, 1912.

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To all whom it may concern:

Be it known that I, EDWIN H. FORD, a citizen of the United States, residing at Hartford City, in the county of Blackford and State of Indiana, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

Meters for measuring gas and water must be set at sufficient depth within the meter boxes so as to be below the frost line, and in northern countries where low temperatures prevail the meters are placed at from six to seven feet below the surface of the ground. At these depths the reading of the meters is seriously interfered with on account of darkness, caused by the small dimensions of the meter boxes.

This invention relates to a lamp adapted to be used in reading meters located within water and gas boxes; and the object of the invention is to provide a lamp which may be readily suspended from the tops of the boxes and may be extended to accommodate boxes of different lengths.

A further object of the invention is to provide a lamp which may be adjusted so as to direct the rays of light upon the dials of the meters, and a still further object is to provide means for enlarging the dials so that the readings can be easily taken by the attendant from the surface of the ground.

I accomplish the objects of the invention by means of the lamp illustrated in the accompanying drawings, forming a part hereof, in which—

Figure 1 is a vertical section through a meter box located in the ground, and showing the lamp in operating position therein. Figs. 2, 3 and 4, are enlarged sectional detail views of the lamp. Fig. 5 is an enlarged detail sectional view of a portion of a lamp frame showing the manner in which the electrical connections between the extensible parts are made. Fig. 6 is a detail longitudinal sectional view of the construction shown in Fig. 5. Fig. 7 is a side elevation of the construction shown in Fig. 4. Fig. 8 is a fragmentary detail plan view of the lower end of the battery box shown in Fig. 2.

The lamp consists of a frame or handle comprising two hollow tubes 1 and 2, which are telescoped together, so that the handle may be extended or contracted in meter boxes of different lengths. The member 2 of the handle, which is the larger and outer

tube, is provided at one end with the battery box or casing 3 which provides a receptacle for retaining a dry battery cell 4. The open end of the box, as shown in Fig. 8, is provided at a plurality of points with inwardly projecting ears 5, and the plate 6, which forms the end of the box, is provided with a plurality of notches 7 in its periphery which are of a size to permit the ears 5 to pass. The end plate 6 is placed in position so that the notches 7 will register and permit the ears 5 to pass, and the plate is then given a partial turn so as to remove the notches 7 from the said ears. A spring 10 is interposed between the end plate 6 and the battery 4, and the purpose of this spring is to keep the said battery in contact with the post 11 and also to prevent vibration and rattling of said battery within the box. The post 11 is mounted in an insulated plate 12 so as to prevent the handle and box 3 from becoming charged with electricity. Located within the member 2 of the handle is the longitudinal rod 15 adapted to convey the electricity from the battery to the electric bulb. The rod 15 is insulated from the tube 2, at one end by means of the insulated plate 12 and the other end by means of the insulation 16, (see Fig. 5) the insulation 16 being in the form of a cylinder which is rigidly held within the end of the tube 1 by means of the pin or screw 17. See Fig. 6. The rod 15 throughout the tube 2, provides the means for conveying the current through said tube.

The handle is capable of being extended in the following manner without breaking the electric circuit. I provide a U-shaped wire 20 which passes through the insulation 16, and the closed end of the wire is bent to form a recess to partially embrace the rod 15 (see Fig. 5), so that a continued sliding contact between the wire 20 and the rod 15 is maintained. The two ends of the wire 20 are enlarged by the formation of eyes to prevent accidental displacement of said wire from the insulation 16. Connected to one end of the wire 20 is the wire 22 which extends through the tube 1 and connects with a small lamp socket 26^a, which is insulated from the tube 1 by means of insulation 26^b, adapted to receive a small incandescent globe or bulb, of well known construction. The lamp socket 26^a is adjustably mounted on the tube 1 by means of the side bars 26 and the thumb nuts 27.

This construction, as clearly shown in Fig. 1 of the drawings, permits the lamp to set at an angle so that the rays of light may be directed squarely upon the dials of the meters. After the lamp has been placed at a proper angle it may be held in fixed position by means of said thumb nuts 27. The electric bulb is inclosed by means of the reflector 25 which is provided with the magnifying lens 29, the two adapted to intensify the light. The reflector 25 terminates in a sleeve 25^a which slips over the lamp socket 26^a, and said sleeve is provided at diametrically opposite sides with the slots 25^b which permit the end of the sleeve 25^a to pass under the thumb nuts 27. This construction will admit of the sleeve 25^a being clamped fast to the lamp socket 26^a when the thumb nuts 27 are turned to lock the socket 26^a between the side bars 26, heretofore mentioned. Mounted immediately above the reflector 25 and upon the tube 1 is the collar 30 adapted to form a bearing for the magnifying glass 31. The collar 30 is adjustable on said tube, so as to properly focus the glass 31 upon the dials of the meters, and the said collar may be secured at the desired position on said tube 1 by means of the set screw 32.

In order to close the circuit, I provide the lever 35 which is secured to the rod 15, the latter being made of spring material so that said lever stands normally out of engagement with the post 11. Contact of the lever 35 and post is made by forcing the former into contact with the latter. As soon as the hand is removed the lever 35 will move away from the post 11 to break the electrical connection so that the life of both the battery and electric bulb is materially extended. The electric circuit throughout the lamp may be traced substantially as follows: When the lever 35 is moved into contact with the post 11 the current passes from the cell 4 through the post 11 and lever 35, thence along the rod 15, wires 20 and 22 and then through the bulb from whence it passes to the telescoped tubes 1 and 2, battery box 3, and thence through the spring 10 back to the cell 4. I also provide the lamp with a rest post or pin 36 which is mounted in the insulated plate 12 and adjacent to the lever 35. This post prevents

the lever 35 from being pressed into engagement with the post 11 in case the operator, for any reason, should rest this end of the lamp on the ground.

Having thus fully described my said invention, what I desire to secure by Letters Patent, is—

1. A lamp of the above specified class including a handle composed of a plurality of hollow members telescoped together, a metallic rod rigidly arranged within and extending the length of the outer member of the handle, said rod being insulated from said handle, means arranged within the second member of the handle to take over and insulate said rod from the said last mentioned member, insulated wires extending through said second member of the handle and connecting with the lamp socket, an electric bulb, a flexible means adapted to permit of a sliding contact between said metallic rod and said wires, a battery, and means adapted to open and close the electric circuit between said battery and electric bulb.

2. A lamp of the above specified class including a handle composed of a plurality of hollow members telescoped together, a metallic rod rigidly arranged within and extending the length of the outer member of the handle, said rod being insulated from said handle, means arranged within the second member of the handle to take over and insulate said rod from the said last mentioned member, means on said rod to prevent accidental separation between the handle members, insulated wires extending through said second handle member and connecting with the lamp socket, an electric bulb, a flexible means adapted to permit of a sliding contact with said metallic rod and said wires, a battery, and means adapted to open and close the electric circuit between said battery and electric bulb.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 14th day of June, A. D. one thousand nine hundred and nine.

EDWIN H. FORD. [L. s.]

Witnesses:

F. W. WOERNER,
L. B. WOERNER.