

[54] REFLECTING HARNESS FOR PERSONS

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[22] Filed: **Jan. 14, 1974**

[57] **ABSTRACT**

[21] Appl. No.: **432,942**

A belt with two shoulder straps that cross in the back of the wearer made of a white retro-reflective canvas tape upon which are attached at regular intervals longitudinally of the belt and straps prismatic or faceted reflector means or disks which may be colored red in the back and amber or yellow in the front and sides of the wearer. The belt is attached by a buckle, such as a link buckle, and the belt and both straps may be adjustable in length to fit different size persons and over different amounts of clothing. All of this is to increase the visibility of the wearer at night and particularly in the rain.

[52] U.S. Cl. .... **350/98; 350/97; 2/326**  
[51] Int. Cl. .... **G02b 5/12**  
[58] Field of Search ..... 350/97, 98, 298; 2/326

[56] **References Cited**

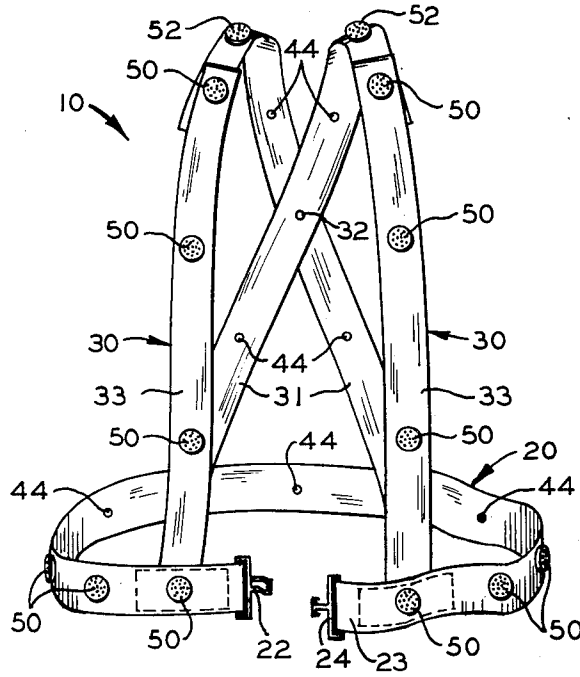
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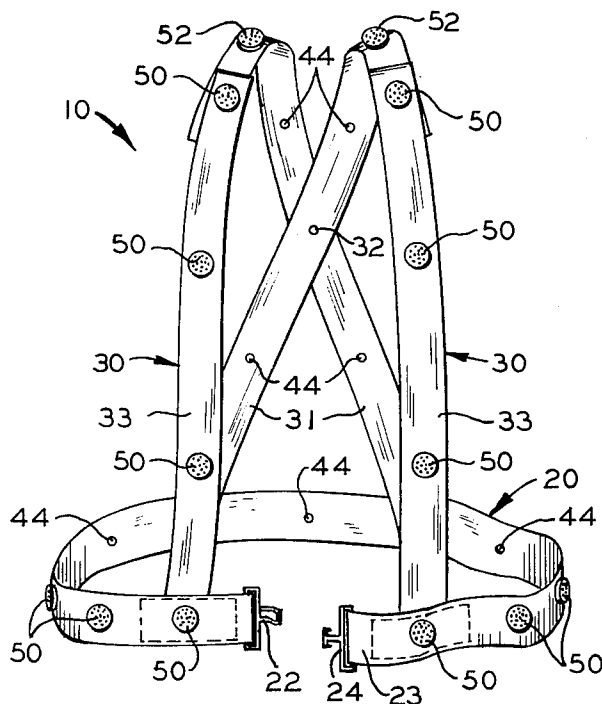
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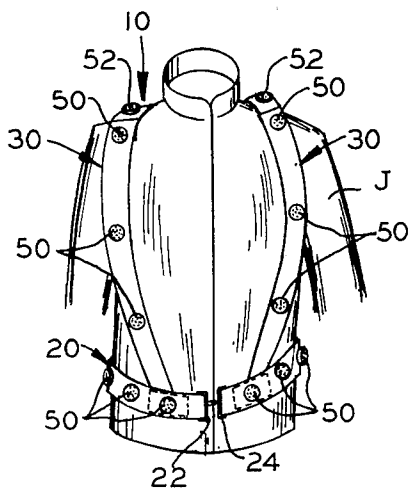
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8 Claims, 7 Drawing Figures

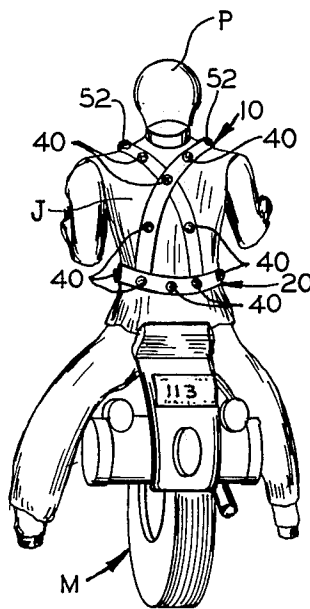




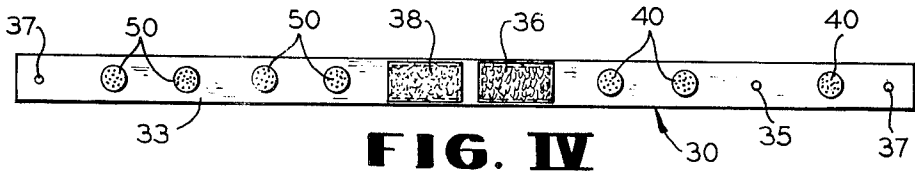
**FIG. I**



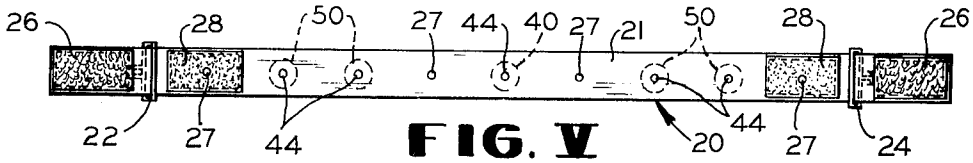
**FIG. II**



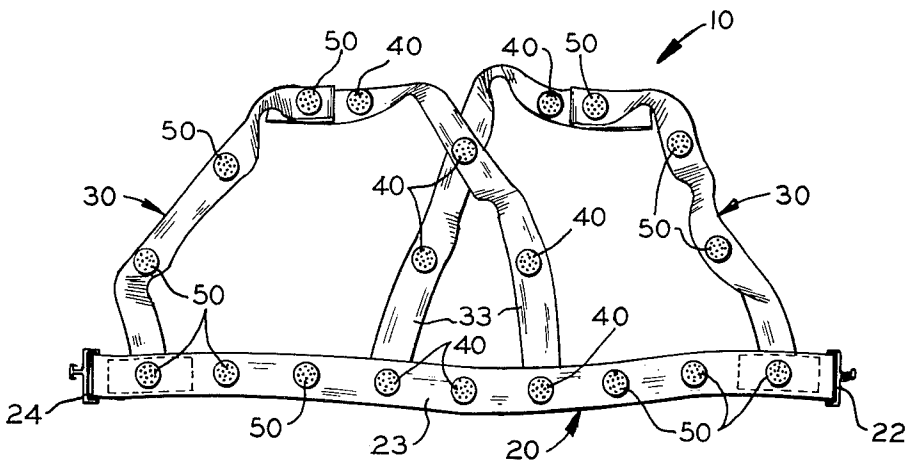
**FIG. III**



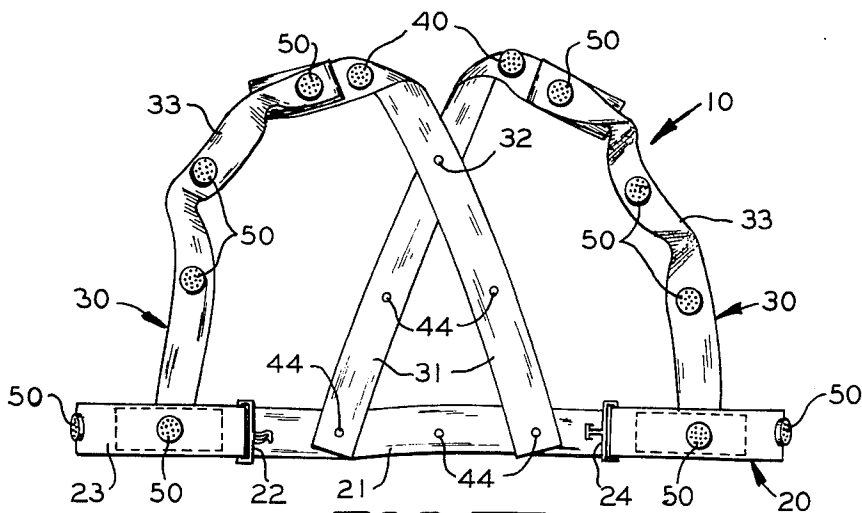
**FIG. IV**



**FIG. V**



**FIG. VI**



**FIG. VII**

## REFLECTING HARNESS FOR PERSONS

## SUMMARY OF THE INVENTION

Generally speaking, this invention relates to an improvement in light reflecting safety garmets by attaching thereto a plurality of glass or plastic prismatic or faceted reflecting disks or plates that do not decrease their reflectability when wet, as do the small glass bead reflectorized and brightly colored materials. For example, small glass beads adhered to a surface, known under the trademark of "Scotchlite", reduced the reflectivity of such surface about 50 percent when wet.

A specific embodiment of this invention comprises a harness composed of about two inch wide light colored or white reflectorized or retro-reflective canvas tape cut into substantially three equal lengths, one of which is employed as a belt for a wearer and the other of which are employed as shoulder straps which cross in the back of the wearer and are attached at their ends to the front and back of the belt. Both of the shoulder straps and the belt are adjustable as to length, such as by overlapping hook and loop tabs known under the trademark of "Velcro" or slidable buckle type loops, and the ends of the belt preferably in the front are fastened by a light weight buckle, such as a link buckle. Attached at equal intervals along the straps on their outer reflectorized surfaces are a plurality of high light reflecting prismatic or faceted means or disks, preferably of contrasting colors such as red for the back of the belt and strap and amber or yellor for their front and sides. These reflecting means or disks are fastened to the straps such as by an adhesive, stitchings, rivets, or the like and preferably have pivotal connections where they intercept and/or attach one to another, such as by washered rivets. If desired, the reflecting means or disks which are attached to the top of the shoulder straps may be convex or domed shaped so that they may be viewed and reflect light in all horizontal directions.

Thus the retro-reflective harness of this invention enables the wearer thereof to be seen further and better at night, and particularly in the rain, and the color of reflecting means or disks placed thereon enables an observer to determine whether he is seeing the back, front or sides of its wearer, in order to better determine what direction the wearer of the harness is facing and/or moving. People who could find safety and advantage in wearing the reflecting harness of this invention are many, and include motorcyclists, bicyclists, hikers, road construction workers, school monitors, policemen, snow mobilists, hunters, fishermen, motorists, students, pedestrians, hitchhikers, or any one working or walking along a highway at night, and even persons who might be lost at night from a plane or helicopter that had been downed, or stranded in or from a small boat. Thus the visibility of a wearer of the harness of this invention is materially increased when light or lights are flashed or directed upon him.

Accordingly, it is an object of this invention to produce an efficient, effective, economical, light weight, and high light-reflecting harness for wearers which does not materially decrease its reflectivity when wet. Also and incidentally the harness helps retain the garmets on its wearer, over which it is worn, against wind.

## BRIEF DESCRIPTION OF THE VIEWS

The above mentioned and other features, objects, and advantages, and the manner of attaining them are

described more specifically below by reference to an embodiment of this invention shown in the accompanying drawings wherein:

FIG. I is a front view of one embodiment of the harness of this invention in the position it would have when worn before it was buckled;

FIG. II is a front view of the harness of FIG. I being worn over a jacket;

FIG. III is the rear view of the harness of FIG. I being worn over a jacket worn by a motorcycle rider;

FIG. IV is a plan view of the outside of one of the shoulder straps employed in making the harness of FIG. I;

FIG. V is a plan view of the inside of the belt employed in making the harness of FIG. I;

FIG. VI is a plan view of the outside reflecting surfaces and reflecting means of the assembled harness of FIG. I spread out on a flat surface; and

FIG. VII is the opposite side of the assembled harness shown in FIG. VI with its ends folded over showing the inside of the back thereof.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Referring first to FIGS. I, II, and III, an embodiment of the reflecting harness 10 of this invention is shown to comprise a retro-reflective tape forming a belt portion 20 which is connected to a pair of similar retro-reflective tape shoulder straps 30 which cross at pivot point 32 in the back. The ends of the belt portion 20 may be connected by a buckle, such as the link type having loop part 22 and interfitting T-part 24. At regular and a plurality of spaced intervals longitudinally of the belt 20 and the straps 30 there are attached reflecting means 40 and 50 such as faceted or prismatic disks or plates made of glass or plastic, which disks may be colored such as red disks 40 attached to the back of the strap and belt and yellow or amber disks 50 attached to the side and front portions of the strap and belt. In FIG. II the harness 10 is shown on a jacket J with the ends of the belt 20 buckled together as it would be worn by a person P as shown in FIG. III. In FIG. III the back of the jacket J is shown worn on a person P riding on a motorcycle M illustrating the crossed straps 30 on the back with the red reflectors 40 attached thereto. Since jackets of the type J usually worn by cyclists, and the garmets usually worn by persons and workers are dark in color, the reflectorized belt 20 and straps 30 of the harness 10 of this invention are made of light contrasting color, preferably white, so as to be more easily seen on the normal wearer of the harness 10. Further in contrast thereto, the reflecting means or disks 40 and 50 are of in different and also contrasting and warning signal colors, such as red and/or yellow or amber.

In order to increase the horizontal visibility of the reflectorized disks which are attached to the harness 10 at the top of the shoulders, namely the reflecting means or disks 52, they may be more convex than the others, or dome shaped, so that they may be more easily seen from the front, back and sides. Similarly, the reflecting means or disks 50 on the sides of the belt may also be convex or domed shaped, if desired, however, they are primarily viewed horizontally from the side, and therefore their convex shape is not as important as the reflectors 52 on the top of the shoulders.

Referring now to FIGS. IV and V, the harness 10 of this invention may be made from three equal length

strips of white reflectorized or retro-reflective canvas say about 2 inches wide and about 4 feet long; two of which strips may be employed for the shoulder straps 30, and one for the belt 20. These belt 20 and straps 30 may be of other strip or tape material having flexible

bases 21 and 31 coated with reflectorized material 23 and 33, such as very fine glass beads, know by trademark "Scotchlite". Since the two shoulder straps are identical only one is shown in FIG. IV.

In the center of each strip 30 there is a length adjustment means, herein shown to be two adjacent 4 inch long and 2 inch wide sections 36 and 38, one 36 a hook and the other 38 a loop fabric patch of the type known by the trademark as "Velcro". These hooks and loop sections 36 and 38 may be overlapped any distance along their length to shorten and/or adjust the length of the strap 30. It is desired that the hook section of this adjustment means projects out from the wearer so as not to catch on the wearer's clothes, and then the loop section 38 is folded over it. Thus if the back half of the strap 30 is shown to the right in FIG. IV, then the hook section 36 toward it should be sticking out from the top of the shoulder and the loop section 38 toward the front half of the strap 30 should be folded over the top of it for adjusting for the proper length. Similar adjustment hook and loop attachment means 26 and 28 are provided at the ends of the belt 20 shown in FIG. V for holding the loops of the buckle parts 22 and 24 as well as to adjust the distance between them. Thus the amount of overlap of the hook sections 26 at the end of the belt 20 over the loop sections 28 near the ends of the belt 20 will determine the length of the belt 20 when its buckle parts are fastened together as shown in FIG. II.

FIGS. I, V, and VII show rivets 44 for attaching the reflecting means or disks 40 and 50 to the belt 20 and straps 30. The red disks 40 are attached about every four to six inches along the center section of the belt 20 in FIG. V and to the back or right half of the strap 30 in FIG. IV, while the amber or yellow disks 50 are attached every 4 to 6 inches along the end thirds of the belt 20 in FIG. V and the front half of the strap 30 at the left in FIG. IV. Probably about 12 reflectors of each color 40 and 50 may be used on each harness, if desired.

The strap 30 may be provided with holes 35 and 37 for the rivets 44, three of which holes are shown in FIG. VI because the rivets that are attached to the reflecting means 40 and 50 for them also connect this strap 30 to similar holes 35 and 27 on the other shoulder strap and belt 20 for simultaneously assembling the harness. At these connecting points the rivets 44 are provided with washers to permit a pivotal action for easy and more flexible fitting of the harness 10 on its wearer or person P. The holes 37 at the ends of the straps 30 are closer to the ends than the width of the strap 30 or of the belt 20, so that when they are attached to the corresponding holes 27 and the belt 20 they will not completely cover the adjustment section 28 sewn thereto for holding and adjusting the lengths for the link buckle parts 22 and 24.

The assembled spread out and assembled open front

harness 10 in FIGS. VI and VII show their length adjustment means 36, 38 and 26, 28 both at the tops of the shoulders and adjacent the buckle parts overlapping each other.

It is to be clearly understood that other type buckling means as well as other types of means for attaching the reflecting means 40 and 50 can be employed without departing from the scope of this invention. However, the particular means shown have the advantage of being light in weight so that the harness of this invention is easy to wear and weighs less than one-half pound, including the plastic reflectors. This does not mean however that this invention could not be made heavier and the reflectors 40 and 50 made of glass, but it is important that the reflectors 40 and 50 do not reduce their reflectivity when wet, as does occur for the retro-reflective material of very fine glass beads known as "Scotchlite" and commonly used on garmets. The rivets 44 and their washers used for attaching the reflectors 40 and 50, which are more weather proof than most adhesives, should be resistant to corrosion and oxidation, and may be made of aluminum.

While there is described above the principles of this invention in connection with a specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of this invention.

I claim:

1. A light reflecting safety harness for a person comprising:
  - A. three flexible tapes, each having its outer surface completely retro-reflective, and each one of which tapes is connected to the other two to form a belt and two shoulder straps crossing at the wearer's back,
  - B. length adjustment means attached to each of said tapes,
  - C. a buckle means attached to the tape forming said belt, and
  - D. a plurality of faceted reflecting means attached at spaced intervals along each of said tapes and at their connections with each other.
2. A harness according to claim 1 wherein said belt and straps are all substantially the same length.
3. A harness according to claim 1 wherein said adjusting means comprises: adjacent sections of fabric hooks and loops attached to said belt and straps which fold over against each other.
4. A harness according to claim 1 wherein said retro-reflective tape is light colored, and said retro-reflective coating comprises fine glass beads adhered to one side of said tape.
5. A harness according to claim 1 wherein the reflector means attached to the back of said harness are red.
6. A harness according to claim 1 wherein the reflector means attached to the front and side of said harness are yellow.
7. A harness according to claim 1 wherein said straps are pivotally attached to said belt and to each other.
8. A harness according to claim 1 wherein the reflector means on the shoulders of said straps are convex.

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