A reflector assembly for controlling vehicular traffic. The reflector assembly comprising a saddle-bag assembly having a reflector member. The saddle-bag assembly may be supported by a barrier member. A method for controlling traffic on a highway at night. The method includes providing a barrier member, and disposing a saddle-bag assembly on the barrier member.
BARRIER SYSTEM AND METHOD

FIELD OF THE INVENTION

[0001] Embodiments of the present invention are related to a barrier system and method. More specifically, embodiments of the present invention provide a temporary roadway barrier assembly and method for controlling traffic, such as on a highway at night.

BACKGROUND OF THE INVENTION

[0002] A-Frame, Type III barricades, and other types of traffic delineators have been provided for use for drivers or pedestrians to route, re-route, or stop egress on roadways, parking areas, sidewalks or other venues. These barricades are concrete and are easily visible in the daytime. However, at night especially, an array of barricades (e.g., concrete barricades) can be visually confusing to motorists and pedestrians because depth perception may suffer, particularly in older persons. A cross-street opening, for example, to which access is permitted, is difficult to delineate simply by separating the distance between barricades. Additionally, the array of barricades inherently creates indistinguishable visual “clutter.” Therefore, what is needed and what has been invented are various embodiments for a barrier system and method for controlling traffic on a highway.

SUMMARY OF EMBODIMENTS OF THE INVENTION

[0003] Embodiments of the present invention provide a reflector assembly for controlling vehicular traffic. In one embodiment of the invention, the reflector assembly includes a saddle-bag assembly. In another embodiment of the invention the reflector assembly includes a saddle-bag assembly supported by a barrier member.

[0004] Embodiments of the present invention provide a saddle-bag assembly for controlling traffic comprising a substrate member, at least one pocket assembly coupled to the substrate member, and at least one reflector assembly coupled to the substrate member.

[0005] Embodiments of the present invention also provide a method for controlling traffic on a highway. The method includes providing a barrier member, and disposing a saddle-bag assembly on the barrier member.

[0006] These provisions, together with the various ancillary provisions and features which will become apparent to those skilled in the art as the following description proceeds, are attained by the methods and assemblies of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a side elevational view of an embodiment of the barrier assembly.

[0008] FIG. 2 is an end elevational view of the embodiment of the barrier assembly of FIG. 1.

[0009] FIG. 3 is a top plan view of the embodiment of the barrier assembly of FIG. 1.

[0010] FIG. 4 is a vertical sectional view taken in direction of the arrows and along the plane of line 4-4 in FIG. 2.

[0011] FIG. 5 is a partial side elevational view showing the stiffener member disposed in a sleeve or pocket between the pliable substrate and the pliable suprastrate.

[0012] FIG. 6 is a side elevational view of another embodiment of the protruding reflector member movable secured (e.g., by hinges) to the support member.

[0013] FIG. 7 is a segmented perspective view of the protruding reflector member removed from its movably secured position against the support member after a pin has been removed, and showing the protruding reflector member being rotated 180° to reverse the positions of the reflective colors on the protruding reflector member such that on-going traffic would then see the reflective color that had been on the opposite side of the protruding reflector member before the 180° rotation.

[0014] FIG. 8 is a perspective view of the reflector assembly with the protruding reflector member having been latched or locked into a position flushed against the face of the support member.

DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

[0015] In the description herein, numerous specific details are provided, such as examples of components and/or methods, to provide a thorough understanding of the embodiments of the present invention. One skilled in the relevant art will recognize, however, that an embodiment of the invention may be practiced without one or more of the specific details, or with other apparatus, systems, assemblies, methods, components, materials, parts, and/or the like. In other instances, well-known apparatus, structures, materials, or operations are not specifically shown or described in detail to avoid obscuring aspects of the embodiments of the present invention.

[0016] Referring in detail now to the drawings, there is seen in FIGS. 1 and 2 an elevational view of an embodiment of the barrier assembly, generally illustrated as 10. The barrier assembly 10 for this embodiment comprises a barrier member 12 supporting a saddle bag assembly, generally illustrated as 14. The barrier member 12 may be made of any suitable material, such as concrete, and has a pair of the surfaces 16-16 parallel to a traffic lane. A road bed 18 provides a supporting surface for the barrier member 12 which includes a broader lower surface 20 integrally connected to the barrier member 12.

[0017] The saddle bag assembly 14 includes a pliable substrate member 24 having a pair of pockets 28-28 at terminal ends thereof. Each pocket 28 has a flap member 32 for covering and sealing material 34 placed in each pocket 28. A sealing assembly, generally illustrated as 50, is provided for each of the pockets 28 for releasably connecting the flap member 32 to the pliable substrate member 24. The sealing assembly 50 may be any suitable sealing assembly, such as coupling surfaces 52 and 54 commercially available under the trademark Velcro. Coupling surface 52 is supported by flap member 32. Coupling surface 54 is supported by the pliable substrate member 24, more specifically by the pocket 28. The pliable substrate member 24 has a pair of apertures 29-29 where through a cable (not shown) or the like may pass to secure the saddle bag assembly 14 to the barrier member 12 to prevent theft, the wind from blowing the saddle bag assembly 14 off of the barrier member 12. In an embodiment of the invention, a handle 31 is connected to the pliable substrate member 24. In another embodiment of the invention, the handle 31 is connected to a pliable suprastrate member, identified as “19” below. For the latter embodiment of the invention, the pair of apertures 29-29
would pass through both the pliable substrate member 24 and the pliable suprastrate member 19. Preferably the handle 31 has the same color as the reflective member (e.g., reflective tape), identified as “48” below.

[0018] The material 34 placed in each of the pockets 28 may be any suitable material, preferably a particulate material, such as sand, gravel, beads, or any other suitable material for furnishing weight and stability to the saddle bag assembly 14. The saddle bag assembly 14 also includes a pair of reflective assemblies 70-70 supported respectively by a pair of structure assemblies 72-72 which is bound to the pliable substrate member 24 which also supports pockets 28-28. Each of the structure assemblies 72 has a support member 71 having a face 72a. These components may be secured, coupled or bound together by any suitable attachment method, such as rivets, grommets, nut-bolt-washer, etc.

[0019] The saddle bag assembly 14 may include the pliable suprastrate member 19 coupled to structure assemblies 72-72 (e.g., coupled to the edges of the support member 71 where the faces 72a-72a terminate), as best shown in FIG. 2. In an embodiment of the invention, the pliable suprastrate member 19 and the pliable substrate member 24 are spacedly disposed with respect to each other, but coming in contact at times with each other because of the pliability of the respective structures of both members 19 and 24. A stiffener member 17 (e.g., a board or the like) may be disposed between the pliable suprastrate member 19 and the pliable substrate member 24. In an embodiment of the invention and as best shown in FIG. 5, a sleeve or a pocket 5 may be provided for slidably receiving the stiffener member 17. As further best shown in FIG. 5, the extremities of the sleeve or a pocket 5 is defined by pliable coupling members 27 and 29 interconnecting the pliable suprastrate member 19 and the pliable substrate member 24.

[0020] Each of the reflective assemblies 70-70 comprises a reflector member 48 (e.g., reflective tape) and a protruding reflective assembly 74 which includes reflective sides 40a and 40b. The reflective sides 40a and 40b may be appropriately colored by any suitable fashion, such as by reflective tape, paint or the like. Preferably reflective side 40a has a different color than reflective side 40b. The protruding reflective assembly 74 also has a reflective front 74a and may be spring-biased or loaded by springs 78-78 to provide flexibility, especially when the protruding reflective assembly 74 is bumped or is engaged by a strong wind. The springs 78-78 would return the protruding reflective assembly 74 into its normal position with respect to the support member 71 after the strong wind has subsided. The springs 78-78 may be located at any suitable location preferably contiguous to the face 72a of the support member 71, as best shown in FIG. 2. The reflector member 48 has reflector parts 48a and 48b. The protruding reflective member 74 may have any suitable geometric shape, preferably rectangular as shown in FIGS. 1-3.

[0021] Reflective sides 40a and 40b (and the reflective front 74a) of the protruding reflective assembly 74, and reflector parts 48a and 48b of the reflector member 48, may be any suitable color. Reflectors parts 48a and 48b preferably may be white or yellow. In one preferred embodiment of the invention where traffic flows in accordance with the United States traffic-lane flow, reflective side 40b is white, and reflective side 40a is red. The reflective front 74a would be preferably the same color as reflective side 40b. As previously indicated, the handle 31 has the same color as the reflective member 48; more specifically, the same color as reflector parts 48a and 48b.

[0022] In a further preferred embodiment of the invention where traffic flows in accordance with the United Kingdom traffic-lane flow (i.e., driving on the left hand side of the road), reflective side 40b is yellow, and reflective side 40a is red. The reflective front 74a would be preferably the same color as reflective side 40b. In another preferred embodiment of the invention where traffic flows again in accordance with the United Kingdom traffic-lane flow, reflective side 40a is white, and reflective side 40b is red. The reflective front 74a again would be preferably the same color as reflective side 40a. Reflectors parts 48a and 48b may be any suitable color, preferably white or yellow. The handle 31 again would have the same color as the reflective member 48; more specifically, the same color as reflector parts 48a and 48b.

[0023] More preferably for a preferred embodiment of the invention for median delineation (e.g., dividing a two lane highway) and where traffic flows in accordance with the United States traffic-lane flow, if reflector part 48a is yellow, then reflector part 48b is also yellow along with reflective side 40a also being yellow. Reflective side 40b would be red. The reflective front 74a would be preferably the same color (i.e., yellow) as reflective side 40a.

[0024] Such an arrangement of colors for median delineation, where traffic flows in accordance with the United States traffic-lane flow, allows the saddle bag assembly 14 to be draped over the barrier member 12 without concern as to whether or not the colors are properly arranged for controlling the flow of traffic. Thus, for a two lane highway having the barrier assembly 10 (supporting the associated saddle bag assembly 14) disposed between the two lanes, on-going traffic in each lane will see the color (e.g., yellow) of reflective side 40a and reflector part 48a, and perhaps reflector part 48b. The color (i.e., red) for reflective side 40b will not be seen because all traffic is flowing in the proper direction. If the highway bends such that the color of reflective side 40a and reflector parts 48a and 48b may not be properly viewed by on-going traffic because of re-reflection, the color (i.e., yellow) of reflective front 74a becomes visible to safely continue controlling the flow of traffic. Again, the color (i.e., red) for reflective side 40b will not be seen. If any traffic on the two lane highway inadvertently starts flowing in the wrong direction, the color (i.e., red) for reflective side 40b will be seen to indicate to the drivers that they are driving in the wrong direction.

[0025] More preferably for a preferred embodiment of the invention for shoulder delineation (e.g., protecting drivers from shoulders of a highway) and where traffic flows in accordance with the United States traffic-lane flow, if reflector part 48b is white, then reflector part 48a is also white along with reflective side 40b also being white. Reflective side 40a would be red. The reflective front 74a would be preferably the same color (i.e., white) as reflective side 40b.

[0026] Such an arrangement of colors for shoulder delineation, where traffic flows in accordance with the United States traffic-lane flow, allows the saddle bag assembly 14 to be draped over the barrier member 12 without concern as to
whether or not the colors are properly arranged for controlling the flow of traffic and protecting the shoulders of the highway. Thus, for a highway having the barrier assembly 10 (supporting the associated saddle bag assembly 14) disposed on the shoulder(s) of a highway, on-going traffic in each lane will see the color (e.g., white) of reflective side 40b and reflector part 48b, and perhaps reflector part 48a. The color (i.e., red) for reflective side 40a will not be seen because all traffic is flowing in the proper direction. If the highway bends such that the color of reflective side 40b and reflector parts 48a and 48b may not be properly viewed by on-going traffic because of retro-reflection, the color (i.e., white) of reflective front 74a becomes visible to safely continue controlling the flow of traffic. Again, the color (i.e., red) for reflective side 40a will be seen. If any traffic on the highway inadvertently starts flowing in the wrong direction, the color (i.e., red) for reflective side 40a will be seen to indicate to the drivers that they are driving in the wrong direction.

[0027] More particularly for the preferred embodiment of the invention for median delineation (e.g., dividing a two lane highway) and where traffic flow is in accordance with the United Kingdom traffic lane flow, if reflector part 48b is yellow, then reflector part 48a is also yellow along with reflective side 40b also being yellow. Reflective side 40a would be red. Such an arrangement of colors for median delineation allows the saddle bag assembly 14 to be draped over the barrier member 12 without concern as to whether or not the colors are properly arranged for controlling the flow of traffic. Thus, for a two lane highway having the barrier assembly 10 (supporting the associated saddle bag assembly 14) disposed between the two lanes, where traffic flow is in accordance with the United Kingdom traffic–lane flow, on-going traffic in each lane will see the color (e.g., yellow) on reflective side 40b and reflector part 48b, and perhaps reflector part 48a. The color (i.e., red) for reflective side 40a will not be seen because all traffic is flowing in the proper direction. If the highway bends such that the color of reflective side 40b and reflector parts 48a and 48b may not be properly viewed by on-going traffic because of retro-reflection, the color (i.e., yellow) of reflective front 74a becomes visible to safely continue controlling the flow of traffic. Again, the color (i.e., red) for reflective side 40a will be seen to indicate to the drivers that they are driving in the wrong direction.

[0028] More particularly for the preferred embodiment of the invention for shoulder delineation (e.g., protecting drivers from shoulders of a highway) and where traffic flows in accordance with the United Kingdom traffic–lane flow, if reflector part 48a is white, then reflector part 48b is also white along with reflective side 40a also being white. Reflective side 40b would be red. The reflective front 74a would be preferably the same color (i.e., white) as reflective side 40a. Such an arrangement of colors for shoulder delineation, where traffic flow is in accordance with the United Kingdom traffic–lane flow, allows the saddle bag assembly 14 to be draped over the barrier member 12 without concern as to whether or not the colors are properly arranged for controlling the flow of traffic and protecting the shoulders of the highway. Thus, for a highway having the barrier assembly 10 (supporting the associated saddle bag assembly 14) disposed on the shoulder(s) of a highway, on-going traffic in each lane will see the color (e.g., white) of reflective side 40a and reflector part 48a, and perhaps reflector part 48b. The color (i.e., red) for reflective side 40b will not be seen because all traffic is flowing in the proper direction. If the highway bends such that the color of reflective side 40a and reflector parts 48a and 48b may not be properly viewed by on-going traffic because of retro-reflection, the color (i.e., white) of reflective front 74a becomes visible to safely continue controlling the flow of traffic. Again, the color (i.e., red) for reflective side 40a will be seen. If any traffic on the highway inadvertently starts flowing in the wrong direction, the color (i.e., red) for reflective side 40a will be seen to indicate to the drivers that they are driving in the wrong direction.

[0029] Referring now to FIGS. 6-8 for another embodiment of the invention there is seen in FIG. 6 a side elevational view of another embodiment of the protruding reflector member 74 movable secured (e.g., by hinges) to the support member 71. Protruding reflector member 74 has hinges 180-180 which slidably mate with hinges 178-178 coupled to support member 71. After appropriately mating and being aligned, a pin member 80 slidably passes through the openings in hinges 180-180 and hinges 178-178 to movably secure protruding reflector member 74 to the support member 71. The protruding reflector member 74 may be latched or locked with latch member 81 into a position flushed against the face 72a of the support member 71 to facilitate transporting the saddle bag assembly 14 from one place to another place.

[0030] The protruding reflector member 74 may be rotated such that the color on the opposite side (the back side) of the reflector member 74 may be seen by on-going traffic. More specifically as best shown in FIG. 7, protruding reflector member 74 may be removed from its movably secured position against the support member 71 after the pin member 80 has been removed from engagement with hinges 180-180 and hinges 178-178. After pin member 80 has been removed from its engagement with hinges 180-180 and hinges 178-178, the protruding reflector member 74 is then rotated 180° in direction of arrows A to reverse the positions of the reflective colors on the protruding reflector member 74 such that (after appropriately reinserting pin member 80) on-going traffic would then see the reflective color that had been on the opposite side of the protruding reflector member 74 before the 180° rotation. Thus reflective side 40b, which had not been seen by on-going traffic, would now be seen. Similarly, reflective side 40a which had been seen by on-going traffic, would now not be seen.

[0031] Each of the reflector members 48 and protruding reflective assemblies 74 may be any suitable respective members and assemblies having suitable reflective surfaces operating under suitable retro-reflection (also called “retro-reflection”) technology, such as any of the following basic types of retro-reflection technology: corner cube, bead, and parabolic. A retro-reflection device sends light or other radiation back where it came from, regardless of the angle—unlike a mirror, which sends light back only when it is exactly perpendicular to the light beam. There are two types of corner cubes with similar optical properties: more commonly, the truncated corner of a cube of transparent material, such as optical glass (reflection is achieved either by reflection or silvering of the outer cube surfaces); and the second type which uses mutually perpendicular flat mirrors bracketing an air space. Bead retro-reflection consists of many
small “corner cube” crystals incorporated into a thin sheet or in paint, which becomes an adhesive that bonds the beads to the surface. The beads, which are roughly about twice the thickness of paint, thus protrude from a surface. Parabolic retro-reflection uses one or more parabolic surfaces to send light or other radiation back where it came from, regardless of the angle.

[0032] Practice of various embodiments of the present invention provides an apparatus and method employing a reflective, water-resistant/waterproof flexible membrane material, which may be shaped in the form of a long rectangle or arrow, reinforced at the mid-point, and weighted on either side with sand or similar material secured in pockets at each end and featuring easily replaceable retro-reflective (corner cube or bead) plates/markers in various shapes, signs, logos, emblems, etc. to customize messages and increase readability on any barricade or barrier member. Various components (e.g., the substrate, the suprastrate, etc) of the apparatus or device may be manufactured from any suitable material.

[0033] Practice of various embodiments of the present invention improves safety for pedestrians, motorists and work crews. A-Frame, Type III barricades and other traffic delineators may be temporarily altered and enhanced by the use of reflective, weighted “saddle-bags” hung and/or removably secured to a barrier member roughly equidistant on either side and fitted with interchangeable, replaceable retro-reflective markers which may customize the barriers depending on the need at the site. The replaceable retro-reflective markers may be supported on a spring-biased surface for cushioning any force coming against the retro-reflective markers. As one example, a series of barricades leading to an intersection may be modified easily by hanging the “saddle-bags,” each with a retro-reflective marker in any suitable configuration. A plurality of saddle-bags may be sequentially disposed on a series of barricade or barrier members with colors white or yellow or red (to direct traffic).

[0034] Reference throughout this specification to “one embodiment”, “an embodiment”, or “a specific embodiment” means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention and not necessarily in all its embodiments. Therefore, the respective appearances of the phrases “in one embodiment”, “in an embodiment”, or “in a specific embodiment” in various places throughout this specification are not necessarily referring to the same embodiment. Furthermore, the particular features, structures, or characteristics of any specific embodiment of the present invention may be combined in any suitable manner with one or more other embodiments. It is to be understood that other variations and modifications of the embodiments of the present invention described and illustrated herein are possible in light of the teachings herein and are to be considered as part of the spirit and scope of the present invention.

[0035] Additionally, any arrows in the drawings/figures should be considered only as exemplary, and not limiting, unless otherwise specifically noted. Furthermore, the term “or” as used herein is generally intended to mean “and/or” unless otherwise indicated. Combinations of components or steps will also be considered as being noted, where terminology is foreseen as rendering the ability to separate or combine is unclear.

[0036] As used in the description herein and throughout the claims that follow, “a”, “an”, and “the” includes plural references unless the context clearly dictates otherwise. Also, as used in the description herein and throughout the claims that follow, the meaning of “in” includes “in” and “on” unless the context clearly dictates otherwise.

[0037] The foregoing description of illustrated embodiments of the present invention, including what is described in the Abstract, is not intended to be exhaustive or to limit the invention to the precise forms disclosed herein. While specific embodiments of, and examples for, the invention are described herein for illustrative purposes only, various equivalent modifications are possible within the spirit and scope of the present invention, as those skilled in the relevant art will recognize and appreciate. As indicated, these modifications may be made to the present invention in light of the foregoing description of the illustrated embodiments of the present invention and are to be included within the spirit and scope of the present invention.

[0038] Therefore, while the present invention has been described herein with reference to the particular embodiments thereof, a latitude of modification, various changes and substitutions are intended in the foregoing disclosures, and it will be appreciated that in some instances some features of the embodiments of the invention will be employed without the corresponding use of other features without departing from the scope and spirit of the invention as set forth. Therefore, many modifications may be made to adapt a particular situation or material to the essential scope and spirit of the present invention. It is intended that the invention not be limited to the particular terms used in the appended claims and/or to the particular embodiment disclosed as the best mode contemplated for carrying out this invention, but that the invention will include any and all embodiments and equivalents falling within the scope of the appended claims.

1. An assembly for controlling vehicular traffic comprising a pliable saddle-bag assembly adapted to be supported by a barrier member, and at least one reflector coupled to the pliable saddle-bag assembly.

2. A saddle-bag assembly for controlling traffic comprising: a pliable substrate member, and at least one reflector assembly coupled to the pliable substrate member.

3. The saddle-bag assembly of claim 2 additionally comprising at least one pocket assembly coupled to the substrate member, and a support member secured to said substrate member.

4. The saddle-bag assembly of claim 3 wherein said pocket assembly and said reflector assembly are secured to said support member.

5. The saddle-bag assembly of claim 3 additionally comprising a suprastrate member coupled to said support member.

6. The saddle-bag assembly of claim 5 additionally comprising a stiffener member disposed between said suprastrate member and said substrate member.

7. The saddle-bag assembly of claim 5 additionally comprising a stiffener member disposed in a sleeve assembly positioned between said suprastrate member and said substrate member.

8. The saddle-bag assembly of claim 2 wherein said reflector assembly comprises a protruding reflector assembly and a reflector member coupled to said substrate member.
9. The saddle-bag assembly of claim 8 wherein said protruding reflector assembly is spring-loaded.

10. A saddle-bag assembly for controlling vehicular traffic, comprising: a pliable substrate; a first reflector assembly and a second reflector assembly coupled to the pliable substrate.

11. The saddle-bag assembly of claim 10 wherein said first reflector assembly comprises a first side reflective member and a first protruding reflective member having a pair of reflective surfaces.

12. The saddle-bag assembly of claim 11 wherein said first side reflective member has a color selected from the group of colors consisting of yellow and white.

13. The saddle-bag assembly of claim 11 wherein one of said reflective surface of said first protruding member has a color selected from the group of colors consisting of yellow and white, and the other reflective surface of said first protruding member is red.

14. The saddle-bag assembly of claim 10 additionally comprising a first pocket assembly and a second pocket assembly coupled to the substrate.

15. A method for controlling traffic on a highway, comprising:
   - providing a barrier member;
   - disposing a pliable saddle-bag assembly on the barrier member such that if traffic is flowing in the wrong direction a color indicia reflective surface will be seen by drivers.

16. The method of claim 15 additionally comprising rotating a protruding reflective member.

17. The saddle-bag assembly of claim 10 additionally comprising a handle, and at least one aperture for assisting in connecting the saddle-bag assembly to a barrier member, said handle having an identical color indicia as a reflector part supported by a support member.

18. The assembly of claim 1 wherein said pliable saddle-bag assembly comprises a pliable substrate member, a pair of pockets coupled to the pliable substrate member, and a pair of reflective assemblies coupled to the pliable substrate member.

19. The assembly of claim 18 additionally comprising a pair of support members connected to the pliable substrate.

20. The assembly of claim 19 wherein one of the pockets and one of the reflective assemblies connect to one of the support members.

21. The assembly of claim 20 additionally comprising a first color indicia and a second color indicia coupled to said support member.

22. The assembly of claim 21 where said first color indicia and said second color indicia are different.

23. The assembly of claim 21 wherein said first and second color indicia are separated by one of the reflective assemblies.

24. The assembly of claim 1 wherein said saddle bag assembly includes a handle coupled thereto.

25. The assembly of claim 23 wherein said handle includes a handle color indicia which is the same as the first color indicia or the second color indicia.

26. The assembly of claim 25 additionally comprising a pliable suprastrate member coupled to the pliable substrate member.

27. The assembly of claim 26 additionally comprising a stiffener member disposed between said pliable substrate member and said pliable suprastrate and between said first and second coupling members.

28. The assembly of claim 18 additionally comprising a material disposed within each of said pockets for furnishing weight to the saddle bag assembly.

29. The assembly of claim 1 additionally comprising a barrier member for supporting the pliable saddle bag assembly.