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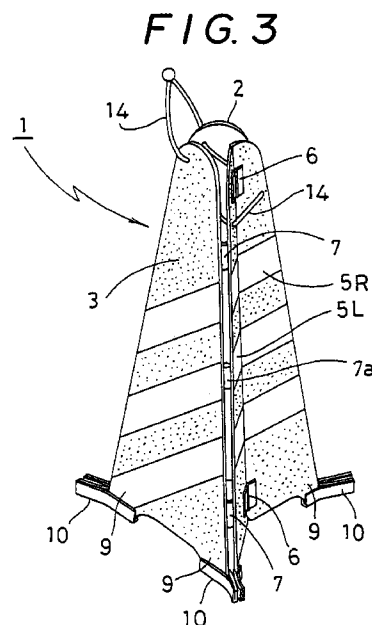
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(54) **Collapsible guide sign**

(57) A foldable guide sign assembled substantially into the shape of a triangular pyramid in use, wherein

two planes (S_1 , S_2), among three planes (S_1 , S_2 , S_3) in adjacent with the apex (P) of the substantially triangular pyramid are formed each with an integral plate (2, 3) respectively, the integral plates (2, 3) being connected inwardly collapsably, and the remaining one plane (S_3) has bisected plates (5R, 5L) split substantially in a right-to-left symmetrical shape connected collapsably with each other, each of the bisected plates (5R, 5L) is connected inwardly collapsably to each of the adjacent integral plates (2, 3) respectively.

When each of the bisected plates (5R, 5L) is enforced to the inside of the triangular pyramid, the integral plates (2, 3) connected on both ends thereof overlap with each other and collapsed into the size of one integral plate (2, 3). Upon use, since the guide sign is assembled into the sterical shape of the substantially triangular pyramid, it is extremely stable and less turned down even if a window is blown strongly from any direction.



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Description

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention concerns a collapsable guide sign which is placed in plurality on a road or a parking place and used as a traffic control guide sign or a road guide sign for inhibiting passage or regulating the direction of passage of vehicles and pedestrians, placed in buildings such as hotels and used as a guide sign for a meeting place, or used as a signpost of a shop, as well as usable as a pedestal for a support for setting up a flag or a streamer.

Description of the Related Art

Cone-shaped guide signs placed side by side, for example, at a spot for inspection of traffic accident, or in a field of road repair and electric wiring works, colored cones as shown in Fig. 7 have been used popularly. The colored cone comprises a cone 40 like that a cone-shaped hat, and a square base 41 protruded horizontally like a flange at the periphery of the lower end thereof which are integrally molded from a red-colored plastic material in a steric configuration.

Such colored cones used popularly molded entirely from the plastic material have a merit that they can be transported to and used as they are in the site of use but have a drawback that they are inconvenient to transport or store because of their large and bulky shape.

Particularly, in road repair works using a lot of colored cones, the number of trucks used for the transportation of the colored cones is increased and the working cost is increased by so much.

Further, it has been imposed a regulation on the electric wire works that three colored cones should be placed per one electric post. If electric wires to be worked are laid over a plurality of electric posts, colored cones have to be used by the number three times as much as that of the electric posts. However, since they can not be transported by a small sized working vehicle, the electric work has often been conducted without placing the colored cones at the sacrifice of safety to some extent.

Further, although cones are stacked in a plurality of stages by inserting one cone 40 into another, since only a limited number of them can be contained in the trunk of a common passenger car, a patrol car dispatching for an inspection spot of a traffic accident or a patrol car going to a spot of traffic inspection can not carry the cones by a quantity required for the spot, to bring about inconvenience that they have to be transport by using another vehicle.

In view of the foregoing situations, it has been proposed a guide sign, as shown in Figs. 8 and 9 in which a support post 51 formed as a telescopic structure like

that a joined fishing rod comprising a plurality of pipes 52, 53 and 54 of different diameters disposed at the center of a base 50 of a square plastic plate. A cone 55 made of a sheet formed as a conical shape is put over the support post 51, with the upper end of the cone 55 being secured by a cap 56 capped to an upper end of the support post 51, and the lower end of the cone 55 being secured to the base 50. In use, when a portion for the cap 56 is gripped and raised by a hand, the support post 51 is extended as shown in Fig. 8 to expand the cone 55 into a conical shape. During transportation or storage, the cap 56 is pressed downward by a hand to contract the support post 51 as shown in Fig. 9, so that the cone 55 can be collapsed by contraction (Japanese Utility Model Laid-Open Hei 5-83018).

However, in the guide sign described above, even when the support post 51 is completely contracted as shown in Fig. 9, since the support post 51 is protruded above the base 50 by a height corresponding to the length for at least one of the pipes 52 - 54, the volume is not decreased so much.

In addition, the guide signs having the support post 51 protruded above the base 50 can not be stacked in plurality as those used popularly shown in Fig. 6 but have to be transported or stored merely in a gathered state. After all, they have a serious drawback of rather making transportation or storage inconvenient and have not yet been put to practical use.

Further, it may be a worry that the support post 51 protruding above the base 50 should be flexed or during upon transportation or storage.

OBJECT OF THE INVENTION

In view of the above, it is a technical object of the present invention to provide a collapsable guide sign which can be simply collapsed or assembled, can be assembled into a sterical shape like that a cone and set up during use, and can be collapsed flat during transportation or storage into a structure capable of being housed in an extremely compact manner.

SUMMARY OF THE INVENTION

The foregoing object can be attained by a collapsable guide sign assembled substantially into the shape of a triangular pyramid in use wherein two planes among three planes in adjacent with the apex P of the substantially triangular pyramid, are formed each with an integral plate, respectively, the integral plates being connected inwardly collapsably, and the remaining one plane has bisected plates split substantially in a right-to-left symmetrical shape and connected collapsably with each other, each of the bisected plates being connected inwardly collapsably to each of the in adjacent respectively.

According to the collapsable guide sign of the present invention, since it is assembled into the sterical

shape of the substantially triangular pyramid in use, it is highly stable and is not easily turned down even when a strong wind is blown from any of directions. Further, each of the planes in adjacent with the apex is formed as a flat surface, characters or figures can be applied simply on the surface, as well as large characters or figures indicated thereon can be shown in a complete form when the guide sign is directed to the front.

Then, since each of the integral plate forming the two planes, among the three planes in adjacent with the apex of the substantially triangular pyramid, is connected collapsably inwardly, and the bisected plates forming the remaining one plane are connected inwardly collapsably to the adjacent integral plates respectively, when each of the bisected plates is collapsed to the inside of the triangular pyramid, the integral plates connected to both ends thereof approach and overlap with each other and can be collapsed into the shape of one integral plate.

As a preferred embodiment, when suspending strap serving as a grip is laid around from the inside of the substantially triangular pyramid between a pair of strap passage holes perforated in an upper portion for each of the bisected plates substantially at the same height, and a pair of strap passage apertures perforated each in an upper portion for each of the integral plates substantially at the same height and at a position higher than that for each of the strap passage apertures in the bisected plate, if the guide sign is merely raised by gripping the suspending strap, both ends of the bisected plates are pulled inwardly by the suspending strap, by which the bisected plates are collapsed and, at the same time, the integral plates connected respectively therewith are collapsed inwardly so as to approach with each other.

Further, as another preferred embodiment, each of the integral plates and the bisected plates may be connected by means of hinges, and a spring hinge is used for at least one of them such that both sides closed inwardly when the substantially triangular pyramid is collapsed are biased to open outwardly.

In this embodiment, when the open guide sign is turned down horizontally, the substantial triangular pyramid is automatically collapsed flat by its own weight against the resilient force of the spring hinge. On the other hand, as the collapsed guide sign is set up, since the load exerted on the spring hinge is released, the guide sign opens automatically into the substantially triangular conical shape by the resilient force.

BRIEF EXPLANATION OF THE DRAWINGS

Fig. 1 is a perspective view illustrating a collapsable guide sign according to the present invention;

Fig. 2 is a perspective view illustrating the state of collapsing the guide sign;

Fig. 3 is a perspective view in the course of assembling the collapsed guide sign;

Fig. 4 is an explanatory view illustrating another state of use;

Fig. 5 is a perspective view illustrating another embodiment of the guide sign;

Fig. 6 is a perspective view illustrating a further embodiment of the guide sign;

Fig. 7 is a perspective view illustrating a guide sign of the prior art;

Fig. 8 is a perspective view illustrating a collapsable guide sign of the prior art; and

Fig. 9 is a cross sectional view illustrating the state of storing the guide sign shown in Fig. 7.

DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

Preferred embodiments of the present invention will be explained more specifically with reference to the drawings.

Fig. 1 is a perspective view illustrating a preferred embodiment of a collapsable guide sign according to the present invention, Fig. 2 is a perspective view illustrating the state of folding the guide sign; Fig. 3 is an explanatory view illustrating a state in the course of assembling the guide sign; Fig. 5 is an explanatory view illustrating the state of use, Fig. 5 is a perspective view illustrating another preferred embodiment of the invention and Fig. 6 is a perspective view illustrating a further preferred embodiment of the present invention.

In the drawing, reference numeral 1 denotes a collapsable guide sign which is used being assembled as a cylindrical substantially triangular pyramid with no bottom. Among three planes in adjacent with the apex P of the triangular pyramid, two plane S_1 , S_2 are formed with integral plates 2, 3 respectively, with the integral plates being inwardly collapsably connected with each other at the hinge 4. The remaining one plane S_3 has bisected plates 5R, 5L split substantially into a right-to-left symmetrical shape, and the bisected plates 5R, 5L are connected to each other by means of hinges 6, 6. Each of the bisected plates 5R, 5L is connected to each of the adjacent integral plates 2, 3 respectively so as to be collapsed inwardly by hinges 7, 8.

Further, each of the planes S_1 - S_3 in adjacent with the apex P of the guide sign 1 is recessed arcuately at a lower end edge of each of the integral plates 2, 3 and bisected plates 5R, 5L such that pedestals 9, 9 are formed on both ends at the bottom of each of the surfaces forms. The guide sign 1 can be stood stably on three-point supports by each pedestal 9, for example, even on uneven road surfaces.

Further, an anti-slip rubber 10 is attached to the pedestal 9 such that the rubber protrudes to the outside of the triangular pyramid and such that a weight can be placed on the rubber 10.

The integral plates 2, 3 and the bisected plates 5R, 5L are made of a plastic material such as polyvinyl chloride, polyethylene or regenerated plastics. On the sur-

face of the plates, letters or figures can be applied as markers, the surface of the plates can be formed partially or entirely with a reflector plate, or a reflection seal can be appended.

Further, each of the plates 2, 3 and 5R, 5L is cut at the top end thereof such that when they are assembled into the triangular pyramid, an insertion portion 13 may be formed at the periphery of the apex P for inserting and attaching a signal light 12 or the like.

Further, a suspending strap 14 that serves as a grip is laid around from the inside of the triangular pyramid between a pair of strap passage holes 15R, 15L each perforated in an upper portion for each of the bisected plates 5R, 5L substantially at the same height, and a pair of strap passage holes 16, 17 perforated in an upper portion for each of the integral plates 2, 3 substantially at the same height and at a position higher than that for each of the strap passage apertures 15R, 15L. When the guide sign is raised by gripping the suspending strap 14, the suspending strap 14 is pulled, each of the bisected plates 5R, 5L is flexed at the hinge 6 and the integral plates 2, 3 connected by way of hinges 7 and 8 to the bisected plates 5R, 5L, respectively are flexed at the hinge 4, and the guide sign 1 is collapsed automatically.

Among each of the hinges 4, 6, 7 and 8, the hinge 4 for connecting the integral plates 2, 3 to each other and the hinges 7, 8 for connecting the integral plate 2, 3 with each of the bisected plates 5R, 5L are made of a hard rubber.

Further, a spring hinge 7a, which is biased in the direction of outwardly opening both sides closed inwardly when the triangular pyramid is collapsed, is used to at least one of the hinges 4, 6, 7 and 8, for example, one of the hinges 7 connecting the integral plate 3 and the bisected plate 5L.

The present invention has a constitution, for example, as described above and the operation will be explained next.

In a case of using the guide sign 1, when the guide sign 1 is set up by gripping the suspending strap 14 of the guide sign 1 in a collapsed state as shown in Fig. 2, the integral plate 3 and the bisected plate 5L are expanded by the resilient force of the spring hinge 7a and, accompanying therewith, other integral plate 2 and the bisected plate 5R are also expanded automatically, so that the guide sign 1 is gradually expanded into the shape of the triangular conical shape as shown in Fig. 3, and the guide sign 1 can be set up extremely simply with no other particular operation.

Furthermore, since the guide sign 1 is assembled such that it is supported on three points by the pedestals 9 of the triangular pyramid, the guide sign can be set up stably even if unevenness is present such as on the road surface and it is less turned down even if a window is blown strongly from any direction.

In this case, since the insertion portion 13 is formed at the periphery of the apex P for inserting and attaching

the signal light 12, the guide sign can be used as a night guide sign by inserting a grip portion of the signal light 12 into the insertion portion 13 and lighting up the signal light 12 during night.

Further, when each of the plates 2, 3, 5R and 5L of the guide sign 1 are made of a plastic material of relatively high light transmittance and when the lighting portion of the signal light 12 is inserted into the triangular pyramid of the guide sign 1, the guide sign 1 can be lit up entirely.

Further, since the guide sign is formed not into the shape of a circular cone but a triangular pyramidal shape upon assembling in which the three planes S_1 - S_3 are in adjacent with the apex P, marks different from each other may be applied to each of the planes S_1 - S_3 of the triangular pyramid (for example, rightward arrow, leftward arrow or inhibition of entrance). Then, when they are arranged with a mark intended to be shown being positioned at the front as shown in Fig. 4, various kinds of traffic controls can be conducted by using only one kind of a guide sign by merely changing the way of placing.

Furthermore, since each of the planes S_1 - S_3 is flat, characters or figures can be simply indicated, for example, by printing on the surface and the characters, etc. can be recognized visually in a complete state as viewed from the front, so that a large characters and figures can be indicated extremely easily to see and the content of the mark can be seen easily even from a distance, which is a greatest merit of the guide sign.

Then, in a case of collapsing the guide sign, when the guide sign 1 is raised by gripping the suspending strap 14 as a grip, both ends for each of the bisected plates 5R, 5L are pulled inwardly by the suspending strap 14, by which the bisected plates 5R, 5L are collapsed at the hinge 6 and, at the same time, the integral plates 2, 3 connected therewith respectively are inwardly collapsed by the hinge 4 so as to approach with each other and, as a result, the plates 2, 3, 5R and 5L are stacked planely to each other, by which the guide sign 1 is collapsed flat against the resilient force of the spring hinge 7a.

In this case, when the resilient force of the spring hinge 7a is properly selected such that it is slightly smaller than a load exerting when the guide sign 1 is turned down horizontally, the guide sign is automatically collapsed by its own weight against the resilient force of the spring hinge 7a by merely turning down the open guide sign 1.

The present invention is not restricted only to the embodiments described above but it may be modified, for example, as shown in Fig. 5, having no suspending strap 14 as a grip, or having no arcuate recess formed to the bottom of each of the planes S_1 - S_3 . Further, use of the spring hinge 7a may be saved.

In addition, if a plurality of guide signs 1 are connected by means of connection rods 20 to each other, each of the guide signs 1 can be set up more stably. The

connection rod has rings 21 formed on both ends, and the ring 21 has a rotational disc 23 mounted rotably with a triangular insertion aperture 22 being formed therein for insertion of the apex P of the guide sign 1, such that the guide signs 1 can be connected being faced in an optional direction.

Fig. 6 shows a further embodiment in which the guide sign 1 can be collapsed/set up by remote control. Those portions in common with Fig. 1 carry the same reference numerals for which detailed explanations are omitted.

The guide sign 1 of this embodiment is rotatably connected by one integral plate 3 to the base 25 at the bottom thereof as a rotational axis by a motor 26.

In a case of collapsing the guide sign, when the integral plate 3 is turned down horizontally by the motor 26, each of the bisected plates 5R, 5L is collapsed by the own weight of other plates 2, 5R, 5L and, at the same time, the integral plate 2 connected therewith is collapsed so as to approach the integral plate 3, so that the guide sign 1 is collapsed inwardly flat against the resilient force of the spring hinge 7a.

Further, upon use, when the integral plate 3 is turned-up by the motor 26, since the load on each of the plates 2, 5R, 5L of the guide sign 1 exerted so far on the spring hinge 7a is released, the integral plate 3 and the bisected plate 5L are expanded by the resilient force of the spring hinge 7a and, accompanying therewith, other integral plate 2 and the bisected plate 5R are also expanded automatically.

By previously arranging such guide signs 1 along the course of a wide place such as in a parking area and operating the motor 26 by remote control from a higher place capable of entirely observing the area in accordance with the space of the parking area, it is possible to simply guide an entering car to the parking space.

In the foregoing, explanations have been made to a case of connecting the integral plates 2, 3 and the bisected plates 5R, 5L constituting the guide sign 1 by means of the hinges 4, 6, 7 and 8, but the present invention is not restricted only thereto but, for example, each of the plates 2, 3, 5R, 5L may be connected collapsably by rings, or a plastic plate having a shape of developing a triangular pyramid shape may be bent into the form of a cylindrical triangular pyramid and connecting only the beginning edge and the terminal edge with hinges or spring hinges.

Further, the guide sign 1 according to the present invention can be used not only as a guide sign but also as a pedestal by inserting and supporting, for example, a support post for a sign board or a flag into an insertion hole 13 at the periphery of the apex P in a case of window campaign for sales promotion.

As has been described above according to the present invention, since the guide sign is assembled into the shape of a substantially triangular pyramid during use, it can be set up stably, for example, on a road surface, as well as characters or figures can be applied

simply on the surfaces since they are formed flat and, in addition, large characters can be applied and seen easily even from a distance since they can be visually recognized in a complete form when viewed from the front.

Furthermore, among the three planes each in adjacent with the apex of the triangular pyramid, since integral plates constituting the two planes thereof are connected inwardly collapsably by the hinges and bisected plate constituting the remaining one plane are connected inwardly collapsably by the hinges to each of the adjacent integral plates respectively, and, in the course of collapsing the bisected plates connected by the hinges to the inside of the triangular pyramid, the integral plates connected on both ends approach to each other and can be collapsed flat, so that it can provide an excellent effect capable of containing the guide signs in a compact manner during transportation or storage.

Claims

1. A collapsable guide sign assembled substantially into the shape of a triangular pyramid in use wherein

two planes (S_1 , S_2), among three planes (S_1 , S_2 , S_3) in adjacent with the apex (P) of the substantially triangular pyramid are formed each with an integral plate (2, 3) respectively, the integral plates (2, 3) being connected inwardly collapsably, and the remaining one plane (S_3) has bisected plates (5R, 5L) split substantially in a right-to-left symmetrical shape and connected collapsably with each other, each of the bisected plates (5R, 5L) being connected inwardly collapsably to each of the adjacent integral plates (2, 3) respectively.

2. A collapsable guide sign as defined in claim 1, wherein

each of the bisected plates (5R, 5L) has a pair of strap passage holes (15R, 15L) perforated each in an upper portion thereof and substantially at a same height, and each of the integral plates (2, 3) has a pair of strap passage holes (16, 17) perforated each in an upper portion thereof, each at a substantially same height and at a position higher than that for each of the strap passage holes (15R, 15L), and a suspending strap (14) serving as a grip is laid around from the inside of the substantially triangular pyramid between the pair of holes (15R, 15L) and the pair of holes (16, 17).

3. A collapsable guide signs as defined in claim 1 or 2,

wherein the plates (2, 3, 5R, 5L) are collapsably
connected by means of hinges (4, 6, 7, 8), and at
least one of the hinges (4, 6, 7, 8) is resiliently
biased in the direction of outwardly opening both
lateral sides closed inwardly when the substantially
triangular pyramid is collapsed. 5

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FIG. 1

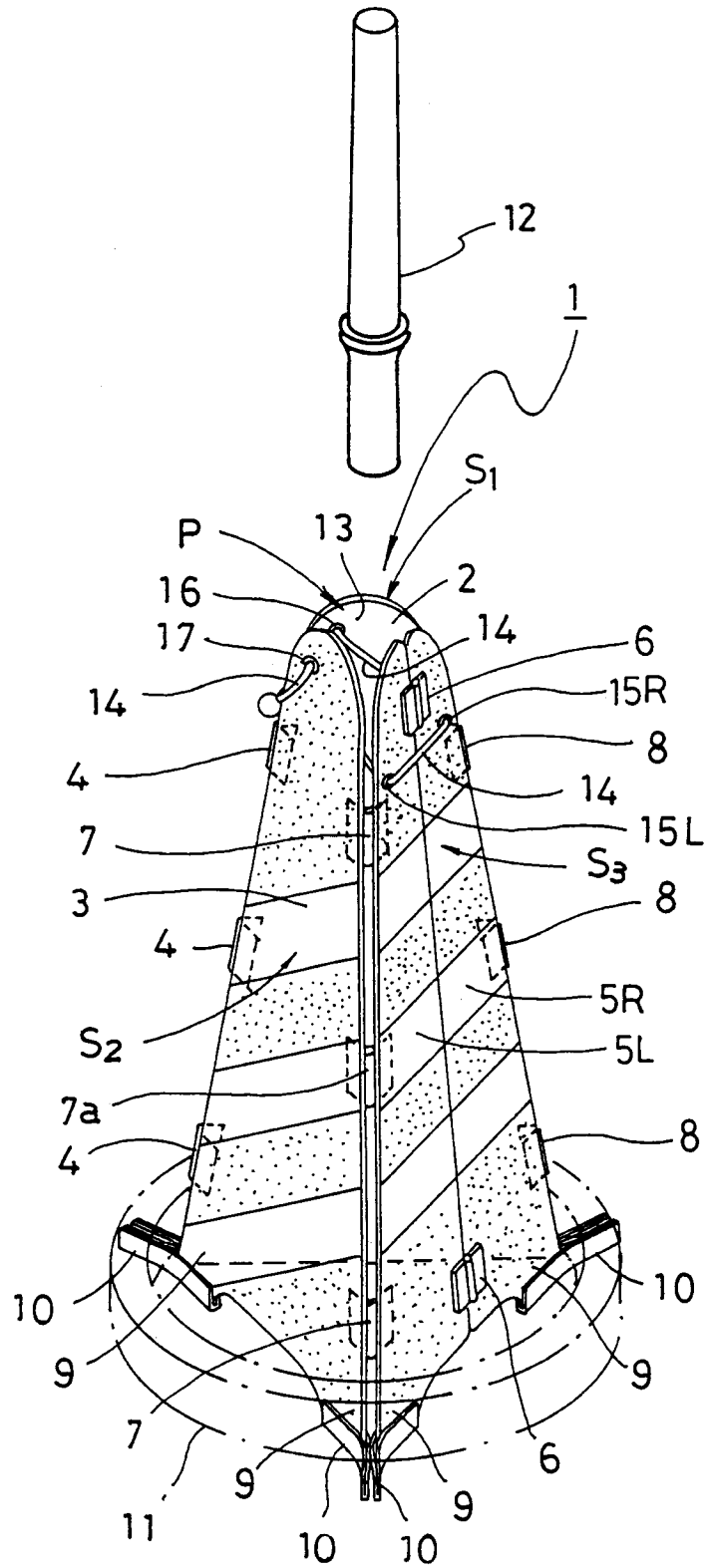


FIG. 2

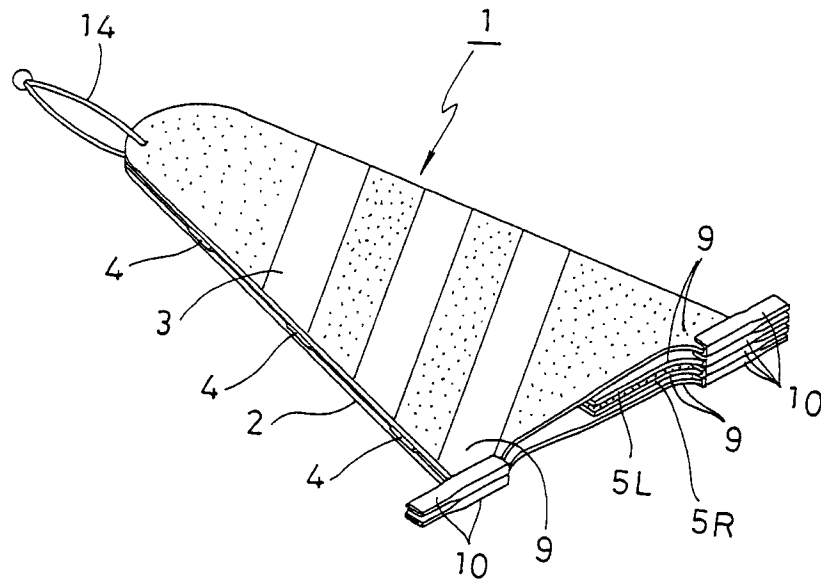


FIG. 3

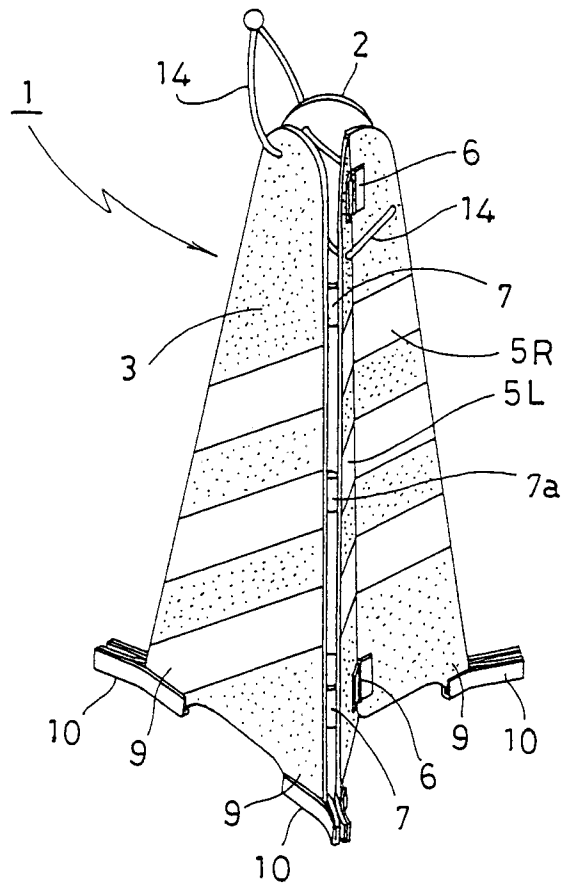


FIG. 4

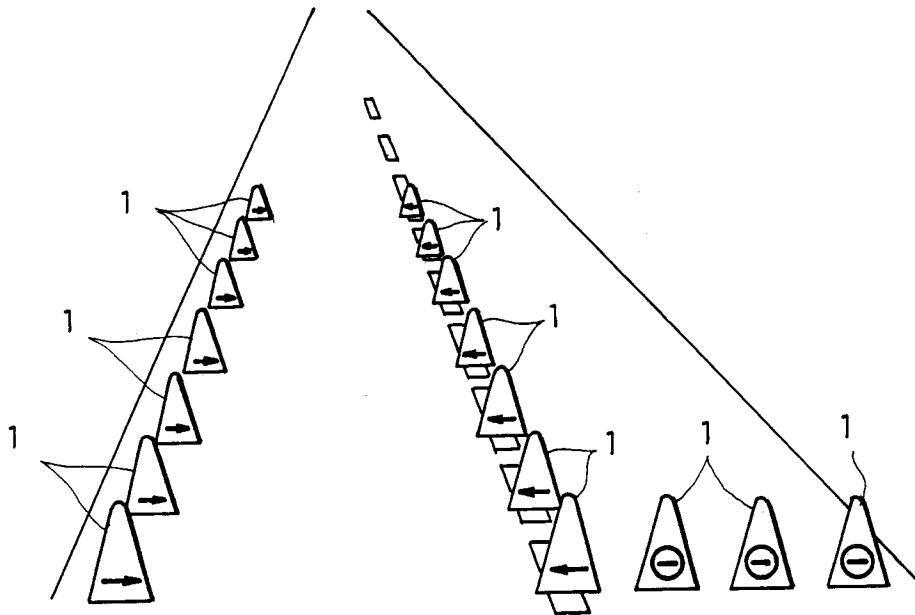


FIG. 5

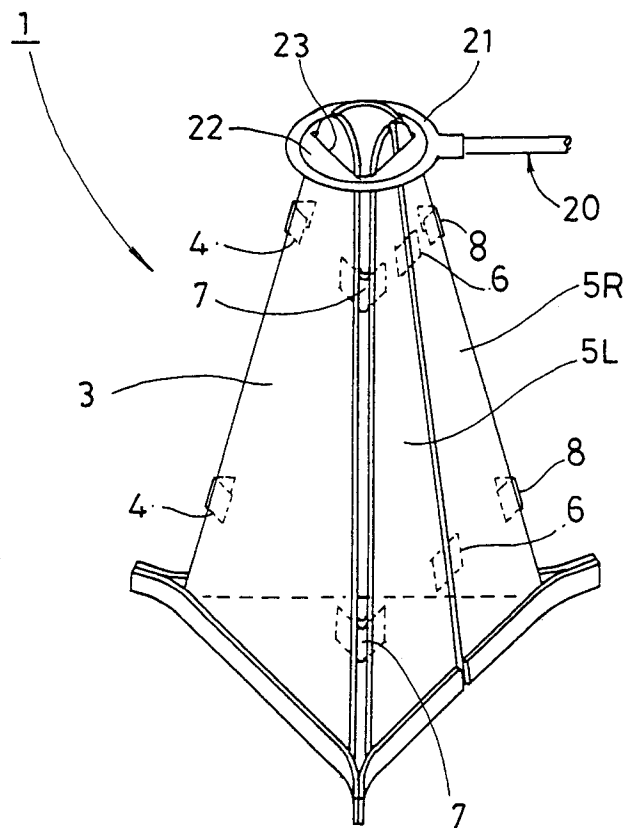


FIG. 6

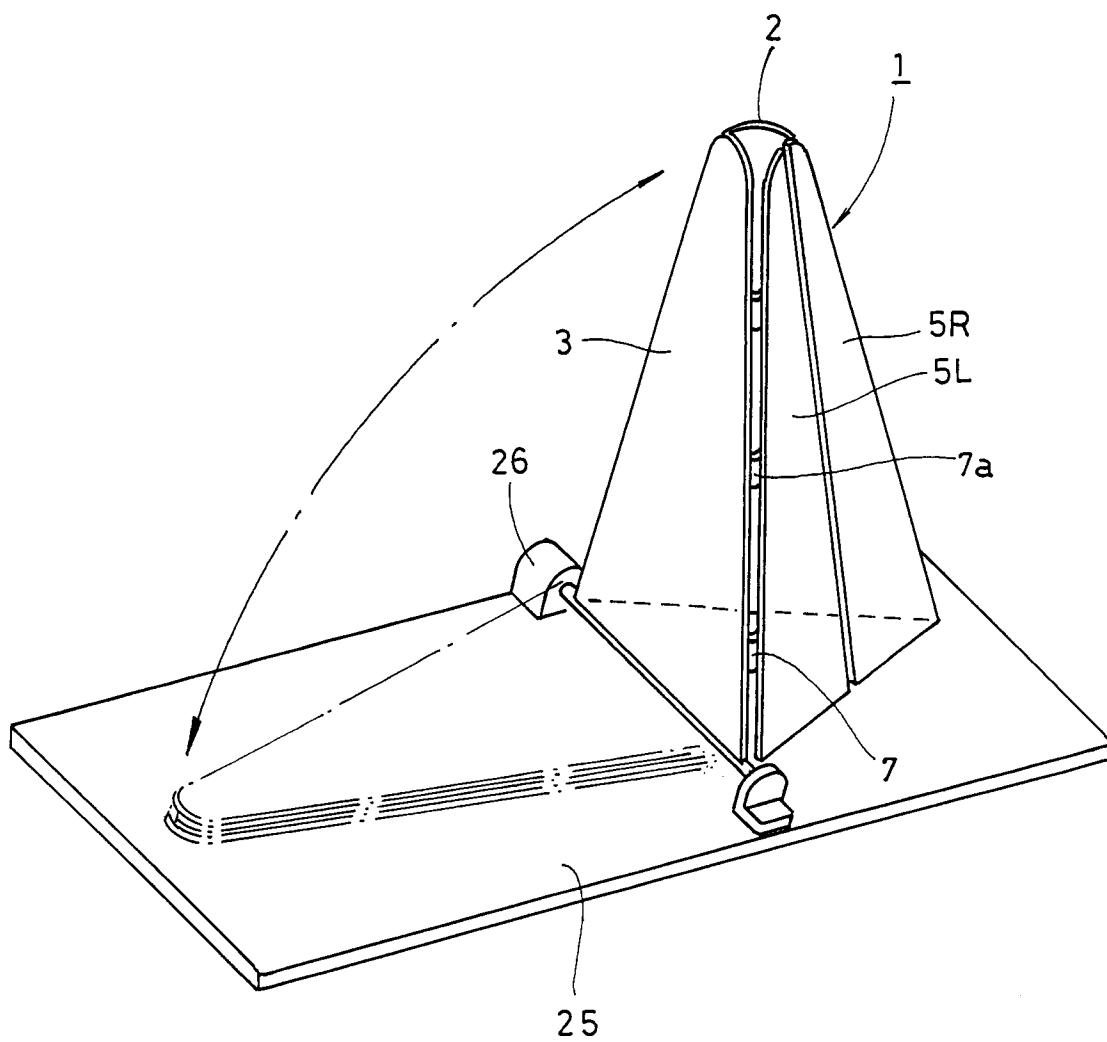


FIG. 7

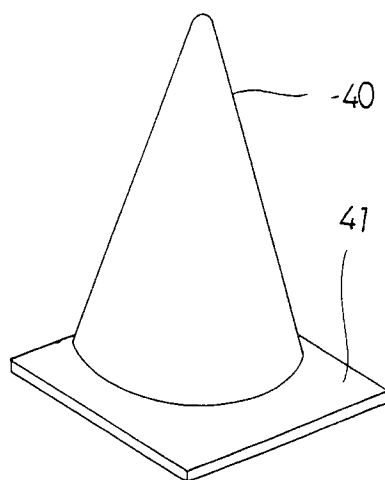


FIG. 8

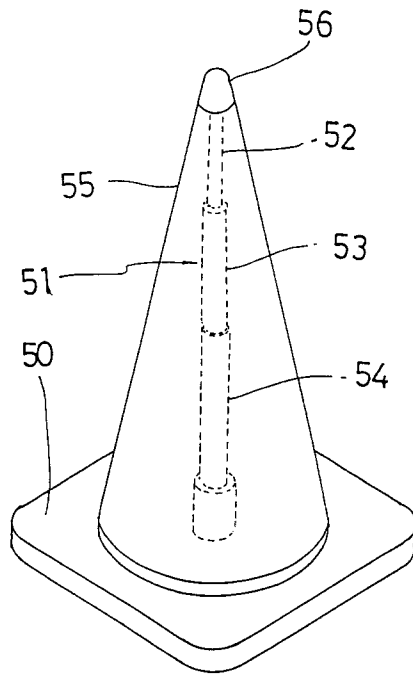


FIG. 9

