

[72] Inventor **John L. Bond**
North Wilkesboro, North Carolina 28659
 [21] Appl. No. **599,872**
 [22] Filed **Dec. 7, 1966**
 [45] Patented **Sept. 29, 1970**

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[54] **CERVICAL COLLAR**
5 Claims, 11 Drawing Figs.

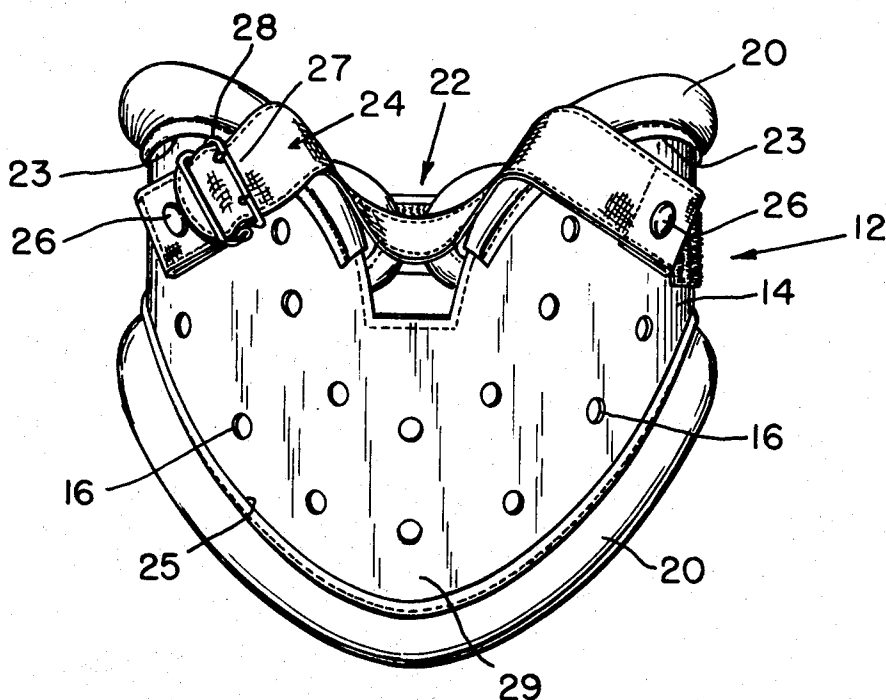
[52] U.S. Cl..... **128/75,**
128/87
 [51] Int. Cl..... **A61h 1/02**
 [50] Field of Search..... **128/75, 76,**
68, 87, 87.2

Primary Examiner—Adele M. Eager
Assistant Examiner—J. Yasko
Attorney—David Rabin

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ABSTRACT: This invention relates generally to orthopedic devices and more particularly to a new and improved cervical collar formed from a flexible material and adapted to be adjustably encircled around the neck of a patient for correction of defective cervical level conditions.



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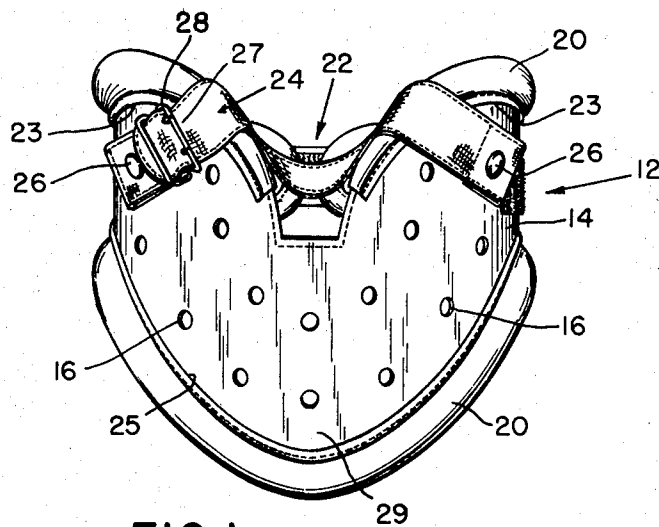


FIG. 1

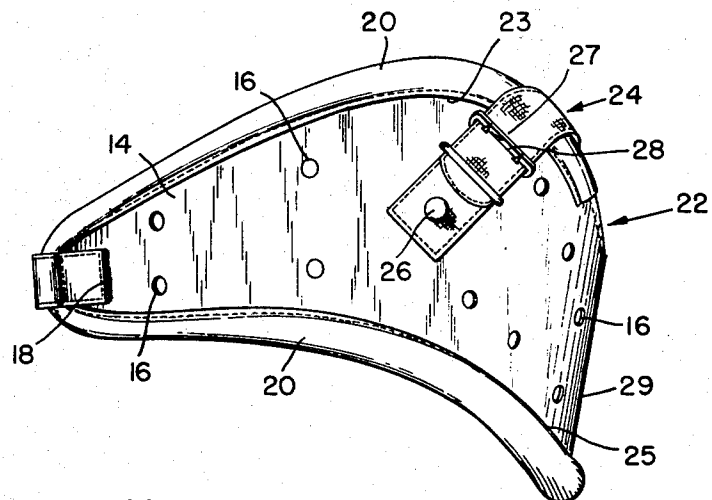


FIG. 2

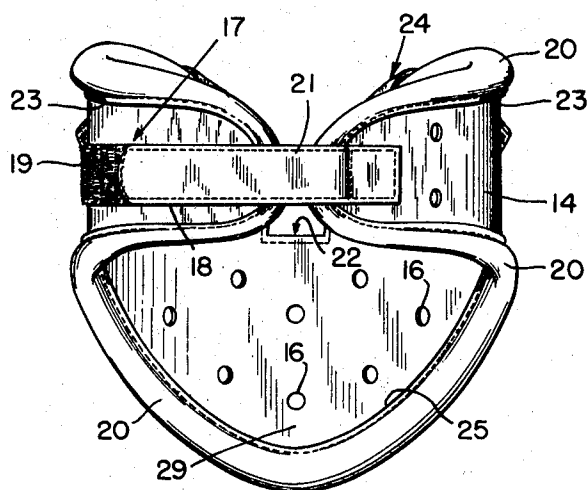


FIG. 3

INVENTOR.
JOHN L. BOND

BY *David Rabin*

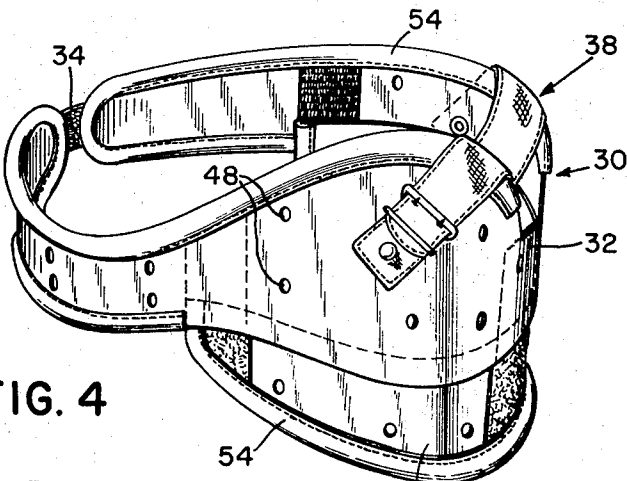


FIG. 4

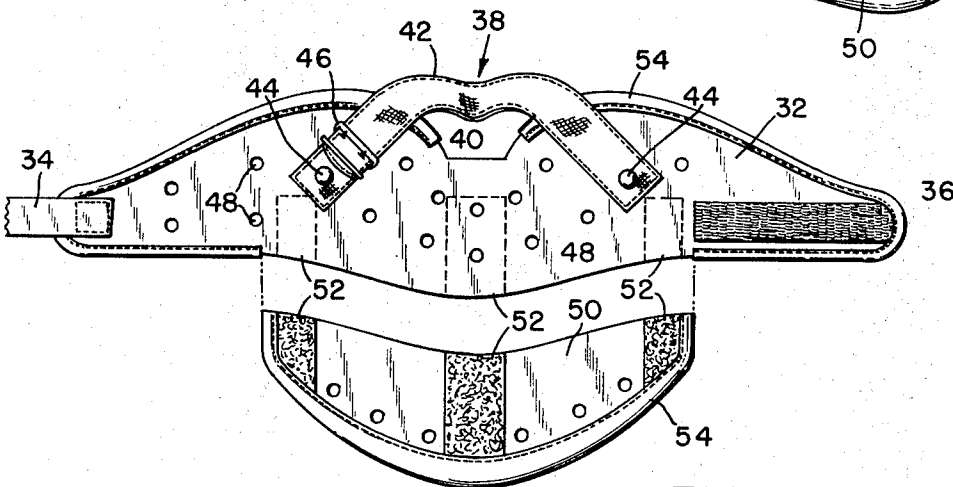


FIG. 5

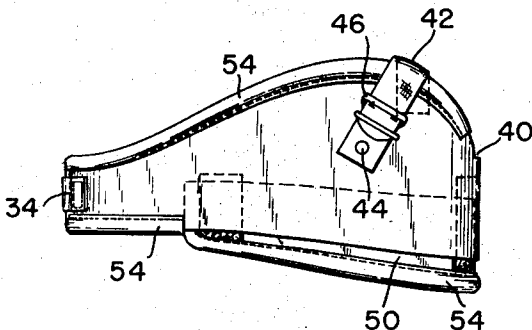


FIG. 6

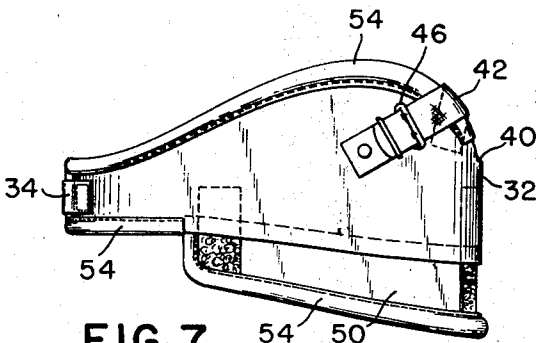


FIG. 7

INVENTOR.
JOHN L. BOND

BY *David Robin*

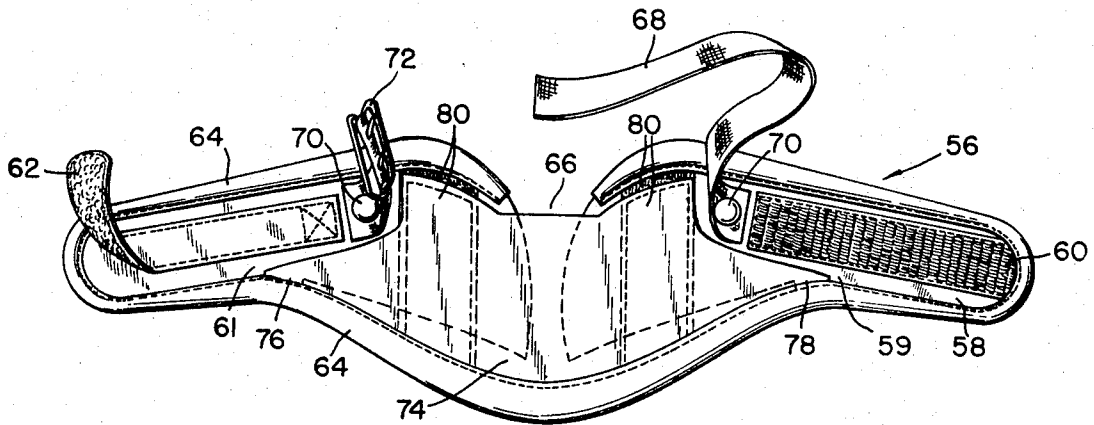


FIG. 8

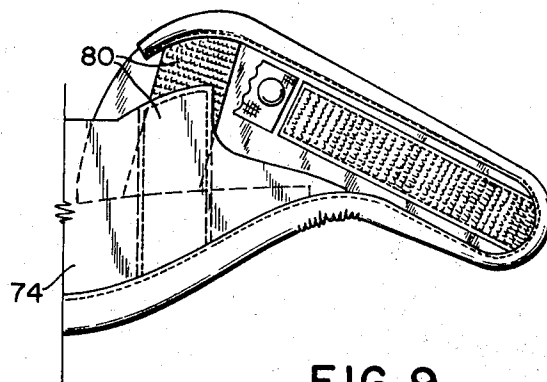


FIG. 9

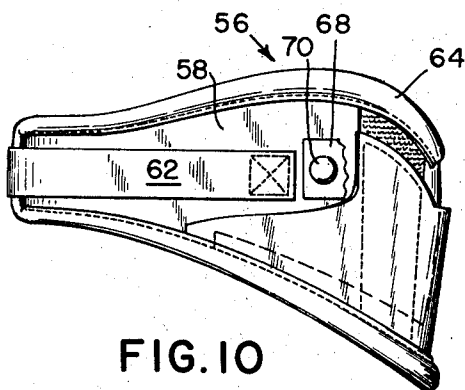


FIG. 10

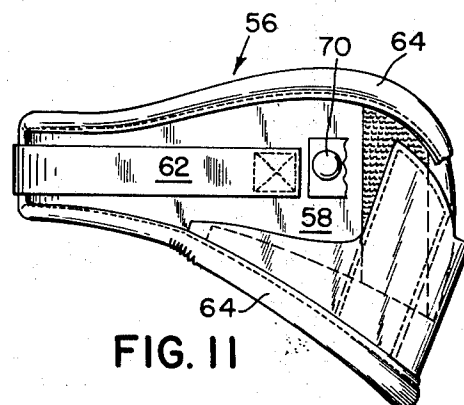


FIG. 11

INVENTOR.
JOHN L. BOND

BY

David Rabin

CERVICAL COLLAR

BACKGROUND OF THE INVENTION

Cervical collars are commonly employed for treating neck injuries, such as "whiplash" injuries and other dislocations which result in muscular strain or nerve pressure in the cervical area. These collars are also extremely useful in the treatment of certain pathological conditions such as torticollis. Generally these collars perform two functions, (1) they partially immobilize the wearer's head, and (2) at the same time they provide means for supporting the wearer's head upon his or her chest so as to relieve strain upon the neck muscles.

For the most part, cervical collars heretofore developed have necessarily been custom made to fit the particular user and to meet his needs. While universal collars have heretofore been suggested, these have not been practical or extensively commercialized because of the necessity of heavy, expensive and uncomfortable parts including many metal components for accomplishing the necessary adjustments of the patient's head with his or her body.

OBJECTS OF THE INVENTION

One of the principal objects of the present invention is to provide a novel one or two piece cervical collar which can be selectively assembled to provide a wide range of adjustments so that the collar can be tailored to provide an accurate, conforming fit for people of widely different sizes and shapes.

Another object of this invention is to provide a cervical collar having components adaptable to be combined in various arrangements for the most efficient treatment of cervical and pathological conditions or involvements of either the anterior neck triangle or the posterior neck triangle.

A further object of this invention is to provide a cervical collar having novel vertical neck adjustability to obtain a plurality of differing collar sizes.

Yet another object of the present invention is to provide a cervical collar made from a comfortable flexible material which utilizes a plurality of cooperating pairs of strips of Velcro tape to secure the collar about the neck of a wearer and make the necessary adjustments vertically and otherwise to accommodate wearers of different size and shape.

Still another object of the present invention is to provide a cervical collar that is extremely lightweight and uncomfortable for the wearer and which has no metal or otherwise uncomfortable parts to contact the wearer's skin.

With the above and a number of other objects in mind, this invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described, claimed and illustrated in the accompanying drawing, forming a part of the specification, and in which similar characters of reference indicate corresponding parts throughout the several views and in which:

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of one embodiment of a novel cervical collar shaped in a neck-encircling position showing the chin-receiving slit and slit-spanning chin saddle carried thereby;

FIG. 2 is a side elevational view of the cervical collar of FIG. 1 positioned in a neck-encircling manner showing the downwardly extending integral apron which engages the chest of a wearer and encloses the wearer's neck from the chin down;

FIG. 3 is a rear elevational view of the cervical collar shown in FIGS. 1 and 2 positioned in a neck-encircling manner and showing the securement of the collar in that position by means of cooperating strips of Velcro tape;

FIG. 4 is a perspective view of a second embodiment of a cervical collar having an articulated and adjustable downwardly extending apron and a chin-receiving slit including a slit-spanning saddle to accommodate the wearer's chin therein;

FIG. 5 is a front elevational separated and slightly fragmented view of the cervical collar shown in FIG. 4 with the articulated and adjustable apron isolated from the neck-encircling portion so that the plurality of cooperating Velcro tape strips are disclosed which permit the apron to be adjusted with respect to the neck-encircling portion;

FIG. 6 is a side elevational view of the cervical collar shown in FIGS. 4 and 5 demonstrating the articulated and adjustable apron positioned with respect to the neck-encircling portion for a wearer having a relatively short neck length or for a cervical condition requiring such a configuration;

FIG. 7 is a side elevational view of the cervical collar as shown in FIGS. 4, 5 and 6 demonstrating the articulated and adjustable apron in an extended position to accommodate a wearer having a somewhat elongated neck or requiring such a configuration for treatment;

FIG. 8 is a front elevational view of a third embodiment of a cervical collar having an integral and adjustable downwardly extending apron and chin-receiving means associated with the neck-encircling portion, the adjustment and securement of the collar being accomplished by the use of a plurality of cooperating strips of Velcro tape;

FIG. 9 is a fragmentary front elevational view of the cervical collar of FIG. 8 showing the adjustability of the downwardly extending apron by the use of cooperating strips of Velcro tape;

FIG. 10 is a side elevational view of the cervical collar shown in FIGS. 8 and 9 formed in a neck-encircling position and illustrating the integrally connected and adjustable downwardly extending apron in a position to accommodate the wearer having a relatively short neck length or requiring such a configuration for proper treatment; and

FIG. 11 is a side elevational view of the cervical collar shown in FIGS. 8, 9 and 10 having the integrally connected and adjustable downwardly extending apron positioned to accommodate a wearer having a relatively elongated neck or requiring such a configuration for proper treatment.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings and particularly to FIGS. 1 through 3, there is illustrated a first embodiment of a cervical collar generally designated 12 which comprises a neck-encircling portion 14 formed from a sheet of flexible material such as plastic, leather, canvas or the like, and provided with a plurality of apertures 16 to permit air circulation about the neck area of the wearer. The neck-encircling portion 14 is secured in a neck-encircling position by any suitable means, but it has been found extremely advantageous to utilize a plurality of cooperating strips of male and female Velcro generally designated 17 since each of these pairs of strips includes a female pile strip 18 which is attached to the inner surface of an extending fastening band 21 and a male or hook strip 19 attached to the outer surface of portion 14. The male strip includes a large number of tiny hooks which engage loops on the female pile strip when the two strips are pressed together, and this locking engagement is effective to hold the two strips of tape together against either a direct pulling or sliding movement, but permits the tapes to be separated readily by a peeling action.

A padded rim or perimeter 20 encircles substantially the entire exposed edge of the neck-encircling portion 14 of the collar 12 shown in FIGS. 1 through 3 to provide padding for the wearer as the neck, chin and jaw rests against the upper edge 23 of portion 14 while the shoulders and chest are contiguous with the lower edge 25 of that portion.

The center of the upper edge 23 of the neck-encircling member 14 forms a chin-receiving slit generally designated 22 to receive cooperatively the chin of a wearer once the collar has been placed in a desired position. Cooperating with the slit is a slit-spanning saddle shown generally as 24 formed by an adjustable flexible strap 27 secured to neck-encircling member 14 by rivets or the like 26 and fitted to accommodate

the physical characteristics of the chin contour of a wearer by an adjusting buckle 28 associated therewith.

Thus this first embodiment of a cervical collar includes a neck-encircling portion 14 having an integrally formed downwardly extending apron 29 covering the wearer's neck below the chin and resting on the wearer's chest to sustain the head in a pre-selected or desired position. Obviously, reasonable size adjustments may be made by varying the length of the chin saddle 24 while abnormally large adjustments would require the use of a separately sized collar 12 whose integral apron 29 would extend downwardly for a greater length.

A second embodiment of a cervical collar generally designated 30 is shown in FIGS. 4 through 7 and comprises a neck-encircling portion 32, cooperating Velcro strips to secure that portion about the neck 34 and 36 and chin-receiving means generally designated 38 similar to that described above which includes particularly a chin-receiving slit 40 and a slit-spanning chin saddle 42 movably connected to portion 32 by rivets 44 or the like and adjustable in length and application by means of a buckle 46 cooperating therewith. Again plurality of apertures 48 are provided for ventilation.

Cervical collar 30 is provided with an articulated and adjustable downwardly extending apron 50 which is vertically positionable by means of a plurality of cooperating Velcro strips 52 so as to provide a collar of considerably more flexibility than heretofore described as collar adjustability is a function of both the articulated apron 50 and the adjustable slit-spanning saddle 42. This particular embodiment also has padding 54 covering all body-contiguous edges of the collar to eliminate any discomfort to the wearer.

The adjustability of this collar is best illustrated in FIGS. 6 and 7 where the cooperation of the adjustable saddle 42 and articulated apron 50 is clearly set forth and easily understood. In FIG. 6, apron 50 is shortened to almost an extreme upward position, and saddle 42 is pivoted upwardly about securing element 44 to adjust for the physical characteristics or injury of a particular wearer. On the other hand, FIG. 7 illustrates apron 50 in an adjusted, considerably lower position while saddle 42 has been pivoted to accommodate the chin of a wearer having a differing chin and neck configuration or injury. Obviously, innumerable variations and adjustments can be accomplished using the present cervical collar for any physical characteristics and ailments of the wearer.

A third embodiment of a cervical collar utilizing the principles set forth herein is illustrated in FIGS. 8 through 11 wherein the collar generally designated 56 comprises a partially separated neck-encircling portion 58 which is formed in two segments 59 and 61 and provided with cooperating strips of Velcro tape 60 and 62 such as previously described to secure the portion 58 about the neck of the wearer. A padded edge 64 comforts the wearer and a chin-receiving slit 66 is spanned by a saddle 68 pivotal at points 70 and adjustable by a buckle 72 similar to that shown in the previous embodiments.

A downwardly extending apron 74 is integrally connected or situated with the neck-encircling portion 58 at points 76 and 78 as the common padding 64 holds the apron and neck-encircling portion immovable with respect to each other at these particular locations by the applied stitching. Essentially, there is formed an integrally adjustable, downwardly extending apron 74 in conjunction with the neck-encircling portion 58 which adjustability is provided for by means of cooperating Velcro strips 80 on the contiguous surfaces of apron 74 and neck-encircling portion 58. The adjustability is best illustrated in FIG. 9 where the apron 74 is shown as having been moved significantly downwardly and retained in that position by the Velcro fasteners 80. The resulting vertical adjustability provides a cervical collar of flexibility of application and simplicity in construction equal to or surpassing the adjustable embodiment illustrated in FIGS. 4 through 7.

FIGS. 10 and 11 illustrate the apron adjustability feature to provide for differing neck lengths or injuries of the wearer with which even greater flexibility can be attained when used in conjunction with saddle 68 (not shown in FIGS. 10 and 11).

Thus the embodiment of a cervical collar 56 shown in FIGS. 8 through 11 has a chin-receiving slit 66 and a chin saddle 68 spanning the slit which cooperate with the integral and adjustable apron 74 to engage and retain the chin of a wearer and thus sustain the wearer's head in a selected or desired position. The adjustable apron is then positioned by means of a plurality of cooperating pairs of male and female Velcro strips 80 respectively secured to the contiguous surfaces of the neck-encircling portion 58 and the apron 74 of the collar for interlocking engagement. These Velcro strips are thus effective to hold the apron against the chest in a preselected position so that the wearer's head is held accordingly.

In addition to the obvious vertical adjustability existing between the movable aprons 50 and 74 and neck-encircling members 32 and 58 in the second and third embodiments disclosed, these aprons 50 and 74 can be shifted somewhat horizontally relative to one another or can be angularly positioned relative to one another by overlapping one end of the sections to a greater or lesser degree than the opposite section. Thus, the collars can be readily fitted to provide optimum support for a wryneck condition in which the head is tilted, or for a condition in which the head must be supported in a position in which it is twisted to one side.

Obviously, many modifications and changes can be made in the cervical collars herein disclosed within the scope of the appended claims including the neck-encircling portion, the chin-receiving portion and the adjustable apron portions as well as other phases of the present inventive concept without departing from the real spirit and purpose of the invention. Such modifications and changes including the use of mechanical equivalents are contemplated.

I claim:

1. A cervical collar formed from flexible material to fit the neck of a wearer comprising: a neck-encircling member having a downwardly extending apron covering the neck below the chin and resting on the chest and shoulders of the wearer; means for securing said member in a neck-encircling position about the neck of a wearer; said neck-encircling member including a rim portion around the upper perimeter of the neck-encircling member; flexible chin-receiving means for supporting the chin of a wearer; said rim portion including upstanding, opposed lobes, each having an arcuate peripheral surface, said member forming a slit between said lobes, and said slit and said flexible chin-receiving means adapted to receive, engage, and retain the chin, said chin-receiving means extending over the arcuate surface of one of said opposed lobes, underneath a wearer's chin and over the arcuate surface of the other of said opposed lobes, said chin-receiving means being adjustably positionable on the arcuate surfaces of said opposed lobes for automatically raising or lowering said chin-receiving means between said opposed lobes to support the chin of a wearer in various positions.

2. A cervical collar as defined in claim 1 said chin-receiving means including a saddle portion spanning said slit, said slit and saddle portion cooperating with said apron to engage and retain the chin and sustain the head in a selected position.

3. A cervical collar as defined in claim 1, said downwardly extending apron being integrally adjustable with said neck-encircling member, said chin-receiving means including a chin saddle and said slit and saddle cooperating with said adjustable apron to engage and retain the the chin and sustain the head in a desired position.

4. A cervical collar as defined in claim 3, said neck-encircling member and said integrally adjustable apron having a plurality of cooperating pairs of male and female Velcro strips respectively secured thereto for interlocking engagement and being effective to hold said apron against the chest in a preselected head-supported position.

5. A cervical collar formed from flexible material to fit the neck of a wearer comprising: a neck-encircling member; means for securing said member in a neck-encircling position about the neck of a wearer; said neck-encircling member including a rim portion around the upper perimeter of the neck-

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encircling member; flexible chin-receiving means for supporting the chin of a wearer; said rim portion including upstanding, opposed lobes, each having an arcuate peripheral surface, said chin-receiving means extending over the arcuate surface of one of said opposed lobes, underneath a wearer's chin and over the arcuate surface of the other of said opposed lobes, said chin-receiving means being adjustably positionable on the arcuate surfaces of said opposed lobes for automatically rais-

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ing or lowering said chin-receiving means between said opposed lobes to support the chin of a wearer in various positions, said member securing means including a plurality of cooperating pairs of male and female Velcro strips attached to said neck-encircling member for interlocking engagement and being effective to hold said member in a neck-encircling position.

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