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F. I. FULLER ET AL

2,781,017

SIGNALING DEVICE

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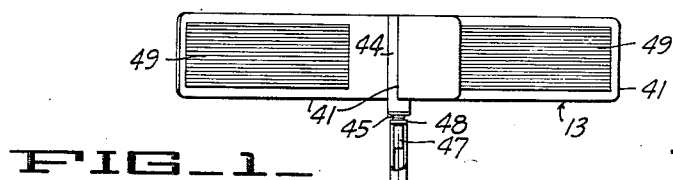


FIG. 1

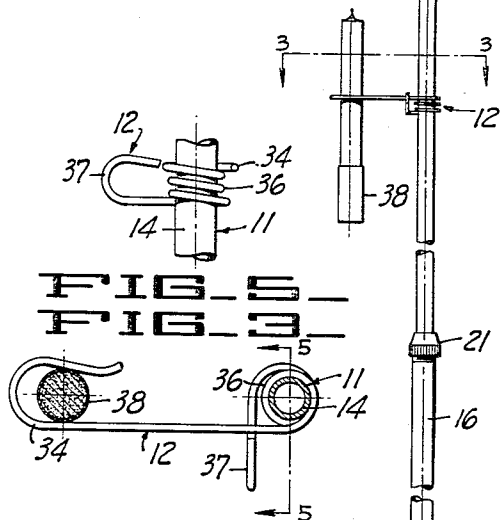


FIG. 2

FIG. 3

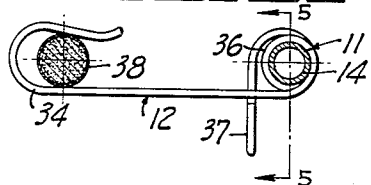


FIG. 4

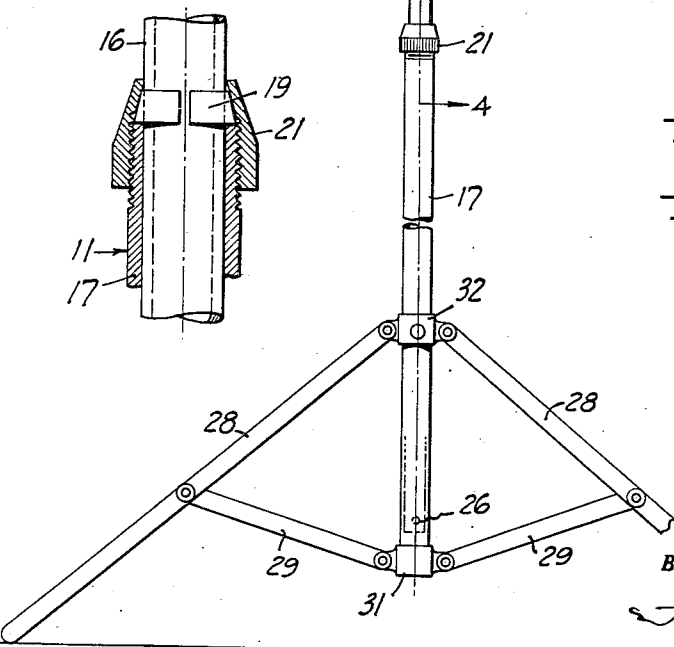
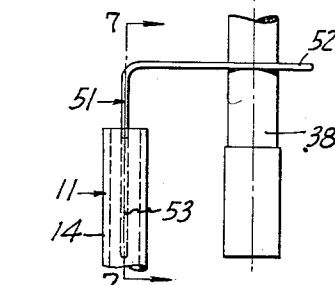
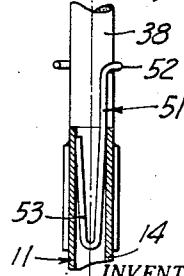


FIG. 6

FIG. 7



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1

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SIGNALING DEVICE

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This invention relates generally to signaling devices and more particularly to signaling devices for use on highways.

In the past it has been common to employ road flares or warning signs to minimize accident hazards when a truck, car or other automotive vehicle is stalled or parked along a highway. Present devices of this type frequently are not as effective as desired, particularly because of lack of proper visibility under various conditions.

In general it is an object of the present invention to provide an improved highway signaling device which can be readily observed by the oncoming motorist.

Another object of the invention is to provide an improved signaling device which will be effective to attract attention both during the day and at night.

Another object of the invention is to provide a highway signaling device which can be used with or without a flare and to which a flare can be readily attached.

Another object of the invention is to provide a highway signaling device which is adjustable in height so that it can be elevated so that it can be readily seen by all oncoming cars.

Another object of the invention is to provide a highway signaling device which can be folded into a compact package when not in use.

Additional objects of the invention will appear from the following description in which the preferred embodiment has been set forth in detail in conjunction with the accompanying drawing:

Referring to the drawing:

Figure 1 is a side elevational view of our signaling device.

Figure 2 is a plan view of the top portion of our device.

Figure 3 is a cross-sectional view taken along the line 3—3 of Figure 1.

Figure 4 is a cross-sectional view taken along the line 4—4 of Figure 1.

Figure 5 is a cross-sectional view taken along the line 5—5 of Figure 3.

Figure 6 is an elevational view of another embodiment of our invention.

Figure 7 is a cross-sectional view taken along the line 7—7 of Figure 6.

In general, the present invention consists of a collapsible telescoping tripod with a flare holder and a revolving reflector adapted to be operated by the wind.

The embodiment of our device shown in Figure 1 consists of a tripod assembly 11 which forms a mounting for the flare holder 12 and the reflector assembly 13. This tripod assembly is of conventional construction and consists of three sections of tubing which are adapted to telescope one into the other. The upper section 14 and the middle section 16 are provided with split tapered collets 19, which are adapted to be clamped about the sections 14 and 16 by the threaded and tapered ferrules 21. It is apparent, that by loosening the ferrules 21, the sections may be extended and then be locked in this position.

2

Each of the tubular sections 14, 16 and 17 is provided with a pin 26 which extends through each of the sections (not shown in sections 14 and 16) and is riveted in place. These pins serve to prevent the upper sections from sliding through the larger bottom sections and also prevent the smaller sections from being pulled out of the top of the lower section.

The bottom section 17 is provided with a collapsible tripod arrangement consisting of three legs 28 pivotally attached by braces 29 to a collar 31 fixed to the lower extremity of the section 17. The upper portions of the legs 28 are in turn pivotally attached to a collar 32 slidably mounted on section 17. It is apparent that as the collar 32 is moved upwardly, the bottom extremities of the legs 28 will be drawn inwardly so that when the collar 32 is in its uppermost position the legs 28 will be substantially parallel to the section 17 thereby forming a compact unit.

A flare holder 12 is adapted to be attached to the top section 14. In general the flare holder 12 consists of a spring-like member of the conformation shown in Figures 3 and 5. This spring-like member has a U-shaped flare holding portion 34, a coil spring portion 36 and an operating handle portion 37. The U-shaped portion 34 is shaped to receive the conventional cylindrical red flare 38 used by highway patrols and the railroads. Thus the flare can be rolled into the U-shaped portion 34 and it will be held in place by the spring action of this U-shaped portion.

When the reflector assembly 13 is not in place, the flare holder 12 may be slid down over the extension 14 merely by pressing on the operating handle 37 to increase the diameter of the coil spring 36 until it will easily slide over the section 14. When the flare holder 12 has been slid down to the proper position on section 14, it is merely necessary to release the operating handle 37 whereupon the coil spring frictionally engages the section 14 and thus serves to hold the flare holder 12 in a horizontal position as shown in Figure 1.

The reflector assembly 13 consists of a pair of substantially identical vanes 41 having outwardly curved portions 42. One of the vanes has a slot (not shown) equidistant from the ends and extending from the bottom of the vane to the middle of the vane, whereas the other vane has a slot (not shown) equidistant from the ends extending from the top of the vane to the middle of the vane so that the two vanes 41 may be slipped together and fitted into the cylindrical hub 44 provided with four equally spaced slots 46. The hub 44 is journaled on a mounting 47 by suitable means such as a ball bearing 45. The lower portion of the mounting 47 is adapted to fit within the inner circumference of tubular section 14 as shown in Figure 1 and the intermediate portion of mounting 47 is provided with a flange 48 to fit over the top of section 14.

The vanes 41 can be made of any suitable material such as sheet aluminum and then if desired they may be coated with suitable substances to increase their noticeability. We have found it desirable to coat the vanes with an orange-red fluorescent paint so as to attract the attention of the oncoming motorist in the daytime. It has been found that this paint can be seen at great distances.

For nighttime use we have found it desirable to place "Scotch-Lite" tape 49 on two of the vanes. "Scotch-Lite" is a light reflecting material in sheet form manufactured by Minnesota Mining and Manufacturing Company. This "Scotch-Lite" tape is also of a reddish hue and has excellent light reflecting properties so that it will reflect the light of the flare if one is placed below and also the light of the headlights of the oncoming auto-

mobile. The "Scotch-Lite" tape has been put on only two of the vanes because it has been found that as the reflector 13 rotates this will tend to give an impression that a series of flashes are being transmitted rather than one continuous reflection.

From the foregoing it can be seen that our device can be readily seen in the daytime or at night.

It is also apparent that our device may be used with or without the flare holder 12. During the day the flare normally would not be needed and at night it is not absolutely necessary because the reflections from the headlights of the oncoming automobiles will give sufficient warning.

Operation and use of the device described above is as follows: When an accident has occurred on the highway or an automobile has stalled, our device is set up in the following manner. The tripod assembly 11 is lifted upwardly and the legs 28 are allowed to spread so as to suitably support the tripod assembly.

If it is desired to use the flare holder 12, it is placed over the section 14 as hereinbefore described. The reflector 13 is then assembled as hereinbefore described and mounted on section 14.

After this has been done, the reflector 13 is elevated to a proper height by extending the sections 14 and 16. Normally this is done by unlocking the ferrules 21 and then sliding the sections 14 and 16 upwardly until the reflector is at a proper height and then the ferrules are again tightened to hold the sections 14 and 16 in the desired position. It has been found desirable to make the sections 14, 16 and 17 of sufficient length such as three feet, so that the reflector can be elevated to a position where it can be seen by an approaching car over a car that has already stopped in front of our signaling device. In this manner, it will be possible for oncoming motorists to be warned of impending danger in sufficient time so they can bring their automobile to stop even if they are traveling at a high rate of speed.

It is apparent that the rotating action of the reflector 13 will tend to attract the attention of the oncoming motorist and that the addition of orange-red fluorescent paint for daytime use and "Scotch-Lite" tape for nighttime use will serve to attract greater attention.

The entire device hereinbefore described is collapsible and can be fitted into a compact package. The reflector assembly 13 can be removed merely by lifting the mounting 47 out of section 14. The reflector assembly can be disassembled by removing vanes 41 from the hub 44 and then they can be separated from each other and placed side by side so that they will take very little space. After removal of the reflector assembly 13, the flare holder 12 may be slipped off of the section 14. The sections 14, 16 and 17 may then be telescoped into each other and the tripod legs 28 may be collapsed to also form a very compact assembly. In this way, the entire device may be packed in a very small box and carried about with ease.

Another embodiment of our invention is shown in Figures 6 and 7. In this embodiment the flare holder 51 is also a spring-like member which is inserted in the tubular section 14 and which serves to hold the U-shaped portion 52 in a substantially horizontal position. A V-shaped portion 53 on the lower extremity of the flare holder 51 is adapted to be inserted into the tubular section 14 and is of such a dimension that it will be stressed slightly upon insertion. In this way the portion 53 will engage the inner walls of the tubular section 14 to thereby retain the flare holder 51 in a horizontal position.

It is apparent that a conventional red flare 38 can be rolled into the U-shaped portion 52 to be frictionally engaged and held in any desired position. The flare 38 can be raised to an elevated position in the same manner that it was possible to raise the reflector to an elevated position. Thus, when it is desired to use only the fuse

and not the reflector, the reflector may be removed and the flare holder 51 inserted.

We claim:

1. In a signaling device, a tripod, a plurality of vertical telescoping tubular sections mounted on said tripod, means for locking said telescoping sections at various positions, a reflector assembly rotatably mounted on the upper telescoping section and adapted to be rotated by the wind, said reflector assembly comprising a hub rotatably mounted on the upper telescoping section, a plurality of interlocking vanes mounted on said hub and adapted to be engaged by the wind, said vanes being painted with an orange-red fluorescent paint for daytime use and having only some of its vanes covered with light reflecting surfaces for nighttime use.

2. In a signaling device, a reflector assembly, means for positioning said reflector assembly at various elevations, said reflector assembly comprising a hub rotatably mounted on said means, a plurality of vertical slots in said hub, a pair of interlocking vanes adapted to be engaged by the wind mounted in said slots, said vanes being painted with an orange-red fluorescent paint for daytime use and having a light reflecting surface for nighttime use.

3. In a collapsible signaling device, a tripod, a plurality of vertical telescopic tubular sections mounted on said tripod, means for locking said telescopic sections at various positions, a flare holder mounted on the upper tubular section, and a flare mounted in said flare holder, said flare holder having a spring-like U-shaped portion at one end of the same adapted to engage the outer surface of said flare to suspend the flare in a substantially vertical position, and a second spring-like portion at the other end of said flare holder to frictionally engage the upper tubular section to support said flare holder on said tripod.

4. A device as in claim 3 wherein the second spring-like portion includes a coil spring portion coaxially aligned on said upper tubular section and gripping the outer circumference of said upper tubular section, and a projecting arm comprising an extension of said coil spring portion for expanding said coil to facilitate removal of said flare holder from said upper tubular section.

5. A device as in claim 3 wherein the second spring-like portion includes a V-shaped member for gripping the inner circumference of said upper tubular section.

6. In a collapsible signaling device, a tripod, a plurality of vertical telescoping tubular sections mounted on said tripod, means for locking said telescopic sections at various positions, a flare holder, means for clamping said flare holder on said upper tubular section intermediate the upper and lower ends of said upper tubular section, a flare mounted in said flare holder, a reflector assembly rotatably mounted on top of the upper tubular section and adapted to be rotated by the wind, said flare holder including means for frictionally engaging said flare to suspend the same in a substantially vertical position to cause the flare to reflect light onto the rotating reflector assembly.

7. In a collapsible signaling device, a tripod, a plurality of vertical telescoping tubular sections mounted on said tripod, means for locking said telescopic sections at various positions, a hub rotatably mounted on top of the upper tubular section, a pair of vertical slots intersecting at right angles in said hub, a pair of substantially identical vanes having outwardly curved portions at the outer ends of the same, said vanes being mounted in said vertical slots whereby one vane extends at right angles with respect to the other vane, one of said vanes having a slit equidistant from its ends and extending from the bottom of the vane to the middle of the vane, and the other of said vanes having a slit extending from the top of the vane to the middle of the vane, said vanes being painted with an orange-red fluorescent paint for daytime use and

having a light reflecting surface adapted for nighttime use.

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