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DEVICE FOR THE SUPPORT OF SEATED PERSONS

Filed May 20, 1968

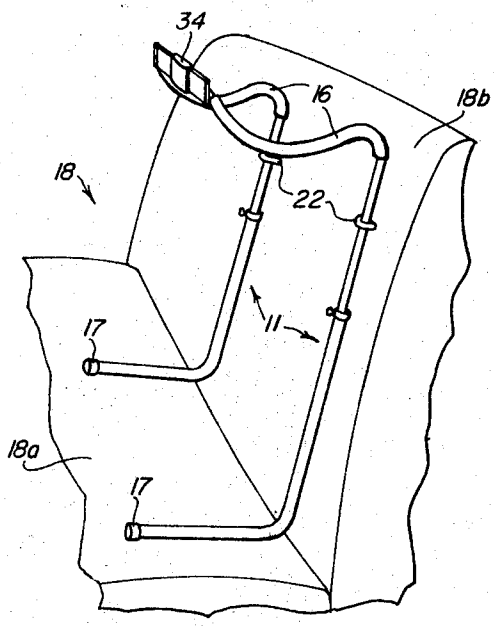
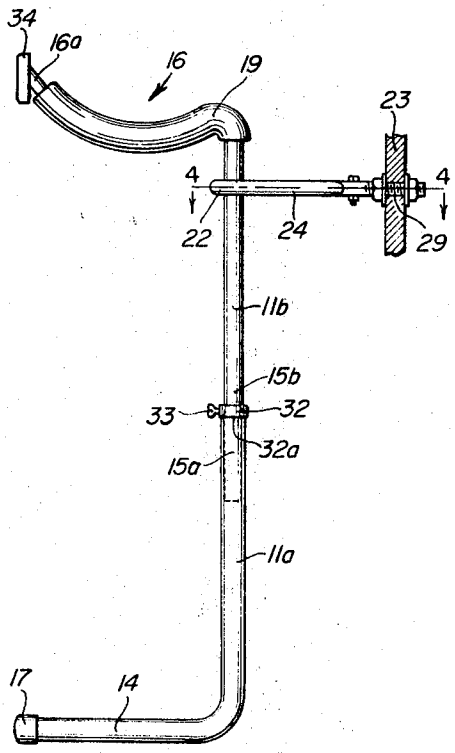


FIG. 2.

FIG. 3.



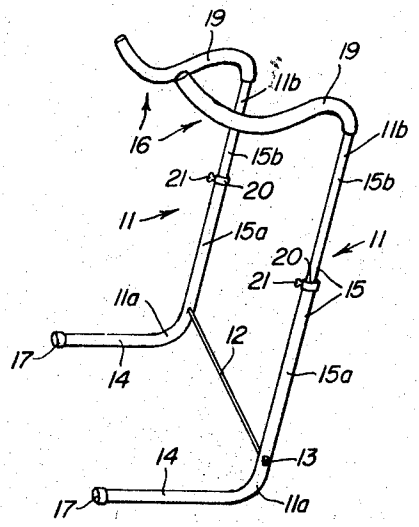
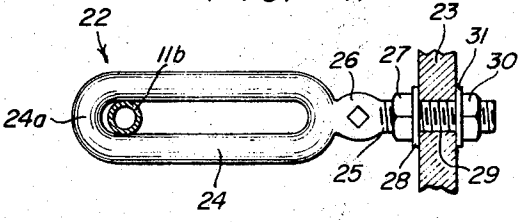


FIG. 1.

FIG. 4.



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DEVICE FOR THE SUPPORT OF SEATED PERSONS

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ABSTRACT OF THE DISCLOSURE

A device for supporting the upper body of persons who must remain seated for prolonged periods of time. The device includes either one or two support elements, each of which has a base member, a central connecting member, and a crutch member. The base member is adapted to rest on the seat of a chair while the crutch member is adapted for placement beneath the armpit of a seated person. The connecting member is adjustable in length to permit the use of the same device by persons of different heights. The device may be attached to an automotive-type seat and may include, as an additional element, an automotive safety belt.

BACKGROUND OF THE INVENTION

Field.—This invention relates to body-support structures and provides a device useful for supporting the upper body of a seated person.

State of the art.—Individual persons, either because of their occupations or for other reasons, notably because of medical disabilities, remain in a seated position for prolonged periods of time. As a consequence, there is a tendency for the upper body to slump, due to fatigue. After a prolonged period of driving, for example, a truck driver has difficulty in maintaining his upper body erect, in proper driving position. Persons with certain spinal or muscular weaknesses also have difficulty maintaining their upper bodies erect.

Various body appliances have been suggested to relieve discomfort from injuries and to assist in holding the upper body erect. The appliances described in U.S. Pats. 507,172; 796,623; 1,722,205; and 3,029,818 are typical of such appliances. U.S. Pat. 2,973,031 discloses and claims a body appliance specifically intended to relieve fatigue caused by prolonged periods of driving an automobile or truck. Each of the body appliances disclosed by the aforementioned patents is in the nature of a harness or truss which is buckled or clamped around the torso or upper back. Such devices are too cumbersome for casual use, and they are too restrictive of normal body movements to remain comfortable over long periods of use.

SUMMARY OF THE INVENTION

The present invention provides a device useful for supporting the upper body of a seated person to prevent fatigue, to relieve pain, or to facilitate body movement. Rather than being attached to the person, the device is simply placed on a seat or attached to a chair for use. A person need merely sit down on the seat to position his body properly with respect to the device. Because the device may be so readily emplaced and removed, by merely sitting or standing, it is suitable for casual or intermittent use. Moreover, because the device need not be fastened to the person, it is relatively unrestrictive of movement, lending support when needed without restricting body movement. Accordingly, the device itself causes little if any discomfort, even after prolonged periods of use.

The term "seat" is used herein and in the claims in a narrow sense to indicate the seat portion of any chair, bench or automotive seat. The term "chair" is used in a broad sense to include both the seat and the back and/or arms, if any, of all types of chairs, benches and automotive seats.

In general, the device of this invention includes at least one support element for placement in approximately vertical position beside a seated person to support the person's shoulder from under the armpit. One end of the support element is adapted as a base member to bear on the seat, and the other end of the support element is adapted as a crutch member to fit under the armpit. Although a single support element may be employed in certain instances, the device generally includes two support elements arranged for placement on opposite sides of the seated person. It is sometimes desirable to provide connecting means, e.g., a cord, to prevent the base members of the support elements from spreading. The cord may be attached to the support elements at any convenient point along their lengths, preferably near the base members thereof.

In its preferred embodiment, each support element of the device includes a central connecting member, a base member attached to one end of the connecting member, and a crutch member attached to the end of the connecting member opposite the base member. The connecting member preferably includes means for adjusting its length so that a single device may be used by persons of different heights.

A support element is conveniently constructed in two sections, each of which includes a part of the connecting member. For example, the base member of the support element may be attached to a female part of the connecting member while the crutch member of the support element is attached to a male part of the connecting member. The length of the support element is adjusted by inserting the male part the appropriate distance into the female part and fastening the two parts together, e.g., by a thumb screw, hole-and-pin arrangement, or threaded joint.

The support element may be provided with a swivel means, preferably in the connecting member thereof, to permit side-to-side rotation of the crutch member relative to the base member. The inclusion of such swivel means permits greater freedom of movement, which is particularly desirable if the user of the device wishes to reach or look in directions which require him to twist his torso.

The swivel means is conveniently combined with the length-adjusting means hereinbefore described. Thus, for example, the length of the support element may be adjusted by fastening a slip ring at the desired position on the male part of the connecting member, e.g., by means of a thumb screw. The ring should be of sufficient outer diameter to rest on the top of the female part of the connecting member, thereby providing a bearing surface upon which the male part of the connecting member may be rotated with respect to the female part.

In use, a support element is placed on each side of the user, e.g., a person seated in an office chair or on an automotive-type seat. The lengths of the connecting members are adjusted so that the crutch members of the support elements fit snugly beneath the armpits of the user when the base members are placed on the seat.

When the user sits in an erect posture, the weight of his upper body is supported by the crutch member from the base member immediately beneath his shoulder. The base member is desirably elongate, extending forwardly across the seat from attachment to the connecting member, so that when the user leans forward in his seat, the support elements pivot on the distal, or unattached, ends of the base members. By this means, the crutch members provide adequate, stable support for the upper body even when its center of gravity is moved substantially forward.

The extending length of the base member, i.e., the distance it extends from attachment to the connecting member, should be such as to hold the crutch member snugly under the armpit as the user moves forward and backward in his chair or seat. If the extending length is too long, the crutch member will tend to lift the shoulder of the user as he leans forward. If the extending length is too short, the crutch member will tend to drop away from supporting position as the user leans forward. The extending length of the base member may be adjustable, although, in most instances of use, a fixed length of between about 9 and about 11 inches is satisfactory.

The crutch member of the support element is desirably curved to conform generally to the contour of the armpit. Usually, the crutch member will be padded to cushion it against the armpit of the user.

According to certain specific, although not necessarily preferred, embodiments, the support elements of the device are adapted for fastening to a chair. For example, the support elements may be bolted to the back or arms of an office chair or a wheel chair, or to the back of an automotive-type seat. It is particularly desirable in such embodiments that the connecting members include the swivel means hereinbefore described so that the crutch members will be free to swing from side to side. A safety belt may then be attached to the support elements for fastening around the trunk of a driver or convalescent. The safety belt may be attached at any convenient point of the support elements, but it is normally attached at the distal ends of the crutch members so that it may conveniently be placed around the chest of the user.

DESCRIPTION OF THE DRAWING

In the drawing, which represents what is presently contemplated as the best mode of practicing the invention:

FIG. 1 is a perspective view of the device;

FIG. 2, a perspective view of another form of the device mounted on an automotive-type seat;

FIG. 3, a side view of the embodiment of FIG. 2, with a portion of the seat shown in section and showing details of the mounting means; and

FIG. 4, a top view, with a portion of the seat shown in section, of the mounting means taken along the lines **4—4** of FIG. 3.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

The device illustrated by FIG. 1 consists of two support elements **11** connected by a cord **12**. The cord **12** is tied to the support elements **11** through holes **13**. Each support element is constructed in two parts; a pipe section **11***a* and a rod section **11***b*. The pipe section **11***a* includes a base member **14** and the female part **15***a* of a connecting member **15**. The rod section **11***b* includes a crutch member **16** and the male part **15***b* of the connecting member **15**. As illustrated, the pipe section **11***a* is bent at approximately a 90° angle so that the base member **14** extends approximately normally from attachment to the connecting member **15**. A rubber or plastic end cap **17** is provided over the distal end of the base member **14**. This cap **17** protects a seat cushion **18***a* (FIG. 2) from wear as the support element **11** is rocked forward and backward in use, thereby pivoting the support element on the distal end of the base member **14**. The rod section **11***b* is also bent so that the crutch member **16** extends approximately normally from the remainder of the rod, i.e., the male part **15***b* of the connecting member **15**. The crutch member **16** is shaped to conform generally to the contour of the armpit. A sponge rubber sleeve **19** is provided around the crutch member to cushion it against the armpit.

The overall length of each support element **11** is adjusted by sliding the rod section **11***b* the appropriate distance into the pipe section **11***a*. The rod is entered into the pipe through a ring **20** welded to the top of the pipe section **11***a* and is held in place by a thumb screw **21** turning through a threaded hole in the ring. If desired, the thumb screw may turn through a hole threaded directly through the pipe wall, and the ring **20** may be dispensed with.

FIGS. 2, 3, and 4 illustrate the device in an embodiment adapted for installation in an automotive vehicle. There is illustrated a refinement of this embodiment, according to which the device functions as both a support and an automotive safety belt. The structure of the illustrated device is basically similar to that described in connection with FIG. 1, with slight modifications to facilitate freedom of movement, even though the device is installed in a more or less stationary position.

Each support element **11** is fastened against the back cushion **18***b* of an automotive-type seat **18** by an eyebolt **22** anchored to the structural back panel **23** of the seat, as illustrated in FIG. 3. The eye **24** of the bolt **22** is connected to the threaded shank **25** of the bolt by a pivot coupling **26** to permit side-to-side movement of the eye as a driver leans to one side or the other in the seat. The eye portion of the bolt is desirably elongate, as illustrated in FIG. 4, to allow for the flexing of the back cushion **18***b* as a driver rests his weight backwardly into the seat cushion. The distance between the projecting end **24***a* of the eye **24** and the back panel **23** is adjusted by positioning nut **27** and washer **28** on shank **25** as illustrated. This distance is adjusted to hold the support elements tightly against the back cushion **18***b* when the device is not in use. The shank **25** of the eyebolt **22** is inserted through a hole **29** in the back panel **23** and is securely fastened to the back panel by nut **30** and washer **31**. When the support elements **11** are fastened to the seat in this manner, the cord **12** (FIG. 1) is normally dispensed with as unnecessary.

Because the support elements are held to the seat **18** in a fashion which permits relatively little sideways movement, the connecting members **15** are desirably provided with swivel means **32** to permit the crutch members **16** to swing from side to side. In the illustrated instance, the adjusting ring **32** is a separate element and is fastened by thumb screw **33** to the male part **15***b* of the connecting member in position to adjust the length of the support element **11** as desired. The ring **32** has sufficient thickness to provide a bearing surface **32***a* between the bottom of the ring and the top of the female part **15***a* of the connecting member. Entry of the male part **15***b* into the female part **15***a* is thus checked by the adjusting ring, but the male part is left free to rotate with respect to the female part.

A chest type seat belt **34** is connected to the extending ends **16***a* of the crutch members **16**. Thus, in the event of an impact which pitches the driver forwardly into the seat belt, **34**, the driver is anchored to the support elements which are in turn anchored to the seat structure.

Although the invention has been described with particular reference to certain details of specific embodiments, reference to these details is not intended to limit the scope of the claims. Many modifications which do not depart from the legitimate scope of the invention will be suggested to those skilled in the art by this disclosure.

I claim:

1. A supporting device for the upper body of a person sitting on a seat; comprising

a pair of support elements for placement on the seat at opposite sides and under the armpits of said person, each support element including in combination

an elongate base member adapted to rest on the seat and to extend from the rear of the seat toward the front thereof, the forward end of the base member being formed as a pivot point;

an upright connecting member rigidly attached at its lower end to the rearward end of the base member and extending upwardly to approximately the armpit level of the seated person when the device is in normal use; and

a cantilevered crutch member attached to the upper end of the connecting member and adapted to fit

under the armpit of the seated person, said crutch member and said base member extending forwardly of the connecting member approximately the same distance so said pivot points will rest on the seat during use.

2. A device as described in claim 1, wherein the connecting members are adjustable in length so that the support elements can be used by persons of different heights.

3. A device as described in claim 1, wherein the pair of support elements are connected by connecting means to prevent spreading of the base members thereof.

4. A device as described in claim 1 in combination with an automobile seat.

5. A device as described in claim 1, wherein a safety belt is attached at either end thereof to the extending

ends of the crutch members, said safety belt being adapted to extend around the chest of a person seated between the pair of support elements.

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