Feb. 12, 1963 L. MAGAZANIK ET AL 3,077,326

ROAD REFLECTOR SIGNAL DEVICE

Filed Feb. 10, 1959 2 Sheets-Sheet 1

Fig. 1

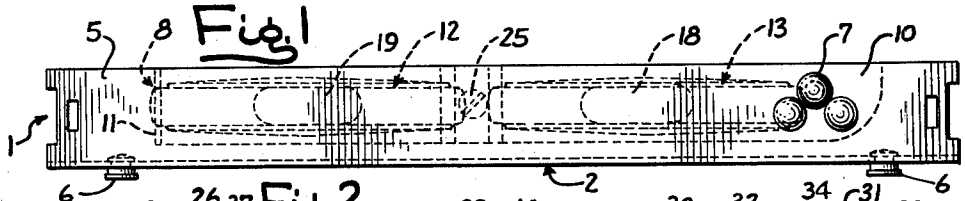


Fig. 2

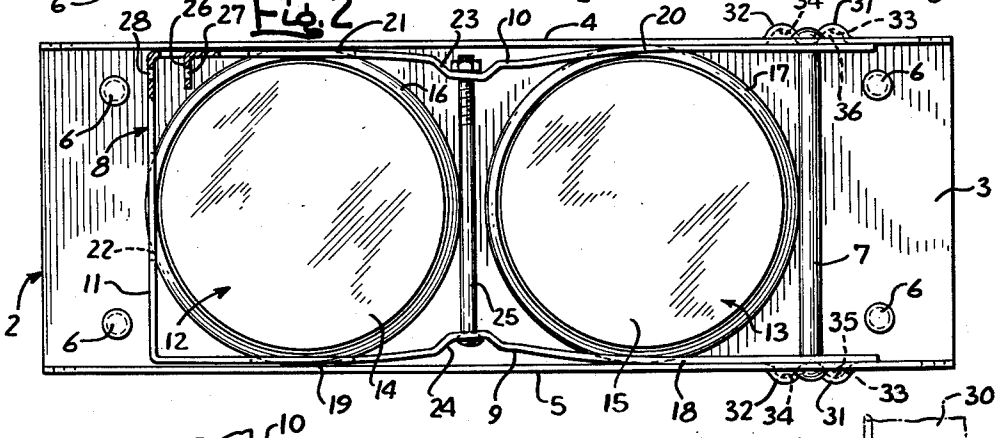


Fig. 4

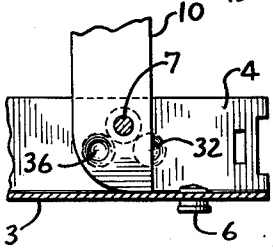


Fig. 3

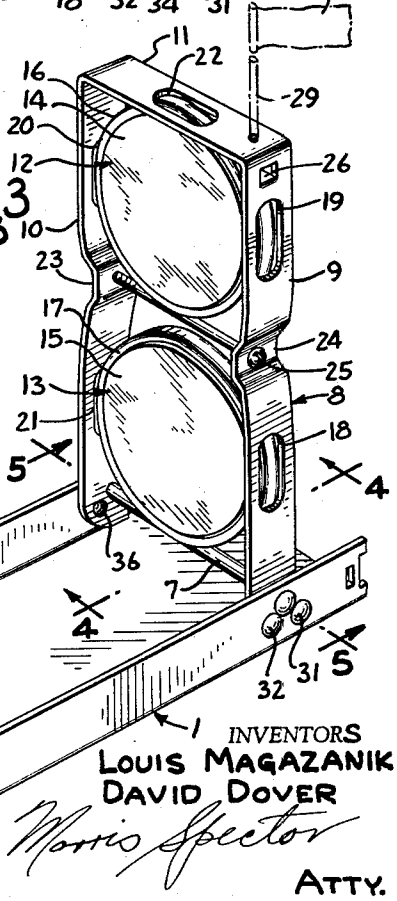
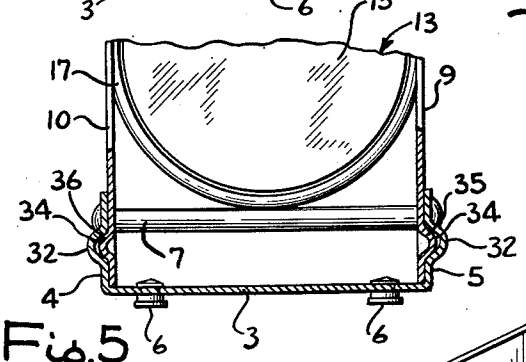


Fig. 5





INVENTORS
LOUIS MAGAZANIK
DAVID DOVER
by: Morris Spector
ATTY.

Feb. 12, 1963 L. MAGAZANIK ET AL 3,077,326

ROAD REFLECTOR SIGNAL DEVICE

Filed Feb. 10, 1959 2 Sheets-Sheet 2

Fig. 6

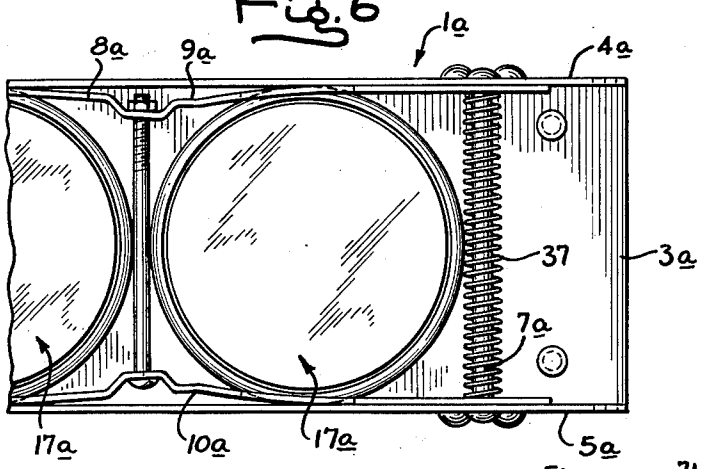



Fig. 9

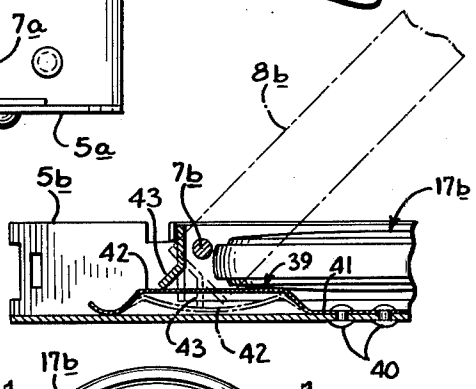



Fig. 7

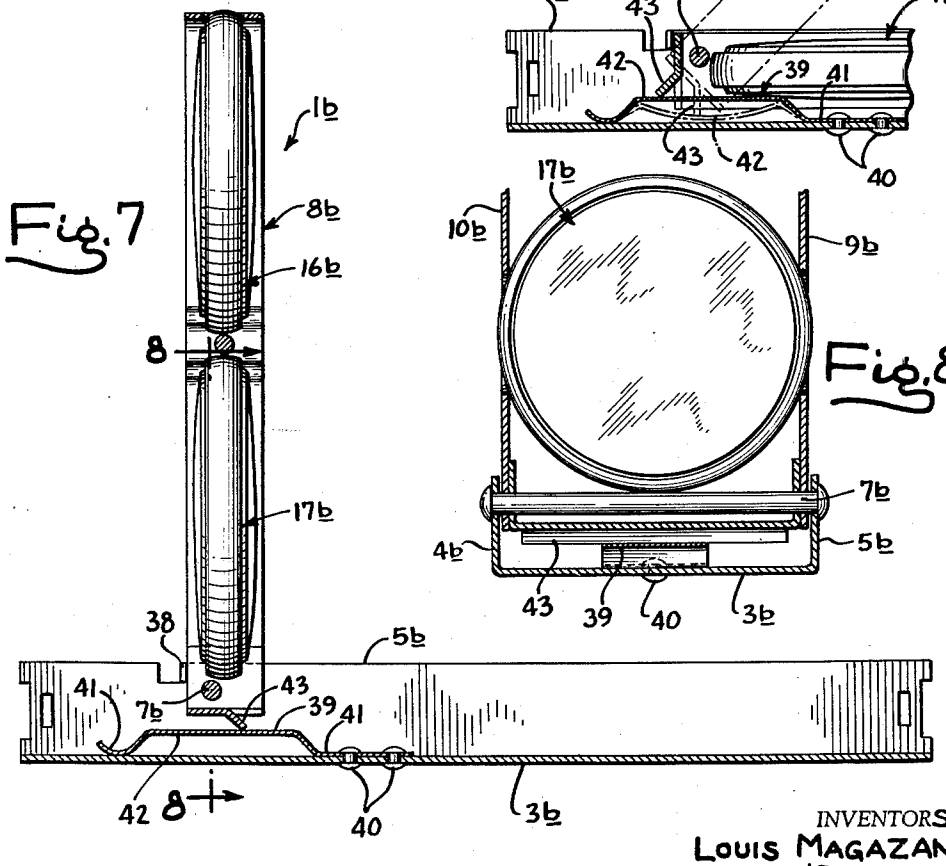



Fig. 8




INVENTORS
LOUIS MAGAZANIK
DAVID J. DOVER
by: Morris Spector
ATTY.

United States Patent Office 3,077,326
Patented Feb. 12, 1963



3,077,326

# ROAD REFLECTOR SIGNAL DEVICE

Louis Magazanik and David J. Dover, Chicago, Ill., assignors to Doray Lamp Co., Inc., Chicago, Ill., a corporation of Illinois

Filed Feb. 10, 1959, Ser. No. 792,322
12 Claims. (Cl. 248—33)

This invention relates to new and useful improvements in reflector signals of the type used by vehicle operators for warning approaching vehicles in the event of breakdown or other trouble on a highway.

This application is a continuation-in-part of the copending application of Louis Magazanik, one of the joint inventors herein, Serial No. 750,152, filed July 22, 1958, and now abandoned.

It is a primary object of the present invention to provide a road reflector signal device which is relatively flat and compact when in collapsed position but can nevertheless be quickly and easily shifted into extended or upright position when it is necessary to use same.

It is also an object of the present invention to provide a signal device of the type stated, which is positively locked when in closed or extended position and, therefore, provides a relatively rigid structure in either of such positions.

It is a further object of the present invention to provide a signal device of the type stated having a base and a reflector-supporting frame swingably mounted thereon, the base and frame being provided with interlocking elements for selectively holding the frame rigidly with respect to the base in either collapsed or extended position.

It is another object of the present invention to provide a signal device of the type stated, in which the reflector-supporting frame is resilient, and such resiliency is uniquely utilized to lock the latter against movement relative to the base when the frame is in either collapsed or extended position.

It is an additional object of the present invention to provide a signal device of the type stated which is simple and economical in construction and can be stacked in groups and stored in a vehicle, occupying a minimum amount of space therein.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawing forming a part thereof.

In the drawings:

FIG. 1 is a side elevational view of a road signal device constructed in accordance with and embodying the present invention, the reflector and supporting frame being shown in the retracted position;

FIG. 2 is a top plan view of the device of FIG. 1;

FIG. 3 is a perspective view of the device and showing the reflector in its extended position;

FIGS. 4 and 5 are fragmentary sectional views taken along lines 4—4 and 5—5 respectively, of FIG. 3;

FIG. 6 is a fragmentary top plan view of a modified form of road signal device, the reflector being shown in its retracted position;

FIG. 7 is a longitudinal sectional view of another modified form of road signal device and showing the reflector unit in its extended position;

FIG. 8 is a fragmentary sectional view taken along line 8—8 of FIG. 7; and

FIG. 9 is a fragmentary longitudinal sectional view similar to FIG. 7 and showing the reflector unit in full lines in its retracted position and in broken lines immediately before reaching its retracted position.

Referring now in more detail and by reference characters to the drawings which illustrate practical embodiments of the present invention, 1 designates a road signal device comprising a base 2 including a web or base plate 3 the longitudinal margins of which are bent upwardly in the provision of spaced parallel upstanding side walls 4, 5. Secured in any conventional manner to the base plate 3 adjacent the four corners thereof is a plurality of rubber feet 6.

Swingably mounted on the walls 4, 5 adjacent one end thereof by means of a pivot rod 7, is a reflector-supporting frame 8 which consists of a flat metal strip of spring steel bent into an inverted U-shape to form spaced legs 9, 10 integrally connected by means of a bight portion 11. At their lower or free ends the legs 9, 10 receive the pivot rod 7 which also extends outwardly through the side walls 4, 5.

Mounted in the frame 8 are conventional identical reflector assemblies 12, 13, each including two identical auto-collimating reflecting lenses 14, 15 secured together in back-to-back relationship by means of annular bands 16, 17. The reflecting lenses 14, 15 reflect incident light from the headlights of approaching vehicles in a direction substantially back in the direction of the incident light and with a slight spread notwithstanding that the incident light may strike the lens within a relatively large angular range. The bands 16, 17 extend through narrow slots 18, 19, 20, 21 which are formed in the legs 9, 10 and the band 16 also extends through a narrow slot 22 formed in the bight portion 11. Also formed in the legs 9, 10 are inwardly bent sections 23, 24 drilled for receiving a screw 25 which, when tightened, draws the legs 9, 10 toward one another and thus brings the legs 9, 10 into firm grip-forming relationship with the reflector units 12, 13. Spaced a short distance from the bight portion 11 one of the legs 9 is inwardly struck to form a flange 26 which is provided with a hole 27, the latter being in alignment with a hole 28 formed in the bight portion 11. When the frame 8 is in its extended position as shown in FIG. 3 the staff 29 of a signal flag 30 may be inserted through the holes 27, 28 and for purposes presently more fully appearing.

On either side of the pivot rod 7 and somewhat downwardly therefrom the side walls 4, 5 are formed with outwardly struck elements 31, 31, 32, 32 which define recesses 33, 33, 34, 34 for receiving companion-shaped detents 35, 36 struck outwardly from the lower ends of the legs 9. 10.

When not in use, the frame 8 is in the retracted position shown in FIGS. 1 and 2 and the legs 9, 10 and bight portion 11 lie within the side walls 4, 5. The resiliency of the legs 9, 10 causes the detents 35, 36 to be pressed into the recesses 33 and firmly hold the frame 8 against swinging movement relative to the base 2. When it is desired to move the frame 8 and reflector units 12, 13 therein to the extended position, the frame 8 is manually shifted to the position shown in FIG. 3, at which time the yieldability of the legs 9, 10 will permit the detents 35, 36 to ride out of the recesses 34, and while moving to the extended position the outwardly exerted spring pressure created by the legs 9, 10 will cause the detents 35, 36 to ride along the inwardly presented faces of the side walls 4, 5 until the frame 8 has moved approximately 90 degrees. At that time the detents 35, 36 will be in alignment with the recesses 33, and will snap thereinto due to the spring action of the legs 9, 10 and hold the frame 8 rigidly in the extended position. The signal device 1 can then be placed a considerable distance forwardly or rearwardly from the parked vehicle and in this position the device gives a visual warning to approaching motorists indicating a dangerous condition ahead. If the device is used during

daylight hours the flag **30** can be placed in the holes **27**, **28** to further serve as an indication of approaching danger.

When it is desired to move the frame **8** back to its retracted position it is merely necessary to push the frame **14** toward the plate **3** causing the frame **8** to swing backwardly to the position shown in FIGS. 1 and 2. When the frame **8** reaches this position the detents **35**, **36** will snap into the recesses **33** and the frame **8** will be held firmly in its retracted position.

It is also possible to provide a modified form of road signal device **1***a* as shown in FIG. 6 in which corresponding reference numerals with the subscript "*a*" added thereto designate corresponding parts in the device **1** previously described. In this form of the invention the frame **8***a* including the legs **9***a*, **10***a* forming a part thereof is fabricated of relatively non-resilient metal such as strap iron and encircling the pivot rod **7***a* is a coil compression spring **37** which extends between the legs **9***a*, **10***a* and urges the detents thereon into engagement with either set of recesses formed in the side walls **4***a*, **5***a*.

It is also possible to provide a further modified form of road signal device **1***b* as shown in FIGS. 7, 8 which is similar to the device **1** previously described and in which corresponding parts with the subscript "*b*" added, designate like parts in the device **1**. In this form of the invention the side walls **9***b*, **10***b* are bent inwardly to form stop flanges **38** and a leaf spring **39** is secured to the upwardly presented surface of the plate **3***b* by means of rivets **40** with the end portions **41**, **41** of the leaf spring **39** lying against the plate **3***b*. The central or bight portion **42** of the leaf spring **39** is spaced upwardly from the plate **3***b*. Welded or otherwise rigidly secured to the lower edges of the legs **9***b*, **10***b* and extending transversely therebetween is a tongue **43** which projects downwardly at an angle to the legs **9***b*, **10***b* and abuts the bight portion **42** of the leaf spring **39**. When the frame **8***b* is in either the extended or retracted position the spring **39** exerts an upward pressure against the tongue **43**. When the frame **8***b* is in the retracted position this upward pressure of the spring **39** urges the frame **8***b* in a clockwise direction as viewed from FIG. 9, and thereby maintains the frame **8***b* in its retracted position. When the frame **8***b* is manually shifted in a direction counter-clockwise from the retracted position as shown in full lines in FIG. 9 to the position shown in FIG. 7, the frame **8***b* passes through a dead center position illustrated in broken lines in FIG. 9 at which time the point of contact between the end of the tongue **43** and the bight portion **42** of the spring **39** is such that the line of force exerted on the tongue **43** is in alignment with the axis of the pivot rod **7***b*. In this position the bight portion **42** will be almost touching the upwardly presented surface of the plate **3***b*. A further shifting of the frame **8***b* towards its extended position will cause the spring **39** to have a greater effect upon the tongue **43** and cause the tongue **43** to be urged in a counter-clockwise direction and towards the fully extended position of the frame **8***b* as shown in FIG. 7. In this position the force of the spring **38** against the tongue **43** maintains the legs **9***b*, **10***b* of the frame **8***b* rigidly against the stop flanges **38**.

When it is desired to move the frame **8***b* back to its retracted position it is merely necessary to push the frame **8***b* allowing it to swing about the pivot rod **7***b* in a clockwise position to the full line position shown in FIG. 9. The spring **39** will exert a force against the tongue **43** and hold the frame **8***b* in its fully retracted position.

In compliance with the requirements of the patent statutes we have herein shown and described a preferred embodiment of the invention. It is, however, to be understood that the invention is not limited to the precise construction herein shown, the same being merely illustrative of the principles of the invention. What is considered new and desired to be secured by Letters Patent is:



1. A foldable signal comprising a supporting base, a frame pivotally mounted on said base for movement from a retracted position to an upright extended position, a reflecting unit carried by said frame, and said frame including means interengaging with companion means on said base for automatically snapping said frame into its fully extended and fully retracted positions respectively when the frame is moved to a position approximating either of said positions, one of said two last named means being resilient and in cooperation with said other means exerting a spring action to snap the frame to its extended position and to its retracted position.

2. A foldable signal according to claim 1 wherein one of the two means includes recess-forming means and the other of said two means has detent means engageable with the recess-forming means when the frame is in extended and retracted positions.

3. A foldable signal according to claim 1 wherein the base has a pair of upstanding sides and the frame has a pair of spaced legs at which the frame is pivotally mounted on the base, one leg of the frame being adjacent to each side of the frame, and wherein one of the two means includes a part of one of the legs and the other of the two means includes a part of the side adjacent to that leg.

4. A foldable signal according to claim 3 wherein the legs are nested between the sides of the frame when the latter is in its retracted position.

5. A foldable signal according to claim 3 wherein the means that is resilient and exerts the spring action comprises a spring means biasing said part of the leg toward said part of the side.

6. A foldable signal according to claim 1 wherein the means that is resilient and exerts the spring action comprises spring means on the base.

7. A foldable signal comprising a base having a pair of upstanding sides provided with a plurality of recesses, a frame pivotally mounted on said sides adjacent said recesses for movement from a retracted position to an upright extended position, a reflecting unit carried by said frame, and detent means on said frame, said frame being resilient at least in the region of said detents so that the resiliency urges the detents into said recesses for holding said base and frame in fully extended and fully retracted positions.

8. A foldable signal comprising a base having a pair of upstanding sides provided with a plurality of recesses, a frame having a pair of spaced resilient legs pivotally mounted on said sides for movement from a retracted position to an upright extended position, and a reflecting unit carried by said frame, said legs having detent means thereon, the resiliency of said legs urging said detent means selectively into said recesses for holding said base and frame in fully extended and retracted positions.

9. A foldable signal comprising a supporting base having a pair of recesses therein, a frame pivotally mounted on said base for movement from a retracted position to an upright extended position, a reflecting unit carried by said frame, said frame having resiliently pressed detent means in alignment with one of said recesses when the frame is in the upright position and in alignment with the other of said recesses when the frame is in the retracted position, and said detent means being resiliently urged into the recess in alignment therewith to snap said frame into position with respect to said base when the frame is moved to a position approximating either of said positions.

10. A foldable signal comprising a supporting base having a pair of upstanding sides, at least one of said sides have a pair of recesses therein, a frame having a pair of legs pivotally mounted on said sides and being movable from a retracted position overlying the

base through an angle of 90 degrees to an upright extended position, at least one of said legs having resiliently pressed detent means in alignment with one of said recesses when the frame is in upright position and in alignment with the other of said recesses when the frame is in the retracted position, a reflecting unit carried by said frame, said detent means being resiliently urged into the recess in alignment therewith to hold said frame against movement relative to said base when the frame is in either of said positions.

11. A foldable signal comprising a supporting base having a pair of upstanding sides, at least one of said sides having a pair of recesses therein, a frame having a pair of legs pivotally mounted on said sides and being movable from a retracted position overlying the frame through an angle of 90 degress to an upright extended position and a reflecting unit carried by said frame, at least one of said legs having detent means in alignment with one of said recesses when the frame is in upright position and in alignment with the other of said recesses when the frame is in the retracted position, said leg having the detent means being resilient and urging said detent means into the recess in alignment therewith to hold said frame against movement relative to said base.

12. A foldable signal comprising a supporting base having a pair of opposite upstanding sides, a frame having a pair of spaced legs, at least one light-reflecting unit held between the legs with said legs being pivotally mounted at corresponding ends thereof on said frame and movable from a retracted position in which the frame overlies the base and is nested between the side walls to an upright extended position wherein the legs are approximately at right angles to the base and the reflecting unit lies above the side walls to reflect incident light from the headlights of approaching vehicles when the signal is placed adjacent to a roadway, recesses formed in said sides, said legs each having an integral outwardly struck detent in alignment with one of the recesses on the side adjacent thereto when the frame is in the upright position and in alignment with the other recess when the frame is in the other position, the legs being laterally resilient and serving as springs for automatically urging the detent means into constant engagement with the side walls and into the recesses thereof which are in alignment with the detents to snap the frame into either of said positions when the frame is moved to a position approximately at either of said two positions and to hold said frame in the position to which it has been snapped, said leg detent and the recess engaged thereby having relatively engaged surfaces that exert an action on the legs to automatically bring detent and recess out of engagement as the frame is manually forced to pivot from one of said positions towards the other.



**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 1,916,787 | Elston | July 4, 1933 |
| 2,235,282 | Carver | Mar. 18, 1941 |
| 2,451,875 | Ryder | Oct. 19, 1948 |
| 2,536,177 | Harkins | Jan. 2, 1951 |
| 2,613,463 | Transue | Oct. 14, 1952 |
| 2,679,370 | Bolser | May 25, 1954 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 647,865 | Great Britain | Dec. 20, 1950 |