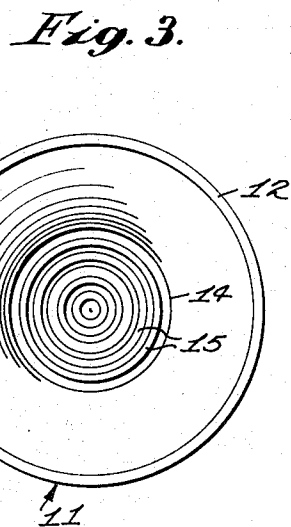
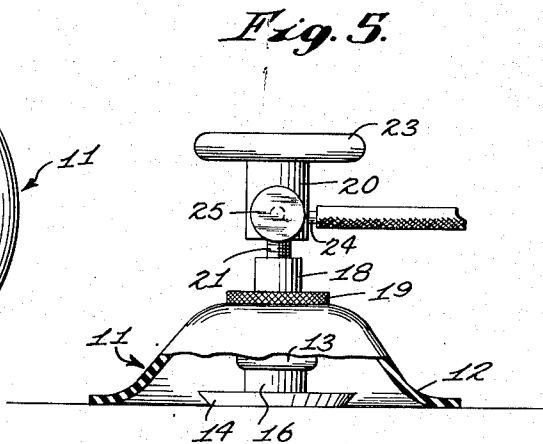
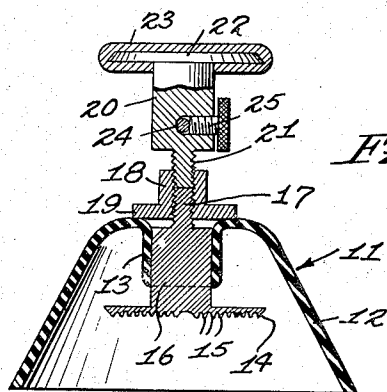
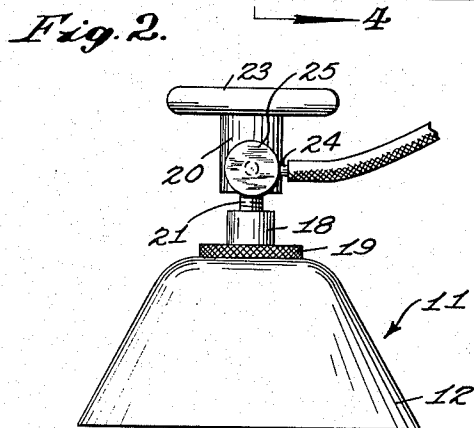
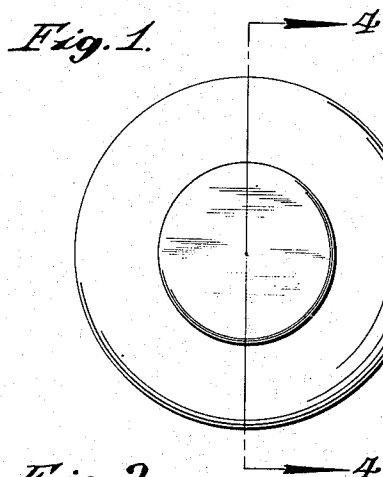


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ELECTROCARDIOGRAPH ELECTRODE

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ELECTROCARDIOGRAPH ELECTRODE

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2 Claims. (Cl. 128—404)

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This invention relates to electrocardiograph apparatus, and more particularly to an improved electrocardiograph electrode.

A main object of the invention is to provide a novel and improved electrode for use in electrocardiography, the improved electrode being simple in construction, being easy to apply, and providing greatly reduced interference, as compared with the electrodes previously employed which must be held by the patient or by the operator when taking readings.

A further object of the invention is to provide an improved electrode for use in electrocardiography which is inexpensive to fabricate, which is sturdy in construction, which is self supporting when placed on the patient, and which provides good contact with the patient's body and which is not disturbed by the breathing of the patient or by other movements, the degree of interference obtained by the use of the improved electrode being minimized, and the effort required on the part of the technician being greatly reduced as compared with the use of electrocardiograph electrodes of the prior art.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a top plan view of an improved electrocardiograph electrode constructed in accordance with the present invention;

Figure 2 is a side elevational view of the improved electrode of Figure 1;

Figure 3 is a bottom plan view of the electrode of Figures 1 and 2;

Figure 4 is a cross-sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a view similar to Figure 2, said view being partly in vertical cross-section, and showing the electrode in working position.

Referring to the drawings, the electrode is designated generally at 11, and comprises a vacuum cup 12 of elastic deformable material, such as rubber or the like, said cup being generally conical in contour and being formed at its top end with the inner, downwardly extending sleeve portion 13. Designated at 14 is a circular metal electrode formed on its bottom surface with the concentric, circular ribs 15 and formed with the axial shank 16, which is sealingly received in the depending sleeve element 13. The top end of shank 16 is reduced in diameter and is formed with external threads, said top end being designated at 17, the threaded end 17 being engaged in the internally threaded sleeve member 18, as

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shown. Sleeve member 18 is formed with an annular flange 19 which is sealingly engaged on the top of the cup member 12, as by being screwed tightly on the threaded shank element 17 to bring flange 19 into firm contact with the top of cup 12. Designated at 20 is a binding post which is formed with a reduced axial stud portion 21 threadedly engaged in the sleeve element 18 and abutting the end of the shank element 17. The top of binding post 20 is formed with the circular disc element 22 which is covered with insulating material 23, whereby the top end of the binding post 20 defines a handle or knob for manipulating the electrode. The binding post 20 is formed with a transverse bore through which is engaged the conductor 24 leading to the electrocardiograph apparatus. Designated at 25 is a set screw threaded into the binding post 20 and being arranged to clampingly engage the conductor 24 to securely fasten said conductor to the binding post in conductive relationship therewith.

In using the electrode, the operator places it on the portion of the patient's body at which the electrocardiograph reading is to be taken and exerts firm inward pressure with his fingers against the cup while exerting pressure with his palm against the knob or handle above described, whereby the cup 12 is distorted to the position of Figure 5, and the electrode element 14 is brought into firm contact with the selected area on the patient's body. Due to the vacuum developed inside the cup 12, the external air pressure acts on the surrounding portions of the patient's body and forces the engaged area of the patient's skin into intimate contact with the electrode 14 and maintains said contact throughout the time during which the cardiogram is being taken. It will be apparent that after the electrode has been placed on the patient's body in the manner above described, no further effort is required on the part of the technician or on the part of the patient to hold the electrode in position, and the electrode remains in adhering relationship to the patient's body as long as desired. Once the electrode has been placed on the body of the patient, good contact is assured and the electrode will remain in position until removed at the conclusion of the electrocardiograph reading. Therefore, after the electrode has been placed on the patient's body, the technician is free to operate the electrocardiograph apparatus, and a reading may be taken by a single technician.

While a specific embodiment of an improved vacuum-type electrode for electrocardiograph

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machines has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A device of the character described comprising a vacuum cup of elastic deformable material, 10 a metal electrode inside said cup, a plurality of depending concentric circular ribs on said electrode, a shank element rigidly secured axially to said electrode and extending through the top of said cup, means sealingly securing said shank 15 element to said cup, and a binding post conductively secured to said shank element externally of said cup.

2. An electrocardiograph electrode comprising a vacuum cup of elastic deformable material, a 20 circular electrode element inside said cup, a plurality of depending concentric circular ribs

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on said electrode element, an axial shank rigidly secured to said element and extending through the top portion of said cup, an annular washer element secured on said shank and engaging the external surface of the top portion of the cup, a metal post member threadedly engaging said washer element in axial alignment with and abutting said shank, said post member being formed with a transverse bore adapted to receive a conductor, and a set screw threaded into said post member and arranged to clampingly engage the conductor.

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