Nov. 27, 1945. F. SCHREIBER 2,389,690

CERVICAL COLLAR

Filed Oct. 18, 1943

FIG.1.

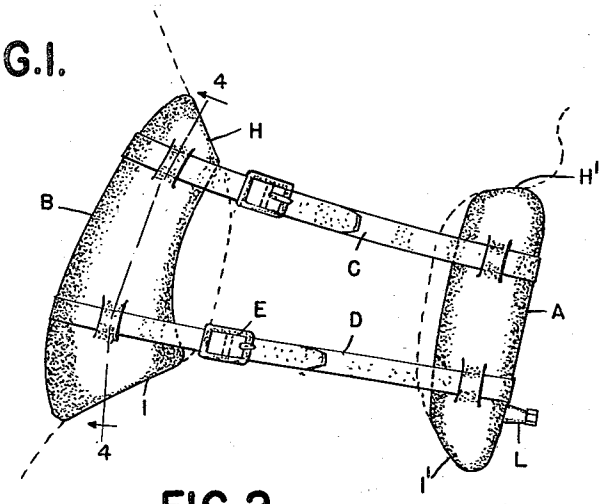


FIG.2.

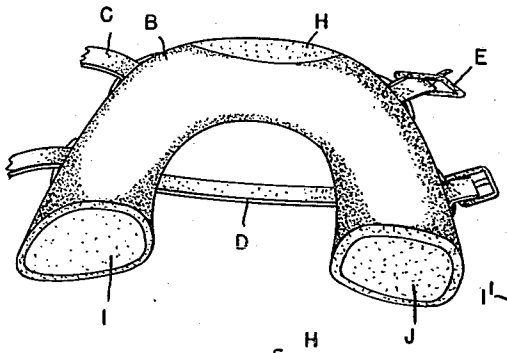


FIG.3.

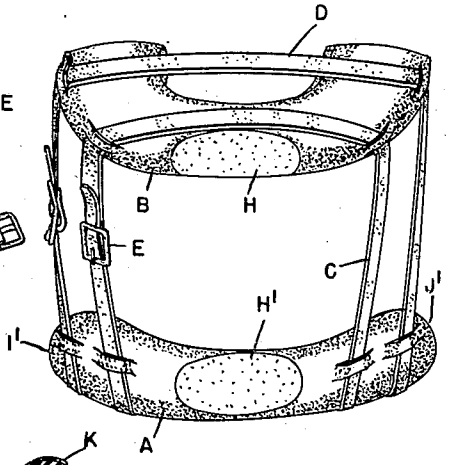
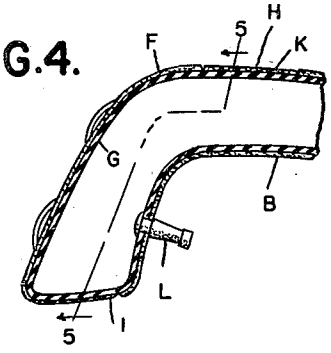


FIG.4.



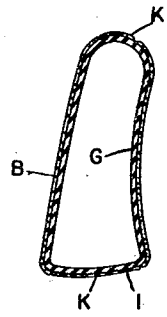


FIG.5.

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CERVICAL COLLAR

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3 Claims. (Cl. 128—87)

The invention relates to apparatus for the treatment of cervical spine injuries and it is the object of the invention to obtain a simple construction which can be easily applied to the injured patient to secure fixation with hyperextension.

It is a further object to obtain a construction which is adjustable to suit the individual patient and still further to obtain a construction which may be worn by the patient with a minimum of discomfort.

With these and other objects in view, the invention consists, first, in the construction of a pneumatic cervical collar; second, in the forming of this collar of two pneumatically inflated arched members arranged respectively in front and rear of the head, being supported upon the shoulders and connected to each other by adjustable straps; and, third, in various features of the construction as hereinafter set forth.

In the drawing:

Fig. 1 is a side elevation of the device in position for application to a patient;

Fig. 2 is a front elevation of the rear arched member;

Fig. 3 is a plan view showing the two arched members and their connections;

Fig. 4 is a section on line 4—4, Fig. 1; and

Fig. 5 is a cross section on line 5—5, Fig. 4.

In the present state of the art, fixation with hyperextension in injuries of the cervical spine can be obtained only with skeletal traction by attaching hooks or wires to the skull and producing traction by means of weights and pulleys. Also, where a leather, rubber or plastic collar is used, this is not satisfactory because the skin of the patient will not tolerate the amount of pressure necessary to produce adequate cervical hyperextension required to keep fractured or disclocated cervical vertebrae in proper position. By means of my invention the apparatus is greatly simplified and the objections above noted are largely overcome.

My improved construction comprises two arch-shaped cellular members A and B both formed of light pneumatically inflated casings, the one placed in front and beneath the chin of the patient and the other in the rear to extend between the shoulders and occipital skull. These two casings are connected to each other by straps C and D having buckles E, which straps may be adjusted to fit the individual patient and to secure the proper hyperextension. The members A and B may be formed of any suitable fabric F sufficiently reinforced to hold the cell arch shaped and having an air tight lining G preferably of rubber. The areas H, I and J which contact with the skin of the patient are flexible and covered with removable stockinet K to absorb perspiration.

The area H of the member B finds contact beneath the occipital skull of the patient, while the areas I and J rest upon the shoulders. In the same manner the member A has an area H' for contacting beneath the chin and areas I', J' which are inclined to rest against the breast of the patient. Each of the members A and B is also provided with a valved inflation tube L which is preferably arranged on the inside of the arch to be out of the way.

With the construction as described when the members A and B are inflated with air at the proper pressure, they may be placed in position with the areas I and J of the member B contacting with the shoulders of the patient and the area H contacting with the underside of the skull. Also the member A has its area H' positioned beneath the chin of the patient and the areas I', J' contacting with the breast. The straps C and D may then be adjusted and secured by the buckles E. When the apparatus is not in use, the members A and B may be deflated and stored in comparatively small space. One important advantage of the construction is that it is extremely light which, together with the pneumatic cushioned contact areas, minimizes discomfort to the patient. Another advantage is that the cervical spine may be X-rayed with the apparatus in place.

What I claim as my invention is:

1. A cervical collar comprising pneumatically inflated members adapted to be placed respectively in front and rear of the neck of the patient, the rear member adapted to be supported on the shoulders and to engage the underside of the skull and the front member adapted to be arranged beneath the chin and to rest against the breast of the patient and flexible adjustable connections between said members.

2. A cervical collar comprising a pair of arch shaped pneumatically inflatable cells adapted to be arranged respectively at the back and front of the neck of the patient, the rear member adapted to rest upon the shoulders and to support the underside of the skull, the front member adapted to be arranged beneath the chin and to rest against the breast of the patient and straps for adjustably connecting said members with each other.

3. A cervical collar comprising pneumatically inflated members adapted to be placed respectively in front and rear of the neck of the patient, the rear member adapted to be supported on the shoulders and to engage the underside of the skull and the front member adapted to be arranged beneath the chin and to rest against the breast of the patient, and a connection between said members.

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