United States Patent

Brynes

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[54] **INFLATABLE AND COLLAPSIBLE PYLON**

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[52] **U.S. Cl.** **350/97**, 116/63

[51] **Int. Cl.** **G02b 5/12**

[58] **Field of Search** 350/97–109; 116/63

[56] **References Cited**

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[57] **ABSTRACT**

An inflatable and collapsible pylon for use as a road warning or signal comprising a conical body portion having an inflating opening and means for closing same, said body portion having a weighted base secured to the bottom thereof and handle means adjacent the top of said body portion whereby when the collapsed pylon is held by the handle, the weighted base will cause it to unfold, and the pylon will simultaneously self-inflate to a substantial degree, the pylon further comprising means causing it to self-right if it should be tipped or knocked over.

2 Claims, 6 Drawing Figures

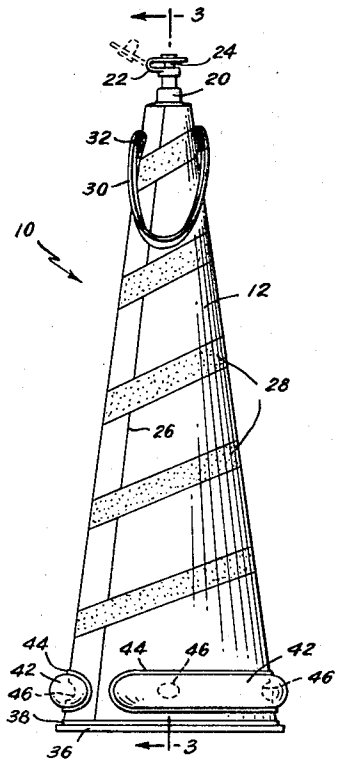


Fig. 1.

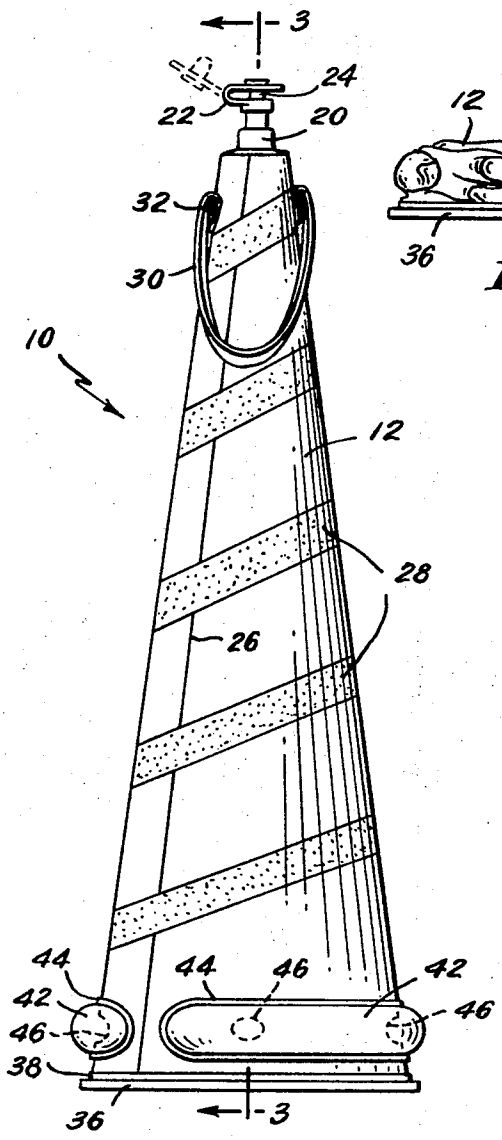


Fig. 4.

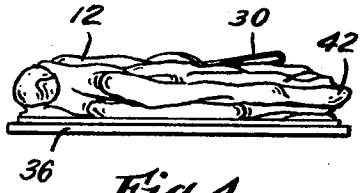


Fig. 5.

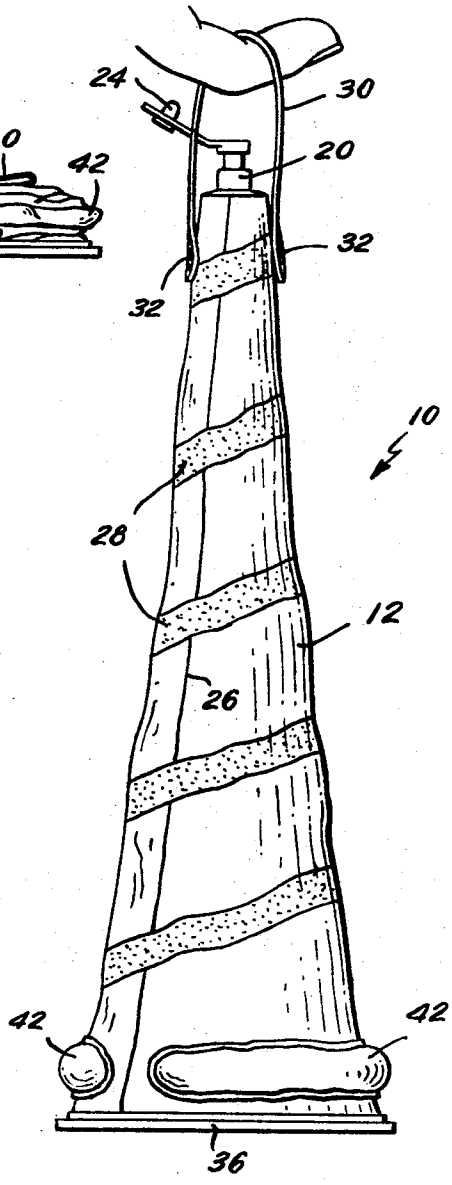
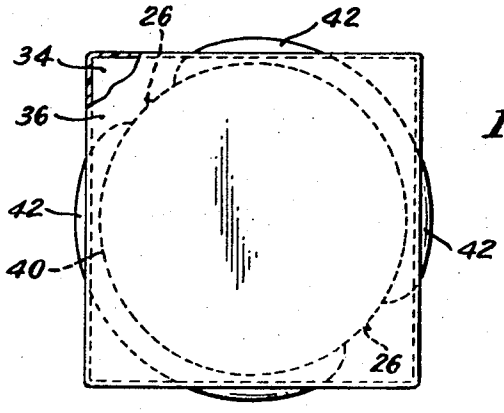


Fig. 2.



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Fig. 3.

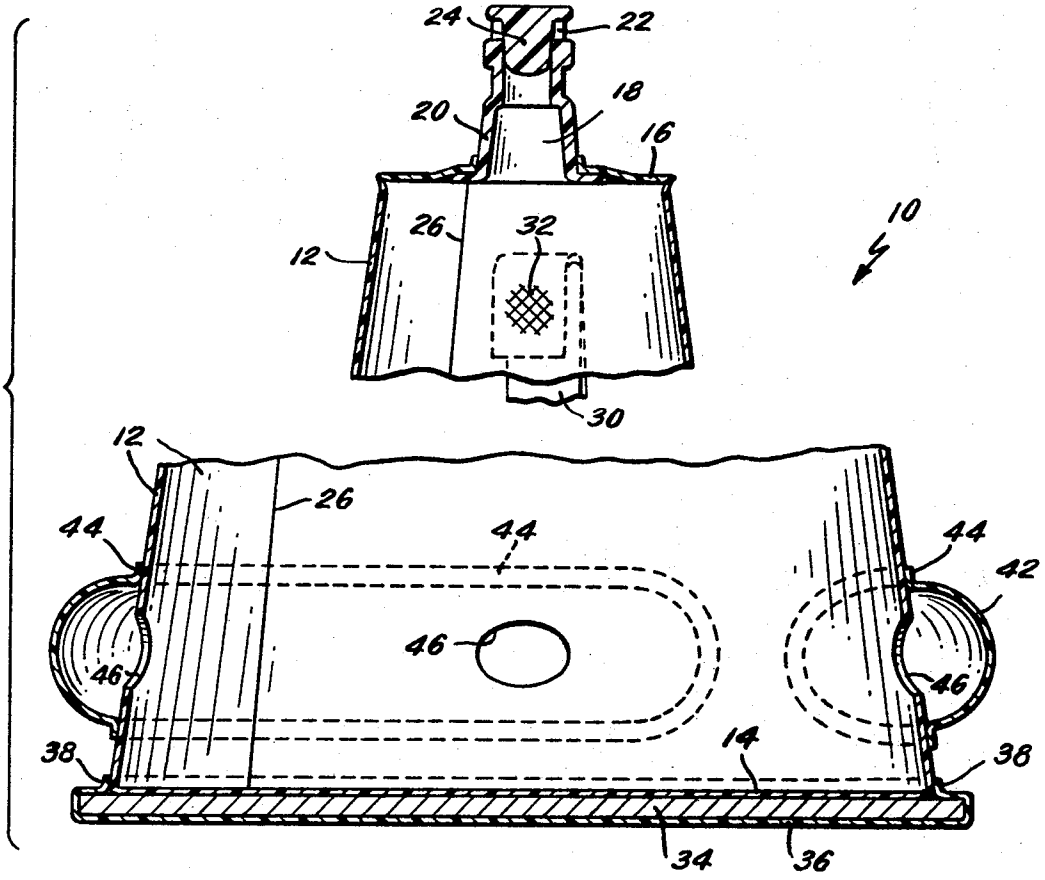
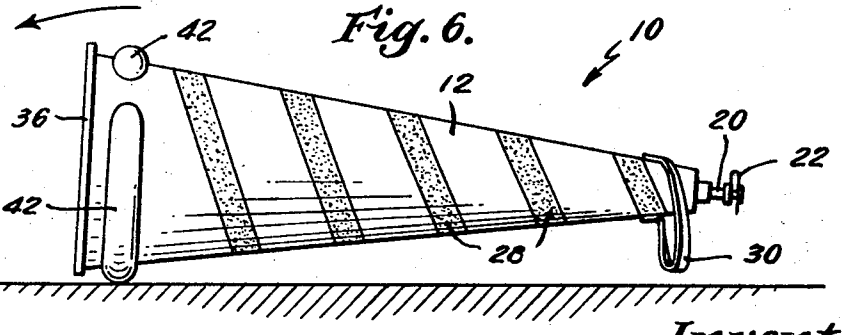


Fig. 6.



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INFLATABLE AND COLLAPSIBLE PYLON

BACKGROUND AND SUMMARY OF THE INVENTION

In this day and age when high-speed super highways and throughways are increasingly being built and used, a very dangerous and serious situation exists when there is a car breakdown occasioned by a flat tire, stalled motor, or any other similar occurrence. Although most automobiles today are equipped with a flasher device wherein all directional lights will flash simultaneously for use in such situations, it has been found that particularly on highways and throughways where vehicles are traveling at extremely high rates of speed, accidents occasioned by moving vehicles hitting a disabled vehicle are quite common; because even where the disabled vehicle has such a flasher system, visibility conditions frequently prevent moving vehicles from seeing the disabled car until it is too late to avoid a collision. An increasing number of accidents, many of which result in fatalities, are occurring on high-speed highways as a result of disabled vehicles being hit by traveling vehicles moving at a high rate of speed.

One approach to preventing or at least reducing the occurrence of such accidents is to use warning signals, such as pylons, that may be placed on the road at periodic intervals in order to warn and divert approaching traffic from the disabled vehicle. Obviously, however, if a passenger vehicle is to carry such pylons for emergency situations, they must be easily and conveniently storable in the vehicle; since to be effective a plurality of such pylons must be used. In order to accomplish this, collapsible pylons have been used, but the problems that presently exist are that such collapsible pylons, even when in their collapsed state, still take up too much storage space; and, furthermore, the existing collapsible pylons are frequently difficult to distend into operative position. Another problem with pylons of this type is that they must maintain their position on the road and be self-righting. Of course, cost is a further factor.

It is therefore an object of this invention to provide a collapsible pylon that is inflatable in nature but which is so constructed that the pylon will self-inflate to a substantial degree when it is desired to distend same to operative position.

Another object is the provision of a collapsible pylon which occupies a minimum of storage space when in its fully collapsed condition.

A further object is the provision of a collapsible, inflatable pylon which not only may be easily and quickly inflated to operative condition, but which when so inflated will securely maintain its position on the road and at the same time will be self-righting if knocked or tipped over.

Another object is the provision of a collapsible pylon that is relatively simple and economically feasible to manufacture, but which nevertheless is durable and effective in use.

Other objects, features and advantages of the invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

DESCRIPTION OF THE DRAWINGS

In the drawings which illustrate the best mode presently contemplated for carrying out the present invention:

FIG. 1 is a side elevational view showing my pylon in operative position;

FIG. 2 is a bottom plan view thereof;

FIG. 3 is a fragmentary enlarged section on line 3—3 of FIG. 1;

FIG. 4 is a side elevational view showing the pylon in collapsed condition;

FIG. 5 is a side elevational view showing the pylon during inflation thereof; and

FIG. 6 is a side elevational view, on a reduced scale, illustrating the self-righting action of the pylon.

DESCRIPTION OF THE INVENTION

Referring to the drawings, there is shown generally at **10** a pylon comprising a conical body portion **12** constructed of any suitable flexible but yet durable material, such as vinyl thermoplastic. The body portion **12** has an enlarged bottom wall **14**, note FIG. **3**, and an integral top wall **16** which defines an inflating opening **18**. An inflating valve **20** is sealed to top wall **16** and integrally carries a closure **22**, which closure has a plug **24** wedgingly received in the top of valve **20** to close same in order to maintain the pylon **10** inflated. It will be understood that the closure **22** is manually moved to open or closed position, all in a manner well known in the art.

Where the body portion **12** is constructed of a vinyl thermoplastic, a pair of diametrically opposed vertically extending heat-seal seams **26** are present, as illustrated in FIGS. **1**, **2**, **3** and **5**. The body portion **12** is preferably of a vivid orange color, commonly known as "dayglo" orange so as to be more readily visible in the daytime. In addition, a stripe **28** extends spirally around body portion **12**, said stripe having minute reflective glass beads embedded therein so as to be illuminated by the headlights of approaching cars at night.

Adjacent the upper extremity of body portion **12**, there is provided a carrying handle **30** which is preferably an elongated strap heat sealed or otherwise secured to body portion **12** at its opposite extremities, as at **32**. At its lower extremity, the pylon **10** is provided with a weighted plate **34**, said plate being enclosed by an additional layer of material **36** which preferably is also of vinyl thermoplastic and is heat sealed around the bottom periphery of bottom portion **12** as at **38**, note FIG. **3**. It will be understood that the plate **34** may be of any weighted material, such as lead or steel, and it will be seen that the bottom wall **14** and wall **36** define an enclosed compartment for snugly receiving said plate. As will be seen most clearly in FIG. **2**, the plate **34** is larger than the peripheral edge **40** of bottom wall **14**, and the plate **34** is a noncircular configuration, preferably square, whereby it has a plurality of protruding corners. This is important in the event that the pylon **10** should inadvertently be forced over onto its side, it being obvious that the noncircular configuration of plate **34** would prevent rolling of the pylon, when it is so tipped.

Adjacent the bottom of body portion **12** there is provided a pair of diametrically opposed inflatable

bumpers 42, said bumpers comprising a strip of the same vinyl material, heat sealed or otherwise secured to body portion 12 around the periphery of said bumpers as at 44. Openings 46 are provided in body portion 12 in communication with said bumpers, whereupon when the pylon 10 is inflated, air will pass through the openings 46 in order to simultaneously inflate the bumpers 42. It is important to note that when the pylon 12 and the bumpers 42 are fully inflated, as illustrated in FIGS. 1, 2 and 3, the outer extremity of bumpers 42 extends outwardly of the adjacent edge of base plate 34. This is important, since the purpose of the bumpers 42 is to cause the inflated pylon 10 to self-right if it is inadvertently knocked or tipped over. More specifically, should the pylon 10 be knocked over on its side, as illustrated in FIG. 6, it will be seen that the bumper 42 will, in effect, act as a fulcrum, whereupon the weighted base 34 will cause the pylon 10 to pivot or rotate in a counterclockwise direction, as illustrated by the arrow in FIG. 6, to once again assume an upright position. Without the bumpers 42, it has been found that the pylon 10 can tip on its side sufficiently so that the concentration of weight is such as to maintain the pylon on its side; hence the presence of the bumpers 42, or equivalent protruding means, forms an important part of my invention. It will be noted that the bumpers 42 extend beyond all sides of base plate 34, and the reason that two spaced bumpers are provided is to provide clearance for the vertically extending heat-seal seams 26.

When the pylon 10 is not in use, it will be understood that closure 22 and plug 24 are manually moved to the open or broken-line position illustrated in FIG. 1, whereupon air in the pylon 10 is free to escape, and the body portion 12 may be collapsed against base plate 34 to assume a substantially flat condition, as illustrated in FIG. 4. Where the body portion 12 is constructed of a vinyl thermoplastic, it has been found that a vinyl of approximately 8 mm. in thickness functions satisfactorily, it being obvious that in view of the relative thin-wall construction of body portion 12, it may be substantially collapsed and compressed, as illustrated in FIG. 4. Once so collapsed or compressed, the pylon 10, or preferably a plurality of collapsed pylons 10, such as, for example, four of them, may conveniently be stored in a flexible case (not shown) specifically provided for such a purpose, and the collapsed pylons may then be conveniently maintained in the glove compartment of the user's car or at any other convenient place therein. The important thing is that the collapsed pylons, whether stored in a specially provided container or not, take up a minimum of storage space and hence are convenient to carry in one's automobile so as to be readily available when an emergency arises.

When an emergency does arise, or when for any other reason it is desired to use the pylons 10, the collapsed pylon is removed from the user's vehicle, after which the user grasps handle strap 30, as illusin FIG. 5, so as to suspend the pylon. The weighted base 34 will cause the pylon to automatically unfold and open up, whereupon air will automatically enter through opening 18 to equalize pressure within and without the pylon. In practice it has been found that simply by suspending the pylon as illustrated in FIG. 5, the pylon will self-inflate to approximately 80 to 85 percent of full inflation, and within a matter of seconds. Once the pylon has self-inflated to this degree, the user simply has to introduce one additional puff of air to complete the full inflation of the pylon, and also the bumpers 42, as aforedescribed, after which the closure 22 and plug 24 are then manually moved to closed position to maintain the pylon so inflated. The whole operation of unfolding and inflating the pylon takes only a matter of seconds and is extremely easy to perform, since the user does not actually have to blow the pylon up, with the exception of the one final puff of air is required to complete the full inflation of the pylon, as previously described. Once so inflated, the pylon may easily be transported and placed at the desired locations on the highway, here again the strap 30 functioning to facilitate carrying of the pylon, although it will be understood that the inflated pylon is of extremely light weight. Even though the unflated pylon is light in weight, the concentration of weight at its bottom, as by the rigid base plate 34, causes the pylon to stand and remain securely in its positioned location. If, however, the pylon should inadvertently be knocked or tipped over, the noncircular configuration of base plate 34 will first of all prevent the tipped pylon from rolling along the highway, while at the same time the bumpers 42 will cause the pylon to self-right, in the manner previously described. In actual use, it has been found that a pylon constructed in accordance with my invention having a height of approximately 18 inches and a base plate approximately 6 ¼ inches square functions extremely satisfactorily. The complete encapsulation of base plate 34 has proven beneficial as a means of securely maintaining the base plate assembled to the pylon 10, and, also, the fact that the base plate is completely covered results in a more attractive and pleasing item.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

What is claimed is:

1. A collapsible pylon comprising an inflatable body portion having an upstanding conical wall and an integral bottom wall defining a complete enclosure, an inflating opening in said body portion, means for closing said opening to maintain said pylon inflated, and a weighted base secured to the under surface of said bottom wall, said base comprising a rigid plate, said body portion also comprising an enclosed compartment below said bottom wall, said base being positioned within said compartment, said base being at least as large as said bottom wall, and having corner portions which protrude outwardly beyond said bottom wall, said body portion further having an outwardly extending inflatable bumper, said bumper extending from all sides of said body portion to a point outwardly of said base when said pylon is fully inflated and being located adjacent to but spaced above the bottom of said pylon, whereby when said pylon tips, said bumper engages the surface on which said pylon is supported to temporarily

stop further tipping, the concentration of weight in the pylon in said tipped position being such as to impart a self-righting moment to the pylon about said bumper as a fulcrum.

2. In the pylon of claim 1, said bumper being secured to the outer surface of said body portion, and at least one opening in said body portion communicating with the interior of said bumper, whereby inflation of said body portion simultaneously inflates said bumper.

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