United States Patent [19]

Alsup

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[54] **MOTORIST'S EMERGENCY WARNING APPARATUS**

[76] Inventor: **Richard E. Alsup**, 1917 N. Grace Ave., Hollywood, Calif. 90028

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[52] **U.S. Cl.** ..... **40/129 C**

[51] **Int. Cl.** **G09f 7/00**

[58] **Field of Search** ..... 40/125 H, 125 N, 40/125 J, 129 C

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Primary Examiner—Robert W. Michell

Assistant Examiner—Wenceslao Contreras

[57] **ABSTRACT**

A motorist's emergency warning apparatus adapted to be normally stored away in a box which may be employed as the hereinafter-referred-to supporting base means for one aspect of the invention and with the device comprising an effectively collapsible, support standard means and base means adapted to be effectively moved between a collapsed or unassembled, unsupported, and non-displaying relationship and an effectively assembled, supported, and displaying relationship. The support standard means includes a plurality of relatively movable frame means portions provided with engageable and disengageable connection means for connecting the frame means and the base means in the assembled, supported, and displaying relationship when desired and for effectively disassembling and/or collapsing the apparatus for ready storage in the box when it is not to be used. The frame means is provided with visibly perceptible, display panel means carried thereacross and defining a display panel of a substantial area positionable in the line of sight of an oncoming motorist and provided with information-bearing display material indicating an emergency condition of an associated motor vehicle and, in certain forms of the invention, indicating the exact nature of said emergency condition.

6 Claims, 16 Drawing Figures

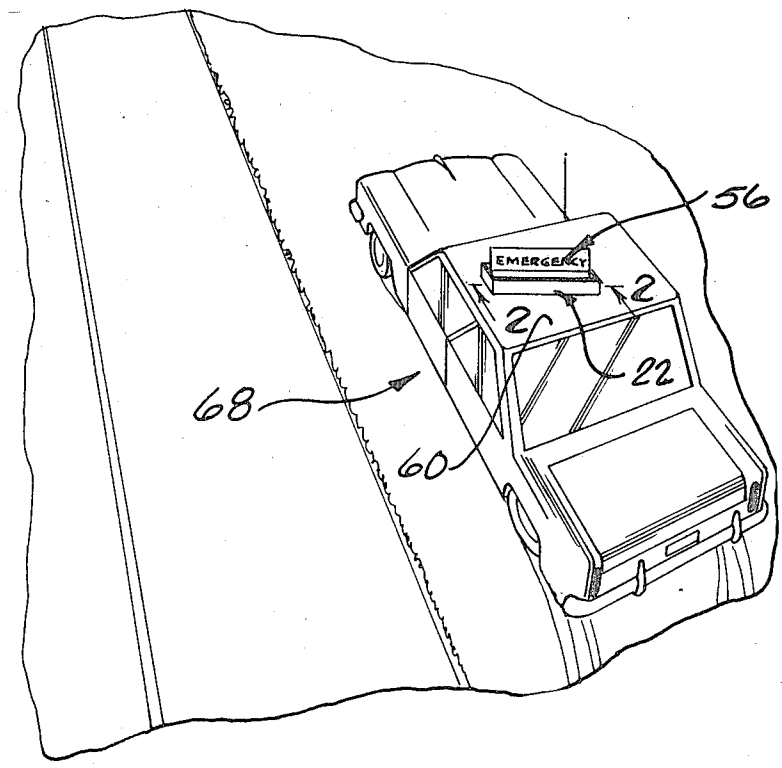

FIG. 1

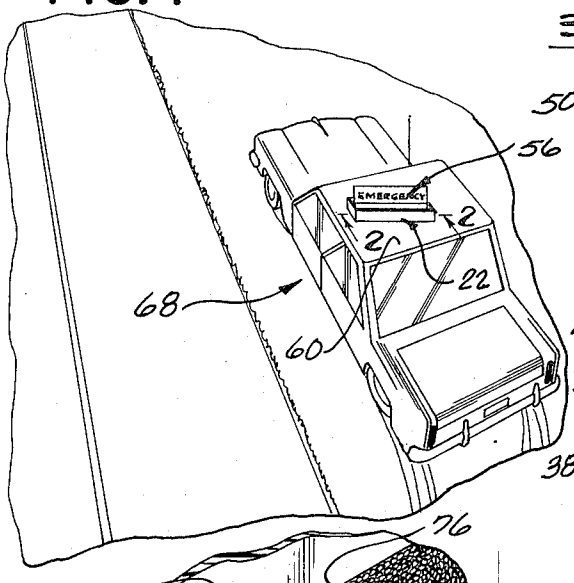

FIG. 2

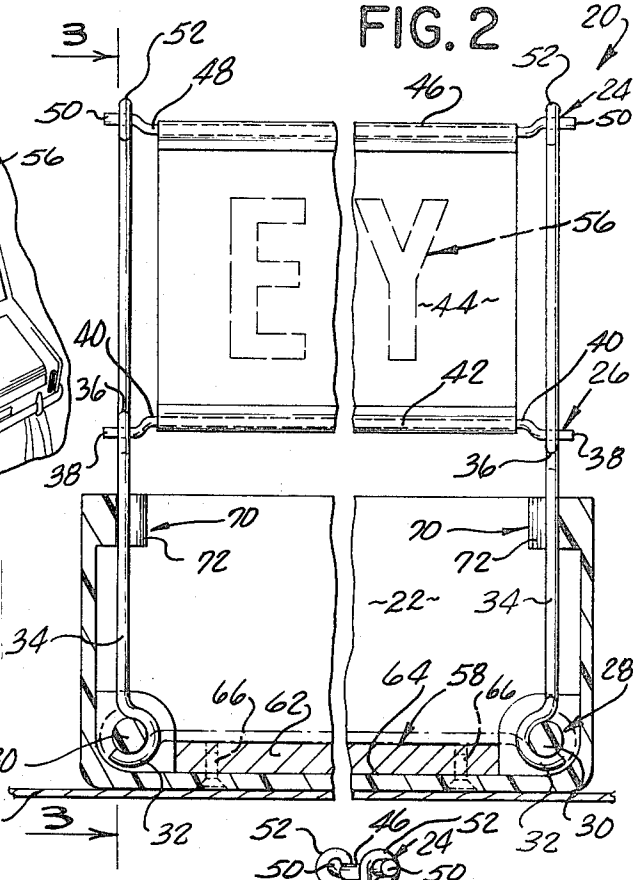

FIG. 6

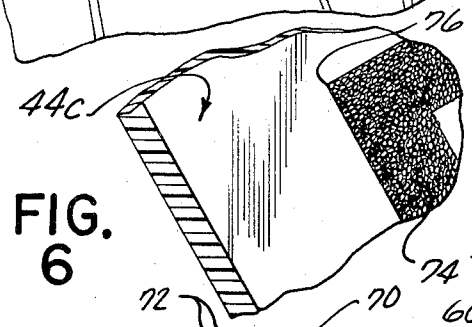

FIG. 4

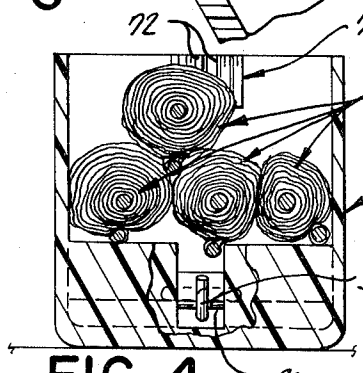

FIG. 3

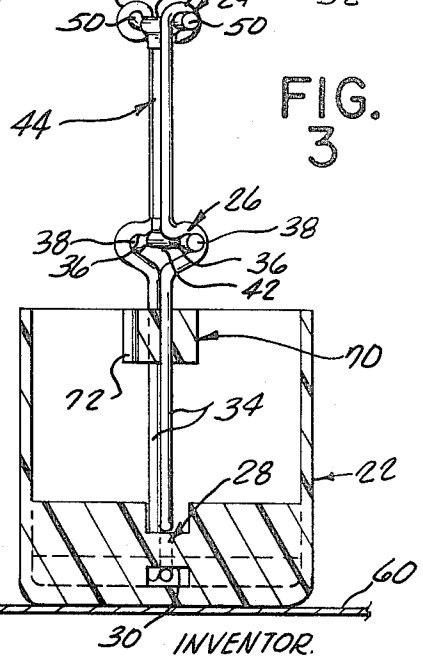

FIG. 5

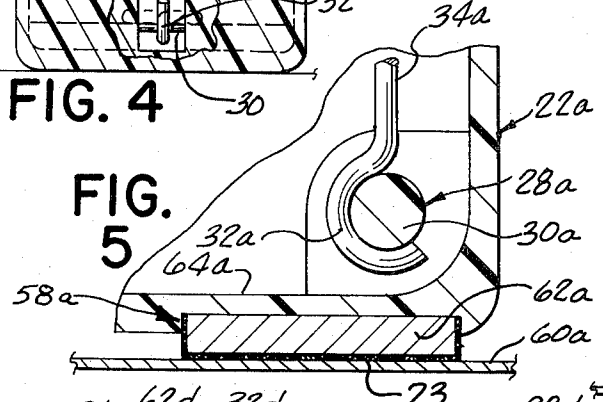

FIG. 7

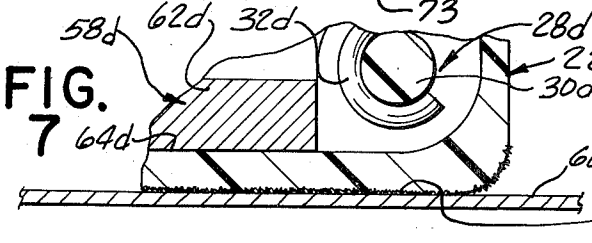

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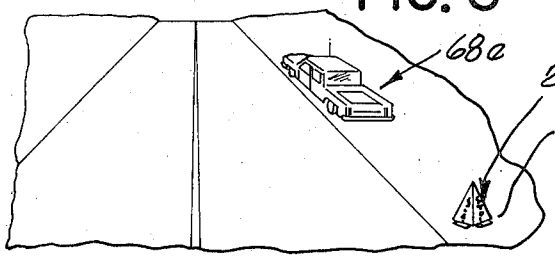
FIG. 8



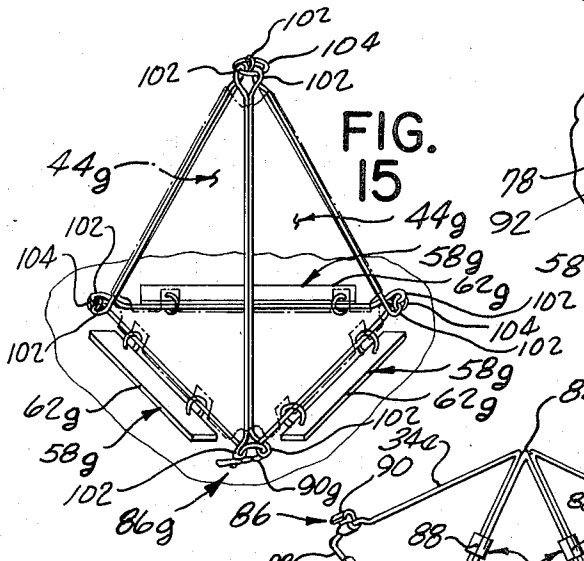


FIG. 15

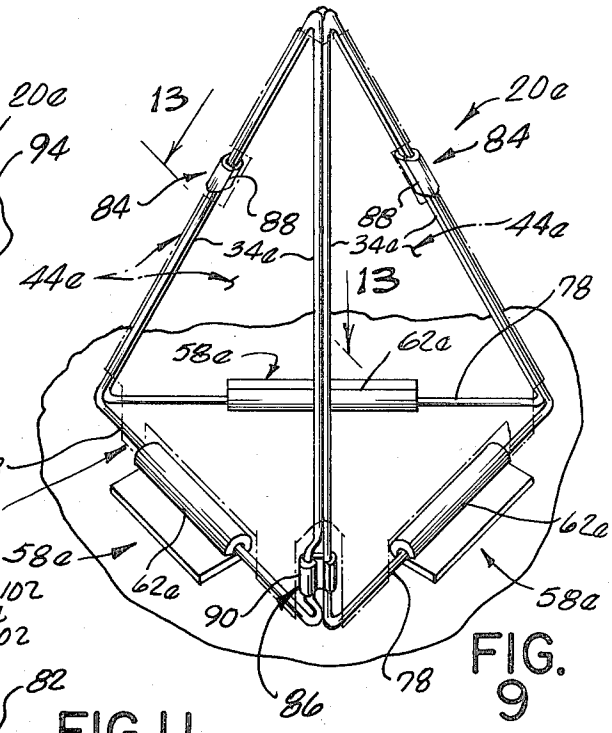


FIG. 9

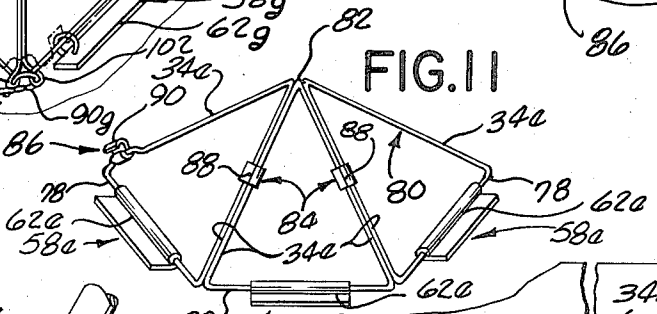


FIG. 11

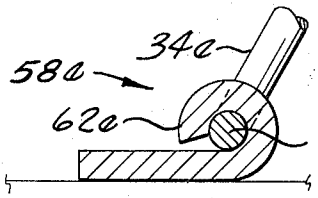


FIG. 10

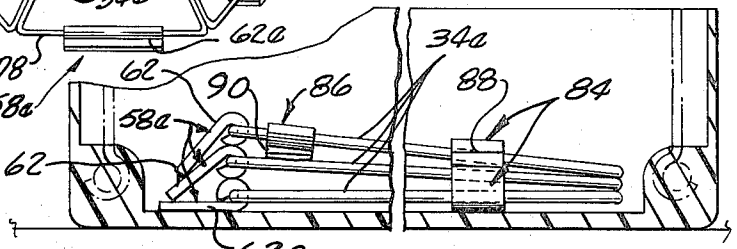


FIG. 12

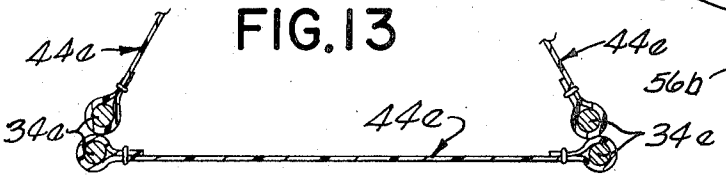


FIG. 13

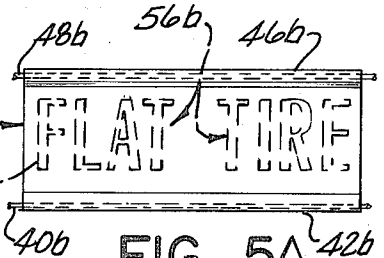


FIG. 5A

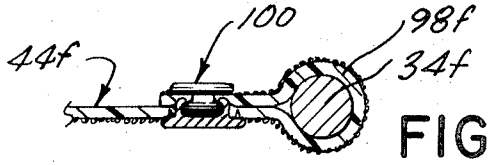


FIG. 14

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MOTORIST'S EMERGENCY WARNING APPARATUS

Generally speaking, the present invention comprises a motorist's emergency warning apparatus adapted to be normally stored away, but also capable of being easily and quickly assembled and placed in a visibly perceptible, information-providing, displaying relationship when a motorist has car trouble on or alongside of a road, so that oncoming motorists will be alerted to the stopped motorist's emergency situation and, in certain cases, provided with information as to the exact nature of the emergency condition of the stopped motorist's vehicle — for example, the fact that it is out of gas or has a flat tire or has some other common malfunction.

The emergency warning apparatus comprises effectively collapsible, support standard means and base means adapted to be effectively moved between a collapsed and/or unassembled, unsupported, and non-displaying relationship and an effectively assembled, supported, and displaying relationship. The support standard means and base means includes a plurality of relatively movable frame means portions provided with engageable and disengageable connection means for connecting said frame means portions and said base means in said assembled, supported, and displaying relationship when desired, and for disconnecting same for placing the entire device in said effectively collapsed and unassembled, unsupported, and non-displaying relationship when desired. The frame means is provided with visibly perceptible display panel means (such as reflective, phosphorescent, luminescent, and-/or brightly-colored visual display means) carried across said frame means and defining a display panel of substantial area positionable in and lying across the line of sight of an oncoming motorist and, in certain cases, as previously mentioned, being provided with information-bearing display material indicating either the general emergency condition of the motorist's vehicle, or of the motorist himself, and, in certain cases, indicating the exact nature of the emergency condition.

In one preferred form of the invention, the frame means and the base means are effectively provided with stabilizing means (usually positioned at or adjacent to the bottom thereof) cooperable therewith to provide great lateral and anti-tipping stability to the entire device when in said effectively assembled, supported, upright displaying relationship.

The above-mentioned stabilizing means, in one form of the invention, comprises low-center-of-gravity weight means carried at or adjacent to the bottom of the base means in a position adapted to be immediately adjacent to an underlying, substantially horizontal, auxiliary supporting surface (such as the top of an automobile body, an adjacent road surface, or the like) upon which the entire device is adapted to be placed when in said assembled, upright, supported, displaying relationship.

In one form of the invention, the above-mentioned stabilizing means comprises magnetic means magnetically attractively cooperable with respect to a ferromagnetic, underlying, auxiliary supporting surface (such as a top portion of an automobile body made of ferromagnetic material) adapted to support the entire device when in said assembled, upright, supported, displaying relationship.

In one preferred form, the base means may be provided with effectively compressible, mar-prevention,

surface-protecting, contact means adapted to yield at least slightly upon contacting a relatively hard, underlying, auxiliary supporting surface adapted to support the entire device when in assembled, supported, displaying relationship, whereby to prevent the device and, in particular, the base means thereof, from damaging such an auxiliary supporting surface. This is particularly important when the auxiliary supporting surface comprises some portion of a motor vehicle body which is normally painted and which is relatively easily scraped or otherwise marred by contact with any hard or sharp object.

In one exemplary form of the invention, the above-mentioned contact means comprises multiple-spaced-filament flock means of flexible, compressible, filamentary material applied and effectively fastened to the contact surface of the base means and projecting therefrom, whereby to provide an effective, compressible, resilient, contact-cushioning pad means.

In one form of the invention, the frame means comprises a pair of laterally spaced, vertical members provided with the previously mentioned display panel means transversely extending therebetween and normally lying in an upwardly directed plane so as to be in a visibly perceptible position with respect to the normal forward line of sight of an oncoming motorist. In this form of the invention, the base means, in a preferred version thereof, comprises a transversely directed hollow storage box normally adapted to store the complete upright standard means, frame means, and display panel means therein when they are in unassembled, effectively collapsed, unsupported, non-displaying relationship. In this exemplary form of the invention, the base means is provided with upright-member engagement and holding means cooperable to controllably removably, firmly engage and hold said upright members of the frame means in substantially upright relationship extending upwardly from the base means, with the display panel means transversely extending therebetween and lying in an upwardly directed plane such as to normally intersect the line of sight of an oncoming motorist. In this exemplary form of the invention, the hollow storage box comprising the base means is normally positioned on some top portion of the stopped motor vehicle and it, or the frame means, is positionally adjusted so that the display panel means is in the optimum position to be seen by an oncoming motorist.

In some versions of the above-mentioned form, the display panel means may be movable into two different positions so as to display, by different types of specific information, to the oncoming motorist, the nature of the emergency condition which prevails; and also this feature may be extended by providing several different display panels which can be interchangeably mounted on the frame means and with each of same bearing information-displaying material adapted to provide a different specific type of emergency-condition information to an oncoming motorist. This of course would make it possible for a motorist who is out of gas to select a particular display panel bearing the words "OUT OF GAS" and to mount it so as to be clearly displayed to, and visible to, any oncoming motorist. Other legends, such as "FLAT TIRE," "ENGINE TROUBLE," or other emergency conditions, may be spelled out on different display panels to any desired extent and through the use of any desired number of interchangeably mountable and positionally reversible display panels.

In another form of the invention, the frame means comprises a plurality of sets (usually three sets) of longitudinal members, with each set thereof effectively defining a substantially triangularly shaped truss structure, with each of said truss structures being provided with effective, interconnecting coupling and pivot means connecting it to another adjacent one thereof and with the truss structures at the end of the coupled assembly thereof being provided with controllably connectible and disconnectible fastening means for fastening the two end truss structures to each other when the entire device is in assembled, upright, supported, displaying relationship, at which time the entire frame means takes the form of a pyramidal structure, with each of the triangular truss structures being provided with display panel means so that the complete device can be readily seen from virtually any position.

This latter form of the invention is primarily intended (although not specifically limited) to be positioned on a road surface near a stopped motorist's vehicle, so as to effectively warn approaching motorists of the presence of the stopped vehicle. Normally, this version of the invention may be positioned a substantial distance from a stopped vehicle and on what might be termed the "upstream" side of the stopped vehicle so that approaching motor vehicles will reach this form of the motorist's emergency warning apparatus well before reaching the stopped vehicle and will, therefore, be alerted to its presence far enough ahead of reaching same to not only avoid any possibility of striking the stopped vehicle, but also will be prepared to look carefully at it and at the previously mentioned type of motorist's emergency warning apparatus of the present invention positioned on top of the vehicle and displaying information indicating the emergency condition which prevails and, in some cases, indicating the exact nature of the emergency condition.

With the above points in mind, it is an object of the present invention to provide a motorist's emergency warning apparatus having any or all of the advantages referred to herein and including any or all of the features referred to herein, generically and/or specifically and individually or in combination, and which is of extremely easy-to-use, easily manufactured, simple, and inexpensive construction, both as to the initial capital cost (including tooling cost) and as to the cost of production per item or unit, such as to facilitate widespread and large-scale manufacturing, sale, and use of the invention, for the purposes outlined herein or for any substantial functional equivalents thereof.

Further objects are implicit in the detailed description which follows hereinafter (which is to be considered as exemplary of, but not specifically limiting, the present invention), and said objects will be apparent to persons skilled in the art after a careful study of the detailed description which follows hereinafter, and all such implicit objects are intended to be included and comprehended herein as fully as if particularly defined and pointed out herein.

For the purpose of clarifying the nature of the present invention, several exemplary embodiments of the invention are illustrated in the hereinbelow-described figures of the accompanying drawings and are described in detail hereinafter.

FIG. 1 is a reduced-size, perspective view illustrating one exemplary form of the present invention in mounted relationship on the top of a motor vehicle in a position such as to position a display panel in the line of sight of an oncoming motorist and with the display panel being provided with information-bearing display material indicating an emergency condition of the motor vehicle on which the entire device is positioned.

FIG. 2 is an enlarged, fragmentary, partially broken-away, sectional view taken substantially along the plane and in the direction indicated by the arrows 2—2 of FIG. 1 in a position such as to clearly illustrate the firm and yet controllably removable mounting of the vertical members of the frame means carrying the display panel, relative to the effective underlying base means, which takes the form of a hollow storage box normally adapted to store the complete apparatus therein when in unassembled, collapsed, non-displaying relationship. This view also shows the removable mounting of the display panel with respect to said vertical members of the frame means.

FIG. 3 is a fragmentary cross-sectional view taken substantially along the plane and in the direction indicated by the arrows 3—3 of FIG. 2 and further illustrates the detail of the means for firmly mounting the vertical members of the frame means with respect to the hollow box comprising the base means.

FIG. 4 is a view similar to FIG. 3 but shows the interior of the box when the means for mounting the vertical members of the frame means are in non-use relationship within the box. This view also shows the frame means and the display panel in effectively collapsed, unassembled, unsupported, nd non-displaying relationship within the storage box.

FIG. 5 is a fragmentary view somewhat like a portion of FIG. 2 illustrating a slight modification of the invention wherein the hollow storage box is provided with magnetic means for magnetically engaging and being attracted to the ferromagnetic top portion of the motor vehicle body comprising the support therefor (or any other similar ferromagnetic, auxiliary supporting surface).

FIG. 5A is a fragmentary view illustrating a modification of the display panel which, in this case, is provided with information-bearing display material indicating the exact nature of the emergency condition of an associated motor vehicle rather than indicating the general emergency condition which exists, in the manner of the first form of the invention best shown in FIGS. 1 and 2.

FIG. 6 fragmentarily illustrates a further modification of the display panel, primarily with respect to the display material carried thereby and which in this case is of a type providing maximum visibility thereof under nighttime conditions or other conditions of extremely low ambient lighting, exclusive of course of oncoming motor vehicles' headlights or other lights conventionally provided for facilitating the driving of motor vehicles at night, or under other poor visibility conditions.

FIG. 7 is a fragmentary view illustrating a modification of the base means of the first form of the invention wherein the bottom surface thereof is provided with mar-prevention, surface-protecting means taking the form of multiple-spaced-filament flocking means of flexible, compressible, filamentary material.

FIG. 8 is a reduced-size, fragmentary, perspective view illustrating a further modification of the invention in effectively assembled, supported, and displaying relationship, effectively "upstream" from a disabled motor vehicle and relative to the flow of oncoming traf-

fic, so that approaching motor vehicles will be warned of the presence of the disabled and stopped motor vehicle well before reaching same.

FIG. 9 is a somewhat-larger perspective view of the FIG. 8 modification of the invention illustrating the detailed structure of the effectively interconnecting coupling and pivoting means connecting the three triangularly shaped, truss structures comprising same and also showing the detail of the controllably connectible and disconnectible fastening means for fastening the three truss structures in the effective, pyramidal-shaped structure which this modification of the frame assumes when in fully assembled, supported relationship. In this view, the display panel means adapted to be carried by the frame means is shown in phantom for reasons of drawing clarity so that the structure of the frame means, the effective interconnecting coupling and pivoting means, and the connectible and disconnectible fastening means can all be clearly seen. However, it should be understood that normally said frame means is provided with such display panel means, which would normally be shown in full or solid lines in the manner of FIG. 8.

FIG. 10 is an enlarged, fragmentary view illustrating the provision of bottom-positioning stabilizing means cooperable with the frame means of FIG. 9 for holding the entire assembled frame means in a supported manner such as to have great lateral and anti-tipping stability.

FIG. 11 is a view of the modified form of the invention illustrated in FIGS. 8, 9, and 10, but with the three triangularly shaped, truss structures thereof in what might be termed an effectively collapsed, unassembled, or disassembled relationship.

FIG. 12 illustrates the effectively collapsed, unassembled frame means of FIG. 11 in a folded, storage relationship suitable to be mounted in the hollow storage box of the first form of the invention as shown in FIG. 4.

FIG. 13 is an enlarged, fragmentary, partly broken-away, sectional view taken substantially along the plane and in the direction indicated by the arrows 13—13 of FIG. 9 but with the display panel means being mounted on the frame means in this view. This view primarily illustrates one representative type of mounting of the display panel means on the frame means.

FIG. 14 is a view generally similar to FIG. 13 but illustrates a modified type of mounting of the display panel means on the frame means.

FIG. 15 is a fragmentary view similar to FIG. 9 but drawn to a smaller scale and illustrates a modified type of the interconnecting coupling and pivoting means and connectible and disconnectible fastening means.

Generally speaking, the warning apparatus of the present invention is intended for use in either of at least two different ways for the purpose of warning oncoming motorists of the fact that the motorist's vehicle has been halted alongside of a road or freeway because of some emergency condition. In one aspect of the warning apparatus, it is adapted to be positioned on some portion of the stopped motor vehicle, such as on the top or roof thereof, so as to be in an optimum display position and lying across the line of sight of an oncoming motorist so that it will be extremely unlikely that an oncoming motorist will fail to see the warning apparatus on the roof of the stopped motor vehicle. Indeed, in order to further enhance the visibility factor of the warning apparatus, it is provided with visibly perceptible display panel means carried thereacross and defining a display surface of a substantial area positioned as mentioned hereinabove in the line of sight of an oncoming motorist and, in certain cases, being provided with information-bearing display material (such as lettering or the like) which may indicate either the general emergency condition which exists and which has caused the stopping of the motor vehicle, or which may indicate the exact details of a specific or particular problem which has caused the stopping of the motor vehicle. This visibility factor, insofar as an oncoming motorist is concerned, may be further enhanced in certain forms of the invention by causing the information-bearing display material, such as lettering or the like, to be of an inherently maximized optical contrast type with respect to the background material or display field upon which said lettering is mounted. For example, the lettering may be of a color contrasting to that of the background of the display panel means and, if desired, may be of a fluorescent type wherein the coloring dye embodies a fluorescent material such as fluorescein dye, which is in effect an optical converter for converting ultra-violet light into corresponding visible light which may be anywhere in the visible spectrum depending on the nature of the particular fluorescent dye used. In other words, in this case the color of the lettering appears to be self-lighted and to actually glow from within, thus greatly increasing its visibility factor.

Also, it should be noted that the information-bearing display material carried by the display panel means may be of the reflecting type embodying a number of small reflective elements carried in a matrix, such as a tape or the like, with each of said reflective elements being adapted to receive incident light from any exterior source of illumination, such as the headlights of an oncoming motor vehicle, and to reflect such incident light directly back, in a relatively broad angle cone, into the eyes of the oncoming motorist so that he can hardly fail to notice the lettering.

The exemplary first aspect of the warning apparatus is of an effectively expandible and collapsible type adapted to be normally stored away in any appropriate manner, such as in a hollow storage box or the like in certain forms of the invention. Indeed, in one preferred form of the invention, the hollow storage box may also comprise a base part of the apparatus adapted to facilitate the holding of the warning apparatus in effectively expanded display relationship on the roof of the motor vehicle and, thus, may effectively be said to comprise base means for firmly mounting a frame means, which in turn mounts and displays the display panel means on the roof of the motor vehicle under the emergency conditions described above.

The second aspect of the present invention takes the form of an emergency warning apparatus, also including frame means which is provided with visibly perceptible display panel means for the purpose of warning oncoming motorists in a manner generally familiar to that described hereinbefore, but the structure and intended positioning of this second aspect of the emergency warning apparatus of the present invention are different from previously briefly described first aspect of the emergency warning apparatus of the present invention, in that a preferred form of the second aspect of the present invention comprises an upwardly converging frame means of substantially triangular cross-

sectional configuration carrying visibly perceptible display panel means on all three sides and each in a position to be seen by an oncoming motorist, with the entire device being adapted to be placed on or adjacent to a side edge of a road or highway a considerable distance away from the stopped motor vehicle in what might be termed an "upstream" position relative to the direction of flow of oncoming traffic with respect to the stopped motor vehicle.

Thus, oncoming motorists will see said emergency warning apparatus of the second type well before they reach the stopped motor vehicle and, therefore, will have had sufficient warning to not only avoid any possibility of colliding with the stopped motor vehicle, but, also, will be able to perhaps slow down slightly and carefully observe the first type of emergency warning apparatus positioned on top of the stopped motor vehicle so as to be able to fully realize the nature of the message and the plight of the stopped motorist and be in a position to quickly reach a decision as to whether or not to stop and attempt to give aid, or to stop at the nearest telephone and phone the proper authorities, such as the Highway Patrol, or the like, in the event that the car is stopped on a freeway and thus is a hazard.

The above-mentioned first aspect of the emergency warning apparatus of the present invention will be described in detail first by the part number and with reference to the figures of the two sheets of drawings, and the second aspect of the invention will be correspondingly specifically described thereafter in a similar manner.

In the exemplary illustrated form of the first aspect of the warning apparatus, effectively collapsible support standard means and base means is provided, with the entire apparatus being adapted to be effectively moved between effectively collapsed, unassembled, unsupported, and non-displaying relationship and effectively assembled, supporting and displaying relationship. The collapsed relationship referred to is best illustrated in FIG. **4** while the effectively expanded, supported, and displaying relationship thereof is best shown in FIGS. **1, 2,** and **3.** As illustrated in FIGS. **1–4** inclusive, said support standard means is generally designated by the reference numeral **20.** The base means **22** and the support standard means, which together may be said to effectively comprise frame means, also generally designated by the reference numeral **20,** includes a plurality of relatively movable frame means portions provided with engageable and disengageable connection means for connecting said frame means and said base means in said effectively supported and displaying relationship when desired. In the exemplary first form of the invention illustrated in FIGS. **1–4** inclusive, the above-mentioned engageable and disengageable connection means take a specific but nonlimiting form, such as generally designated by the reference numerals **24, 26,** and **28,** positioned at opposite ends of the apparatus in each of three different vertically displaced planes.

In the exemplary first form, the lower pair of horizontally spaced ones of said engageable and disengageable connection means **28** takes the form of pivotal mounting studs or pins **30,** effectively carried at the center of opposite longitudinal ends of the hollow storage box comprising the base means **22,** each of which correspondingly receives therearound a partial loop or eye portion **32** formed at the bottom end of the corresponding one of two vertical rod members **34** which comprise the previously mentioned, relatively movable frame means portions.

The arrangement is such that the two longitudinal rod members **34,** which may be referred to as the upright rod or frame member portions of the completed frame means **20** when the device is in the assembled display relationship shown in FIGS. **1–3,** is of a length such as to be capable of being folded down into completely collapsed, parallel, oppositely directed relationship within the bottom portion of the hollow interior of the hollow storage box comprising the base means **22** as is shown in FIG. **4.**

The two upper pairs of said engageable and disengageable connection means indicated at **24** and **26** are of somewhat similar types. In the case of the two lower connection means indicated at **26,** it will be noted that each comprises a recess-defining loop **36** formed in the corresponding intermediate part of each of the two upright rod members **34** of the frame means indicated generally at **20.** However, the two recess-defining loop portions **36** are oppositely directed and each is adapted to frictionally resiliently receive and engage corresponding opposite end portions **38** of a lower transverse frame portion or rod **40** which carries and has attached thereto the lower channel-defining edge **42** of a substantially rectangular visibly perceptible display panel means, generally indicated by reference numeral **44.**

The upper channel-defining edge **46** of the display panel means **44** is similarly mounted on and around a similar and transversely directed upper frame portion or transverse rod **48** which outer end portions **50** are received within the upper loops or eye portions **52** carried by the upper ends of the vertical rod members **34** of the frame means indicated generally at **20.** The parts **36** and **38** effectively comprise the intermediate pair of engageable and disengageable connection means, indicated generally at **26,** while the parts **50** and **52** effectively comprise the previously mentioned upper pair of engageable and disengageable connection means generally indicated at **24.**

It will be noted that the arrangement is such that normally it is possible to easily disengage the two off-set end portions **38** of the transverse frame rod member **40** from the two recess-defining loop portions **36** frictionally resiliently engaging them, as shown in FIGS. **2** and **3,** by merely grasping the end portions **38,** or any intermediate portion of the bottom edge of the display panel means **44,** and exerting downward force thereupon to an extent such as to allow such disengagement of the ends **38** from the recess-defining loop portions **36.** This of course completely releases and frees a complete bottom edge of the display panel **44,** and the top portion can be just as easily disengaged by merely forcibly outwardly deflecting the top end of either or both of the two upright frame rods **34** at or adjacent to the location of the upper connection means, indicated generally at **24,** to an extent such that the two eyes or loops **52** become disengaged from the two offset transverse rod end portions **50.** This of course completely releases and frees the upper edge of the display panel **44** from the upright frame rod members **34.**

Then the two upright rod members can be pivoted toward each other into the collapsed oppositely horizontally directed relationship shown in FIG. **4** and the

display panel means 44 can be rolled or folded into a collapsed configuration and placed within the hollow interior 54 of the hollow storage box comprising the base means 22. Indeed, several such collapsed rolled-up display panel means intended for alternate usage in the manner shown in FIGS. 1 and 2, are shown in such stored relationship within the hollow storage box 22 in FIG. 4. In this connection, it should be noted that there are several alternate display panel means 44 shown in rolled-up form in FIG. 4 because normally a motorist should be provided with several different display panel means, each having different display material, such as the exemplary lettering shown at 56 in FIGS. 1 and 2 which comprises the legend "EMERGENCY." The various other display panel means 44 shown in stored form in FIG. 4 may each have a different legend indicating a different type of emergency condition and opposite sites of each display panel may have different legends.

Generally speaking, the exemplary first form of the invention is effectively provided with stabilizing means cooperable with the apparatus to provide greater lateral and anti-tipping stability to the entire frame means, base means, and display panel means when in assembled upright displaying position as shown in FIGS. 1–3.

As shown in FIGS. 1–3, one exemplary form of such stabilizing means is generally designated by the reference numeral 58 and comprises a low-center-of-gravity weight means carried at or adjacent to the bottom of the base means, comprising the hollow storage box 22 in a position adapted to be very close to an auxiliary supporting surface, such as that shown at 60, upon which the entire apparatus is adapted to be placed when in said assembled, upright, displaying relationship. In the example illustrated, said weight means comprises a mass, bar or plate of lead or other relatively heavy material 62 positioned immediately over the bottom wall 64 of the hollow storage box 22 and, if desired, fastened in place by any appropriate fastening means, such as the threaded fasteners indicated at 66 in FIG. 2, although not specifically so limited. Incidentally, it should be noted that the fragmentarily shown auxiliary supporting surface 60 comprises a part of the top surface of a motor vehicle generally designated by the reference numeral 68.

The base means comprising the hollow storage box 22 is provided with upright member engagement and holding means adapted to controllably removably firmly engage and hold the upright members 34 of the frame means, indicated generally at 20, in the previously described, substantially upright, parallel, laterally spaced relationship, such as is shown in FIGS. 1, 2, and 3, extending upwardly from the base means 22 with the display panel means 44 in the display position clearly shown in FIGS. 1 and 2. In the exemplary first form of the invention illustrated in FIGS. 1–4, said upright member engagement and holding means is generally designated by the reference numeral 70 and, in said exemplary form, comprises a pair of resilient bifurcated retaining yokes 72 adapted to forcibly resiliently receive the corresponding part of the corresponding one of the two upright rod members 34 therein when each of same is erected into the display position shown in FIGS. 1, 2, and 3. This will of course positively hold the frame means 20 in the display position until it is disassembled and effectively collapsed by removal of the display panel means 44 in the manner previously described, after which each of said upright rod members 34 can be forcibly pivoted inwardly and downwardly so as to become disengaged from the corresponding retaining yoke means 72.

FIG. 5 fragmentarily illustrates a slight modification of the bottom right, lower corner part of the first form of the invention as shown in FIG. 2, but is to be considered as representative of the left lower corner part also in a similarly modified form. Parts of this modification which are structurally or functionally generally similar to corresponding parts of the first form of the invention are designated by similar reference numerals, followed by the letter *a*, however. It will be noted that in this modification the stabilizing means, such as indicated at 58 in FIG. 2 of the first form of the invention, no longer takes the form of a low-center-of-gravity weight means such as indicated at 62 in the first form of the invention Instead, the stabilizing means, indicated generally at 58*a* in FIG. 5, comprises magnetic means, such as the representative permanent magnet 62*a*, which is magnetically attractively cooperable with respect to the auxiliary underlying supporting surface 60*a* comprising the motor vehicle roof because it is made of ferromagnetic material. Thus, the magnetic attractive force exerted between one or more such permanent magnets 62*a* and corresponding underlying ferromagnetic motor vehicle roof portion 60*a* provides all of the stabilizing force needed in this modification of the invention.

Certain forms of the invention may include effectively compressible, mar-prevention, surface-protecting, contact means positioned at the bottom of the base means and adapted to yield slightly upon contacting the underlying supporting surface comprising the car roof. One such contact means is indicated at 73 in FIG. 5 and is effectively positioned on the bottom surface of the permanent magnet means 62*a* and, if desired, also on the bottom surface of any or all of the rest of the base means generally designated at 22*a*. In said example illustrated in FIG. 5, said contact means 73 comprises multiple-spaced-filament flocking means fastened to the bottom of the surface shown in FIG. 5 and effectively projecting downwardly therefrom whereby to provide what might be termed a compressible resilient contact cushioning pad means which will prevent any scratching of the usually painted surface of the ferromagnetic car roof 60*a*.

FIG. 5A fragmentarily illustrates a further slight modification of the invention, primarily with respect to the display panel means and the information-bearing display material carried thereby. Parts which are structurally or functionally similar to corresponding parts of the first form of the invention are designated by similar reference numerals, followed by the letter *b*, however. In this modification, it will be noted that the information-bearing display material, generally designated at 56*b*, is of a more specific type than that shown at 56 of the first form of the invention and indicates the exact nature of the emergency condition of the motor vehicle adapted to support the entire device in a manner generally similar to that shown in FIG. 1. In other words, in this case the legend is "FLAT TIRE," indicating that specific problem or emergency condition of the vehicle as opposed to the general indication provided by the information-bearing display material 56 of the first form of the invention. However, it should be clearly understood that FIG. 5A is merely representative of one

type of specific information and is not limited to that particular type.

FIG. 6 is a fragmentary view illustrating, in enlarged fragmentary form, a portion of a modified display panel and, therefore, parts which are structurally or functionally substantially identical to or similar to corresponding parts of previously described forms of the invention are designated by similar reference numerals, followed by the letter *c*, however. In this modification, it will be noted that the lettering **56***c* is of a type providing an extremely high contrast situation, particularly at night, because of the fact that the lettering is made up of a plurality of small light-reflective elements, such as shown at **74**, carried by a mounting matrix which may comprise a tape, or the like, indicated at **76**, which may be suitably applied to the front surface of the material forming the display panel means **44***c* in any suitable manner, such as by being adhesively mounted thereon, by being attached thereto by sewing, or otherwise. Each of the small light-reflective elements **74** is of a type adapted to receive incident light, such as that produced by any exterior lamp, or the like, or the headlights of an oncoming motor vehicle, and to reflect said light backwardly in a relatively broad-angle beam into the eyes of an oncoming motorist so that he will clearly see the lettering **56***c*. In this connection, it should be noted that the lettering **56** of the first form of the invention may similarly be attached in the form of a tape and, either in said exteriorly attached form or in an imprinted form, may be caused to be visibly distinctive by being effectively fluorescent or luminescent, if desired.

FIG. 7 is a fragmentary view generally similar to the lower right-hand corner of FIG. **2**, but including contact means of the type indicated in FIG. **5**. Therefore, parts of this modification which correspond to similar parts of previously described forms of the invention are designated by similar reference numerals, followed by the letter *d*, however. It will be noted that the bottom wall **64***d* is provided with the flocking-means type of contact means **73***d* thereon in order to prevent damage from occurring to the normally painted surface of the car roof **60***d*. In this modification, the stabilizing means reverts back to the first form of the invention and includes a heavy, low-center-of-gravity stabilizing mass indicated generally at **58***d*.

One exemplary form of the second aspect of the invention referred to hereinbefore is illustrated in FIGS. **8—13** inclusive and, in said figures, parts which structurally or functionally correspond, in a broad sense, to the previously described parts of the first aspect of the invention are designated by similar reference numerals, followed by the letter *e*, however.

In the above-mentioned second aspect of the invention, the frame means generally designated by the reference numeral **20***e* comprises three sets of longitudinal members indicated at **34***e* and **78** in each case, with there being three such longitudinal members in each of the three sets thereof and with the three longitudinal members of each such set thereof defining a substantially triangularly shaped, open truss structure such as each of those generally designated by the reference numeral **80**, with the longitudinal member **78** forming the base thereof and having an apex **82** at the upper end thereof.

Also, in the exemplary second aspect of the invention illustrated in FIGS. **8–13**, each of the three triangularly shaped truss structures **80** is provided with effective interconnecting coupling and pivoting means and controllable connectible and disconnectible fastening means making it possible to fasten each of the truss structures together in assembled, edge-contiguous relationship whereby to effectively form and comprise an upright, three-dimensional structure such as the complete, fully-assembled frame means indicated generally at **20***e*, as best shown in FIG. **9**.

In the exemplary form of said second aspect of the invention illustrated in FIGS. **8–13**, the above-mentioned effective interconnecting coupling and pivoting means are generally designated by the reference numeral **84** and the above-mentioned controllably connectible and disconnectible fastening means is generally designated by the reference numeral **86** and, in the first case, comprises a resilient encompassing ring **88** (preferably forcibly resiliently mountable and dismountable) encircling adjacent pairs of edge-contiguous longitudinal members **34***e* of the adjacent truss structures **80** in a manner which allows them to be effectively relatively pivotally moved with respect to each other. In the second case, the fastening means **86** takes the form of a quite-similar resilient encompassing ring **90** adapted to be controllably engaged and disengaged with respect to corresponding outer edge parts of the normally most widely separated, extreme outer two longitudinal members **34**e so as to effectively fasten the entire device in the fully assembled, three-dimensional-structure-defining relationship best shown in FIG. **9**, but in a manner which readily allows the entire device to be effectively disassembled and collapsed to any desired degree in a manner such as that shown in a representative form in FIG. **11** wherein said controllably connectible and disconnectible fastening means has been disengaged while the two interconnecting coupling and pivoting means have not been disengaged (although it should be understood that they may be similarly disengaged, if desired, in certain forms of the invention) so that the entire device can be folded into a flat, easily storable relationship within the hollow storage container **22** as shown in FIG. **12** and which is the same storage container as that shown at **22** in the first form of the invention.

It should be noted that in the modified second aspect form of the invention illustrated in FIGS. **8–13**, each of the three bottom longitudinal members **78**, when assembled into the triangular relationship best shown in FIG. **9** together effectively comprise a functional base means, indicated generally at **92**, which functions in a manner similar to the box **22** of the first form of the invention, in that it is adapted to rest upon an underlying auxiliary supporting surface, such as that indicated at **94**, which may comprise a road surface, for example, whereby to support the fully assembled frame **20***e* thereon at a desired "traffic-upstream" location, such as that shown in FIG. **8**, for example. In the illustrated second aspect of the invention, the stabilizing means, indicated generally at **58***e*, comprises heavy masses or weights, such as lead weights or the like, **62***e*, appropriately fastened to the bottom longitudinal members **78** comprising the effective base means **92** so as to provide a very low center of gravity and thus provide maximum anti-tipping stability of the entire fully assembled frame **20***e*.

In the exemplary second aspect of the invention illustrated, the display panel means, indicated generally at **44***e*, are three in number, preferably, with one of same

being carried by each of the three truss structures **80** by means of three edge channels mounting each panel on the corresponding three rods in a manner similar to that of the mounting of the display panel **44** of the first form of the invention on the upper and lower rods **48** and **40**. However, of course, appropriate cut-outs, such as indicated at **96**, in each of the display panel portions **44***e* is provided in order to by-pass and provide room for the corresponding connection means **84** and **86**, and the corresponding stabilizing weights **62***e*. This is clearly indicated in the phantom line showing of the display panel means **44***e* illustrated in FIG. **9**.

It is of course to be understood that when the device is not to be used, it is disassembled through the intermediate stage shown in FIG. **11** and then is folded into an effectively three-level-stacked relationship of the three truss structures **80**, which is then stored within the hollow interior of the storage box **22** of FIG. **12** (the same storage box as that shown in the first form of the invention). However, when desired, the device can be quickly removed from the storage box **22** and resiliently snapped into the fully assembled three-dimensional-structure-defining relationship most clearly shown in FIG. **9**.

FIG. **13** merely illustrates representative channels **98** formed at the edges of the three display panel portions **44e** for mounting same on the corresponding longitudinal rods **34e** and **78**.

FIG. **14** illustrates a very slight modification of the edge mounting of each of the display panel portions on each of the corresponding longitudinal rods and, therefore, parts which are structurally or functionally similar to those of the immediately previously described form of the invention are designated by similar reference numerals, followed by the letter *f*, however. In this modification it will be noted that each edge channel portion **98***f* of each display panel portion **44***f* is disengageably fastened by a snap fastener means **100** to itself so that it can be readily engaged around or removed from the corresponding longitudinal rod (such as the representative one shown at **34***f* in FIG. **14**, for example). This makes it possible to easily remove and replace or interchange any one or all of the three display portions **44***f*, if desired.

FIG. **15** fragmentarily illustrates, in a manner somewhat similar to FIG. **9**, a very slight modification of the invention, primarily with respect to the connection means and, therefore, parts which are structurally or functionally identical or substantially similar to corresponding parts of the FIG. **9** form of the invention are designated by similar reference numerals, followed by the letter *g*, however. In this modification, it will be noted that each of the three apexes **82***g* of each of the three truss structures **80**g is provided with an effective eye or opening-defining structure, such as is indicated at **102**, with all of the top eyes **102** being interconnected by a ring **104** and with the two intermediately positioned, adjacent pairs of bottom-positioned eyes **102** being in each case connected by a ring **104** so that the entire device can be easily moved between a flat planar spread-out relationship similar to that shown in FIG. **11** (illustrating a preceding form of the invention) and a fully assembled relationship such as that shown in FIG. **15**. The modified connection means **86***g* comprises a pair of such eyes **102** adapted to be connected together by a controllably openable and closable ring **106** to allow the entire device to be fastened in assembled, three-dimensional-structure-defining relationship as fragmentarily shown in FIG. **15**, when desired, and also to allow it to be collapsed for storage, when desired.

It should be noted that various other types of connection means may be employed in lieu of the representative ones illustrated in the figures of the drawings and described hereinbefore. This is also true of the stabilizing weight means, which may be modified as to structure and as to mode of attachment, if desired, and all such arrangements substantially functionally equivalent to the merely representative forms thereof illustrated in the figures of the drawings and described in detail hereinbefore are intended to be included and comprehended within the broad scope of the present invention.

It should be understood that the figures and the specific description thereof set forth in this application are for the purpose of illustrating the present invention and are not to be construed as limiting the present invention to the precise and detailed specific structure shown in the figures and specifically described hereinbefore. Rather, the real invention is intended to include substantially equivalent constructions embodying the basic teachings and inventive concept of the present invention.

What is claimed is:

1. A motorist's emergency warning apparatus adapted to be normally stored away but to be placed in a visibly perceptible information-providing display position when a motorist has car trouble on or alongside a road, comprising: collapsible support standard means and base means adapted to be moved between collapsed unassembled unsupported and non-displaying relationship and assembled, supported and displaying relationship, said support standard means and base means comprising frame means including a plurality of relatively movable frame means portions provided with engageable and disengageable connection means for connecting said frame means and said base means in said assembled, supported, and displaying relationship when desired, said frame means being provided with visibly perceptible display panel means carried thereacross and defining a display surface of substantial area positionable in and lying across the line of sight of an oncoming motorist and provided with information-bearing display material indicating an emergency condition of an associated motor vehicle, said frame means and said base means being provided with stabilizing means cooperable therewith to provide great lateral and anti-tipping stability to the entire frame means, base means, and display panel means when in assembled upright diplaying relationship, said stabilizing means comprising low-center-of-gravity weight means carried adjacent to the bottom of said base means in a position adapted to be immediately adjacent to an auxiliary supporting surface upon which the entire apparatus is adapted to be placed when in said assembled upright displaying relationship, said base means comprising a transversely directed hollow storage box normally adapted to store the complete frame means and display panel means therein in unassembled, collapsed, non displaying relationship.

2. Apparatus as defined in claim **1**, wherein said stabilizing means comprises magnetic means magnetically attractively cooperable with respect to a ferromagnetic underlying auxiliary supporting surface adapted to sup-

port the entire apparatus when in said assembled upright displaying relationship.

3. Apparatus as defined in claim 1, wherein said base means is provided with compressible marprevention, surface-protecting contact means adapted to yield slightly upon contacting an auxiliary supporting surface whereby to prevent damage to such an auxiliary supporting surface.

4. Apparatus as defined in claim 3, wherein said contact means comprises multiple-spaced-filament flocking means of flexible compressible filamentary material applied and effectively fastened to a bottom surface of said base means and projecting downwardly therefrom whereby to provide a compressible resilient contact cushioning pad means.

5. Apparatus as defined in claim 1, wherein said frame means comprises a pair of laterally spaced, upright members provided with said display panel means transversely extending therebetween and normally, when in use, lying in an upwardly directed plane so as to be in a visibly perceptible location for an oncoming motorist.

6. Apparatus as defined in claim 5, wherein said base means is provided with upright member engagement and holding means adapted to controllably removably firmly engage and hold said upright members of said frame means in substantially upright parallel laterally spaced relationship extending upwardly from said base means with said display panel means transversely extending therebetween and lying in an upwardly directed plane such as to be in the line of sight of an oncoming motorist.

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