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3,467,085

FIRST AID STRAP

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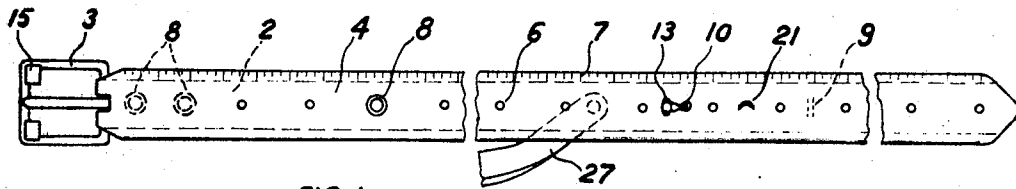


FIG. 1

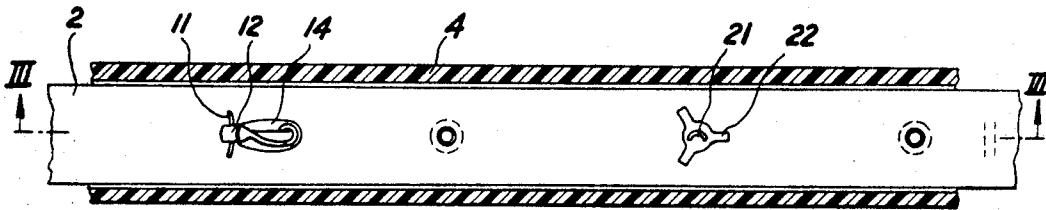


FIG. 2

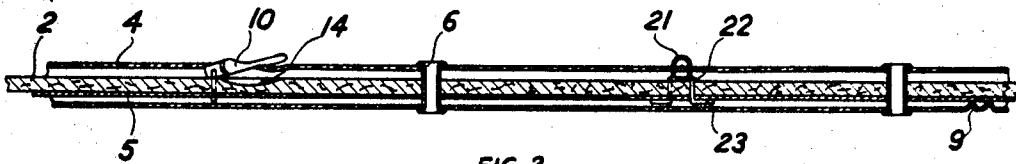


FIG. 3

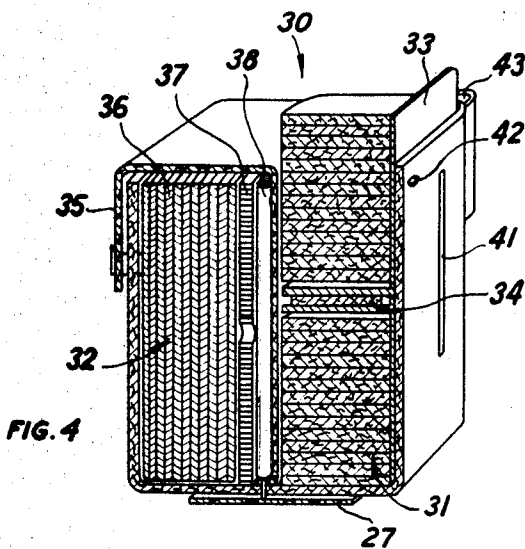


FIG. 4

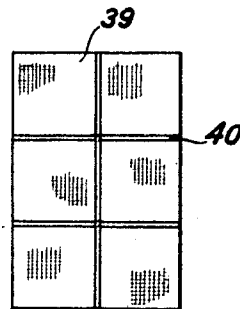


FIG. 5

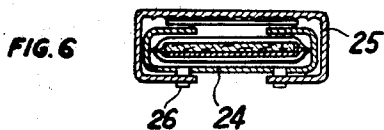


FIG. 6

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FIRST AID STRAP

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7 Claims

ABSTRACT OF THE DISCLOSURE

The first aid strap includes a central strip encased in a sleeve of plastic or the like and strengthened by a flexible, coextensive metal band. A buckle is attached at one end of the strip. A plurality of eyelets secure the strip, sleeve, and band to one another. Preferably the strip is held rolled in a first aid pack with other first aid items.

This invention relates to a strap useful in any common emergency situation, and more particularly to a tourniquet belt and to a first aid pack which includes the belt.

In emergencies, a strap could be quite useful. It could serve as a tourniquet, or as a sling, or as a rope to extend to a drowning person; it could hold a splint on, tie an unconscious person to a stretcher, or hold a bandage on a wound. No strap has been devised prior to this invention, which will serve in each of these emergency situations, probably because each application requires a different type of strap. Accordingly, in emergency situations it is customary to make do with what is at hand, if anything. Law enforcement officers, firemen, and others who often are looked to for help in such times, carry nothing to help them deal with such situations. And they really cannot, because all of the devices and equipment which might be required would probably have to be carried in a backpack. For this reason people go without aid simply because no equipment is at hand, even though someone trained to help may be on the scene.

The present invention provides a strap uniquely useful in any common emergency situation. It includes structure to serve as either a single or a double tourniquet, a sling, an extension rope, a splint tie-down, a stretcher strap and a bandage harness. In addition, it will also serve in many other capacities as a restraining belt, a traffic reflectorized belt, a measuring tape, and as an ambulance neck or foot supporting hammock, for example.

The first aid strap of the present invention includes a central strip of leather or the like having a buckle at one end and a tongue at the other end. The leather strip is encased by a sleeve of plastic or the like, and may be strengthened by a coextensive metal band. Multiple eyelets for the prong of the buckle are provided along the length of the strap and extend through the central strip, the encasing sleeve and the metal band. Also fastened to the strap along its length are a plurality of hooks or clips and a series of projecting eye loops. Preferably the first aid strap is held rolled by cooperating snaps on the strap, and received in a first-aid pack which also may include a folded sheet of bandaging material, a roll of adhesive tape, a first-aid direction booklet, and an extra buckle. The folded sheet of bandaging material preferably is formed from a plurality of gauze pads held together in sheet form by interconnecting strips of a rendable material such as a plastic. One or more gauze pads may be separated from the sheet to form a bandage of the desired size by tearing the rendable material. The extra buckle may be slipped on the strap after it has been secured about one limb, and hold the free end of the strap about a second limb.

The invention will be further described in connection with the accompanying drawing in which:

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FIGURE 1 is a fragmentary plan view of the first aid strap;

FIGURE 2 is an enlarged view of a central portion of the strap with the outer covering removed;

FIGURE 3 is a cross-sectional view taken on lines III—III of FIGURE 2;

FIGURE 4 is a vertical cross-sectional view of a first aid pack including the strap;

FIGURE 5 is a plan view of a sheet of bandaging material; and

FIGURE 6 is a cross-sectional view of the strap including an auxiliary buckle.

The first aid strap is formed about a central strip 2 of leather, or like material. A buckle 3 is attached to one end of the strip, and a tongue formed at the other end. A sleeve 4, preferably of a brightly colored thermoplastic material snugly encases the central strip. This sleeve may be formed from two lengths of thermoplastic material placed along opposite faces of the strap then fused together by heat along the side margins of the strap. A metal band 5, of thin steel or the like, may be included between the sleeve and the strip to strengthen and stiffen the strap, and to hold the strap together even under great strain. A series of eyelets 6 spaced along the strap pass through the sleeve, the metal band and the strip. In addition to providing openings through which the prong of the buckle 3 may be passed to form the strap into a loop, the eyelets also help to secure the sleeve, metal band and strip together. For a more complete bond, adhesive may be added between these elements of the first aid strap. A measuring scale 7 may be marked along the side of the belt, preferably along the fused side edges of the sleeve. The strap also includes cooperating snaps 8 next to the buckle, which overlie and may be fastened to one another when the strap has been coiled up to hold the strap rolled. A series of transverse indentations 9 may roughen the inner face of the sleeve to increase its frictional resistance to movement and substantially reduce any tendency of the strap to slip after being applied.

A series of clips or hooks 10 may be centrally positioned along the first aid strap. It is preferred to attach these clips to the strap in such a manner that they may either be fixed to lie flat on the strap, or to extend outwardly from the strap. To this end, a rod 11 may be attached to the strap, as by passing its end portions through the strip and metal band then turning them under along the metal band, to which they may be attached. One end of a swivel 12 is attached to the rod, and by the rod to the strap. The other end of the swivel is fixed to the clip 10. The clip extends through an opening 13 (see FIGURE 1) through the sleeve, and overlays a depression 14 formed in the strip. The clip may be lifted during use, pivoting about the rod 11, or may be placed against the depression to lie flat along the strap when not in use. The swivel and clip structure may be coated with a plastic to protect it from the elements and improve its appearance. Preferably the buckle includes two inserts 15 fixed within the outer corners of the bar, providing a space between them and under the prong. This space allows the various attachments along the center of the strap to freely slide through the buckle without catching on its outer bar.

A series of eye loops 21 project through openings in the sleeve. Each eye loop extends from the central portion of a plate 22 which is fixed by prongs 23 to the strap. The prongs extend through the strip and metal band, and are folded to lie along the metal band, to which they may be fixed if added strength is desired. These eye loops are quite useful when tying a splint with the strap. After the strap has been buckled about one end of the limb and splint, and its central portion wrapped about the

splint a few times if desired, one of the clips 10 may be attached to one of the aligned eye loops to fasten the other end of the strap about the limb and splint.

The first aid strap lends itself to a wide range of uses. By passing the tongue end of the belt through the buckle, and inserting the prong of the buckle in the appropriate eyelet, the strap may be tightly clamped about a person's limb to serve as a tourniquet and stop a severely bleeding wound. The free tongue end of the strap may be employed as a second tourniquet, either by fixing a clip to one of the eye loops, or by employing a second or auxiliary friction-type buckle, preferably as shown in FIGURE 6. The auxiliary buckle includes a C-shaped base member or clamp 24, and a bar 25 whose end portions are received under loops 26 projecting from the clamp to pivotally attach the bar over the clamp. The tongue portion of the strap may be passed between the bar and the clamp as the bar is held upright, as shown, then the tongue retracted until the bar bears down on the top of the tongue and prevents further retraction. Stops may be provided on the clamp to prevent the bar from moving forward past an upright position and impeding insertion of the tongue under the bar. In a similar manner the strap may be used to clamp a compress bandage over the wound. The strap will firmly hold the bandage over the wound even though the area around the wound is moistened with blood, which would impair or prevent adhesion of surgical tape to the area.

The strap may be used as a sling by looping it behind a person's neck and under an arm to support the arm and hold it still. Should a limb be broken, the strap may be used to hold a splint by wrapping it one or more times about the limb and splint and then attaching the ends to one another as previously described. The strap may be used as a restraining belt for a handcuffed person by clamping it about the person's upper arms to hold them to his chest, and fixing the handcuffs to the free tongue end (called an anchor line) of the belt by passing the clip through a link in the handcuff chain. Preferably the plastic sleeve is brightly colored with a fluorescent orange dye or the like and highly reflective so that the belt may be seen from afar, when worn by an officer while directing traffic, or used to alert approaching motorists. The scale along the tape may be used to measure skid marks or other distances. The belt will tie an injured person to a stretcher so that he cannot slip or fall off. It may be used to hold a wild or dangerous animal. It may be used by a fireman to quickly tie an unconscious person to him. By using the strap in this manner, the fireman will have both hands free to use while carrying the person. Because of the stiffness imparted to the strap by the metal bands, the strap may be straightened and extended to a drowning person for him to grasp and hold while being pulled to safety. The ends of the strap may be hooked to the walls of an ambulance, and the hammock so formed by the strap used to support a person's feet or neck particularly when handling heart attack or shock cases. A second wider strip 27 may be attached, as by snaps, to the central portion of the strap and cushion a person's neck or feet when the strap is being used as a hammock. A second buckle (see FIGURE 6) of the friction clamping type may be carried about the central portion of the strap, or passed over the free end of the strap after it has been clamped about one limb, and the buckle used in a conventional fashion to clamp the free end portion about a second limb if desired. This second buckle may be supplanted by a separate, removable, friction clasp type of buckle formed from two such buckles attached together back-to-back so that one will grasp the body of the strap and the other its tongue.

As shown in FIGURE 4, it is preferred to include the strap as part of a first aid kit contained in a packet 30, formed of leather or the like. The packet preferably is divided into two compartments, a front compartment 31 and a rear compartment 32. The rear compartment is

sufficiently large to contain the rolled first aid strap, and open at the top so that the strap is readily accessible. The strap may be rolled most easily employing a plate 33 with a central slotted pin 34, by inserting the tongue end of the strap in the slot then coiling the strap about the pin and against the plate. The front compartment may be closed by a lid 35 which snaps to the front of the packet. This compartment may include a folded sheet of bandaging material 36, a roll of surgical tape 37 and a first aid direction booklet 38. The folded sheet of bandaging material may be formed, as shown in FIGURE 5, from a series of gauze pads 39, interconnected at their edges by strips of rendable material 40 of plastic or the like. By this construction one or more gauze pads may be separated from the sheet to form a smaller bandage by tearing the rendable material. Preferably the sheet of bandaging material, the roll of tape, and the booklet are each received in a plastic envelope, and the envelopes of the bandaging material and tape sealed to keep them clean, dry and sterile. The envelope of the booklet may be attached to the inside rear wall of the front compartment so that it will be readily accessible. Openings to receive a belt may be provided by slots 41 in the rear wall of the packet. Another set of openings 42 may be provided through the rear wall to receive the legs of a clip for attaching the packet to the visor of a car or wherever desired. The packet also may include a side pocket 43 for receiving the second or removable buckle. Snaps may be provided on the sides of the packet to attach the second strip 27 as shown.

The first aid kit is highly useful to those commonly called upon in case of an emergency, such as law enforcement officers and firemen. It is highly useful to those expected to provide equipment for handling emergencies, such as public health and service agencies. It is also highly useful to those in danger of bodily harm, such as soldiers on the battlefield, or construction workers on the job. Another major use of the first aid kit is to assist in rescuing and treating drowning persons. Particularly in this connection, the first aid kit may be separated into two watertight packets mounted along a lifeguard's white web belt, one packet containing the first aid strap, the other the gauze, tape, extra buckle and booklet.

The strap may be assembled by first attaching the buckle to one end of a strip of leather. Then the metallic band is attached to the strip, and buckle if desired. Next, the swivel clips and eye loops are attached to the strip and metal band, and depressions formed in the strip underneath the clips. The sleeve of brightly colored thermoplastic material is then formed about the strip, metal band, clips and eye loops, preferably by fusing the edges of the sleeve along the strap. By using a heater bar for this fusing operation, scale markings may be cut in the bar and the scale formed on the strap simultaneously with the fusing operation. The indentations also preferably are formed in the back of the strap during this operation. Finally the eyelets are punched through the sleeve, strip and band, openings cut in the sleeve for the clips and eye loops, snaps attached along the belt, and an auxiliary buckle added if desired.

By way of an example of the relationship of the elements, the following dimensions are preferred:

- Leather strap 2— $\frac{1}{8}$ " thick, 1" wide, 70" long;
- Buckle 3—about $1\frac{1}{4}$ " wide by 2" long;
- Thermoplastic sleeve 4— $\frac{1}{32}$ " thick, $1\frac{1}{4}$ " wide, 70" long;
- Metal band 5—1" wide, 70" long;
- Eyelets 6—spaced every 1" along strap beginning about 10" from the buckle;
- Six clips 10—spaced from the buckle, 60", 55", 46", 42", 38", 34";
- Ten eye loops 21—spaced at 5" intervals starting 20" from buckle;
- Second strip 27—leather about 8" long by 1" wide laminated with a plastic sleeve about $1\frac{1}{4}$ " wide;
- Plate 33—4" x 5";

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Folded gauze sheet 36— $\frac{3}{4}$ " thick, $3\frac{1}{2}$ " square unfolding to about 8" x 12";
Tape 37— $\frac{1}{4}$ " wide, $3\frac{1}{2}$ " outside diameter;
Booklet 38— $3\frac{1}{2}$ " square.

While the first aid strap and kit of the present invention have been illustrated and described in detail, alternatives and modifications will occur to those skilled in this art. Accordingly the invention is defined not by the specific structure shown, but rather by the accompanying claims.

I claim:

1. A first aid strap comprising a strip, a buckle attached to one end of the strip, the other end of the strip forming a tongue portion, a sleeve surrounding and snugly encasing substantially the entire length of the strip, a flexible strengthening band between and substantially coextensive with the sleeve and strip, and means securing the strip, sleeve and band together including a plurality of eyelets spaced along the strap and extending through the strip, sleeve, and band.

2. A first aid strap as set forth in claim 1 including a plurality of clips spaced along the strap, and means to attach the clips to the strap.

3. A first aid strap as set forth in claim 2 in which the flexible band extends along the inner side of the strap, and in which the means to attach the clips include a rod extending through the strip and fixed to the band, a swivel attached at one end portion to the rod, the clip being attached to the other end portion of the swivel, and an opening in the sleeve through which the outer portion of the clip extends.

4. A first aid strap as set forth in claim 3 including a series of eye loops spaced along the strip, each eye loop including at least one member extending through the strip and fixed to the flexible band.

5. A first aid strap as set forth in claim 1 in which the flexible band is a metal band extending along the strip within the sleeve, the sleeve being formed from a thermoplastic material, the sleeve including indentations along the inner side of the strap to present a roughened surface, the securing means including a plurality of eye-

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lets spaced along the strap, each eyelet extending through the strip, sleeve and metal band and shaped to receive the prong of the buckle, the first aid strap also including a plurality of clips spaced along the strip, means attaching each clip to the strap including a rod extending through the strip and fixed to the metal band, a swivel attached at one end portion to the rod, the clip being attached at the other end portion of the swivel, an opening in the sleeve through which the outer portion of the clip extends, a series of eye loops spaced along the strip, each eye loop being fixed to a plate having a plurality of prongs extending through the strip and fixed to the metal band, and scale indicia spaced along the strap.

6. A first aid strap as set forth in claim 1 including a second strip, and means for removably attaching the second strip extending along the center portion of the strap and bowing from the strap to provide an enlarged area of support.

7. A first aid strap as set forth in claim 1 including an auxiliary buckle slidably attached about the center portion of the strap, the buckle including a base member extending about the strap, and a bar pivotably attached to the base member with the center portion of the bar spaced from the base member sufficiently to receive and clamp the tongue portion of the strap against retraction.

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