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3,043,291

CHAIR FOR TAKING CARDIOGRAMS

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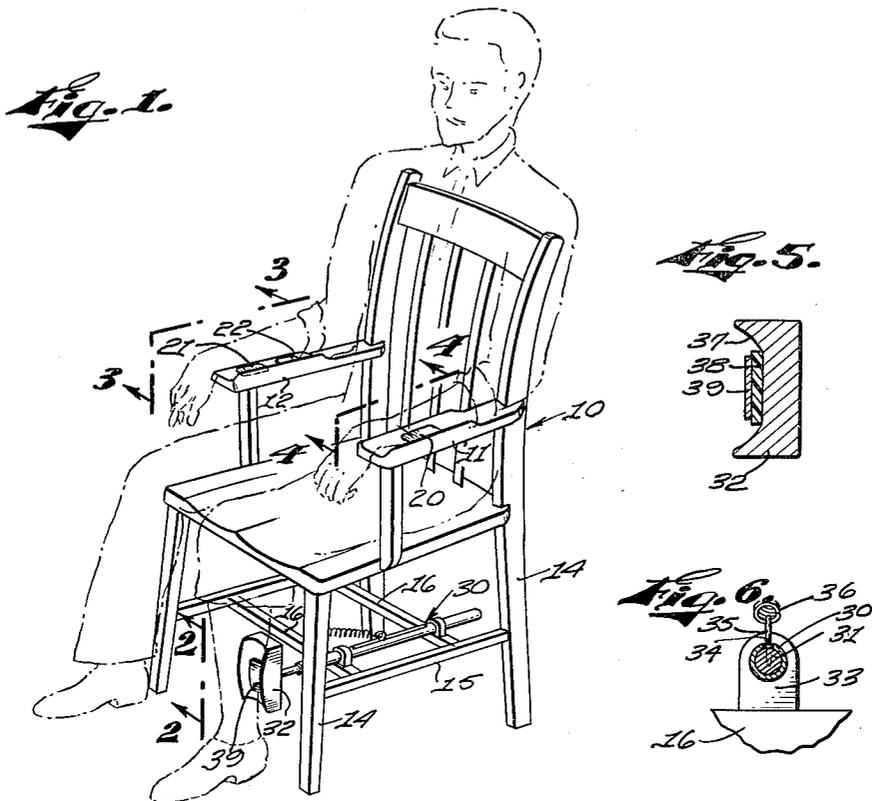


Fig. 5.

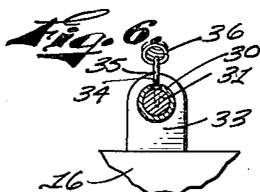
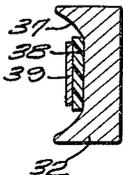


Fig. 2.

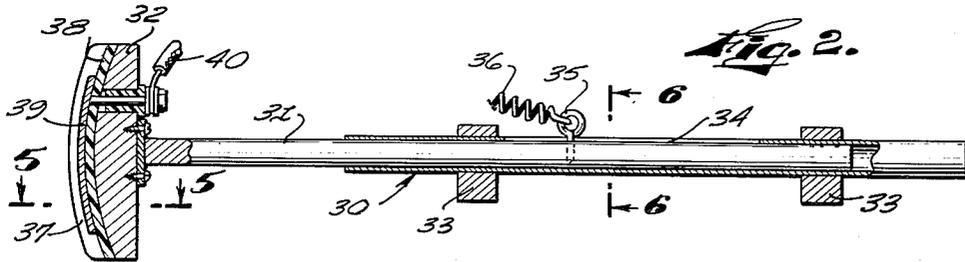


Fig. 3.

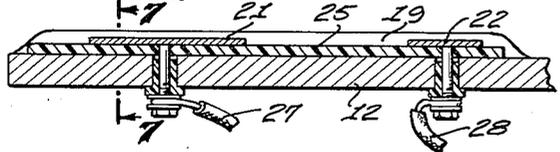
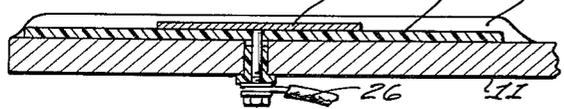


Fig. 7.



Fig. 4.



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CHAIR FOR TAKING CARDIOGRAMS

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2 Claims. (Cl. 128—2.06)

The invention relates to the taking of electrocardiograms and more particularly relates to a chair in which a patient may comfortably sit while a cardiogram is being taken.

It is an object of my invention to provide a cardiographic chair in which a person sits, in a normal posture, while being examined so as to simplify and speed up the taking of electrocardiograms.

Another object of my invention is to provide a chair which has no straps for holding electrodes against the patients' limbs.

A further object of my invention is to provide a seat for a patient instead of a bed, requiring less space and having a better appearance, and being more easily moved from place to place.

Another object of my invention is to provide an economical and practical means for taking cardiograms rapidly and on a mass production scale.

In the accompanying drawings, illustrative of a presently preferred embodiment of my invention,

FIG. 1 is a perspective view showing the general arrangement of my new chair;

FIG. 2 is vertical sectional view on the line 2—2 of FIG. 1, and on an enlarged scale, showing spring-controlled apparatus for bringing a leg electrode into contact with a patient's leg;

FIG. 3 is a vertical sectional view on the line 3—3 of FIG. 1, showing the arrangement of two arm electrodes on one arm of the chair;

FIG. 4 is a view similar to FIG. 3, showing the arrangement of a single electrode on an arm of the chair;

FIG. 5 is a horizontal sectional view on the line 5—5 of FIG. 2, showing further details of the leg electrode;

FIG. 6 is a vertical section on the line 6—6 of FIG. 2, showing the means of maintaining the leg electrode erect; and

FIG. 7 is a sectional view through one of the arm electrodes on the line 7—7 of FIG. 3.

Having reference now to the details of the drawing, I have shown in FIG. 1 a chair 10, illustrated in relation to a person occupying it. The attitude of the person will be observed to be entirely normal and relaxed except that he has his sleeves and one trousers leg rolled up, to provide the usual skin contact with the hereinafter described electrodes. The chair 10 has arm-rests 11 and 12, and preferably has legs 14 connected by fore and aft braces 15 and transverse braces 16, although any type of base for the chair may be used which is suitable for supporting the mechanism hereinafter described in connection with a leg electrode.

The arms 11 and 12 are hollowed longitudinally on their upper sides, as best seen in FIG. 7, to provide trough-like hollows 18 and 19 capable of receiving and holding the arms of a person sitting in the chair. In the bottoms of these hollows there are disposed electrodes 20, 21 and 22, mounted on plates 24 and 25 of insulating material, and connected to a cardiograph machine (not shown) by electrical connections 26, 27, and 28. I prefer to place two of the electrodes on one chair arm, and one electrode on the other arm; the extra electrode on one side takes the place of an electrode to contact the leg on that side.

Connected to the lower part of the chair, as to the transverse braces 16, is a cylinder 30 containing a rod 31

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having a vertically elongated head 32. Blocks 33, in which the cylinder 30 is mounted, hold the cylinder immobile and prevent it from rotating. Along the top of the cylinder 30 is a slot 34, and from the slot 34 there emerges a key 35 fastened in the rod 31. Thus the rod 31 is also prevented from rotating, and a vertical position is assured for the head 32. The key 35 may be in the form of a screw-eye, and to it is fastened one end of a spring 36. The other end of the spring 36 is secured to a front leg 14 of the chair, and tension of the spring urges the rod 31 towards the front of the chair, the movement being limited by the contact of the key 35 with the end of the slot 34.

The head 32 is convex on its forward face. The convex face is also having a hollow trough-like shape, like the arm rests 11 and 12, so as to provide a better contact with the calf of a person's leg. Within the hollow 37 is an insulating plate 38 and upon the insulating plate there is secured an electrode 39. An electrical connection 40 connects the electrode 39 to the aforesaid cardiograph machine.

The electrode 39 is on the opposite side of the chair from the two electrodes 21 and 22. The positions are interchangeable; if the electrodes 21 and 22 are on the right arm of the chair, the cylinder 30 is placed near the left legs of the chair so that the electrode 39 may make contact with the left leg of a person sitting in the chair, or the electrodes 21 and 22 may be on the left chair arm and the electrode 39 may operate against a person's right leg.

In operation, when a person sits in the chair with his forearms on the arm rests 11 and 12, his forearms will fall naturally into the trough-like hollows 18 and 19. It will require positive muscular effort to raise his arms from the hollows 18 and 19. Consequently his bare forearms rest upon the electrodes 20, 21, and 22 and make quite as good contact with these electrodes as if the electrodes were strapped upon the arms. Likewise the convex head 32 will fit just below the bulge of the calf muscle of the person's leg, and the hollow 37 will engage the lower part of the muscle, preventing the leg from moving sideways. The person's shoe upon the floor produces a resistance against which the spring 36 pushes. If the person does not feel the push of the spring 36, he may move his foot backward until he does feel it; the electrode 39 is then pressed against his leg. The convex head on the plunger permits a person with long legs to push his heel backward, while a short person's legs may stand outward from the chair; in either case the leg will make contact with the electrode on the convex curve.

It will be evident that the chair may be used either in a special cardiograph room where it may be operated by a nurse or trained specialist, or it may be transported to a convenient site in a school, factory, or other facility where mass electrocardiograms may be accomplished, in either case taking up less space and having less weight than the usual couch.

The device is self-adjusting to persons of various heights by the spring and the convex plunger head of the leg electrode.

The device is compact and can easily be transported, and occupies a minimum of space.

It provides a simple, inexpensive means of performing mass electrocardiograms with a minimum of inconvenience to the patient and to the operator.

I claim:

1. A chair for use in taking electrocardiograms which includes:
 - a chair structure having a base including legs, a seat, a seat back and arm rests, said seat, seat back and said arm rests being connected to one another and to

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said base so as to be supported thereby, said arm rests
 having upper surfaces of a trough-like shape;
 an elongated head extending generally parallel to said
 base mounted on said base below said seat, said head
 having a front surface located away from said base
 of a trough-like shape; 5
 means for biasing said elongated head away from said
 base connected to said base and said head;
 an electrode means positioned within each of said sur-
 faces of a trough-like shape, each of said electrode 10
 means including an insulator mounted within the
 trough-like surface within which it is disposed, a
 metal electrode positioned on each of said insulators,

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and terminal means connected to each of said metal
 electrodes.

2. A chair for use in taking electrocardiograms as de-
 fined in claim 1, including another electrode means posi-
 tioned within one of said surfaces of a trough-like shape
 on one of said arms, both of said electrode means on said
 one of the said arms being of the same construction.

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