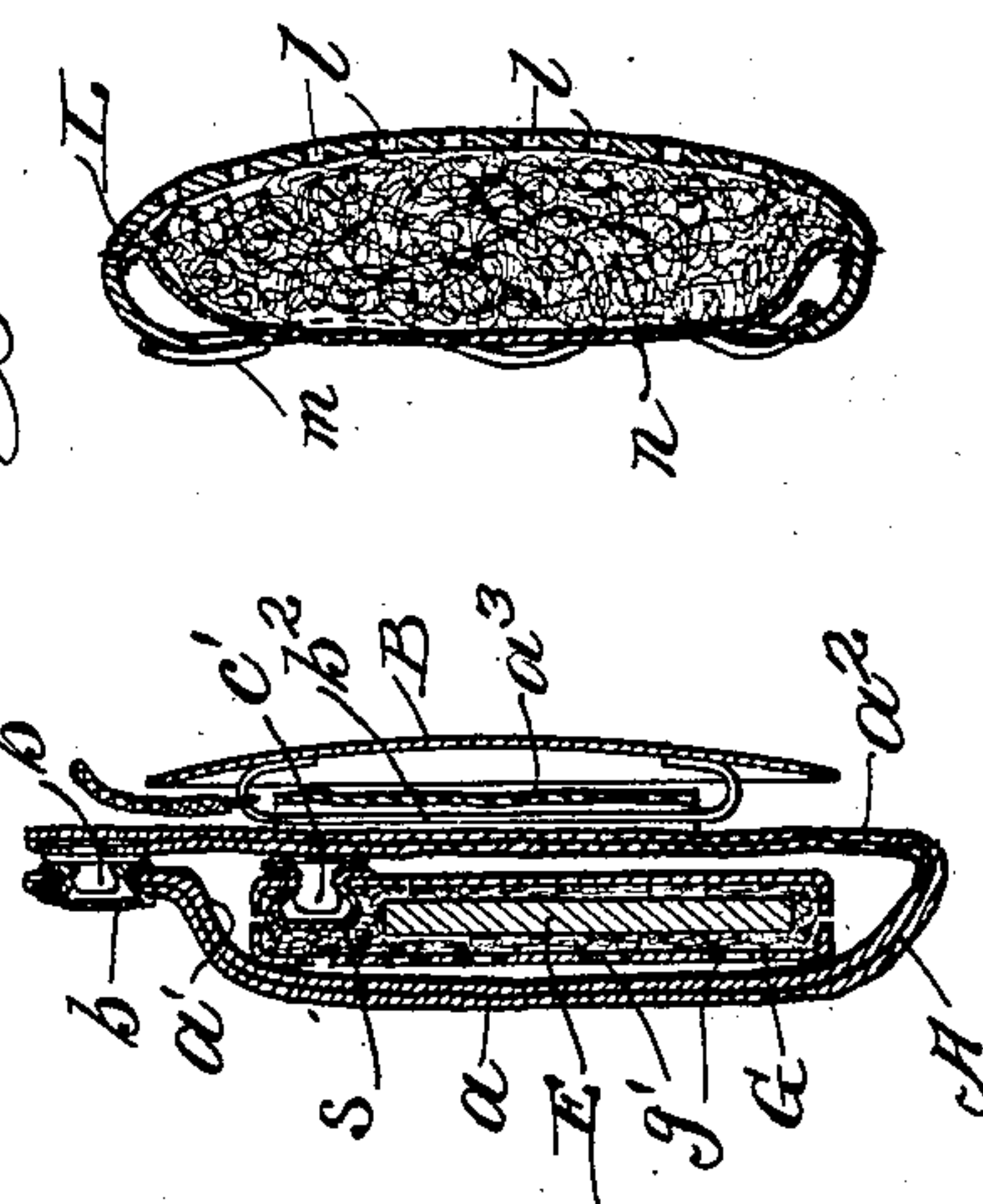
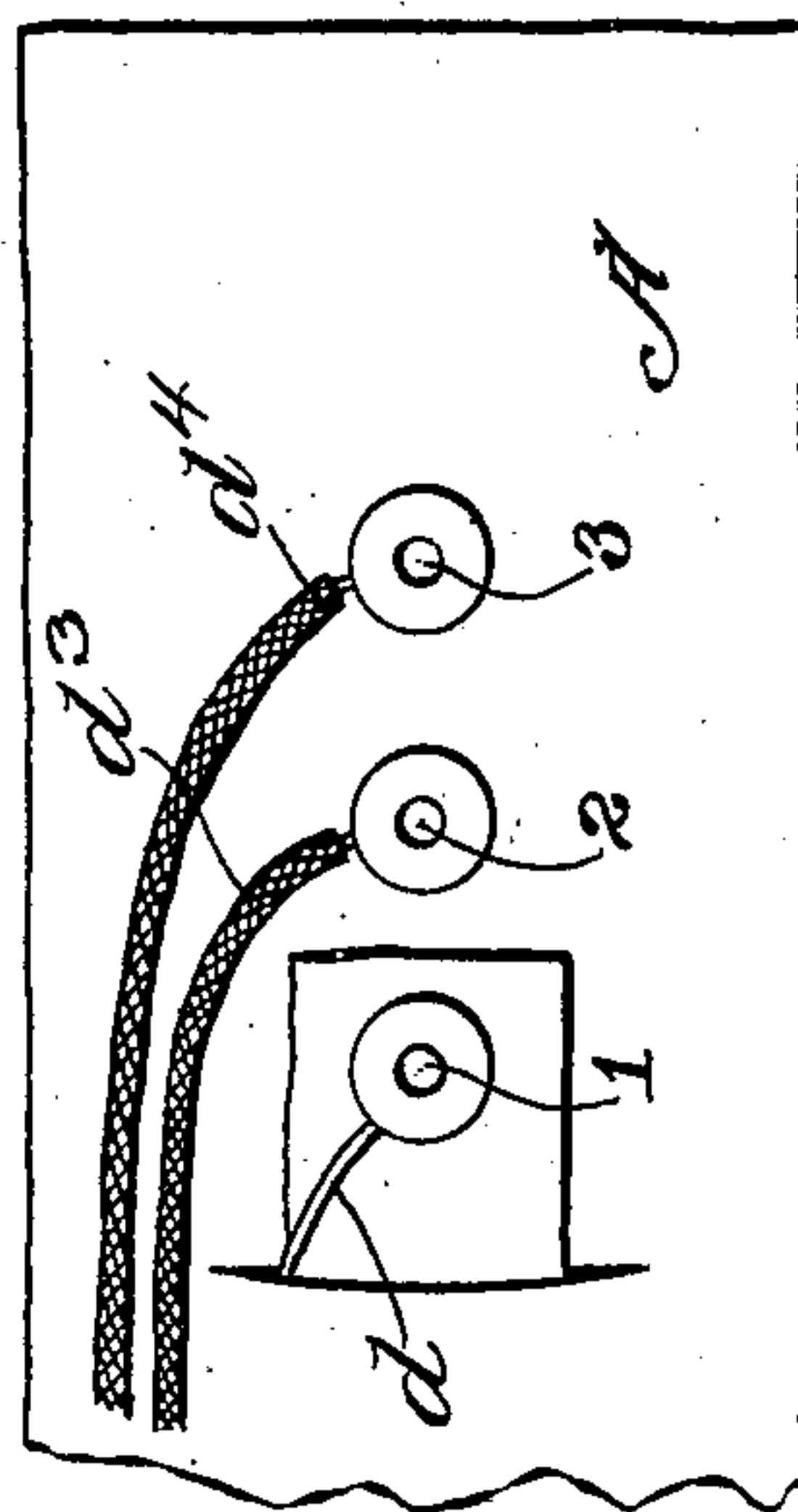
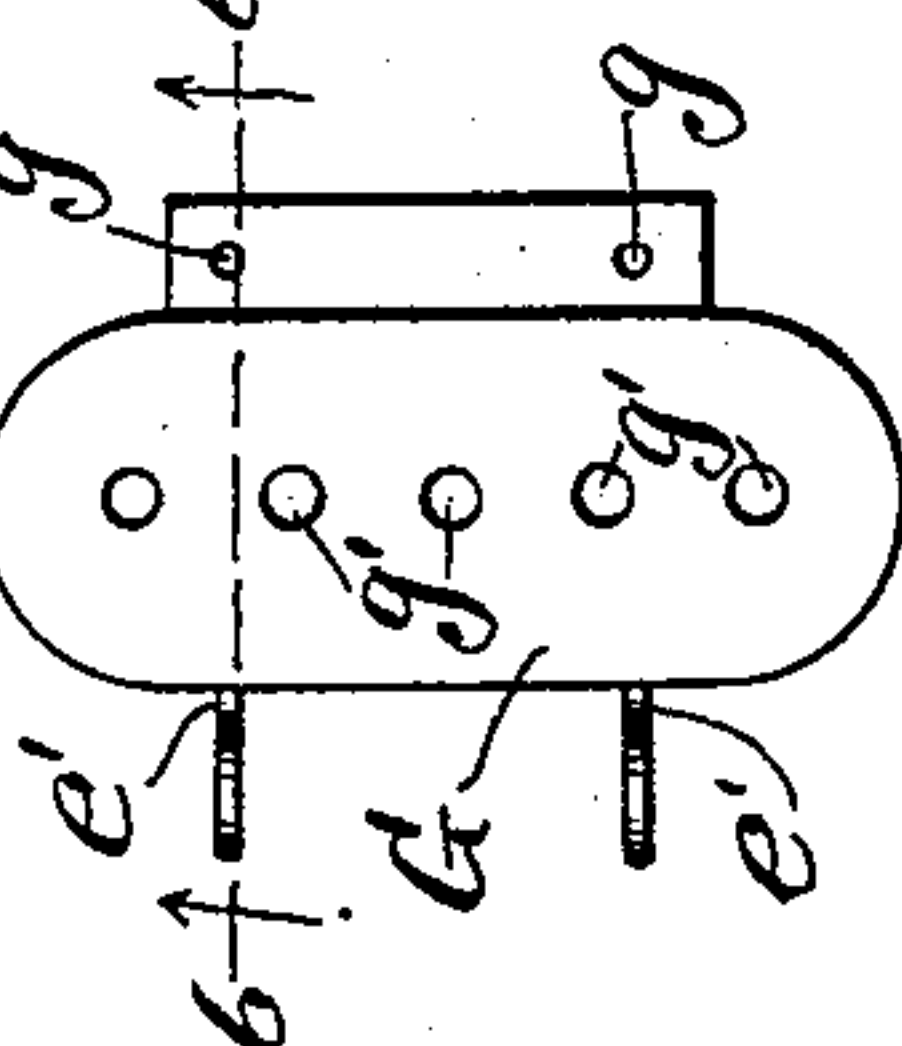
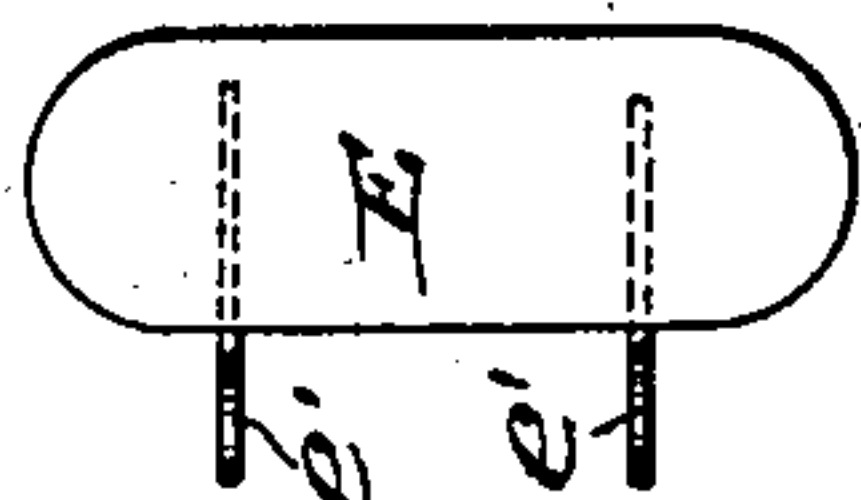
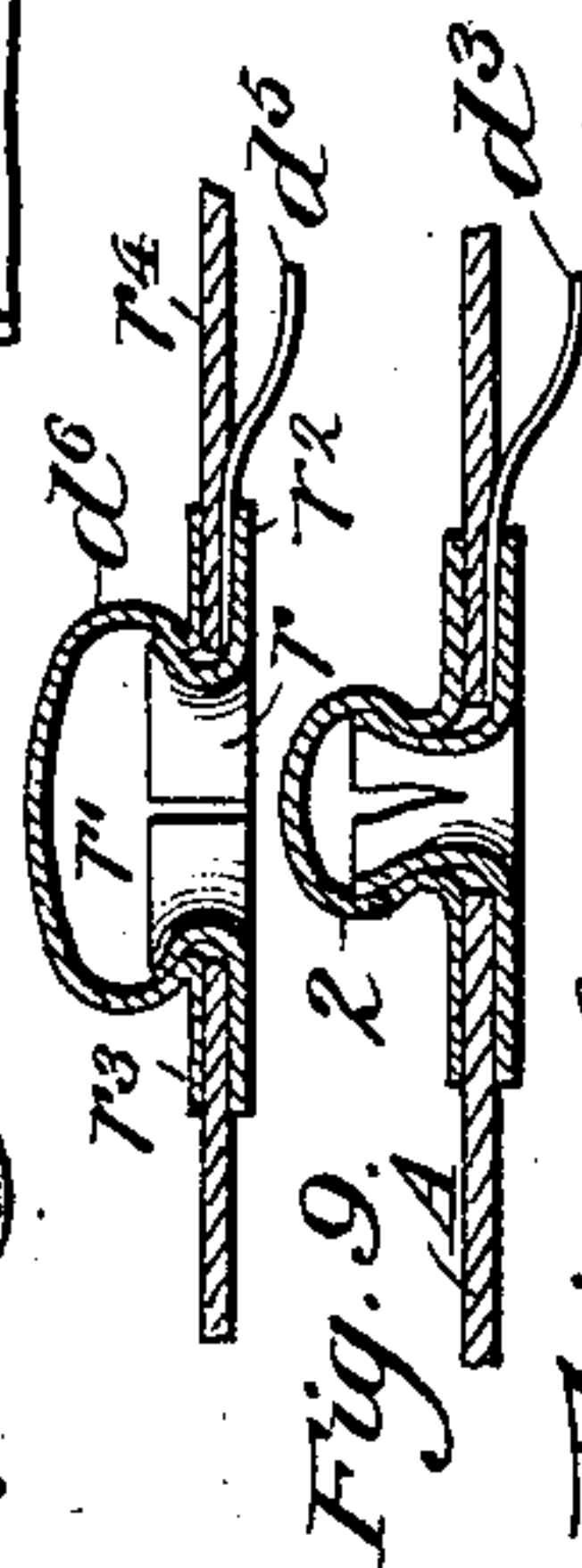
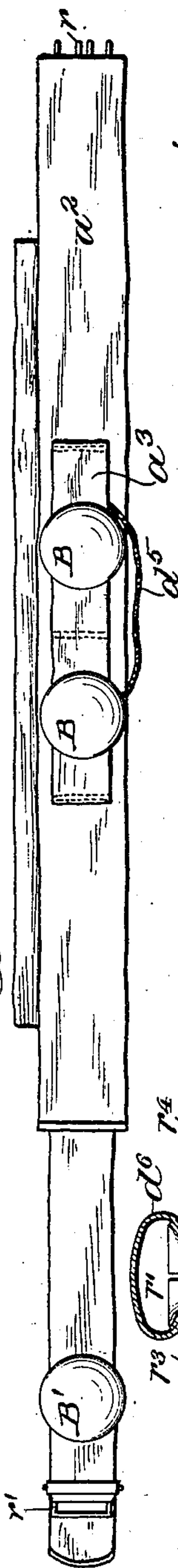
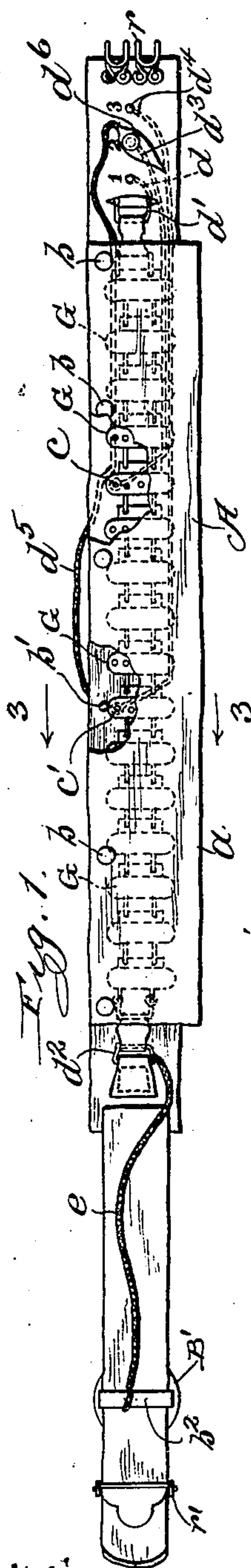


J. TRUSSELL.
ELECTRIC BELT.

(Application filed Dec. 8, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES TRUSSELL, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN H. COURLL, OF SAME PLACE.

ELECTRIC BELT.

SPECIFICATION forming part of Letters Patent No. 680,629, dated August 13, 1901.

Application filed December 8, 1900. Serial No. 39,142. (No model.)

To all whom it may concern:

Be it known that I, JAMES TRUSSELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric Belts, of which the following is a specification.

This invention relates to improvements in electric batteries and appliances to be applied to or worn on the human body for the therapeutical effects thereof; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts of the same, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are, first, to provide an electric belt which shall be simple and inexpensive in construction, strong, durable, and effective in operation, and in which the current of electricity may be increased or diminished at the will of the wearer while the belt is in position on the body; second, to provide a belt of the above-described character in which the battery or galvanic pile shall be more durable by reason of my improved construction than has heretofore been attained in such devices, and, third, to furnish a belt in which the electrodes may be so covered as to prevent them coming in direct contact with the skin of the wearer and are so connected to the battery as to allow one or more of them to be shifted so as to be placed on any portion of the body which it is desired shall be subjected to the electric current.

Other objects and advantages of my invention will appear in the subjoined description.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is an external view in elevation of a belt embodying my invention. Fig. 2 is a similar view of the opposite side of the belt, or that portion thereof which lies adjacent to the body of the wearer when it is in position thereon. Fig. 3 is an enlarged cross-sectional view taken on line 3 3 of Fig. 1, showing the construction of the belt, one of the cells of the battery, and one of the electrodes, and

also the means for uniting the said parts together. Fig. 4 is an enlarged sectional view of a moisture-retaining pad or cover for one of the electrodes. Fig. 5 is a view of one of the cells of the battery. Fig. 6 is a cross-sectional view thereof, taken on line 6 6 of Fig. 5, looking in the direction indicated by the arrows. Fig. 7 is a detached view of a portion of one of the cells. Fig. 8 is a view in elevation of a portion of the belt, showing the binding-posts of the switch and a portion of their conductors; and Fig. 9 is a sectional view through the switch-cap and one of the binding-posts, showing them detached and disconnected.

Similar characters refer to like parts throughout the different views of the drawings.

A represents a belt, which may be made of leather or any other suitable flexible material; but in the present instance I have shown it as composed partly of leather and partly of cloth—that is, the exterior of the belt is formed of a piece of leather a , having a lining a' , and that portion thereof adjacent to the body as being made of a piece of cloth a^2 , which portions are folded longitudinally, so as to form a pocket for the reception of the battery or galvanic pile. The upper portion of the part a' is provided with sockets b to receive buttons or projections b' on the upper part of the portion a^2 ; but said parts may be otherwise secured together, and the belt may be of other construction than that above described, without departing from the spirit of my invention. Secured at each of its ends to the portion a^2 of the belt is a strap a^3 , which may extend any desired distance on the belt. On this strap are movably located the electrodes B, which are preferably concavo-convex in shape and have on their surfaces adjacent to the belt a loop b^2 , through which the strap a^3 passes, thus allowing the electrodes to slide thereon. The portion a^2 of the belt is provided with binding-posts c and c' , to which the battery is connected, as will be presently explained. Near one of its ends the belt A is provided with a number of posts, which are marked with the numerals 1, 2, and 3, as is clearly shown in Fig. 1 of the drawings. The post 1 is connected by means of a con-

ductor d to a metal loop or ring d' , which is secured to the belt and with which one end of the battery engages. The other end of the battery is connected to a loop or ring d^2 , near the opposite end of the portion a^2 of the belt. The post 2 is connected by means of a conductor d^3 with the post c , and the post 3 is connected to the post c' by means of a conductor d^4 , all of which conductors may be covered, so as not to come in contact with the body. Connected at one of its ends to the ring or loop d^2 is a conductor e , the other end of which is connected to an electrode B' , which I have shown as being provided with a loop b^2 to receive a portion of the belt, but which loop may be omitted, as said electrode is designed to be placed on different portions of the body.

The battery is composed of a series of cells, each comprising a piece of zinc E , having cast therein wires e' , formed with hooks e^2 to engage openings g in a portion of the copper covering or casing G , which is preferably pressed around the zinc piece E and is provided with perforations g' , as is clearly shown in Figs. 3 and 5 of the drawings. Located between the zinc pieces and copper are pieces h , of woolen cloth or other suitable material. The cells are connected together by means of the hooked wires e' of the zinc portions and the openings g in the copper portions, thus forming a chain battery. By casting the wires e' in the zinc pieces E , I obtain a more durable battery, for, as is well known, on account of the oxidation of the metals the connections between the positive and negative metals often become loosened or disconnected, and thus render the battery inoperative.

In Fig. 4 of the drawings I have shown a covering which I may sometimes employ for one or more of the electrodes, which covering consists of a piece of leather L , having a number of perforations l , and which piece is provided at its edge with an elastic band m to draw the same together, thus forming a pouch or cap in which is placed a quantity of wool n or other suitable material. By stretching the elastic cord or band m the same may be placed over the disk or electrode B , thus retaining the covering in position thereon. The ends of the belt A are provided with fastening means r and r' of any desired kind, so that the belt may be adjusted to the body of the wearer.

As is shown in Figs. 1 and 2 of the drawings, the electrodes B are united by a conductor d^5 , the free end of which is provided with a cap d^6 to engage the posts 1, 2, and 3 of the switch or current controlling device. This cap, which is clearly shown in Fig. 9 of the drawings, is of the same construction as the socket or cap a , which is shown in Fig. 3 of the drawings, and consists of a hollow metallic piece slightly contracted at its open end and has located in its open end a tubular portion r , provided with slots r' and an out-

wardly-extending flange r^2 , between which flange and the flange r^3 on the outer surface of the cap d^6 is located and secured the leather or material r^4 which is used for releasing the cap from the posts.

The cells of the battery, located at the proper points, are provided with sockets s to receive the binding-posts c or may be otherwise constructed so as to provide a perfect contact therewith.

The operation of my belt is simple and is as follows: It is placed in position on the body so that the electrodes B will contact with the skin of the wearer or when the covers are employed said covers will contact therewith. The battery having previously been treated with diluted acid or vinegar will generate an electric current, the strength of which may be regulated by means of the switch or current controlling device. For instance, by placing the cap d^6 on the post 1 all of the cells of the battery will be in circuit and the entire current effective; but by placing the said cap on post 2 a portion of the cells of the battery will be cut out and the current reduced. If a further reduction in the current is required, the cap d^6 may be placed on post 3, which operation will cut out of circuit more of the cells of the battery, as is apparent.

By providing the cells of the battery with sockets s to receive the binding-posts c and c' it is apparent that one of said cells may be detached from its binding-post, thus throwing into circuit more of the cells of the battery.

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

1. The combination with a belt, of a battery secured at its ends to the belt, a series of binding-posts located near one end of the battery, an electric connection uniting one of said posts with the end of the battery adjacent thereto and electric connections detachably uniting the other posts with the battery between its ends, electrodes secured on the belt and having electric connection with the battery between its ends, a switch-cap having electric connection with the said electrodes and battery between its ends and adapted to engage the said binding-posts, and another electrode electrically connected to the end of the battery opposite the said posts, substantially as described.

2. In a battery for electric belts, a cell comprising a piece of zinc cast with wire hooks therein, a piece of copper enveloping the said zinc piece and having perforations and an extension with openings to receive the hooks of the zinc piece, and a piece of cloth or absorbent material located between the copper and zinc, substantially as described.

JAMES TRUSSELL.

Witnesses:

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