

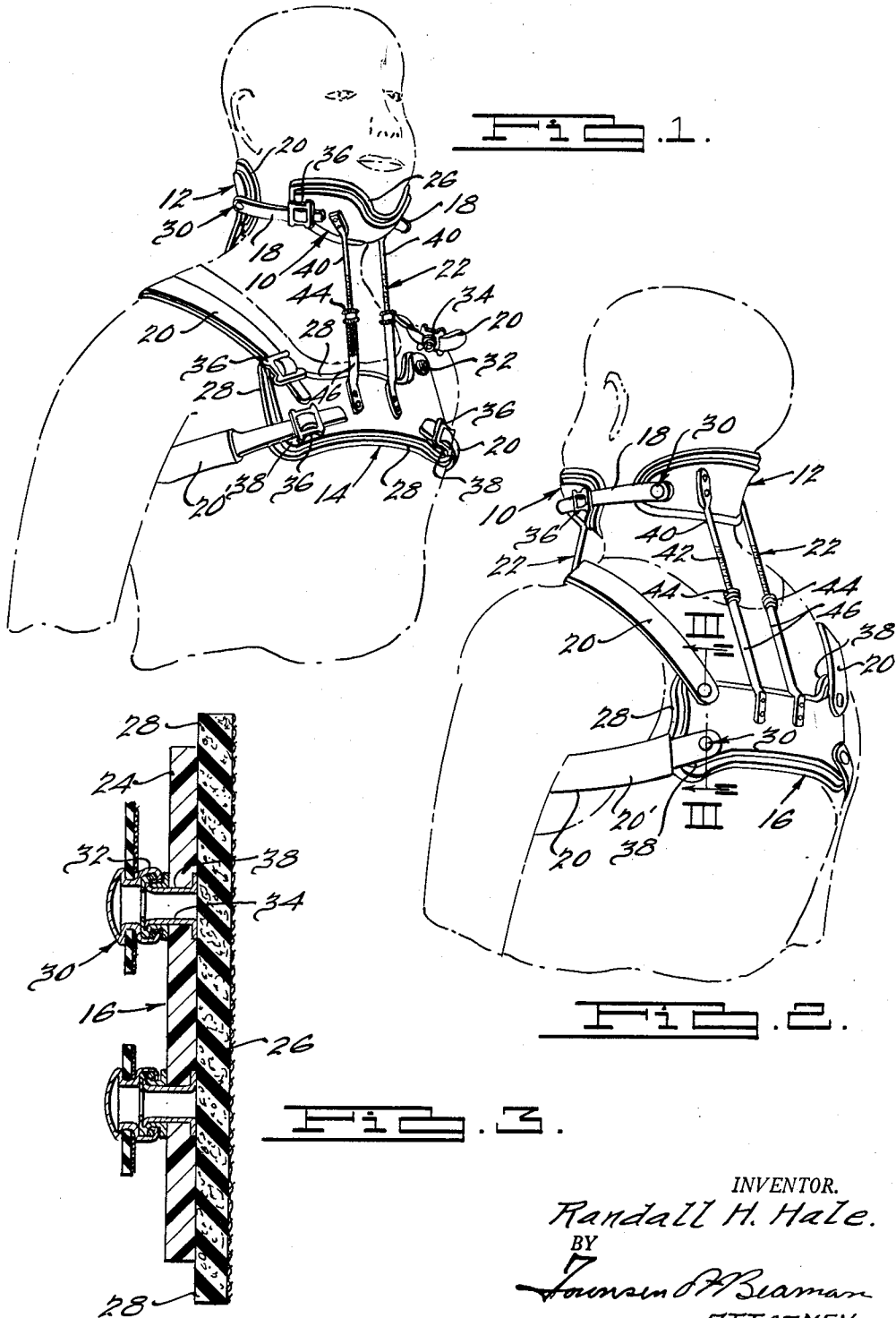
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CERVICAL BRACE

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2,736,314

CERVICAL BRACE

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1 Claim. (Cl. 128—87)

This invention relates to cervical appliances for immobilizing the cervical spine.

The conventional cervical appliances are constructed of metal with the weight-bearing surfaces, including the chin cup, occipital support, and the posterior and anterior sections, being padded with felt and covered with soft leather. These known appliances are unsanitary in use, since they cannot be washed, do not permit full posterior and anterior traction and, being of metal construction, do not permit X-ray observation with the appliance in use.

It is an object of the present invention to provide an improved cervical appliance, which is of relatively light weight construction, is washable, permits X-ray observation while in use on a patient, and which provides for the obtaining of full posterior and anterior traction adjustment.

Further objects and advantages of the invention, residing in the construction, combination and arrangement of parts, will appear clear from consideration of the following description with reference to the accompanying drawings and from the appended claim.

In the drawings:

Fig. 1 is a perspective front view of a cervical appliance in accordance with this invention, as worn upon a patient,

Fig. 2 is a rear perspective view of the appliance as seen in Fig. 1, and

Fig. 3 is an enlarged section on the line III—III of Fig. 2.

Referring to the drawings, the improved cervical appliance comprises a chin support cup, indicated generally at 10, a neck (occipital) support part, indicated generally at 12, chest and back support parts, indicated generally at 14 and 16, and commonly referred to as the posterior and anterior sections, respectively, side neck adjustment straps 18, shoulder and underarm straps 20 and adjustable tension rod assemblies, indicated generally at 22.

The chin cup, occipital, posterior and anterior parts of this improved appliance each have the same general construction illustrated in Fig. 3, in that each said part is formed by an outside sheet 24 of thermoplastic material to which there is secured a backing pad 26 having peripheral edge portions 28 which extend beyond the peripheral edges of their corresponding thermoplastic sheets and follow the contour of these sheets.

Very satisfactory results have been obtained with the use of thermoplastic material sold under the registered trade mark "Plexiglas" and with the use of backing pads of foam rubber. "Plexiglas" is light transmitting, washable, of relatively light weight, and is responsive to heat, applied for example by a heat lamp, including an infrared lamp, to enable the sheets to be accurately and closely formed to shape. The side straps 18, and the shoulder and underarm straps 20, are all separately formed from washable material and are completely detachable from their respective body support parts 10, 12, 14 and 16.

For attaching the straps to their respective parts I employ press stud fasteners, indicated generally at 30, and each composed of a female part 32 and a male part 34. Where the straps are provided with adjustment buckles

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36, each buckle incorporates at the rear, one part of such a press stud fastener.

One part of each fastener, being the male part as shown in the drawings, is secured in a hole 38 formed in the thermoplastic sheet 24 and has its rear end covered by the backing pad 26. The other part, being the female part 32 in this instance, is secured upon the end portions of the separate straps.

The shoulder and underarm straps 20 may be made from webbing material and fitted with a flat tubular section 20 of rubber, or rubber-like material, for engaging under the patient's arm.

Both the anterior and posterior parts 14 and 16 are of similar size and configuration and each has four corner ear portions where the fastener means are applied for the attachment of the straps, with the traction being readily adjustable by actuation of the buckles 36 at the four corners of the anterior part 14.

The side straps 18 connecting the chin cup 10 and the occipital support 12 have adjustment buckles 36 accessible at the chin cup, whereby all strap adjustments are capable of being effected in front of the patient.

Referring to the tension rod assemblies 22, a pair of such assemblies are provided at the back and at the front, with the assemblies of each pair being laterally spaced. The front pair is connected between the chin cup 10 and the anterior part 14 while the rear pair is connected between the occipital part 12 and the posterior part 16. Each such assembly comprises a metal rod 40 secured at one end, as by rivets, to the thermoplastic part of the chin cup or occipital part and having a screw threaded end portion 42 on which an adjustment nut 44 is mounted. Each screw threaded rod end portion 42 fits slidably into the upper end of a tube 46, secured at its outer end, as by rivets, to the thermoplastic part of the anterior or posterior part. The effective length of the tension rods constituted by these rods and tubes is readily adjustable by manipulation of the nuts 44.

Having thus described my invention what I claim as novel and wish to secure by Letters Patent is as follows:

A cervical appliance comprising a chin cup, an occipital part and anterior and posterior sections, all of light transmitting thermoplastic material, presenting a front sheet to their respective parts and including a backing pad, said pads having free edge portions protruding beyond the edges of the thermoplastic sheets, separate adjustable straps for connection between said chin cup and the occipital part on each side of a patient's neck, means detachably connecting said straps with said chin cup and occipital part, separate adjustable shoulder and underarm straps for connection with said anterior and posterior parts, means detachably connecting said straps with said anterior and posterior parts, tension rods connected between the chin cup and the anterior section and between the occipital part and the posterior section, and means securing said rods upon the thermoplastic material of said parts, said tension rods including means for adjusting the effective length of the rods.

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