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F. T. ANDREWS ET AL  
EMERGENCY ROAD SENTINEL

2,869,504

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**Fig.1**

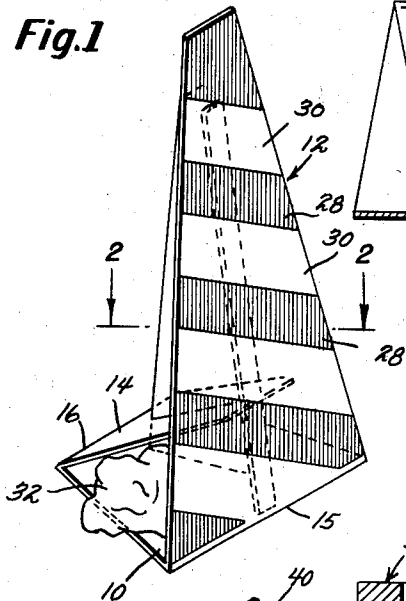


**Fig.2**

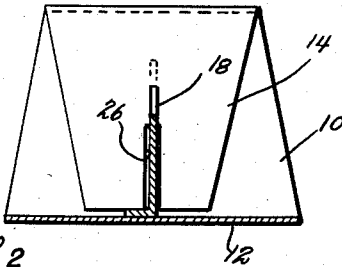


**Fig.3**

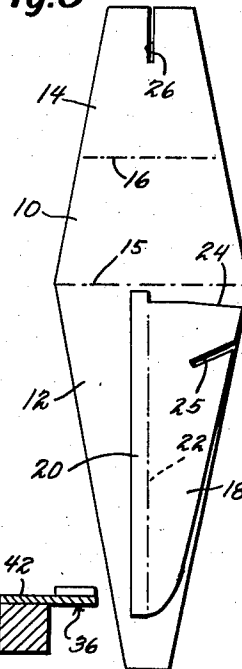


**Fig.6**

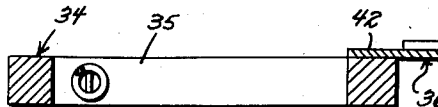


**Fig.4**

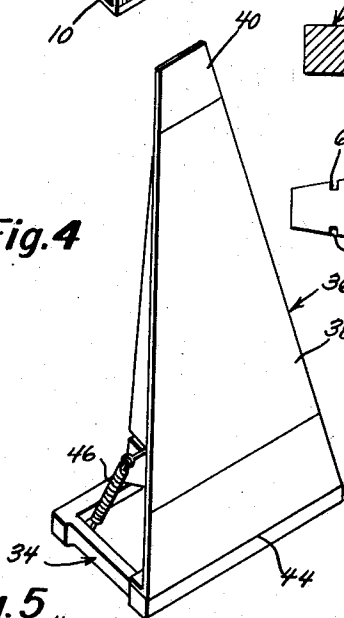


**Fig.7**

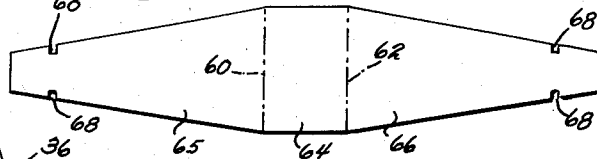


**Fig.5**

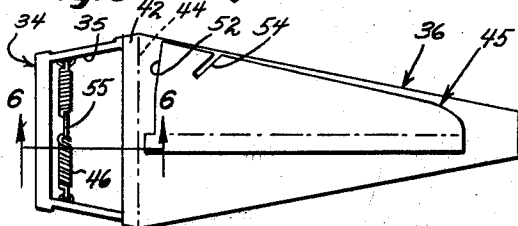


**Fig.9**

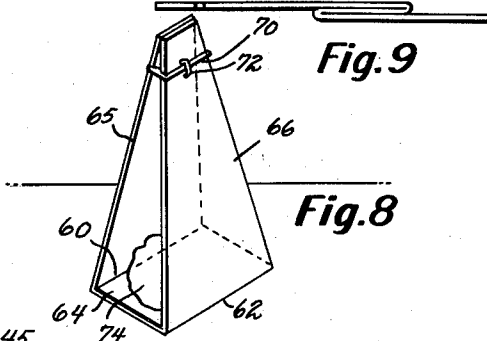


**Fig.8**

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## EMERGENCY ROAD SENTINEL

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7 Claims. (Cl. 116—63)

This invention relates to a collapsible portable device to be used temporarily as a traffic warning means. While the invention may be used, for example, by traffic personnel and by road building crews for such purposes as indicating traffic lanes and detours, it has outstanding advantages for emergency roadside use by motorists. It is well known that there is wide-spread need for such a device to be used temporarily to ward off traffic when a motorist is forced by car trouble to park on or adjacent to a traffic lane.

The need for such a warning device for use by individual motorists is especially great at night for a number of reasons. One reason is that it is not possible to observe at any great distance the fact that a motorist has disembarked because of car trouble. A second reason is that the red tail lights of a standing automobile may not alert an oncoming driver because he is accustomed to seeing such tail lights on speeding cars traveling ahead of him in the same direction. A third reason is that it is all too common for a disembarked motorist to stand inadvertently in a position to mask the light of one of the tail lights and thus reduce the opportunity for an oncoming driver to be alerted to the hazard.

Such temporary warning devices will not be widely used by motorists however unless certain requisites are met. In the first place, the warning device must be inexpensive, or at least reasonable in cost, to be purchased by any large number of motorists. In the second place, the device must be exceedingly compact to take up minimum storage space when not in use. In the third place, the warning device should be light in weight for minimum addition to the load carried by the car. In the fourth place, the device should be reliable and therefore should have no moving parts to get out of order, no fragile parts to fail, and should not depend upon any incorporated energy source for illumination.

The present invention meets these requirements largely by providing a collapsible warning device of light weight sheet material. Such a device may be made at very low cost and may be collapsed into a compact unit. By making the device conspicuous with contracting colored markings and by using luminescent reflective glass beads for brilliant night time reflective illumination, any need is eliminated for incorporating a power source.

A feature of the preferred practice of the invention is the use of a series of parallel bands of colored luminescent glass beads which bands are spaced apart by more than the width of the bands. It has been discovered that when bands of luminescent glass beads are illuminated at night by oncoming headlights, the apparent width of the colored bands substantially exceeds their actual width. Consequently, if the bands alternate with blank spaces of the same width as the bands, the blank spaces appear to be narrowed, with resultant diminution of the desired contrast effect. The invention compensates for this optical illusion by correspondingly increasing the width of the blank spaces relative to the width of the reflective colored bands.

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A typical embodiment of the invention comprises a flat base, a warning panel associated with one side of the base to move between a flat storage position and an upright warning position, and a support for the panel that is associated with another side of the base and may be collapsed to a retracted position. These three elements form a triangle when the device is in its erected state. The elements are separable at at least one of the three points of the triangle to permit the device to be collapsed to flat state for stowage.

In some practices of the invention, at least the base of the device is relatively heavy to give the device stability even in the face of a strong wind or the air currents created by passing automobiles. In other practices of the invention, however, the whole collapsible structure is made out of relatively light material, such as cardboard. A feature of these light weight embodiments of the invention, however, is that the base of the device is exposed and accessible to be weighed down by any convenient means. Thus, the motorist may place a tool or a rock or even a mass of earth on the base of the erected sign to give it sufficient stability to withstand wind and to withstand the air currents created by passing cars.

The various features and advantages of the invention will be understood from the following detailed description, considered with the accompanying drawing.

In the drawing, which is to be regarded as merely illustrative:

Figure 1 is a perspective view of one embodiment of the invention, this view showing the emergency road sentinel in its effective warning position;

Figure 2 is a transverse section taken as indicated by the line 2—2 of Figure 1;

Figure 3 is a plan view of the first embodiment of the invention in its flat or collapsed state;

Figure 4 is a view similar to Figure 1 showing a second embodiment of the invention;

Figure 5 is a plan view of the second embodiment of the invention in its collapsed or flat state;

Figure 6 is an enlarged section of the base along the line 6—6 of Figure 5;

Figure 7 is a plan view of a third embodiment of the invention in its collapsed or flat state;

Figure 8 is a perspective view of the third embodiment of the invention in its erected or effective warning position; and

Figure 9 is a fragmentary side elevation showing how a flat panel such as shown in Figure 7 may be folded and doubled back on itself for reduction in overall length.

The first embodiment of the invention shown in Figures 1-3 comprises essentially a base 10, a warning panel 12, and a support or securing means for the warning panel, which securing means may be in the form of a support panel 14. In the erected state of this embodiment of the invention, the warning panel 12 extends upward from the base 10 at a slight rearward inclination and the support or securing panel 14 extends upward from the base at a forward inclination to interconnect the warning panel and the base thereby to hold the warning panel in its effective warning position. It is apparent that there are three lines at which these three elements of the device meet when the device is in its erected effective state, the base 10 meeting the warning panel along one line, the base meeting the support panel 14 along another line, and the support panel meeting the warning panel along a third line. It is further apparent that the device may be made collapsible from its erected state to a flat state releasably interconnecting two of these three elements along at least one of the three lines.

In the construction shown in the Figures 1-3, for example, the base 10 is hingedly connected to the warning panel 12 along a hinge line 15, the base is connected to

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the support panel 14 along a second hinge line 16, and the support panel 14 is adapted for releasable engagement with the warning panel 12. A feature of this particular embodiment of the invention is that the base 10, together with the warning panel 12 and the support panel 14, may comprise a single piece of cardboard that is weakened or score to fold along the lines 15 and 16, as may be seen in Figure 3.

The support panel 14 may be adapted for supporting engagement with the warning panel 12 in any suitable manner. A feature of this first embodiment is the further provision of what may be termed a brace flap 18 that is hingedly mounted on the back side of the warning panel 12 for movement between a position flat against the warning panel, as shown in Figure 3, and a position substantially perpendicular to the plane of the warning panel as shown in Figures 1 and 2. In the construction shown, the brace flap 18 comprises a generally triangular piece of cardboard having a longitudinal marginal portion 20 bonded to the back of the warning panel 12, the brace flap being weakened or scored along the fold line 22 to swing between its two positions.

The brace flap 18 is shaped with a heel 24 that abuts the upper surface of the base 10 when the warning panel 12 is in its erected position. The support panel 14 is suitably adapted for releasable engagement with the brace flap 18 when the brace flap is in its effective position. For this purpose, the brace flap 18 may be provided with a downwardly inclined slot 25 on its swinging edge and the support panel 14 may be provided with a central longitudinal slot 26 on its swinging edge. When the device is in its erected warning position, the two slots 25 and 26 are mutually engaged with the support panel 14 straddling the brace flap 18 and with the brace flap, in turn, straddling the support panel, as may be seen in Figures 1 and 2.

The face of the warning panel 12 may be adapted in any suitable manner to warn oncoming motorists. For example, the face of the warning panel 12 may be provided with diagonal stripes 28 of red luminescent glass beads and the blank spaces between the stripes may be of any contrasting color. Thus the blank spaces 30 may be white or black, black being preferred to make the luminescent stripes more conspicuous at night. Because of the optical illusion heretofore mentioned, the blank spaces 30 are wider than the stripes 28 so that the stripes 28 and the blank spaces appear to be of the same width at night.

If the device is made of cardboard, it may not be stable in the face of a strong wind or an air current caused by a speeding passing car. A feature of the invention in this regard is that when the device is in its erected warning state the upper surface of the base 10 is exposed and accessible so that it is a simple matter to weigh down the base to provide the desired stability. Thus, Figure 1 shows how a rock 32 may be used to weigh down the base 10.

It is apparent that the described device may be collapsed to the flat state shown in Figure 3 for transportation in an automobile without taking up any substantial storage space. It is also apparent that when the device is flattened out as shown in Figure 3 it may be folded on either or both of the lines 15 and 16 to double the sheet material back on itself, thereby to reduce the overall length. Preferably, both the warning panel 12 and the base 10 are cut to a taper, each tapering in width away from the hinge line 15. Thus, if the warning panel 12 is folded back onto the base 10 along the hinge line 15, the tapering edges of the warning panel will substantially conform to the similarly tapering edges of the base and the support panel.

The second embodiment of the invention shown in Figures 4, 5 and 6 has a relatively heavy base 34 which may be, for example, a metal frame or metal casting of open construction. In the construction shown, the base

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34 comprises a flat frame that tapers in plan configuration, the frame having a large central opening 34. Hingedly mounted on the base 34 is a warning panel 36 that may be of the same tapering configuration as the previously described warning panel 12. In this instance, the warning panel 36 has a relatively large central area 38 colored with fluorescent paint, for example, yellow paint. An adjacent tip area 40 may be colored with red fluorescent paint.

The warning panel 36 may comprise a piece of cardboard having a marginal portion 42 that is suitably bonded to the upper surface of the base 34 along one margin thereof, the cardboard being weakened or scored along the fold line 44 to permit the warning panel to swing between the flap position shown in Figure 5, and the erect effective position shown in Figure 4.

This second embodiment of the invention provides a brace flap 45 for the warning panel 36 and a cooperating securing means in the form of a spring 46. The brace flap 45 has a marginal portion 48 bonded to the back of the warning panel 36 longitudinally thereof and is scored or weakened along a fold line 50 to permit the base flap to swing between the flap position shown in Figure 5 and its effective position shown in Figure 4.

The brace flap 45 is shaped to provide a heel 52 for supporting contact with the base 34 when the device is erected and the base flap is provided with a downwardly inclined slot 54 in its swinging edge for releasable engagement by the spring 46. As shown in Figure 5, the spring 46 is anchored in the base 34, and extends across the large opening 35 of the base. The spring 46 is a coil spring having a central straight portion 55 for releasable engagement with the slot 54.

To erect the second embodiment of the invention, the brace flap 45 is swung to a position substantially perpendicular to the plane of the warning panel 36 and the warning panel is swung about the fold line 44 to place the heel 52 of the brace flap against the base 34. The central straight portion 55 of the spring 46 is then inserted in the downwardly inclined slot 54 to hold the brace flap 45 in its supporting position against the base 34, as shown in Figure 4.

Since the base 34 is made of metal and is relatively heavy, this second embodiment of the invention does not need to have its base weighed down to make the device stable in its erected state. When the device is not in use, it may be stored in the flattened state shown in Figure 5 and the overall length of the flattened device may be reduced by folding the warning panel 36 and the brace flap 45 against the base 34 along the fold line 44.

The third embodiment of the invention shown in Figures 7, 8 and 9 is exceedingly simple since it consists essentially of a single piece of cardboard weakened or scored along the fold lines 60 and 62 to divide the piece of cardboard into a central base 64 and two tapered warning panels 65 and 66. It is apparent that the two warning panels 65 and 66 may be brought together for mutual support and reinforcement in upwardly extending effective warning positions, as shown in Figure 8. Thus, either of the two panels 65 and 66 may be regarded as a warning panel for traffic in one oncoming direction, the other panel serving as securing means therefor.

Any suitable provision may be made for releasably interconnecting the two warning panels 65 and 66 in their effective warning positions. In this instance, for example, each of the two warning panels 65 and 66 is provided with opposite notches 68 near their outer ends to receive suitable interconnecting means such as a loop of string or a rubber band. In Figure 8 is shown a rubber band 70 looped around two warning panels in engagement with the four notches 68 to hold the two warning panels together. The rubber band 70 may, if desired, be stapled or otherwise bonded to one of the

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two warning panels, a staple 72 being shown in Figure 8 for this purpose.

The two warning panels 65 and 66 may be suitably colored with fluorescent paint on their outer faces as heretofore described. Since this third embodiment of the invention comprises essentially a single piece of cardboard, it should be weighed down for stability. The central base 64 is fully accessible, however, to permit it to be weighed down by a roadside rock 74.

In this last embodiment of the invention, it is apparent again that in the erected state of the device there are three lines at which the elements of the device meet in the erected state of the device. Thus the base 64 meets the warning panel 65 along the fold line 69, the base meets the second warning panel 66 along the fold line 62, and the two warning panels meet at their upper edges. Here again the elements may be hingedly interconnected at any two of these three lines and releasably connected at the third line.

This third embodiment may be readily collapsed to the flat state shown in Figure 7 for stowage. If desired, it may be further folded back on itself along one or both of the fold lines 60 and 62 to shorten its overall length in the flat. Thus Figure 9 shows the device doubled back at both of the fold lines.

Our description in specific detail of selected practices of the invention will suggest various changes, substitutions and other departures from my disclosure that properly lie within the spirit and scope of the appended claims.

#### We claim:

1. An emergency road sentinel for use by motorists as a traffic warning device, comprising: a base; a warning panel hingedly connected to said base to swing relative to the base between a flat position for stowage and an upper warning position; a longitudinal flap hingedly mounted on said panel to swing relatively thereto about an axis longitudinally thereof to a position at an angle thereto for supporting contact at its lower end with said base; and securing means mounted on said base and extensible upwardly therefrom into engagement with said flap when the flap is at said angle thereby to hold the warning panel at its upper warning position.

2. A device as set forth in claim 1 in which said warning panel has spaced stripes of luminescent reflective material on its face, the spaces between said stripes being greater than the width of the stripes to compensate for the fact that the apparent width of the luminescent stripes is greater than the actual width.

3. A device as set forth in claim 1 in which both said securing means and said flap are slotted for mutual releasable engagement.

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4. An emergency road sentinel for use by motorists as a traffic warning device, comprising: a base; a warning panel hingedly connected to said base to swing relative to the base between a flat position for stowage and an upper warning position; a longitudinal flap hingedly mounted on said panel to swing relatively thereto about an axis longitudinally thereof to a position at an angle thereto for supporting contact at its lower end with said base; and resilient securing means on said base stretchable for releasable connection with said flap to hold said flap in its supporting position against the base.

5. A device as set forth in claim 4 in which said resilient means is an elongated stretchable member and said flap has a marginal recess for engagement thereby.

6. A device as set forth in claim 5 in which said base is relatively thick and is made of relatively high density material for stability; and in which said panel and flap are made of relatively low density material.

7. An emergency road sentinel for use by motorists as a traffic warning device, comprising: a flat warning panel of non-metallic material having a conspicuously reflective surface; a flat base substantially thicker and heavier than said warning panel and hingedly connected to the warning panel to swing relative thereto between a position flat against the warning panel for compact storage of the road sentinel and a position at an angle relative to the warning panel with the panel in an upwardly extending effective warning position, said base being made of metal for weight to lend stability to the device when said panel is in its warning position to prevent wind from turning the device over; and means interconnecting said base and said warning panel to hold the warning panel in its upwardly extending warning position.

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