No. 883,335. PATENTED MAR. 31, 1908.

J. J. O'CONNOR.

ELECTRIC THEFT ALARM SYSTEM.

APPLICATION FILED SEPT. 26, 1907.

3 SHEETS—SHEET 1.

Fig. 1

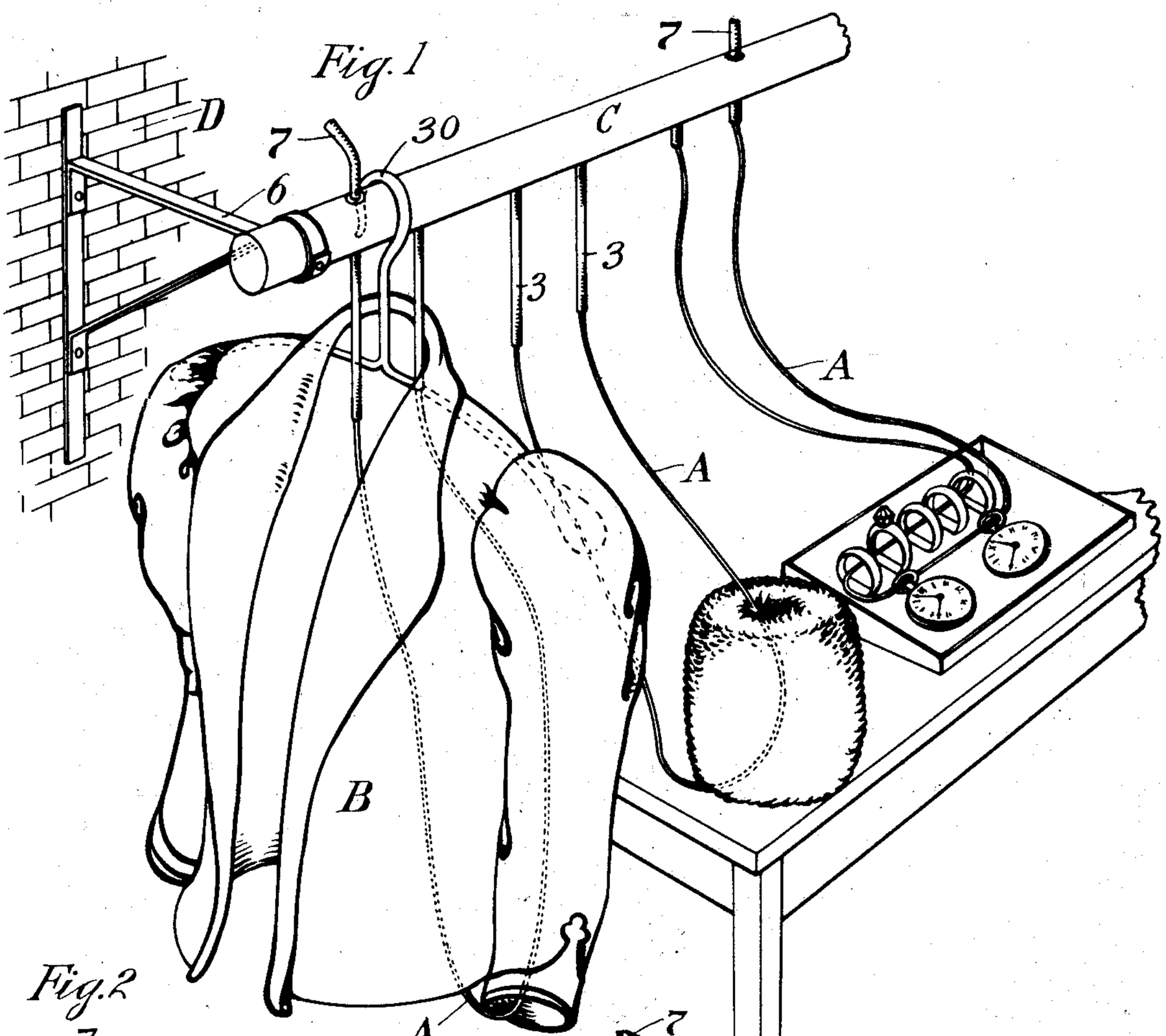

Fig. 2

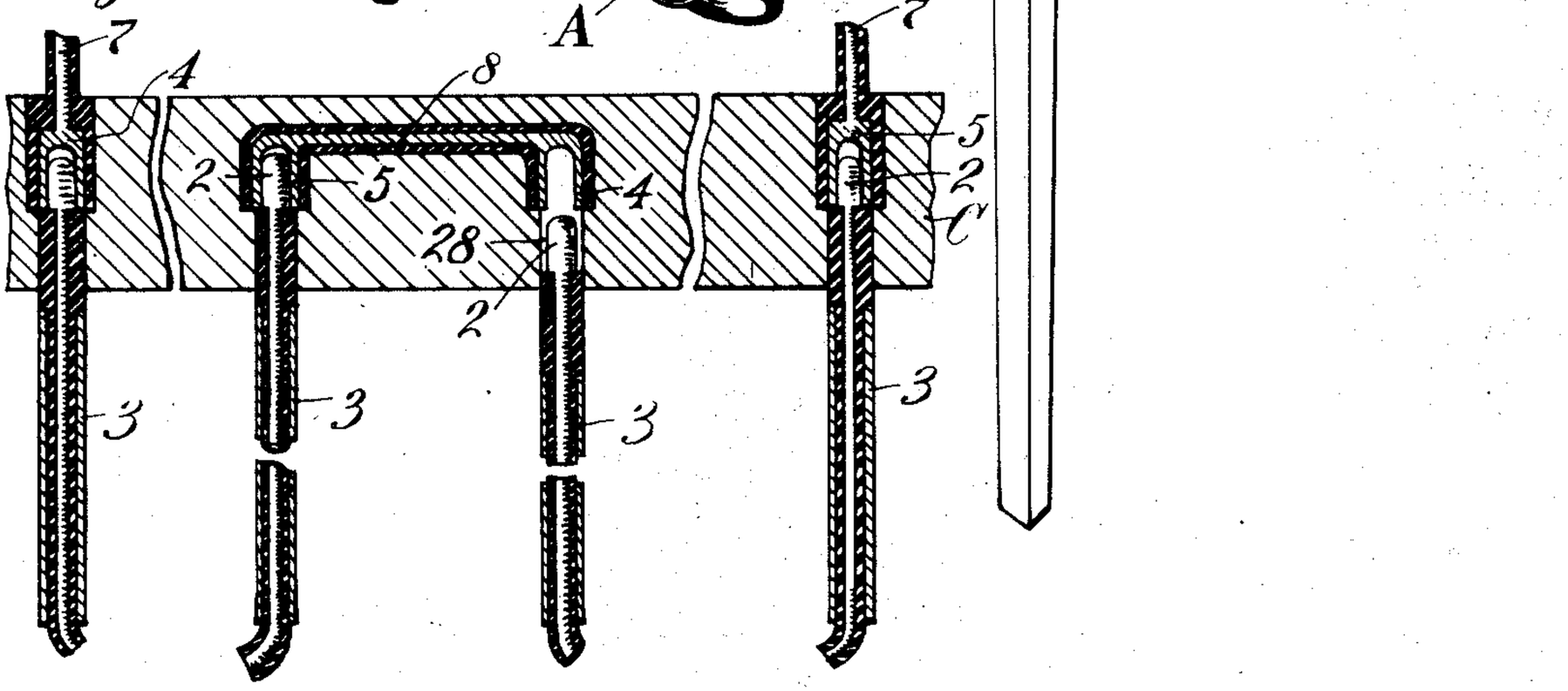

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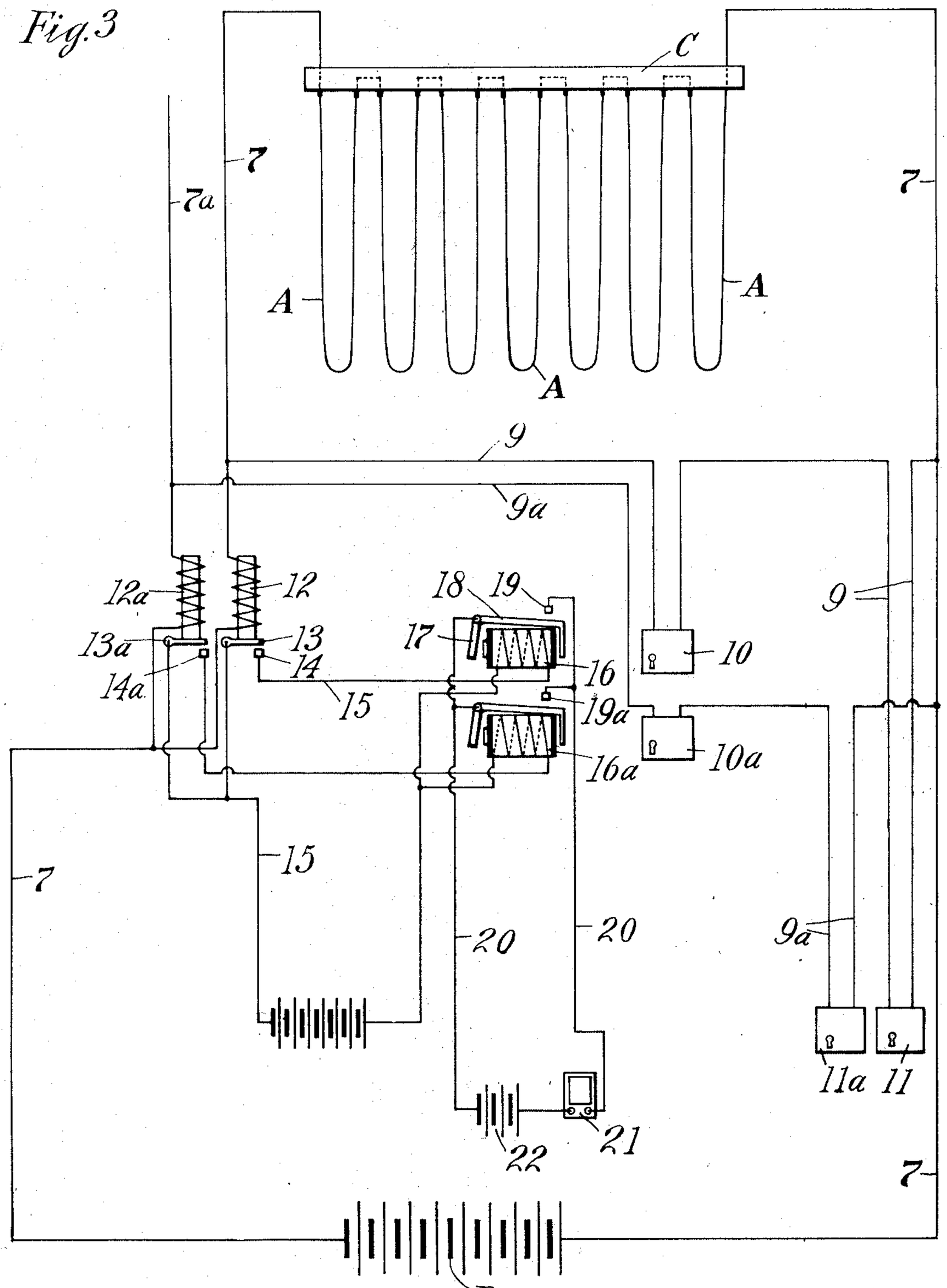
Fig. 3



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3 SHEETS—SHEET 3.

Fig. 4

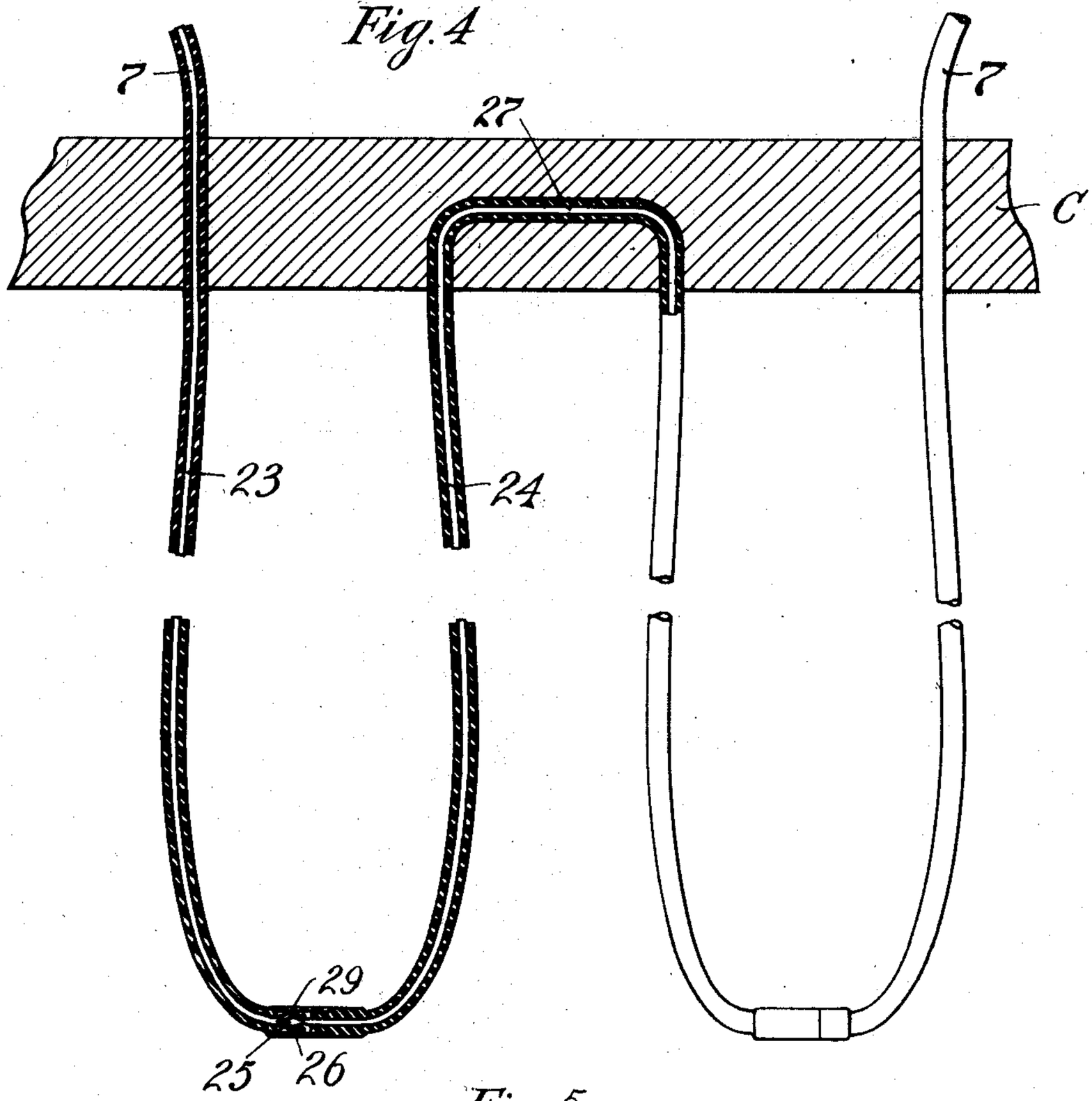
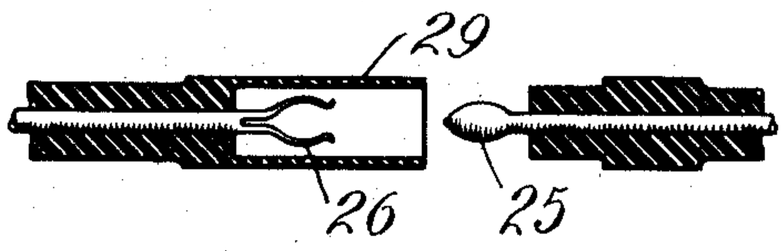


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN J. O'CONNOR, OF ST. PAUL, MINNESOTA.

ELECTRIC THEFT-ALARM SYSTEM.

No. 883,335. Specification of Letters Patent. Patented March 31, 1908.

Application filed September 26, 1907. Serial No. 394,652.

To all whom it may concern:

Be it known that I, JOHN J. O'CONNOR, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Electric Theft-Alarm Systems, of which the following is a specification.

My invention relates to improvements in electric theft alarm system adapted to be used in connection with goods displayed in shops and warehouses, its object being to provide improved means for preventing the removal of the goods without causing alarm to be sounded, and also to provide means for indicating the place of theft.

To this end the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a perspective view showing the application of the invention to a variety of goods displayed; Fig. 2 is a vertical section through the bar which supports the electric connections for the wire loops; Fig. 3 is a diagrammatic view of the electric wiring, batteries and alarm devices; Fig. 4 is a sectional view showing a modified form of loop and loop connections, and Fig. 5 is a detail in section of the same form showing the terminals of the loop wires separated.

The apparatus is particularly designed for use in large establishments where the goods are displayed in different parts of the house and in places remote from the main office. In such establishments it is important, not only that the attempted theft should be announced at the main office or some other central station, but that the place of theft should be indicated. It is also important that the wires should be so connected with the goods as to enable the salesmen to display the same without disturbing the electrical connections; that the salesmen should be able on occasion to cut off the current so as to be able entirely to remove the goods without operating the alarm; and that the electric connections should at all times be under the control of the main office or other central station. To this end a wire loop is passed through the article displayed and its ends are electrically connected with an electric alarm and annunciator system. The loop is so constructed and connected that it may be opened or separated to allow the wire or wires to be passed through or removed from the displayed article, but when the loop is so opened or separated, the electric circuit will be broken.

In the preferred form illustrated in Figs. 1 and 2 are shown a number of insulated wire loops A, each passed through some article or group of articles displayed, for instance, the cloak B. The loop terminates at each end in a contact plug 2, and above the plug the wire is protected by means of a metal sheath or ferrule 3. The plugs 2 are adapted to fit into a pair of sockets 4 and 5 insulated from each other and embedded in a supporting bar C, but only one plug of each pair need be removable. The bar may be supported upon any suitable fixture or object. In Fig. 1 it is shown supported upon brackets 6 secured to the wall D of the room, so that the bar will serve also as a display rack upon which to hang such articles as the cloak B. It will be seen that there must be a pair of sockets for each wire loop, and the sockets of each pair are electrically connected with the main line wires 7, either directly as in case of the end sockets in Figs. 1 and 2, or through the medium of other sockets. Where, as in the arrangement shown in Fig. 1, a number of pairs of loops are grouped together, the loops and sockets are most conveniently connected in series. As shown in Fig. 2 the main line wires 7 are directly connected with the first socket 4 of the first pair and the last socket 5 of the last pair; and the last socket 5 of each pair except the last is connected with the first socket 4 of the next succeeding pair by means of an insulated conductor 8.

The loops A and the main line wires 7 are arranged in circuit with the main battery D. Bridged across the main line wires between the loops and the battery is a shunt circuit 9, in which are arranged two switches 10 and 11, situated, respectively, in the room or upon the floor where the goods are displayed, and at the main office. As both of these switches must be closed at the same time to shunt the circuit off from the loops, the salesman upon the floor who has control over the switch 10 cannot cut the loops out of the circuit without the coöperation of the main office. Thus the circuit will at all times be under the control of the office. When both switches are closed any loop may be opened or separated to remove the goods without operating the alarm by pulling out one of its plugs 2.

At a convenient point between the main battery D and the shunt wires 9 there is interposed in the main circuit an electromagnet 12. This magnet has an armature 13 which is arranged to engage a back contact 14 when it is released from the magnet by the breaking of the main circuit. The contact 14 is arranged in an auxiliary annunciator circuit 15 leading from the armature over an annunciator magnet 16. This magnet has an armature 17 formed with a bent arm 18 adapted, when the circuit 15 is closed, to be thrown against a back contact 19, so as to expose a number or other symbol indicating the loop or loops A as the ones whose circuit has been broken. Of course, no annunciator is necessary where only one loop is used, or where the loops are grouped together near each other. The back contact 19 is arranged in an alarm circuit 20 leading from the armature 17 to a buzzer or bell 21 at the main office or other central station. This circuit will be closed through the battery 22 whenever the arm 18 is thrown against the contact 19. Where it is desired to use the system in connection with goods placed in different rooms or at places remote from one another, a separate branch main wire, such as 7^a, must be led from the main circuit to each group. In each branch circuit is a shunt circuit 9^a with switches 10^a and 11^a, an electro-magnet 12^a having armature 13^a and back contact 14^a, and the back contact is arranged in circuit with an annunciator 16^a, similar in all respects to the annunciator 16, and having a back contact 19^a in circuit with the buzzer 21. The annunciators are all arranged in the circuit 15 with battery 22.

In Figs. 4 and 5 are shown a modified form of loop consisting of two wires 23 and 24 electrically and detachably connected at their ends by suitable means such as the plug 25 at the end of one wire and spring socket 26 at the end of the other wire. In this case the wires may be integral, or permanently connected, with the main line wires 7 or with the conductor 27 leading to the next adjacent loop, as shown in Fig. 4.

In order to insure the complete breaking of the circuit before the plugs 2 can be withdrawn from the supporting bar, the sockets 4 and 5 are embedded in the interior of the bar so as not to extend to the outer periphery thereof, and they are reached from the outside through a registering hole 28 in the bar. This makes it impossible for one tampering with the goods to short circuit the loops near the bar. Likewise in the form shown in Figs. 4 and 5 the socket 26 is arranged within a projecting rubber sheath or tube 29.

In use the loop is first separated, either by pulling one of the plugs 2 out of its socket, as in Fig. 1, or by disconnecting the plug 25 from the socket 26 in Fig. 4. The free end of the wire is then threaded through the article to be displayed and connected with the socket or the other joint-member, as the case may be. If the article is a coat, it may be placed upon a coat hanger 30 and hung upon the bar C, when that is supported in the manner shown in Fig. 1. When the main circuit is closed through the loops, and either one of the switches 10 or 11 is open, an article can not be removed from its loop without separating the loop and thereby breaking the circuit. The moment the circuit is broken the annunciator connected with that loop or group of loops, will be operated to indicate which loop or group of loops have been tampered with, and at the same time the buzzer or bell 21 at the main office will sound an alarm.

When the salesman wishes to replace or remove articles without sounding an alarm he can signal the main office to close the office switch 11 and then close his own switch 10. The circuit will then be shunted off from the loops so as to throw them out of circuit.

Various modifications may be made in the details of the device without departing from the principle of the invention, the scope of which is defined in the claims.

I claim as my invention:

1. In an alarm system of the class described, the combination, with an electric circuit and an alarm device controlled thereby, of a separable loop arranged in the circuit and adapted, when separated, to be passed through articles of merchandise.

2. In an alarm system of the class described, the combination, with an electric circuit and an alarm device controlled thereby, of a separable loop arranged in the circuit and adapted, when separated, to actuate the alarm through the breaking of the circuit.

3. In an alarm system of the class described, the combination, with an electric circuit and an alarm device controlled thereby, of a plurality of separable loops arranged in the circuit, each loop being adapted, when separated, to break the circuit and cause the alarm to be operated, the loops being of a size sufficient to be passed through articles of merchandise.

4. In an electric alarm system the combination, with a main circuit and an alarm device controlled thereby, of a separable loop arranged in said circuit and adapted to be passed through articles to be displayed, and a shunt circuit for cutting the loop out of the main circuit so as to permit the loop to be separated without operating the alarm device.

5. In an electric alarm system the combination, with a main circuit and an alarm device controlled thereby, of a separable loop arranged in the circuit and adapted to be passed through articles to be displayed, a shunt circuit bridged across the main circuit between the loop and the source of electric

supply, and a switch arranged at a convenient point in the shunt circuit for opening and closing the same for the purpose set forth.

6. In combination, a main circuit and an alarm device controlled thereby, a socket electrically connected with one side of the circuit, and a loop electrically connected with the other side of the circuit and having at one end a plug adapted to be removably engaged with the socket to close the circuit through the loop, the loop being adapted to be passed through an article to be displayed.

7. In combination, a main circuit and an alarm device controlled thereby, a supporting bar having a hole, a socket embedded in the interior of the bar in registration with said hole and electrically connected with one side of the circuit, and a loop electrically connected with the other side of the circuit and having a terminal plug adapted to be removably inserted into the socket to close the circuit through the loop.

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

JOHN J. O'CONNOR.

Witnesses:
J. N. MOUNTS,
R. A. WRIGHT