

Aug. 2, 1927.

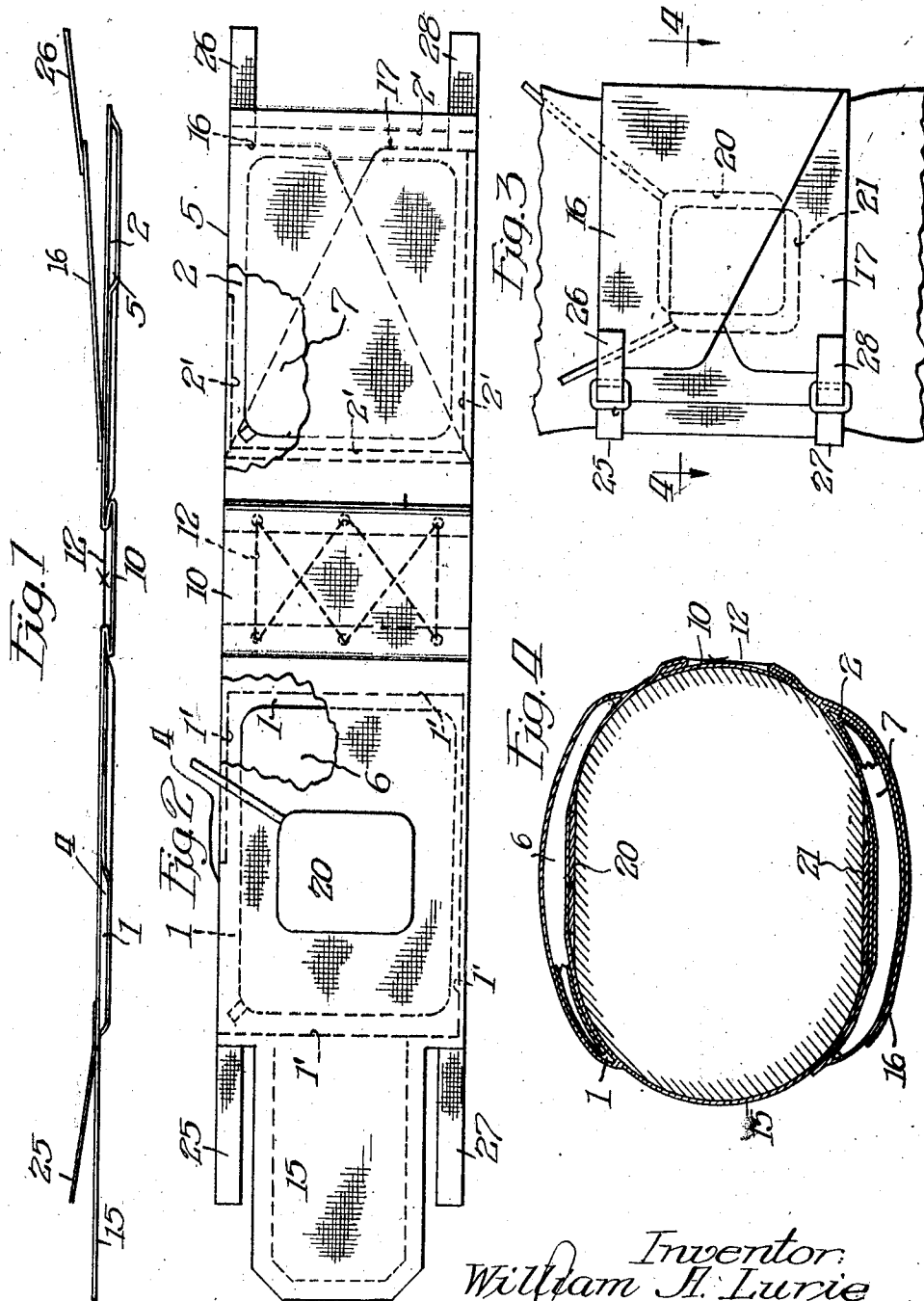
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1,637,829

BINDER FOR SECURING MEDICAL ELECTRODES

Filed Nov. 7, 1925

2 Sheets-Sheet 1



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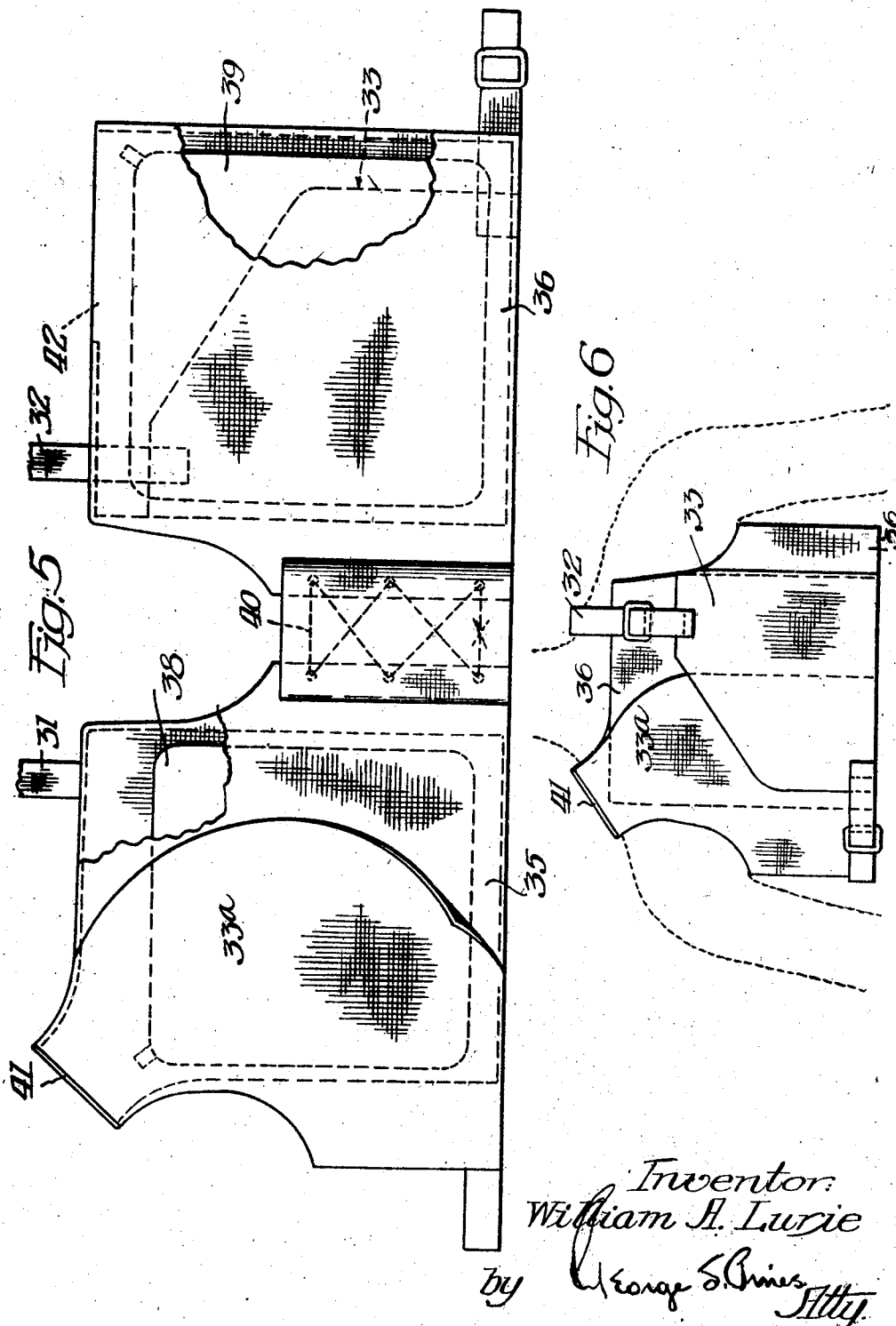
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UNITED STATES PATENT OFFICE.

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BINDER FOR SECURING MEDICAL ELECTRODES.

Application filed November 7, 1925. Serial No. 67,603.

The object of the present invention, is to afford a means for holding in place electrodes used in medical treatments. I am aware that binders have heretofore been employed for this purpose wherein the electrodes are first placed where desired by the attending person and then retained in position by the use of weighted objects; such as bags of sand, or similar weighty material. Also, that rigid bandages have been employed to retain the position of the electrodes. The first known method constrains the patient to maintain a constant position to prevent slippage of the bags of sand. This latter works a severe hardship upon the physical comfort of the patient, varying with the position he is obliged to assume. The rigid bandages are difficult to adjust permitting any degree of comfort to the patient with assurance that there will be no slippage of the electrodes, or a weakening of the electrical contact with the skin of the patient; particularly if the patient contorts the body. My present invention obviates the disadvantages of methods and means heretofore employed for the purpose, so far as I am aware.

In general, my improved device and methods of employing same consists in using a bandage specifically adapted to the location on the body the electrodes are to be applied. This bandage has pockets for containing an inflatable bag. The electrodes are first positioned by the attendant and the bandage then applied and secured loosely. The bags in the pockets are then inflated until a sufficient pressure is exerted upon the electrodes, while of course, increasing the tautness of the bandage. The tautness will be carried far enough to insure the positive contact necessary between the electrodes and the skin, without liability of variation which might cause high resistance and attendant heating or actual rupture of the electrical continuity with possibly attendant sparking and heating. The resiliency and mobility of the inflating air contained in the bags will insure practically uniform pressure on all parts of the electrode regardless of bodily contortions of the patient. This is aside the fact that the bandage or binder will adapt itself to the contour of the pa-

tient's body, conducting towards the utmost comfort, under the circumstances.

With reference to the accompanying drawings:

Fig. 1 shows an edge view of one form of binder.

Fig. 2 shows a plan view of the binder shown in Fig. 1.

Fig. 3 shows the binder shown in Figs. 1 and 2 in place about the body of the patient.

Fig. 4 shows a section of the body of the patient where indicated by the section arrows in Fig. 3.

Fig. 5 shows a plan view of a binder modified in details from that shown in Fig. 2, adapted to use on a different part of the body of the patient as indicated in Fig. 6.

Fig. 6 shows the binder shown in Fig. 5 in place about the body of the patient.

The binder shown in Figs. 1 to 4 is preferably made of washable fabric. It contains two pockets 1 and 2; defined by the dotted lines 1' and 2'. The pockets 1 and 2 are sealed on all four sides with the exception of openings along a portion of one of the top sides 4 and 5. The purpose of these pockets are for each to contain a pneumatic bag 6 and 7, respectively, made of rubber or other suitable material. That is, the deflated pneumatic bag may be freely inserted into a pocket 1 or 2 and then inflated so as to quite completely fill it; and so it cannot be removed from its pocket without first deflating it. However, the size of the pocket or opening is not of determining moment in the organization of the invention.

A gusset portion 10, intermediate of the pocket sections having a lacing 12 serves to adjust the length of the binder to accommodate the body of the wearer, so that specific size binders will be suitable for persons of various sizes, and various locations of electrodes.

A flap portion 15 of the binder is contiguous to the left hand edge of pocket 1. This flap is concealed by the overlapping of the portion containing the pocket 5 and the flaps 16 and 17, when applied to the patient. The binder is preferably made of sanitary cloth, since it comes in contact with the electrode and body of the patient.

Two flaps 16 and 17 shown by the dotted

lines have the form of truncated triangles. These flaps 16 and 17 have straps 18 and 19, respectively. The flap 16 overlaps the flap 17, and both said flaps are on the rear side of the pocket portion 5.

The inner face of the binder, including the flap 15, is preferably made of muslin or generally similar material, while the outer face is preferably made of heavier material.

In applying the binder, the electrode 20 is applied to the patient's back where desired. Then the portion of the binder containing the pocket 1 holding the deflated bag 6 is applied over the electrode. Electrode 21 is then placed on the abdomen or chest as necessary, then portion 5 of the binder, containing the deflated bag is applied over it, while flap 15 is carried over portion 5 of the binder, from the opposite side, thus making a complete girdle, which is secured by placing triangularly shaped flaps 16 and 17 as shown in Fig. 4. The arrangement then is alternate from right and left as follows: Portion 5 with air bag 2, then flap 15 from the opposite side, and finally flaps 16 and 17 from the same direction as portion 5. The straps 25 and 26, 27 and 28, are then united respectively, and adjusted loosely by a buckle or clasp. The binder is thus secured loosely about the body of the patient, covering the electrodes. Now, in order to impart the proper pressure to the electrodes to insure sustained conductive contact, the bags 6 and 7 are inflated with air until all looseness of adjustment has been taken up and the desired distributed pressure upon the electrodes has been attained. The deflation is then fixed.

It will thus be manifest that the invention affords a binder for electrodes in medical treatments which conduces towards affording the utmost physical comfort to the pa-

tient, while at the same time permitting bodily movement and choice of bodily position without chance of appreciably varying the pressure applied to keep the electrodes seated securely upon the skin where placed. It is thus not required that adhesive agents or weights be used to maintain the set position of the electrode plates.

The modified binder shown in Figs. 5 and 6 is designed for use at the shoulder and upper chest region. It is made and applied generally like the binder shown in Figs. 1 to 4. However, a set of straps 31 and 32 are positioned to go over the shoulder of the patient. There is only a single triangular flap 33, in lieu of the two 16 and 17, an element 33^a corresponding to flap 15; the portions 35 and 36 corresponding to 1 and 2, coming into direct contact with the rear and front electrode respectively. The bags 38 and 39 correspond to bags 6 and 7, respectively. The lacing 40 corresponds to lacing 12. The openings 41 and 42 correspond to openings 4 and 5, respectively.

However, the detailed pattern of general appearance of the binder may be varied within wide limits, without departing from the spirit of the invention as defined by the subjoined claim.

I claim:

In a garment for use in securing the placement of an electrode in medical treatment, pneumatic means for applying pressure to the electrode including a compartment of the garment contiguous to the electrode which may be variably inflated at will depending upon what pressure it is desired to apply to the electrode.

In witness whereof, I hereunto subscribe my name this 23rd day of October, 1925.

WILLIAM A. LURIE.