

[54] **TRAFFIC WARNING DEVICE**

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[51] **Int. Cl.**..... **E01f**

[58] **Field of Search**..... 116/63, 63 P, 114; 52/2, 52/5; 40/125 N; 94/1.5; 256/13.1

## [57] ABSTRACT

A traffic warning device or barrier comprising an interconnected group of hollow tubes, there being six tubes arranged as the edges of a tetrahedron. At each vertex the tubes communicate with each other, so that there is a continuous passage through the hollow system. The tubes may be rigid or may be inflatable, and there is a filling valve at any suitable location. In use, it is preferred to fill at least the three horizontal tubes with water, dry sand, lead shot, gravel, marbles, or other suitable weighting material. The three partly vertical inclined tubes may be so filled or be filled with air, especially when the barrier is of the inflatable type.

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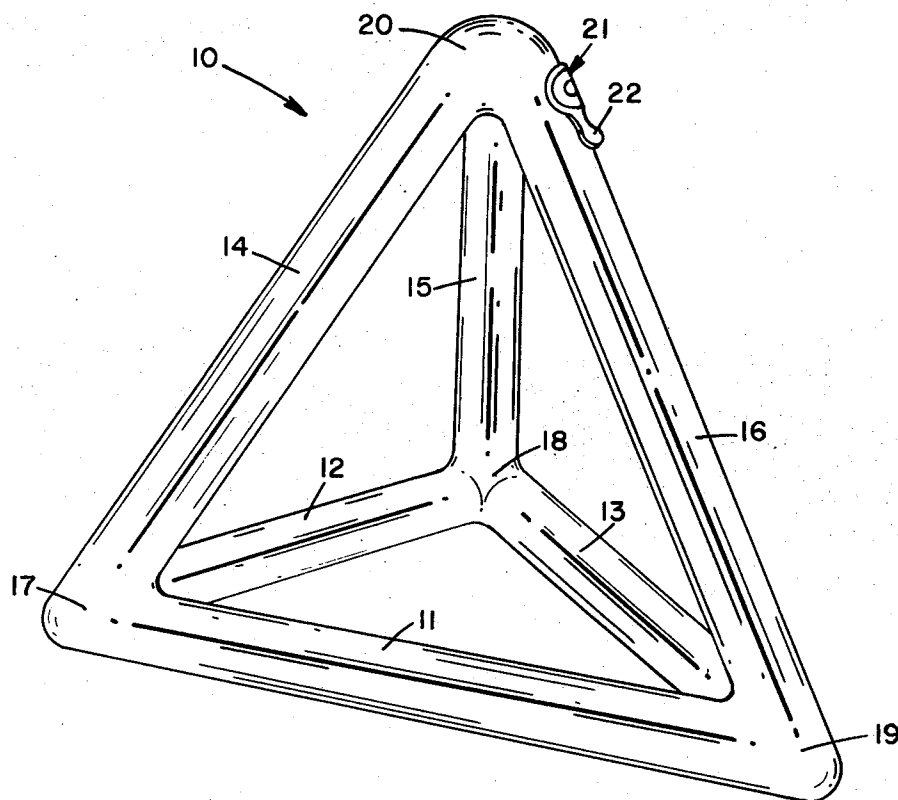
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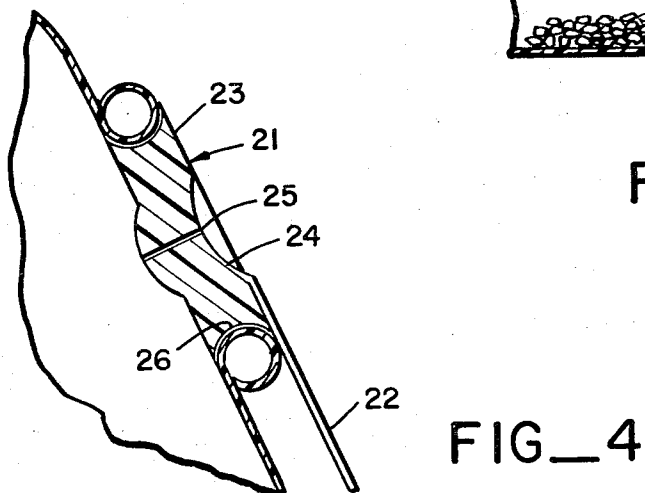
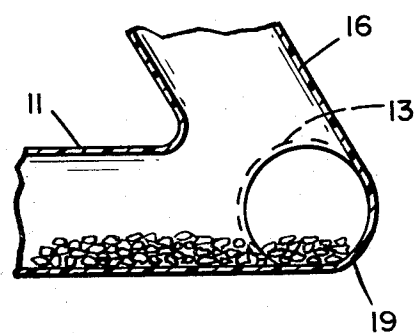
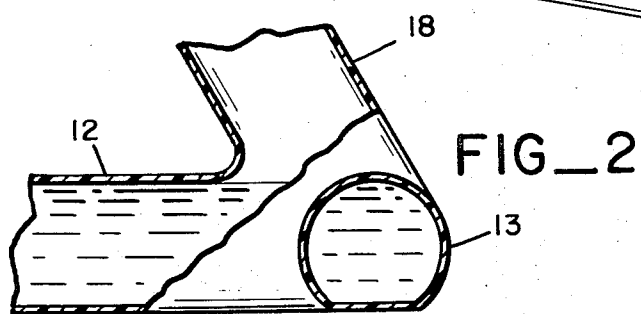
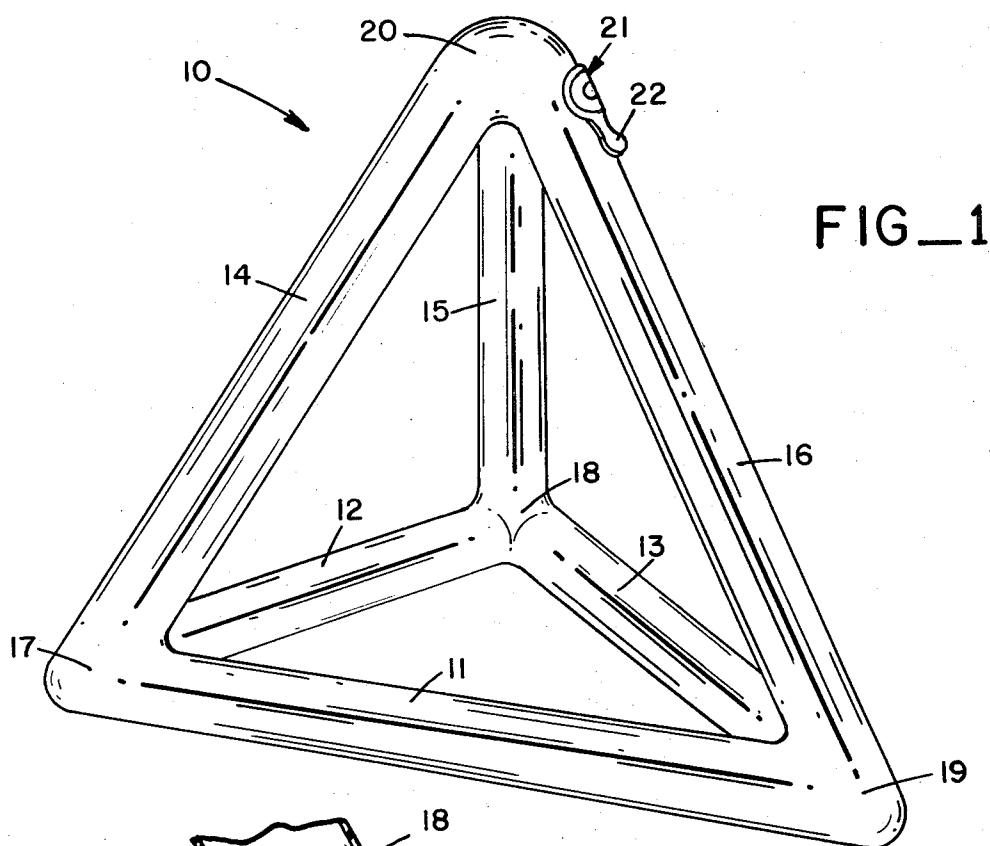
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**9 Claims, 4 Drawing Figures**





## TRAFFIC WARNING DEVICE

## BACKGROUND OF THE INVENTION

Traffic warning barriers currently in use are easily knocked over and displaced and in some cases tend to damage or endanger oncoming vehicles. Rubber cones, for example, are frequently knocked down within a few minutes of having been set up, and once they are tipped over, they lose such stability as they had and roll or get pushed to other parts of the highway. Round rails or bars are easily knocked down by a glancing blow that removes them from a pin socket, and then they are free to roll around.

Barriers are useful, among other situations, in routing traffic around a car that is stalled or changing a tire, but few cars can carry conveniently the barriers currently used, and drivers in trouble must wait for aid from others in setting up barriers.

One object of the present invention is to provide a barrier that is more stable, more easily noticed, more easily kept in operation, and more easily stored, while at the same time being inexpensive to manufacture and to maintain.

Another object is to provide a collapsible barrier that can be carried in very little space and can be set up quickly and easily.

Another object is to provide a suitably interconnected tubular device that enables weighting material to remain on or flow to the bottom, so that the device always appears to be upright.

## SUMMARY OF THE INVENTION

A traffic warning device of this invention comprises a hollow series of six tubes arranged as edges of a tetrahedron with four vertices with the interior of the tubes intercommunicating at a plurality of the vertices. Preferably, there is a filling valve at one intersection, which may be located at or near an intersection that is marked differently from the others and is intended to be the top intersection, with the other three intersections lying on a horizontal surface. The tubes may be made from either rigid or inflatable plastic, and each tube preferably has a diameter no greater than one-ninth of its height.

The three bottom tubes may be filled with weighting material such as sand, gravel, shot, or water, and the three upwardly extending tubes may be filled only with air, compressed air being used with inflatable tubes.

Other objects and advantages of the invention will appear from the following description of a preferred form thereof.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a view in perspective of a highway traffic warning device embodying the principles of the invention.

FIG. 2 is a fragmentary view in elevation of one of the bottom vertices, with a portion broken away and shown in section to show the location of a weighting liquid.

FIG. 3 is a similar view with a weighting particulate solid.

FIG. 4 is a view in elevation and in section of the filling valve.

## DESCRIPTION OF A PREFERRED EMBODIMENT

The barrier or warning device 10 of this invention comprises a hollow tubular configuration in which six tubes 11, 12, 13, 14, 15 and 16 form the edges of a tetrahedron. Thus, when the barrier 10 is in use, there are three tubes 11, 12 and 13 that are horizontal and form the bottom surface, and three tubes 14, 15 and 16 that rise up from the three bottom vertices 17, 18 and 19 to a common upper vertex 20. It is well known that the tetrahedron is a very stable figure. By making the tubes slender, it is possible to provide a device with little wind resistance, so that the air can pass through freely and not upset the device, while achieving great stability.

Preferably, the six hollow tubes 11, 12, 13, 14, 15 and 16 not only meet at the four vertices 17, 18, 19, and 20, but they all join interiorly, so that there is one continuous passageway. The tubes may be made of rigid material or of inflatable plastic, including vinyls, acrylics, synthetic rubbers, and so on. The device 10 may be inflatable and collapsible, or it may be rigid or at least self-supporting even when empty. Both types store compactly, since the rigid type stacks compactly, but the inflatable form is especially compact.

One vertex, preferably the top 20, may be provided with a filling valve 21.

Preferably, in use, the barrier is partially filled with weighting material, either liquid or particulate solid, enough to fill the flat horizontal tubes 11, 12 and 13 and preferably no more. Sand, gravel, lead shot, crushed rocks, earth, and marbles are typical weighting solids. Water is a good liquid to use, whether salt or fresh. These three tubes 11, 12 and 13 then act as a very stable base, and then the remainder of the device may stand rigid, filled with air at normal pressure or, in some forms, may be inflated by air under pressure to provide three diagonal columns 14, 15 and 16 of air. These tubes 14, 15 and 16 of course are then lighter than the bottom tubes 11, 12 and 13, offer less resistance if they are struck, and are easily yieldable, yet the device itself is held in place by the heavier weight at the bottom. If desired, the entire interior may be filled with air. When filled with air, it is, of course, much less stable, and some of the advantages of having bottom sections weighted are lost.

The device 10 may be colored in any suitable color, including bright red or orange or yellow, or a black and white stripe, or any color desired. The tubing should have a diameter no more than about one-ninth of its height, in order to minimize wind resistance. Desired proportions are easily varied within the scope of this invention.

The filling valve 21 may be a tire valve type, which can have the core removed for emptying after the device has been used and is to be stored, or it may have a mouthpiece for emergency use, or it may be as shown in FIG. 4, in which a tab 22 lies to one side of a disc 23 that is generally flat but has a central depressed portion 24 with an opening 25 therein, enabling the insertion of a needle-like member for filling with air or water, somewhat as a football is filled with the section then under air pressure preventing leakage. The disc 23 may be removed from the opening 26 for draining the water and deflating the device for compact storage.

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Thus, the device is tip resistant, always appears upright, is inexpensive, is collapsible, and takes little storage space.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. A highway traffic barricade comprising a hollow series of six tubes arranged as edges of a tetrahedron with four vertices with the interiors of the tubes intercommunicating at a plurality of said vertices.

2. The device of claim 1 having a filling and draining valve adjacent to one intersection.

3. The device of claim 2 wherein the filling valve is

located adjacent to an intersection that is marked differently from the others and is intended to be the top intersection, with the other three intersections lying on a horizontal surface.

4. The device of claim 1 wherein the tubes are made from inflatable plastic.

5. The device of claim 1 wherein the tubes are made from self-supporting material.

6. The device of claim 1 wherein each tube has a diameter no greater than one-ninth of its height.

7. The device of claim 1 wherein the three bottom tubes are filled with weighting material and the three upwardly extending tubes are filled with air.

8. The device of claim 7 wherein the weighting material is water.

9. The device of claim 7 wherein the weighting material is particulate solid.

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