(No Model.) 2 Sheets—Sheet 1.

W. H. SAWYER.

TERMINAL FOR TELEGRAPH LINES OR CABLES.

No. 359,816. Patented Mar. 22, 1887.

Fig. 1.

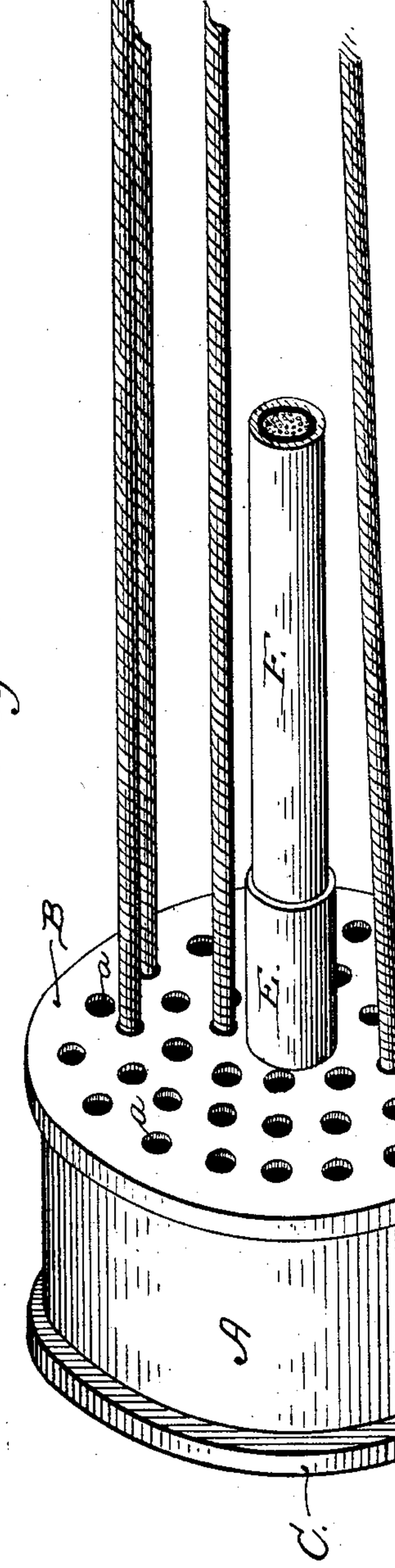
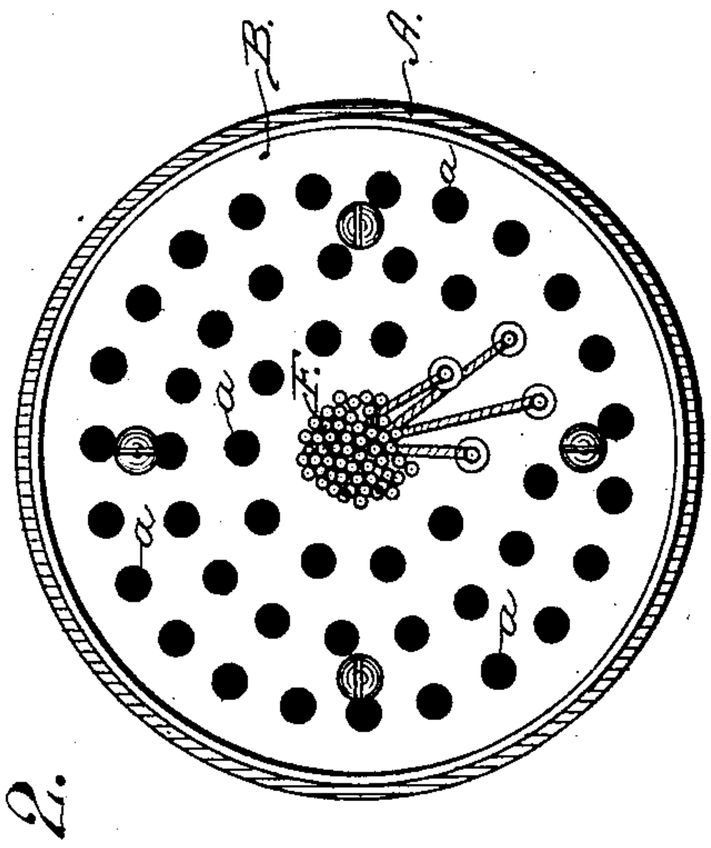


Fig. 2.



Witnesses
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Inventor
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

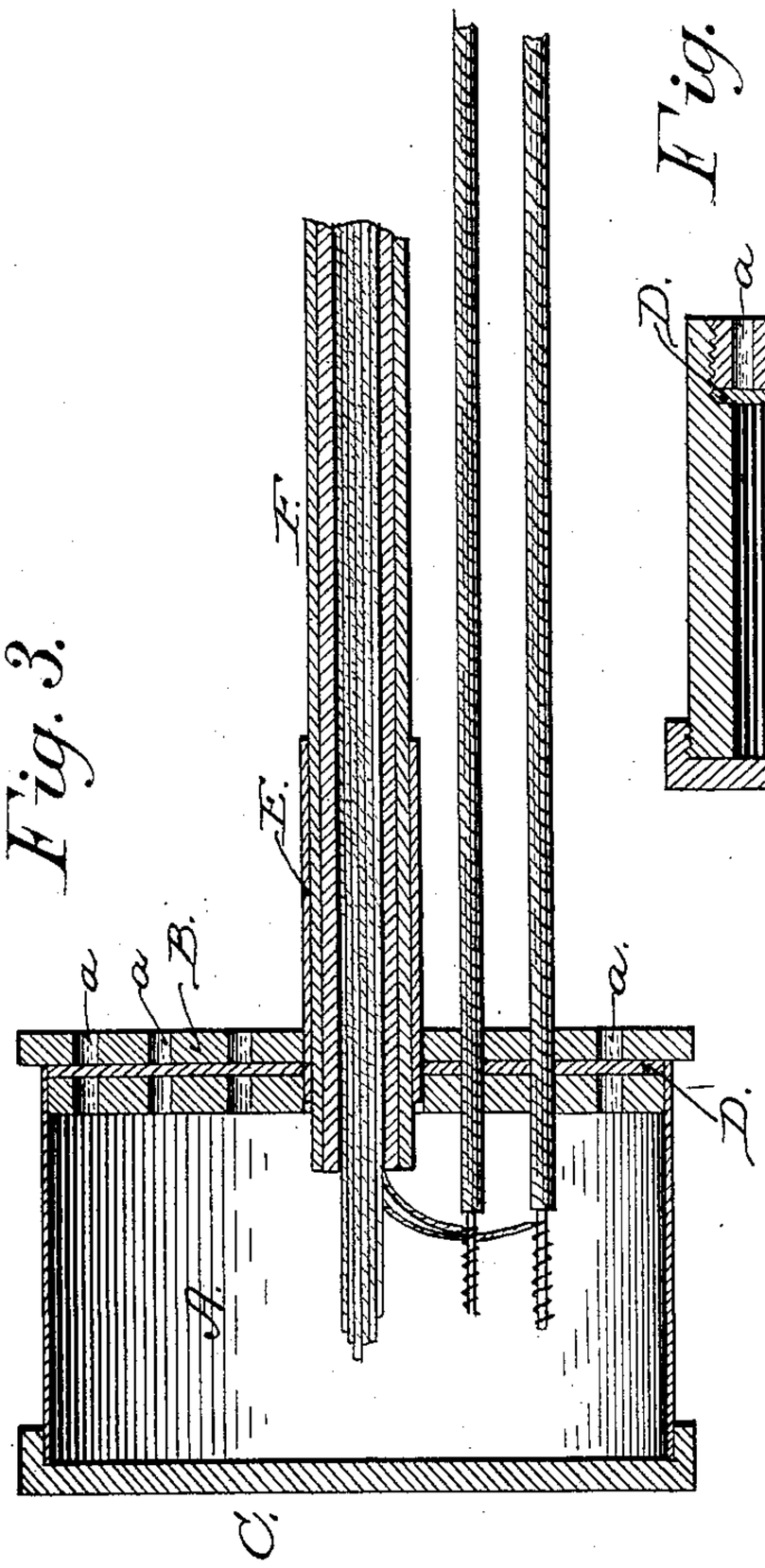
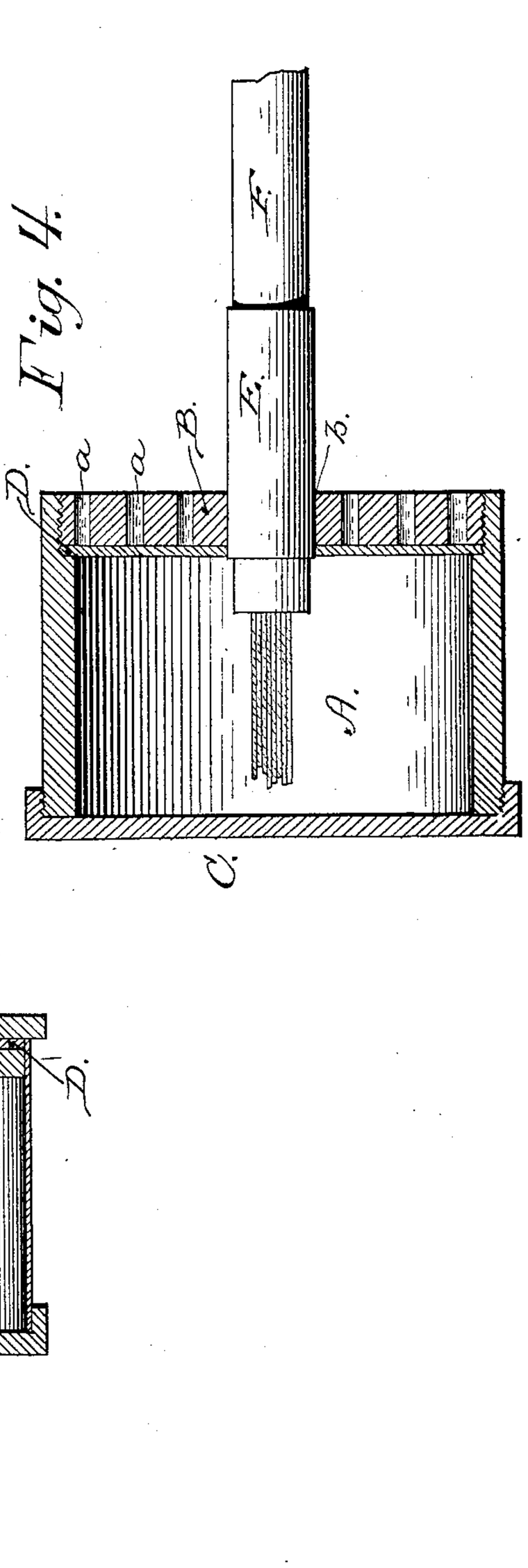


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TERMINAL FOR TELEGRAPH LINES OR CABLES.

SPECIFICATION forming part of Letters Patent No. 359,816, dated March 22, 1887.

Application filed October 7, 1886. Serial No. 215,557. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SAWYER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Terminals for Telegraph Lines or Cables, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in terminals for telegraph lines or cables, the object being to provide a novel and simplified construction whereby the operation of forming joints with the wires of the cable and the connecting or office wires may be greatly facilitated and freedom from the effects of end conduction and electrical retardation secured.

To these ends my invention consists, essentially, of a suitable box or receptacle adapted to be centrally secured to the metallic tube or stem at the end of the cable, and provided with a double bottom formed of two plates, each having a series of radial perforations arranged in juxtaposition with each other, a sheet of soft rubber being interposed between the said plates, and said box or receptacle having a suitable covering or lid, the several parts being arranged in relation to each other, for the purposes as will be hereinafter fully described, and specifically designated in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of a cable-terminal constructed according to my invention; Fig. 2, an end view of the same with the lid or cover removed, showing the manner of forming the joints; Fig. 3, a vertical longitudinal section of the terminal, and Fig. 4 a similar view of a modification thereof.

Similar letters of reference indicate like parts in the several figures.

In carrying out my invention the box or receptacle A is preferably cylindrical in shape, with a double bottom, B, and lid or cover C, as shown, the whole being formed of hard rubber, a combination of brass and hard rubber, or other suitable material, as may be deemed most desirable or advantageous. The bottom B of said box or receptacle is preferably formed of two hard-rubber plates, each having a series of radially-arranged perforations, *a*, the walls of the perforations in one plate being in line with the walls of the corresponding perforations in the opposite plate, and a sheet of soft rubber, D, interposed between the two, as shown. The bottom B may, however, be formed of one plate having a series of radially-arranged perforations with a thicker sheet of soft rubber attached thereto, as fully shown in Fig. 4. The perforated bottom B in either case is provided with a central circular opening, *b*, for the reception therein of the one end of the brass or rubber tube E, adapted to receive the end of the cable F. This brass tube E, which fits over the cable, may be a trifle larger than the outside of the largest cable made, and whenever it is used for a smaller cable the cable can be wrapped with rubber tape to such a size as to just fit in the brass tube and hold the cable and terminal together while the joints are being made; or if different-sized terminals are manufactured so much packing would be unnecessary. The brass tube may be formed integral with the perforated bottom, and could be made to just slip over the end of the cable with one or two wraps of tape or string to prevent it from sliding down. The lid or cover C may be made to screw in or over the mouth of the terminal, as may be desired.

In the operation of forming joints with the wires of the cable and the connecting or office wires the terminal is held in a horizontal position, with the lid or cover removed and the cable in a vertical position. The required number of rubber or other suitably covered connecting-wires are then drawn one by one, or in a series, through the perforations of the plates and through the sheet of soft rubber forming the bottom of the box or terminal by first piercing a corresponding number of holes through the soft rubber by means of a suitable tool, and then drawing the wires one by one through the same. Wires of the exact size of the perforations might be used and the sheet of soft rubber dispensed with; but that would necessitate a particular-sized wire, and unless the same fitted or filled the perforations snugly the sealing compound used would flow out and make an imperfect or bad-looking job. By the employment of the soft-rubber sheet the walls or edges of the pierced holes

impinge closely against the connecting-wires passing through the same, making almost if not a perfect air-tight joint. The ends of the connecting-wires and the ends of the strands of the cable within the box or terminal are now joined together in any suitable manner, the joints of the inner circle of perforations being made first, then those of the middle circle, and lastly those of the outside circle, thereby insuring ease and freedom in making the joints, with nothing in the way of the hands or tools while employed in the work. The copper joints can be conveniently soldered as each circle or set is made. After the joints are all made and the odd pieces of wire or cotton or other foreign matter removed by the fingers or by blowing, melted paraffine or other sealing compound is poured into the box or terminal, completely embedding the joints as well as the end of the cable. When cool, it is impossible for moisture to reach the end of the cable or joints, thereby effectually preventing end conduction. The sealing compound also flows down between the outside of cable and inside of brass tube, completely filling any space that may there exist, a band or rubber tape being wrapped around the outer end of the brass tube and the cable to prevent the sealing compound from flowing out, the said band being removed, if desired, after the compound becomes cool.

The rubber-covered connecting-wires should be three or four feet long to reach to the office cable or connecting-wires, and the cable with its terminal box securely fastened to the side of the switch-board, room, or cupola.

By means of my improvements I am enabled to provide a cable-terminal which acts as an absolute seal and effectually obviates all danger of end conduction, caused principally by moisture or dampness between the joints or connections. The terminal-box may be made with tight-fitting joints, and with a packing at the end of the brass tube at its juncture with the cable, so as to exclude moisture from the interior thereof, and the sealing compound dispensed with, without sacrificing the essential principles of my invention.

Having thus described the construction and operation of my invention, I claim as new and desire to secure by Letters Patent—

1. A terminal for cables, consisting of a box or receptacle having the one end thereof provided with a lid or cover and the opposite end with a perforated bottom having an inner lining of soft rubber and a central opening for the reception of the end of the cable, the interior of the box or receptacle being filled with a sealing compound, substantially as and for the purpose specified.

2. In a terminal for cables, a box or receptacle having a perforated bottom provided with an inner lining of soft rubber, a lid or cover, and a central opening adapted to receive the tube upon the end of the cable, substantially as and for the purpose specified.

3. In a terminal for cables, a box or receptacle having a perforated bottom provided with a soft-rubber lining, substantially as and for the purpose specified.

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

WILLIAM H. SAWYER.

Witnesses:

HENRY B. ROSE,

GILMAN E. JOPP.