United States Patent

[11] **3,565,055**

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[54] **ELECTRODE HOLDER**
1 Claim, 3 Drawing Figs.

[52] **U.S. Cl.** **128/2.1**; 24/115; 174/72
[51] **Int. Cl.** **A61b 5/04**
[50] **Field of Search** ..... 128/2.1, 2.06, 2.16, 1, (Pickup Digest); 24/115.7, 243.9, 243.11; 174/72; 132/40

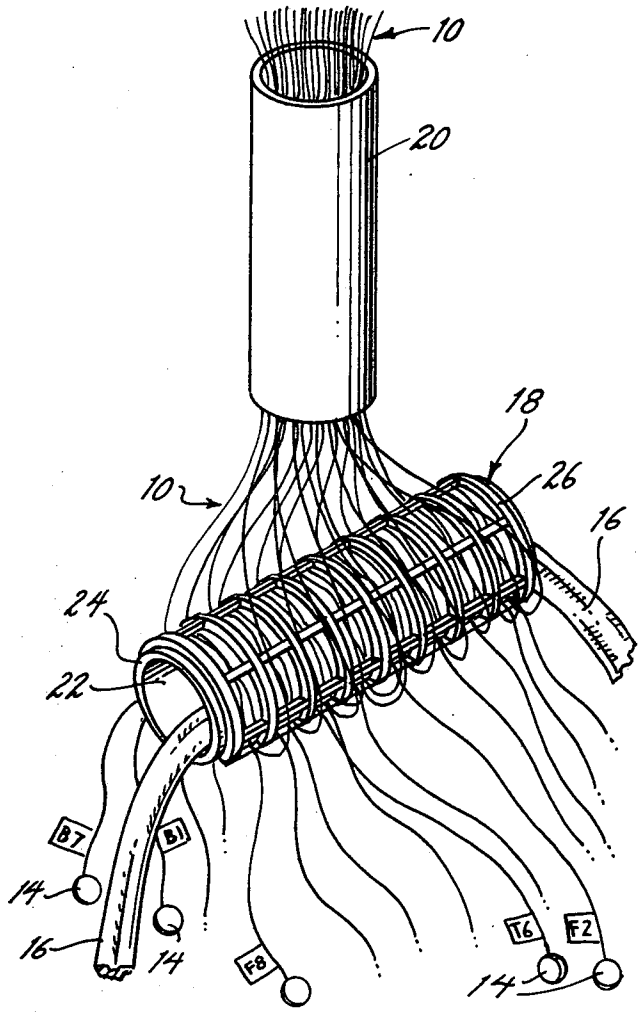
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ABSTRACT: A device for holding electrode wires in position on the head of the patient including a cylinder having a mesh friction jacket partially around the circumference thereof which jacket holds the electrode wires movably between same and said cylinder and a sliding hollow cylinder that contains the electrode wires therethrough.



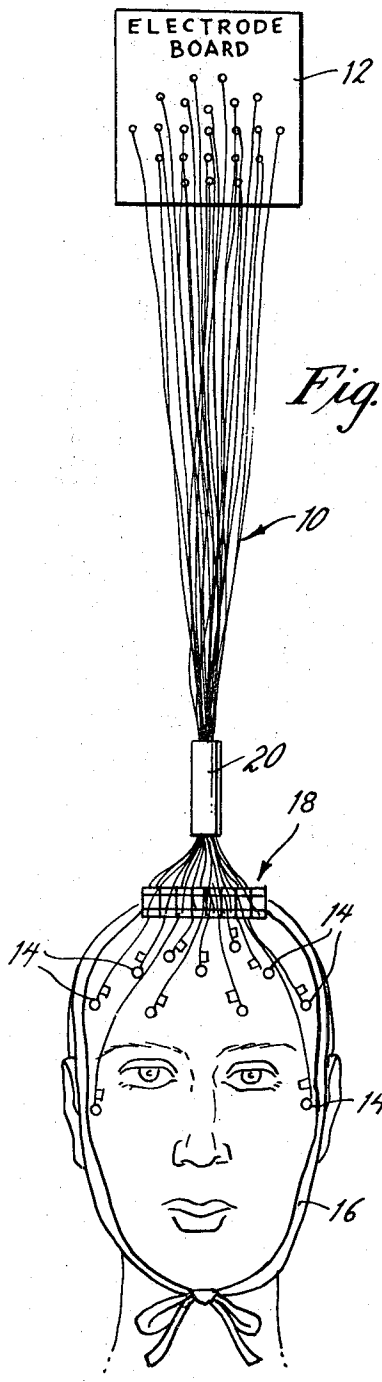


Fig. 1.

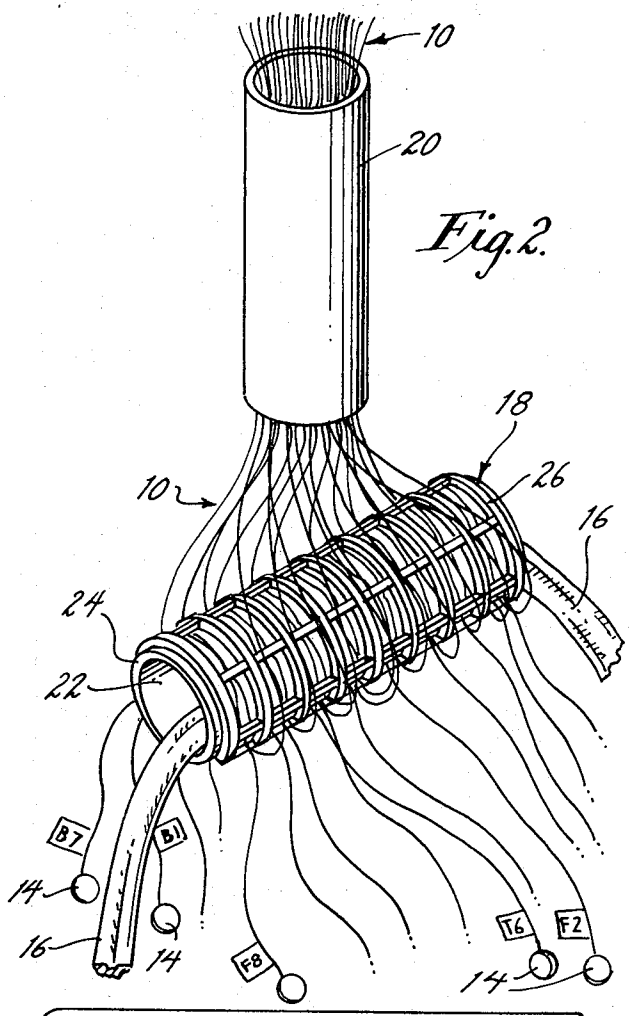


Fig. 2.

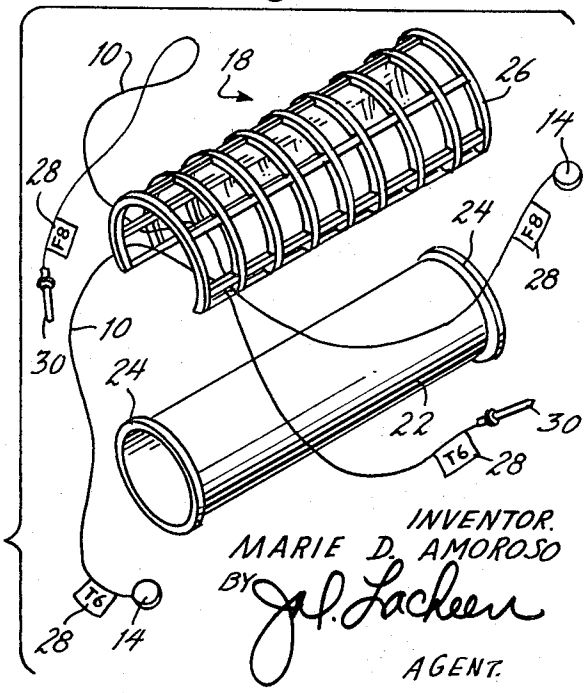


Fig. 3.

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ELECTRODE HOLDER

The invention relates to an electrode holder and more particularly to a two-piece, T-shaped electrode holder employed in electroencephalographs, wherein side-by-side multiple flexible wires, extending from a source to a location of use therefor are held in place regardless of movement on the part of the patient.

In the past, the electrodes attached to various positions about the head of a patient would only remain in place if the patient remained still and in the reclining position. This precluded the obtaining of "accurate" electroencephalograms on patients that could not remain in that position, unless held still or sedated such as babies, children, semicomatose patients, and patients in status epilepticus. It may also be desirous to utilize for research purposes. Without the use of the present invention this would be impossible since the electrodes would fall from their positions on the head of the patient.

It is therefore an object of the present invention to provide a device which secures the electrodes to their proper position on the patient no matter what movement the patient may make.

Another object is the provision of a T-shaped, two-piece device for holding electrode wires in their proper position on the patient no matter what movement the patient may make.

A further object is to provide an electrode holder which is inexpensive, lightweight, requires no maintenance, and does not bring discomfort to the patient, in any way.

The above objects as well as others together with the benefits and advantages of the invention will be apparent upon reference to the detailed description set forth below, particularly when taken in conjunction with the drawings annexed hereto in which:

FIG. 1 shows the invention in use on a patient's head.

FIG. 2 illustrates an isometric view of the invention.

FIG. 3 shows an exploded view of one part of the invention of FIG. 1.

An electroencephalograph is for the purpose of making electroencephalograms and as seen in FIG. 1 includes side-by-side multiple flexible wires **10** extending between an electrode board **12** and electrodes **14** to be attached to the head. A strap or headband **16** is provided around the head of the patient and through one portion of the electrode holder to hold same in place.

The electrode holder consists of two main pieces, namely a friction cylinder **18** and a sliding cylinder **20**. The friction cylinder **18** includes a hollow main body portion **22** having a lip **24** at each end. A mesh friction jacket **26** is snapped in place on the body **22** between the lips **25** thereby providing a movable friction fit therebetween.

As seen in FIG. 3, the electrode wires **10** are threaded through the friction cylinder **18** in a special way. Namely there are 22 electrode wires in a complete set. The electrodes are placed on the anterior and posterior parts of the head therefore half or 11 of the wires **10** are threaded through the mesh jacket **26** from front to back and the other half or eleven from back to front.

The electrode wire has an identifying Tag **28** at both the electrode end and at the board end. The wire at the board end is provided with a jack or plug **30** for easy insertion into the board.

The tag or labels **28** are slidable to any desired position on the wire so that they can be positioned for easy reading and the convenience of the patient.

The sliding cylinder **20**, see FIG. 2, has all of the electrode wires **10** passing therethrough and is pushed up close to the cylinder **18** after the electrodes **14** are in place to provide security to the entire device. When same is in this position, an inverted T-shape is formed, see FIG. 1.

The cylinder can be manufactured from any inexpensive light weight plastic or similar material, which can be easily disassembled and washed.

In operation the jacks or plugs of the flexible wire electrodes are inserted into the electrode board. The identifying tag locates the proper insertion on the electrode board. The electrode holder is positioned on top of the patient's head. The ribbon or strap is tied or fastened under the chin (See FIG. 1). The ribbon or strap **16** could be placed in front of one ear (e.g. right) and behind the other ear (e.g. left) to secure further immobility of the electrode holder on the head. With the electrode holder on the head, the sliding cylinder may be placed in any position between the patient and the electrode board keeping the flexible wire electrodes in one bundle. With the electrode holder on the head, the friction jacket may be slightly loosened so that individual flexible wire electrodes may be pulled through the mesh apertures in an easier fashion. The electrode is attached to the scalp and ear lobes corresponding to the brain areas to be investigated. After all of the electrodes are applied to the patient's head the friction jacket is securely snapped into place on the body between the lips thereby providing a fixed friction fit therebetween. The cylinder is then slid towards the friction cylinder to form the inverted T.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood, that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

I claim:

1. An electrode holder for use with an electroencephalograph comprising:

slidable means including;

a first hollow cylinder;

friction means including;

a second hollow cylinder having a lip portion at each end thereof;

a jacket movably secured between said lip portion of said hollow cylinder, said jacket including a plurality of apertures therein;

a plurality of flexible electrode wires passing through said slidable means and said apertures of the jacket of said friction means; and

a head band passing through the second hollow cylinder of the friction means to secure said holder to the head of the patient.