

(No Model.)

J. DU SHANE.

CONDUIT FOR UNDERGROUND ELECTRIC WIRES.

No. 280,919.

Patented July 10, 1883.

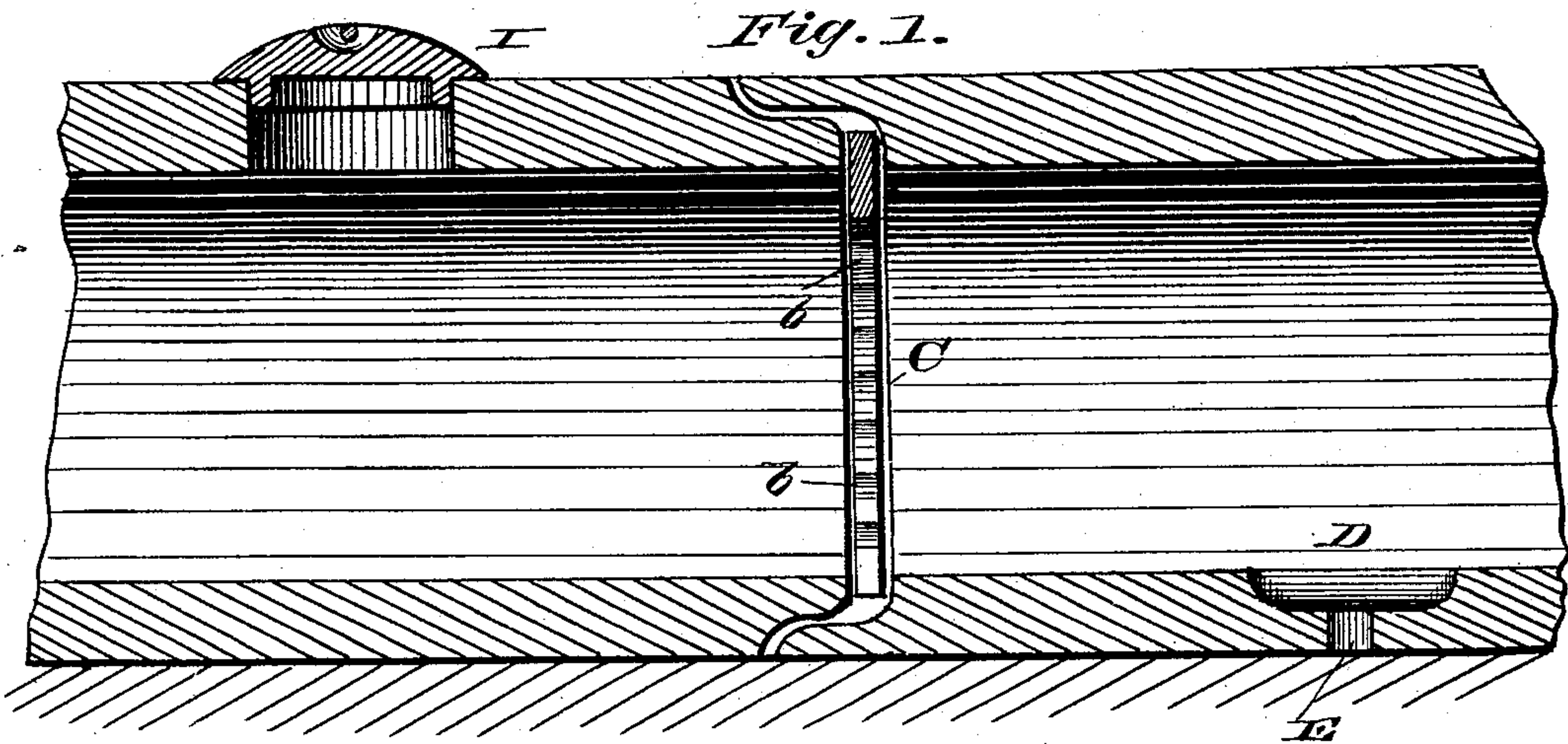


Fig. 2.

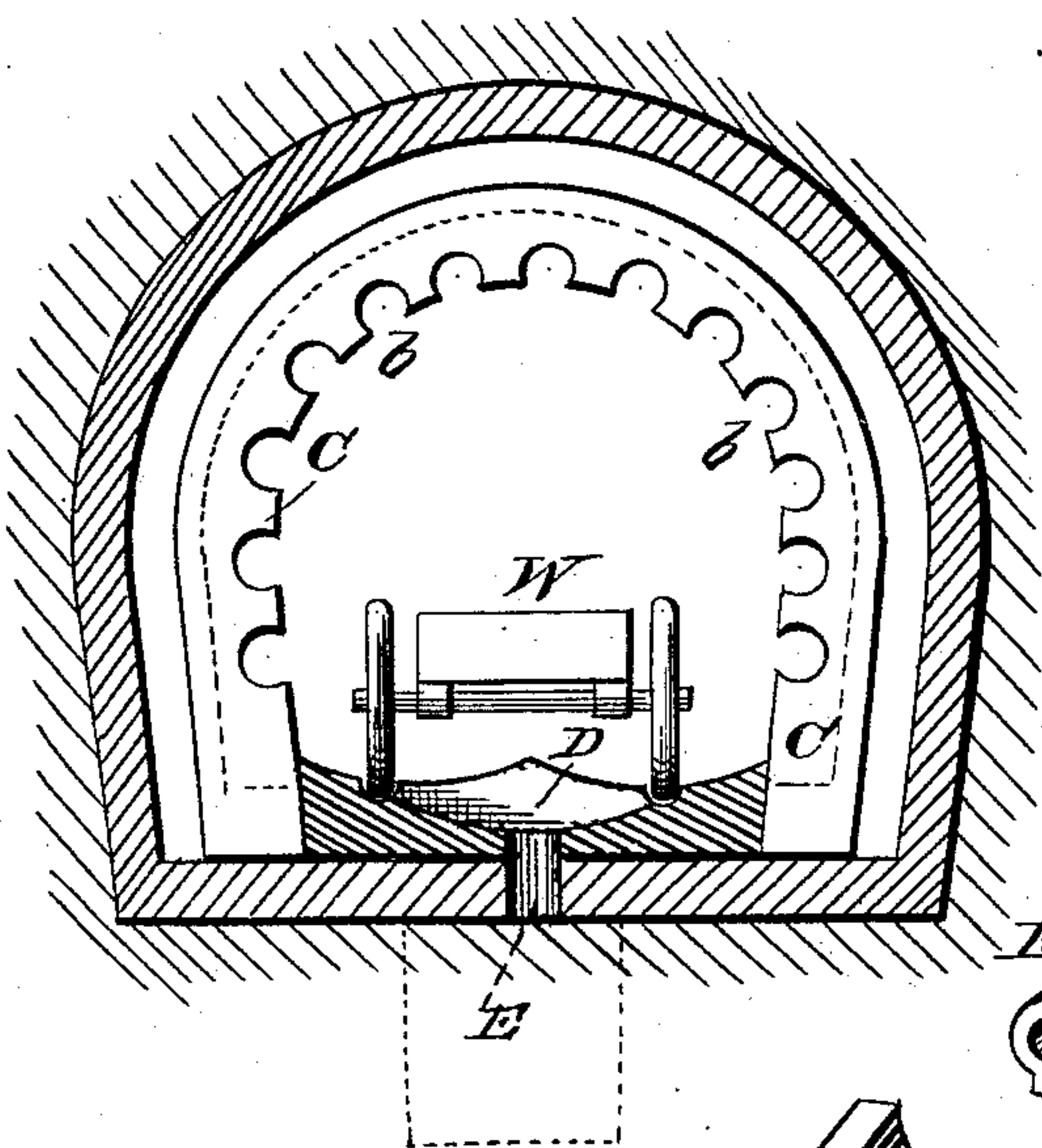


Fig. 3.

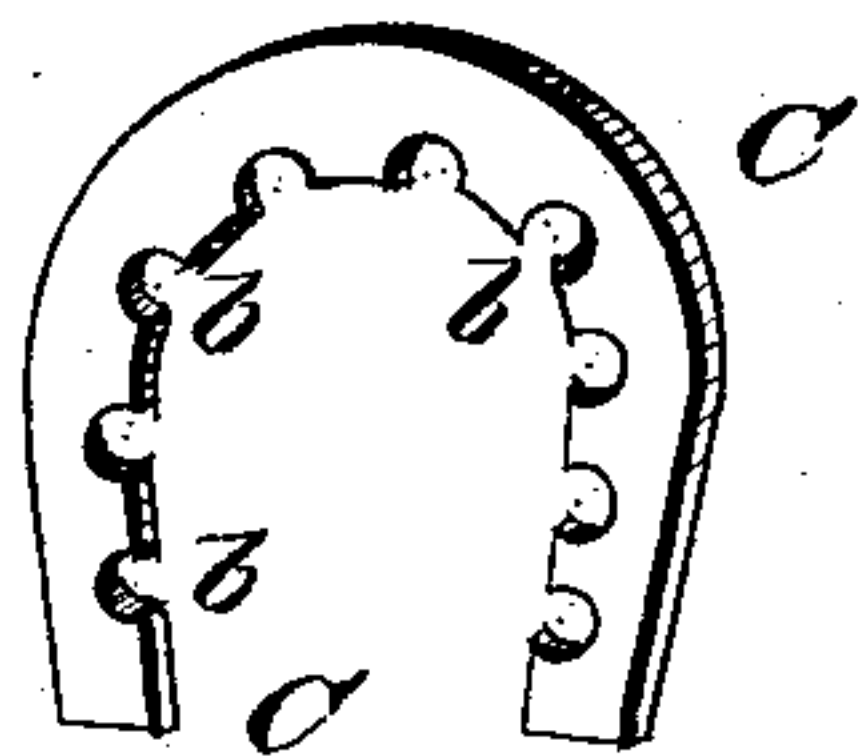


Fig. 4.

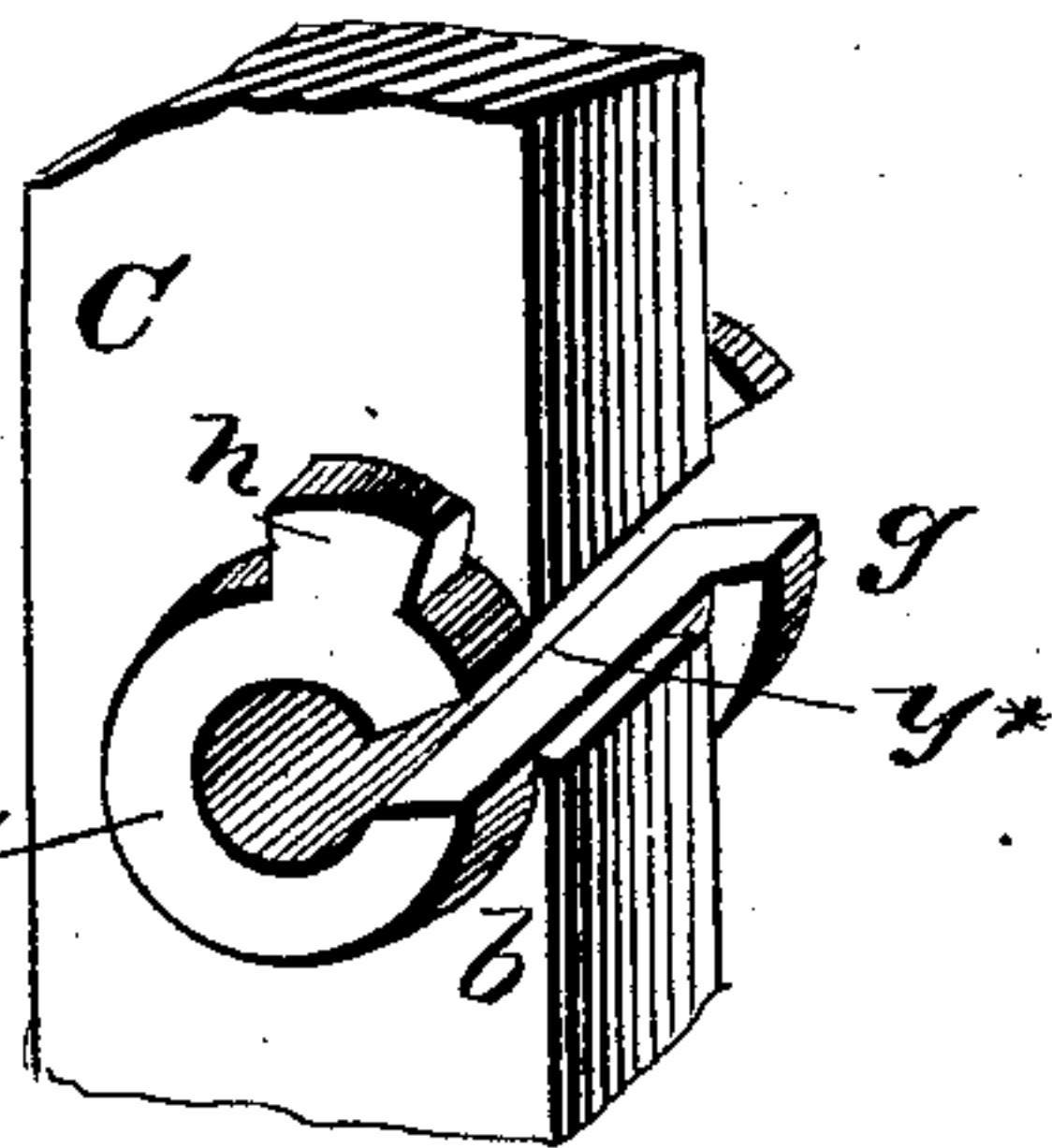


Fig. 5.

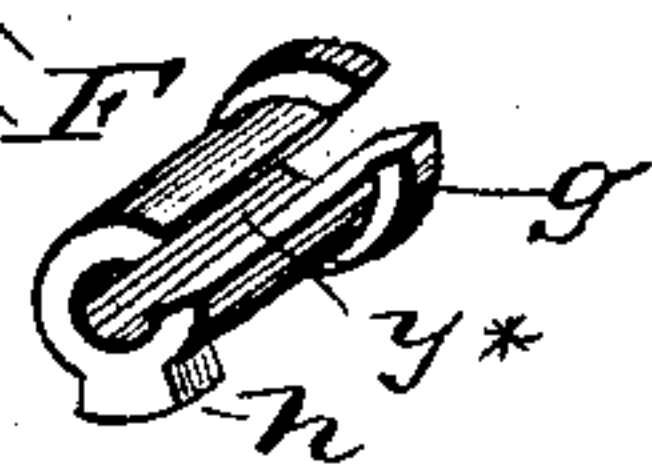


Fig. 6.

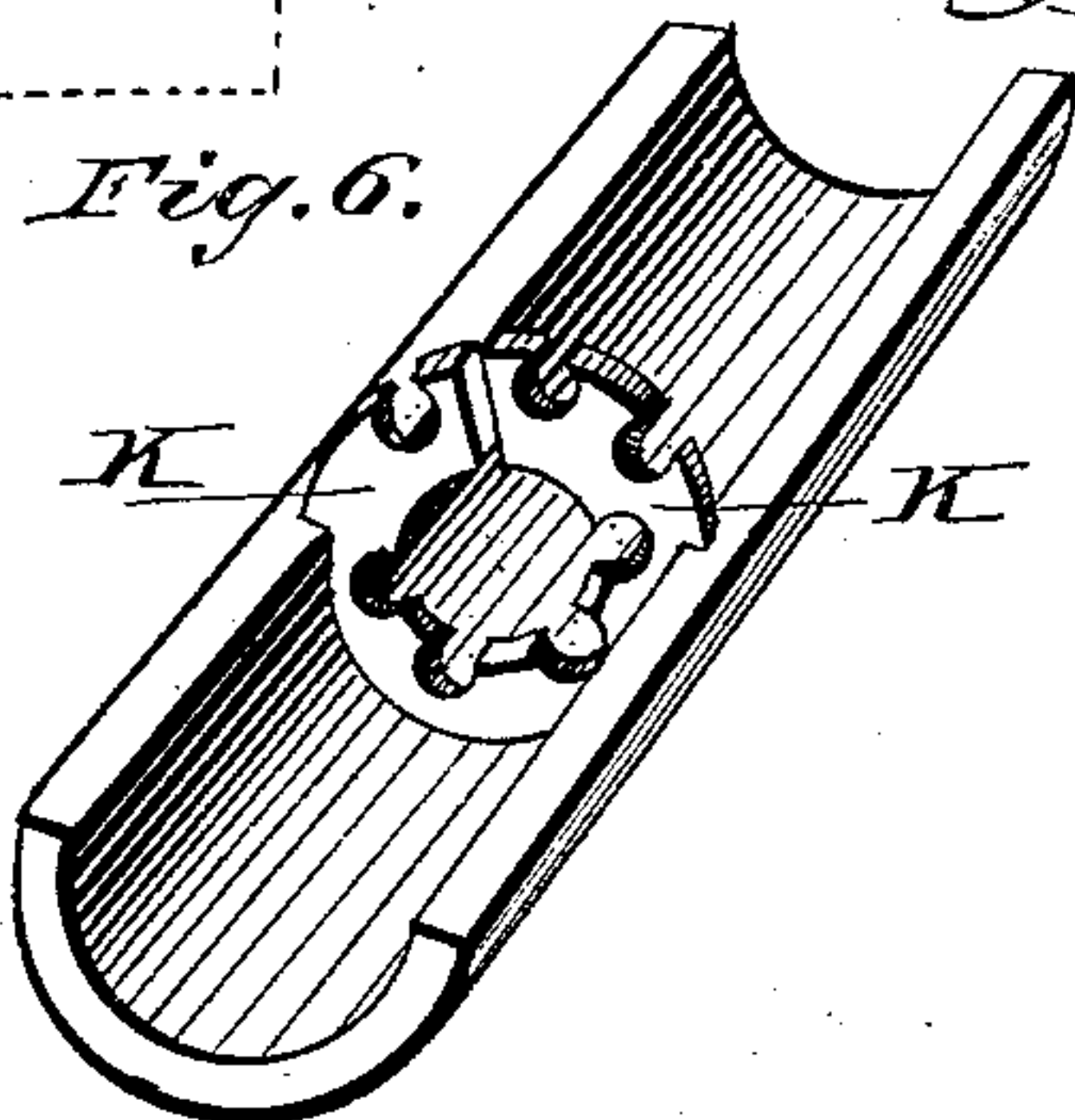
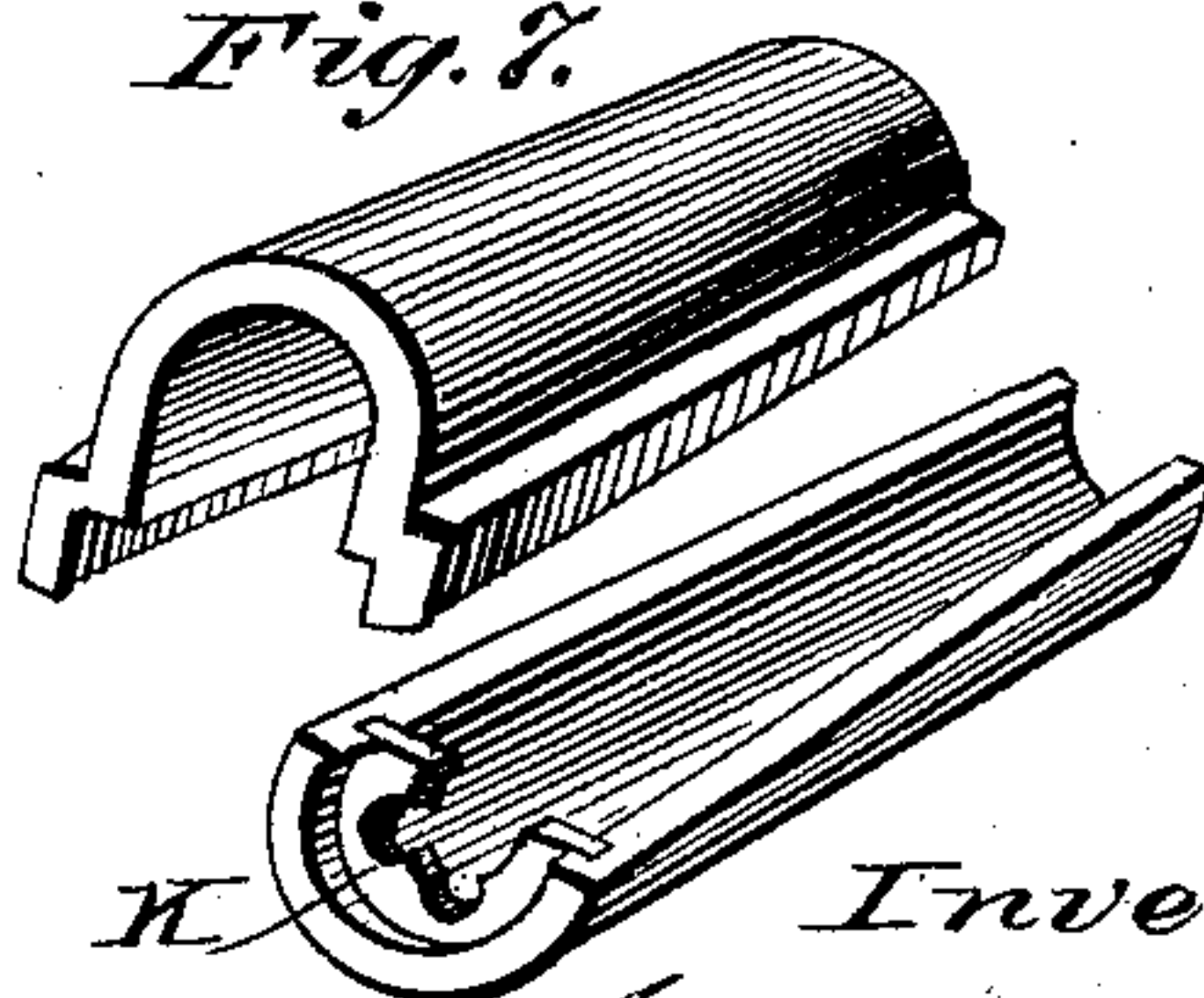


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES DU SHANE, OF SOUTH BEND, INDIANA.

CONDUIT FOR UNDERGROUND ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 280,919, dated July 10, 1883.

Application filed April 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES DU SHANE, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Conduits for Underground Electrical Wires; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a vertical transverse section through a subterraneous cavity, showing my improved conductors for electrical wires applied. Fig. 2 is a transverse section, showing an arch of horseshoe shape having for its base a grooved way for a car or its equivalent. Fig. 3 indicates a frame or rack which is used at given points throughout the tube for the purpose of a guide and support for my conductors. Fig. 4 shows in perspective one of the insulating-guides applied in one of the notches of the grooves shown in Figs. 1, 2, and 3. Fig. 5 shows one of the insulators detached. Figs. 6 and 7 are modifications illustrating one practical mode of parting the tubes which can be run through the notches.

My invention relates to means for arranging telegraphic and telephonic wires beneath the surface of the ground; and the nature of it consists in a conduit below the surface of the ground which has telephonic and telegraphic wire insulators applied to its sides, and means for permitting access to said wires, as will be fully understood from the annexed drawings and the following description: Below a roadway, or at other places, I construct a conduit of concrete, a small section of which is shown in Fig. 1. This Fig. 1 is designed to illustrate an edge view of one of the wire-carrying racks, also to show a man-hole, I, and an outlet, D, both of which may be located at pleasure.

The wire-carrying rack is lettered C. It is arch-shaped, and is in the concrete arch, as shown, and the internal edge of the rack protrudes inside of the internal surface of the concrete arch, and the arch itself has a floor which is slightly sloping from the center laterally. It will be seen that on this floor parallel grooves are formed for receiving and guiding the flanges of a car lettered W. This is a small car, and a man may lie in it and propel himself about

from one place to another for inspecting the different joints. The car tracks or grooves also serve as gutters for conducting off water of condensation or accumulation which may gather, which water can be conducted off at points indicated by the letter E. Such water may either soak into the earth, or, if necessary, suitable means may be employed for pumping it out; and thus far it will be observed that my close or concrete conduit is especially applicable to sand strata. When the conduit is run through clayey or other comparatively impervious soil, the water from the pipe or conduit may be collected in a well beneath, which is suitably connected with one or more of the outlets E and catch-basins D. The rack C is illustrated as conforming in a measure to the general curvature of the conduit; but I contemplate having it extend across the bottom of the same. This rack may be made of iron, in which case it will act as a brace and support for the conduit-wall; but it may be made of wood, glass, condensed paper, or any other suitable material. This rack has notches made through it, (Indicated by letter *b*.) These notches may be a portion of a circle, or they may be made prismatic. In practice the notches are rests for insulators. I prefer to construct them less than a circle, for the reason which will now appear.

By reference to Fig. 4 it will be seen that I use a longitudinally-slotted insulator, F, which is of greater length than the width of a rack, C. This insulator, which may be made of glass or any other substance adapted to prevent the conduction of the transmitting medium from a galvanic battery to the walls surrounding it, is constructed in the following manner: It has on one end a flange, *g*. On the other end it has a lock-flange, *h*, which latter will allow the insulator to be passed through the rack-hole. When the flange *h* coincides with the slot *γ* and in the position indicated in Fig. 4, the insulator cannot be removed from the rack or in any other position unless the flange *h* coincides with said slot. If made prismatic, the flange should be formed at one end only.

It is obvious that the flange *g* may be used, as occasion may require, for the purpose of turning the insulator with a proper tool applied. I have above described a turning insulator applied in notches made inside of an

arch which is of such capacity as to admit inspection of the said racks. I now describe a mode of further insulation, and to a great extent a prevention of vibration, whereby my invention is especially applicable to telephonic wires.

The connecting-pipes are made in longitudinal halves, one fitting on the other, like a rabbit-joint. The rack K may be made of porcelain or of any other vitreous or suitable substance for the smaller tubes, and with wire-receiving notches formed on the upper surface of the broken ring, both outside and inside, as shown in Fig. 6 at K. The wires are held by their own weight. The sections of the main are held together by overlapping joints, as shown, and the inner flange is shortened, within which rack C may rest. These racks may be arranged at convenient intervals in the mold, and the tubes formed with the racks thus incorporated with the material constituting the same, such material being an unbaked concrete substance.

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

1. A concrete underground conduit provid-

ed with suitable inlets or man-holes, and having its lower portion formed with a central ridge forming a grade leading into longitudinal grooves, channels, or tracks, and catch-basins connecting said grooves, and suitable outlets through the bottom of the conduit, as set forth.

2. The combination of a concrete conduit and notched racks incorporated with the material of which the said conduit is composed, all constructed and adapted to operate substantially in the manner and for the purposes described.

3. The herein-described conduit, formed with depressed longitudinal grooves or tracks, catch-basins D, and suitable outlets located between said tracks, and wire-supporting flanges secured to the walls and extending thereinto, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES DU SHANE.

Witnesses:

ROBERT P. KIZER,
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