ABSTRACT: A collapsible, emergency traffic signal device has a planar base leg and a pair of planar side legs forming an equilateral triangle with reflective material retained on at least one side of the triangle. One side leg is connected to one end of the base leg and the other side leg is connected to the other end of the base leg whereby the side legs are foldable over the base leg for storage. A latch is mounted on certain legs for holding the three legs in the triangular forming position.
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COLLAPSEABLE, EMERGENCY TRAFFIC SIGNAL DEVICE

The present invention relates to warning signal devices and more particularly to collapsible, emergency traffic signal devices to be placed near motor vehicles which are stopped on or near streets and highways to warn drivers of other motor vehicles to avoid the stopped vehicle.

The principal objects of the present invention are: to provide a triangular, collapsible, emergency traffic signal device for placing near stopped motor vehicles and which is effective in warning drivers of other vehicles moving along highways under varying conditions of visibility; to provide such a collapsible, emergency traffic signal device which can be easily and simply manipulated between collapsed and assembled positions; to provide such a collapsible, emergency traffic signal device which is foldable to a compact size for storage, such as in a trunk of a vehicle; and to provide such a collapsible, emergency traffic signal device which is economical to manufacture, simple to assemble, durable in use, convenient to use and store and particularly well suited for the proposed use.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth, by way of illustration and example, certain embodiments of this invention.

FIG. 1 is a front elevational view of a collapsible, emergency traffic signal device embodying features of the present invention.

FIG. 2 is a rear elevational view of the collapsible, emergency traffic signal device.

FIG. 3 is an edge elevational view showing the emergency traffic signal device in a collapsed position.

FIG. 4 is an enlarged fragmentary transverse sectional view taken on line 4-4, FIG. 1, showing a latch for holding the collapsible traffic signal device in an assembled position.

FIG. 5 is an enlarged fragmentary transverse sectional view showing an arcurate arm engaging legs of the collapsible traffic signal device in the assembled position.

FIG. 6 is an enlarged fragmentary transverse sectional view taken on line 6-6, FIG. 1, showing structure for holding reflective material on the emergency traffic signal device.

FIG. 7 is an edge elevational view of a modified emergency traffic signal device having reflective material on each side of each leg thereof.

FIG. 8 is an enlarged fragmentary transverse sectional view similar to FIG. 6 except showing reflective material on each side of the leg.

FIG. 9 is a perspective view of a further modified emergency traffic signal device having a modified latch, modified hinges, and support means for positioning the device in an upright position.

FIG. 10 is a side elevational view of the further modified emergency traffic signal device in a collapsed position.

FIG. 11 is an enlarged fragmentary transverse sectional view taken on line 11-11, FIG. 9 showing the modified latch.

FIG. 12 is an enlarged perspective view of a support foot for positioning the device in an upright position.

Referring more in detail to the drawings:

The reference numeral 1 generally designates a collapsible, emergency traffic signal device for placing near motor vehicles (not shown) which are stopped on or near streets and highways to warn drivers of other vehicles to avoid the stopped vehicle. The collapsible, emergency traffic signal device is generally an equilateral triangle when erected and has a base leg 2 and side legs 3 and 4 each having reflective material 5 mounted thereon to form a substantially continuous triangular reflective signal. The legs form a rigid structure when erected and are connected together in a manner that permits the structure to be collapsed by folding the legs over each other.

In the illustrated structure, the reflective material 5 is a plurality of elongate, planar, prismatic reflective strips with the reflective strips being formed of glass or plastic material. It is preferable to include a backing on each reflective strip, such as stainless steel, aluminum, plastic or the like, which is suitably secured to the back or rear side of each reflective strip, as by adhesive or being heat sealed, to prevent dirt, dust or other foreign material from reducing the reflectiveness thereof.

There are three reflective strips illustrated adjacent each exterior edge of the respective legs. The reflective strips are trapezoid-shaped whereby adjacent strips mate at the ends and the strips are easily installed or replaced when damaged. The strips may be reversed end for end whereby a particular strip may be placed as the center strip or the end strip at either end of the respective leg. The included angle formed between the base side edge and each end edge of each reflective strip is in the nature of 60° which is equal to the included angle between the exterior edges of adjacent legs of the device 1 when in the erected or assembled position.

The connections are mounted on the legs such that two of the legs fold over a third leg thereby providing a compacted collapsed position for storage. In the illustrated structure, hinges 6 and 7 are mounted on opposite ends of the base leg 2 with the hinges 6 and 7 being of the leaf hinge type and being mounted on opposite sides thereof suitably secured to one end of the base leg 2, as by welding or by other means to permanently attach, and the other leaf 9 thereof similarly secured to one end of the side legs, for example, side leg 3. The hinge 7 has one leaf 10 secured to the other end of the base leg 2 and the other leaf 11 thereof secured to one end of the other side leg 4 and the hinge 6 is mounted on the back or rear side of the base leg 2 and the hinge 7 is mounted on the front side of the base leg 2 whereby the side leg 3 folds toward a back or rear side of the base leg 2 and the side leg 4 folds toward a front, side or face of the base leg 2.

The leaves 8 and 9 of the hinge 6 and the leaves 10 and 11 of the hinge 7 are planar members whereby one end of the side legs 3 and 4 is coplanar with the respective ends of the base legs 2 when the traffic signal device 1 is in the assembled or erected position.

In the illustrated structure, the base leg 2 and the side legs 3 and 4 are generally elongate, planar members each having an upturned flange 12 at the exterior edge thereof and a plurality of longitudinally spaced, upturned tabs 13 intermediate the edges thereof with the tabs 13 being longitudinally spaced in facing relation with the flange 12 for engaging and holding opposite side edges of the strips of reflective material. An end tab 14 extends from one end of the base leg 2 and from one end of each of the side legs 3 and 4 and is upturned to engage one end edge of the respective end strip of reflective material 5. The upturned flange 12 has a projection 15 extending from the other end of the base leg 2 and from the other end of the side legs 3 and 4. Each projection 15 is bent to engage one end edge of the other end strip of reflective material 5 thereby cooperating with the flange 12, tabs 13 and end tab 14 for holding the strips of reflective material on one side of the respective legs. The upturned tabs 13 engage the interior edge at adjacent ends of the center strip and end strips. The end tab 14 engages the exterior end edge of one of the end strips and the flange projection 15 engages the exterior end edge of the other end strip on each of the legs.

Latch means engage a pair of the legs for holding the three legs in the triangular form. In the illustrated structure, a latch 16 is positioned adjacent an apex 17 of the equilateral triangle formed by the intersection of the side legs 3 and 4 for holding the upper of free ends of the side legs 3 and 4 together. One of the side legs, for example, side leg 3, has a depressed portion 18 sized to receive a portion of the free end of the other side leg 4 whereby the three legs are coplanar in the assembled or erected position.

A shaft 19 extends through the depressed portion 18 of the side leg 3 and has an enlarged portion 21 on one end thereof for engaging the depressed portion 18 and a planar body por-
A suitable keeper 23 is received in a recess in the shaft 19 so as to be positioned between a rear face of the body portion 22 and the other end of the shaft 19 for retaining the latch on the shaft 19. A pair of arcuate slots 24 and 25 extend through the depressed portion 18 and are diametrically aligned on opposite sides of the shaft 19. The body portion 22 is rotatably mounted on the shaft 19 and is generally a circular, planar member having a pair of arcuate arms 26 and 27 extending from the body portion 22 and through the arcuate slots 24 and 25 respectively. The arcuate arms 26 and 27 are positioned at the periphery of the body portion 22 and each of the arms 26 and 27 has a latch portion 28 and 29 respectively extending therefrom. In the illustrated structure, the latch portions 28 and 29 each extend counterclockwise from the arms 26 and 27, as seen in FIG. 1, whereby counterclockwise rotation of the body portion 22 moves the latch portions 28 and 29 over and into engagement with the free end of the other side leg 4, as best seen in FIG. 5. The other side leg 4 has an aperture 30 adjacent the free end thereof and positioned to permit the enlarged portion 21 of the shaft 19 to pass therethrough. A pair of arcuate slots 31 and 32 are positioned in the leg 4 to receive the arcuate arms 26 and 27 whereby rotating the latch 16 as by turning gripping lugs 33 and 34 extending from the front face of the body portion 22 moves the latch portions 28 and 29 over and into engagement with the front surface of the free end of the side leg 4 adjacent the slots 31 and 32 respectively. In use, the emergency traffic signal device 1 is removed from a suitable storage place, such as the trunk of a motor vehicle, and the side legs 3 and 4 are folded or swung outwardly by means of the hinges 6 and 7 with the free end of the side legs 4 being received in the depressed portion 18 of the side legs 3 and the arms 26 and 27 and latch portions 28 and 29 passing through the arcuate slots 31 and 32 and the shaft 19 passing through the aperture 30. The latch 16 is then rotated in a counterclockwise direction, as seen in FIG. 1, by turning the gripping lugs 33 and 34 thereby moving the latch portions 28 and 29 over and into engagement with the front surface of the free end of the side leg 4. The reflective signal device 1 is then moved to a position adjacent a stalled or stopped vehicle, such as a truck, bus or private automobile, and placed in a suitable stand (not shown) for supporting the emergency signal device 1 in an upright position, thereby warning drivers of oncoming vehicles of the presence of the stalled or stopped vehicle. FIGS. 7 and 8 illustrate a modified, collapsible, emergency traffic signal device 36 having a base leg 37 and side legs 38 and 39. The base leg 37 and the side legs 38 and 39 are each generally elongate, planar members having reflective material 40 and 41 mounted on front and rear sides or faces thereof, respectively. In the illustrated structure, the base leg 37 and the side legs 38 and 39 each have flange portions 42 and 43 at the exterior edge thereof and extending outwardly from the front and rear faces respectively. The legs also have tabs 44 and 45 extending outwardly from the front and rear surfaces, respectively. The flange portions 42 and 43 cooperate with the tabs 44 and 45 for engaging and holding opposite edges of trapezoid strips of the reflective material 40 and 41. Each of the legs has flange projections 46 and end tabs 47 extending from opposite ends of the respective legs for engaging end edges of the end strips of the reflective material 40 and 41 for holding same on the front and rear sides of the respective legs. The use of the modified emergency traffic signal device 36 is substantially similar to the collapsible emergency traffic signal device 1, however, the modified traffic signal device 36 is adapted to warn drivers of vehicles approaching a stopped motor vehicle from either direction. The modified emergency traffic signal device 36 is also placed in a suitable stand (not shown) for supporting same in an upright position, thereby warning the drivers of oncoming vehicles.
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tially vertical position and the gripping lug 76 is shaped to engage an exterior surface of the side leg 53 when turned to a position substantially normal or perpendicular to the longitudinal axis of the elongate slotted aperture 72.

Each of the hinges 57 and 58 are formed by a pair of spaced ears 77 extending outwardly from the base leg 51 and by a pair of ears 78 extending outwardly from the side legs 52 and 53 and positioned adjacent the ears 77 of the base leg 51 and an elongate shaft or hinge pin 79 extends through the ears 77 and 78.

The use of the further modified emergency traffic signal device 30 is substantially similar to the collapsible emergency traffic signal device 36, except that the support arms 71 are mounted in the pockets 70 so as to have the free end thereof engage the supporting surface in cooperation with the end portions 69 of the support feet 65 and 66 to thereby support the signal device 50 in an upright position thereby warning the drivers of vehicles approaching from either direction.

It is to be understood that, while I have illustrated and described certain forms of my invention, it is not to be limited to these specific forms or arrangement of parts herein described and shown.

What I claim and desire to secure by Letters Patent is:

1. A collapsible emergency traffic signal device comprising:
   a. a planar base leg and two planar side legs arranged in the form of an equilateral triangle, each of said legs being substantially flat rigid members in coplanar relation and with ends shaped to mate with a respective adjacent end of the next leg;
   b. a plurality of elongate prismatic reflector members on each leg for substantially the length thereof adjacent an outer edge of the respective leg, said reflector members being of a width for forming a reflective signal and substantially lesser in width than the legs whereby said legs extend inwardly from the triangle of the reflector members;
   c. means on the legs engaging the reflector members holding same on the respective legs and arranged to reflect light in a direction normal to the plane of the legs;
   d. hinge means connecting end portions of the base leg to the side legs adjacent end thereof with the respective hinge axis substantially parallel to said adjacent edges;
   e. said side legs having end portions remote from the base legs and inwardly of the respective side leg reflector members, said end portions of said side legs being offset and in overlapping relation when the signal device is erected whereby the side and base legs are in substantially coplanar relation;
   f. latch having a planar portion movably mounted means on one of said overlapping end portions and having a latch portion for engaging an opposite surface of the other end portion releasably securing same together to hold said side legs in erected position, said side legs being swingable to a longitudinal overlapping relation to the other legs when the securing means is released;
   g. said legs each have a flange alongside an outer edge engaging an adjacent edge of the reflector members thereon;
   h. said base leg and said side legs having abutting end edges portions on lines substantially bisecting the respective angles of the triangle;
   i. said hinge means connecting the end portions of the base leg to the side legs being adjacent the abutting end edges thereof and inwardly of the reflector members on the respective legs;
   g. support means releasably connected to the base leg and extending transversely therefrom for cooperative engagement with a support surface to hold the erected signal device in substantially upright position.

2. The collapsible emergency traffic signal as set forth in claim 1 wherein said securing means includes:
   a. means providing an aperture through each of said overlapping portions of said side legs adjacent the free end thereof;
   b. means providing a pair of arcuate slots through each of said overlapping portions and diametrically centered on the respective aperture;
   c. a shaft extending through the aperture in one of said side legs and having enlarged portions positioned on opposite sides of said one side leg;
   d. a latch member having a planar body portion rotatably mounted on said shaft between said enlarged portions and positioned in facing relation with one surface of said one side leg, said body portion having a pair of diametrically opposed arcuate arms extending from adjacent the periphery thereof, said arcuate arms extending through said arcuate slots in said said side portions, said arms being less in arcuate length than the respective slots permitting relative rotation of the slot members; and
   e. a latch portion extending from each of said arcuate arms and positioned to engage an opposite surface of the other side leg when said body portion is rotated.

3. The collapsible emergency traffic signal device as set forth in claim 1 wherein:
   a. said hinge means is a pair of leaf hinges having one leaf thereof mounted on opposite ends of said base leg, said hinges having the other leaf thereof mounted on one end of said side legs; and
   b. said hinges are on opposite faces of said base leg whereby said side legs swing toward opposite faces of said base leg.

4. The collapsible emergency traffic signal device as set forth in claim 3 wherein:
   a. the reflective members are elongate rigid strips and said base leg and said side legs each have an upturned flange at the exterior edge thereof for engaging one side edge of said strips;
   b. said flanges each have a projection extending beyond one end of the respective leg, said projection being bent to engage one end of the respective reflective strip;
   c. said base leg and said side legs each have a plurality of upturned tabs positioned to engage the other side edge of the respective reflective strip; and
   d. said base leg and said side legs each have an upturned end tab positioned to engage the other end of the respective reflective strip.

5. The collapsible emergency traffic signal device as set forth in claim 1 wherein:
   a. said reflective members are mounted on both faces of said base and side legs;
   b. said reflective members are trapezoid strips on each face of each of said legs, said trapezoid strips being reversible end for end whereby the strips are interchangeable.

6. The collapsible emergency traffic signal device as set forth in claim 1 wherein the support means connected to said base leg includes:
   a. a pair of spaced support feet extending from said base leg for engaging a supporting surface; and
   b. at least one elongate support arm extending transversely to said base leg and having one end removably connected to said base leg.

7. The collapsible emergency traffic signal device as set forth in claim 6 wherein:
   a. a pocket is mounted on at least one side of said base leg and centered on the signal device for removably receiving said one end of said support arm therein; and
   b. the other end of said support arm engages the supporting surface to cooperate with said support feet for supporting the signal device in a substantially upright position.