

Nov. 8, 1949

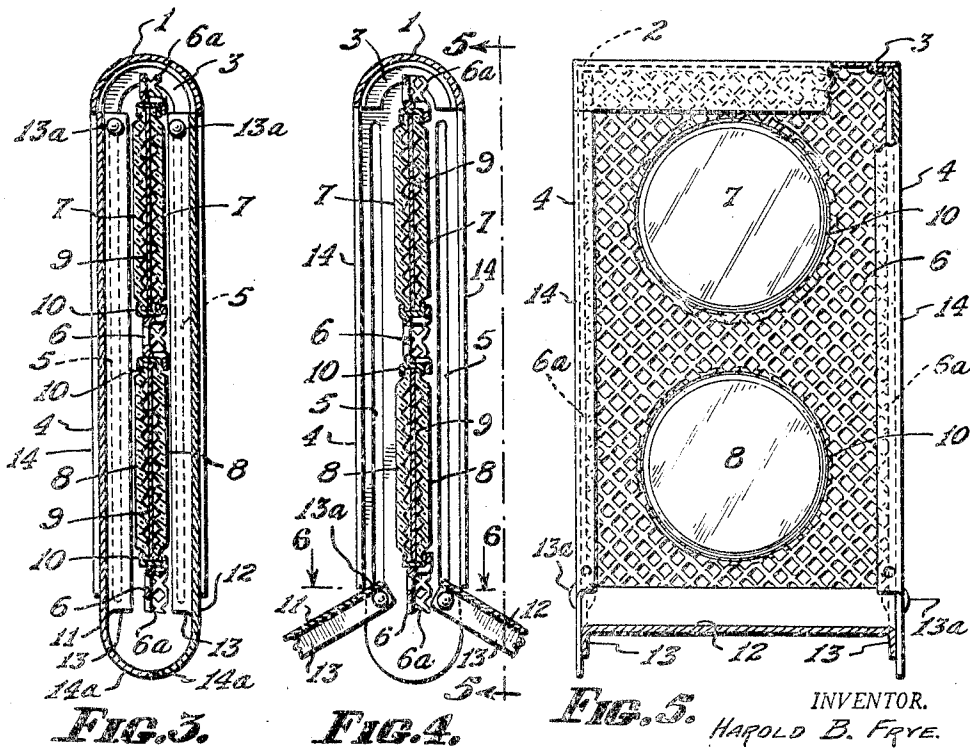
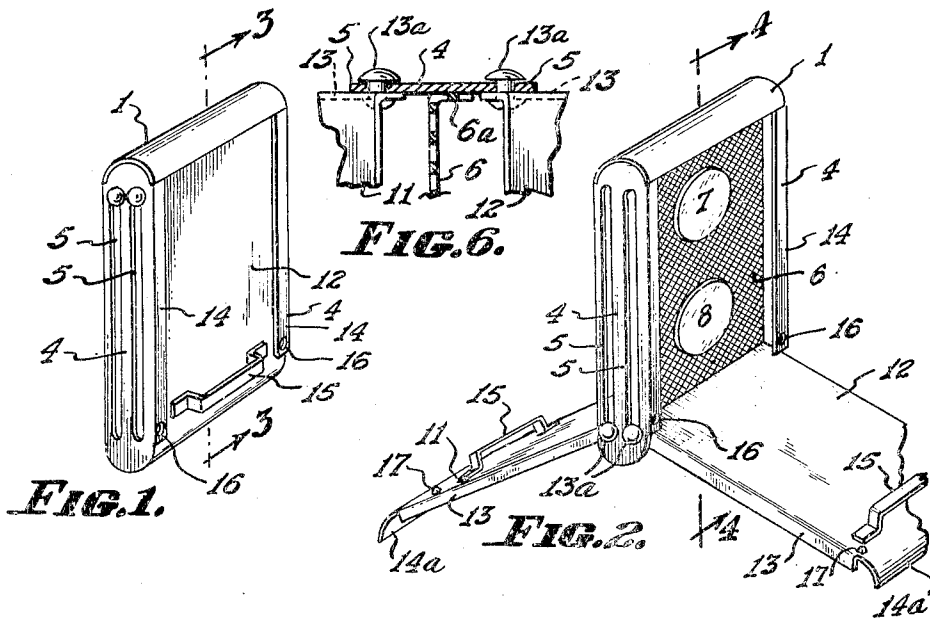
H. B. FRYE

2,487,644

TRAFFIC SIGNAL STAND

Filed May 2, 1947

2 Sheets-Sheet 1



INVENTOR.

HAROLD B. FRYE.

BY

Allen & Allen

ATTORNEYS.

Nov. 8, 1949

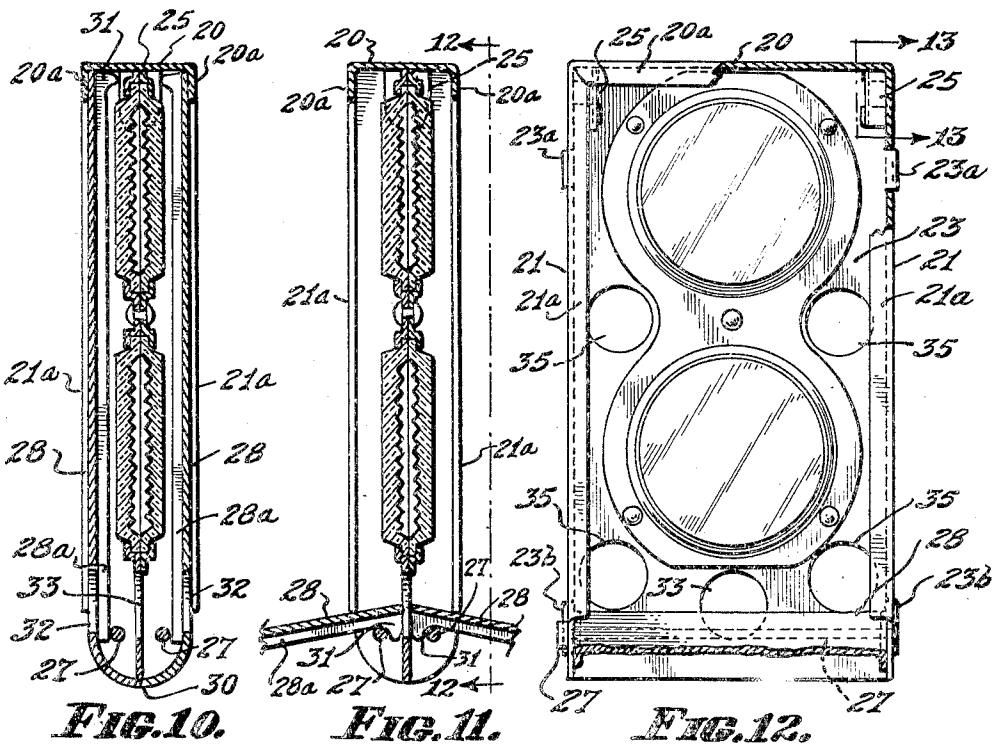
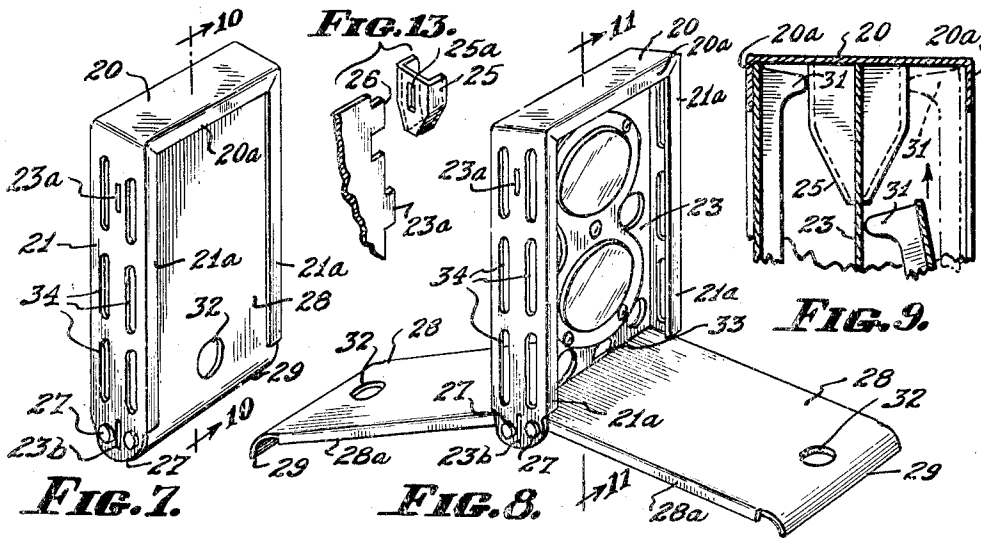
H. B. FRYE

2,487,644

TRAFFIC SIGNAL STAND

Filed May 2, 1947

2 Sheets-Sheet 2



INVENTOR.

HAROLD B. FRYE.

BY

Allen & Allen

ATTORNEYS.

UNITED STATES PATENT OFFICE

2,487,644

TRAFFIC SIGNAL STAND

Harold B. Frye, Cincinnati, Ohio, assignor to
Noma Electric Corporation, Cincinnati, Ohio, a
corporation of Maryland

Application May 2, 1947, Serial No. 745,584

4 Claims. (Cl. 248—33)

1

My invention relates to traffic signals termed "flares" which are to be placed at the roadside according to traffic regulations to signal the presence of a stopped vehicle. It relates specifically to such flares where the signal is given to approaching vehicles on the highway by reflection from a prismatic reflector. Flares using two such reflectors, one above the other, and facing both ways on the highway have been approved by government regulations and my invention adapts itself readily to such use.

It is desirable in such devices to provide for a self-contained housing to protect the lenses, although the lenses may be made of Lucite, and it is also desirable to utilize the case or housing for a mounting base for the device on the roadway. A difficulty that arises in this connection is that the surface of a roadway is not even, and it may be difficult to find a spot where the signal can be placed in such a manner as to operate the most efficient way.

Objects of my invention are to provide a highway signal flare which forms a very compact package when closed, is inexpensive to manufacture, but which is sturdy and fully complies with the regulations as to protection of the lens structure. Another object is to provide for a cover member for the lens structure which provides support for the same on the roadway when opened up, by means of spaced edge portions, rather than to act as a flat table-like member. Another object is to provide for supporting the flare mounting plate in a vertical position when the mounting case is open and placed on a supporting surface, without the use of latches or interlocking means which may or may not be applied by a careless operator.

An object is further to provide a device which will withstand a wind test, which is given by placing the device on its base as it will be used for traffic purposes at a forty-five degree angle to a strong draft of air and noting that strength of draft which will blow the device over.

This application is a continuation in part of my application Serial No. 637,653 filed December 28th, 1945, now abandoned, filed for the purpose of introducing into the disclosure not only the original structure as illustrated, but a simplified modification thereof which falls within the inventive scope of the original disclosure and claims.

I illustrate in the drawings two structures which constitute preferred embodiments of my invention, and illustrate the novel features and advantages of my invention, and in the appended claims set forth the novelty inherent in

2

the structures disclosed and equivalent structures serving the same or an analogous purpose.

In the drawings, Fig. 1 is a perspective of the device in closed position. Fig. 2 is a perspective view showing the device in position which it will assume in use. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a view on the line 5—5 of Fig. 4. Fig. 6 is a view on the line 6—6 of Fig. 4.

Fig. 7 is a perspective view of a modified form of my invention showing the case closed. In carrying the case about, in this form, it will be inverted from Fig. 7.

Fig. 8 is a perspective view showing the modification of Fig. 7 in extended condition. Fig. 9 is a detail elevation illustrating the structure at the inside of the top of the frame of the device of Fig. 7 with reference to the sliding plates.

Fig. 10 is a central vertical section through the said device when in closed position.

Fig. 11 is a central vertical section through the said device when mounted on a supporting surface.

Fig. 12 is a front elevation of the said device partly in section.

Fig. 13 is a perspective view showing how the cam structure is provided at the upper inside of the case, as taken on lines 13—13 of Fig. 12.

While the case proper may be constructed in various ways, a simple welded together structure may be formed of a curved upper plate 1, to which plate are welded small curved angle plates 2 and 3. The sides of the case are formed of plates 4, which have a pair of slots 5, 5, therein, which plates are welded at the top to the projecting flanges of the angle plates 2 and 3. Welded to the two side plates 4, and projecting across the middle of the device is a plate 6 which may be made of openwork metal or expanded metal as indicated. For convenience in welding to the plates 4, the member 6 may be formed with side flanges 6a.

Pairs of circular prismatic Lucite lenses 7, 7, and 8, 8, are assembled together with their prism cut faces inwardly and with an intervening metal plate 9 between them. The expanded metal cross plate 6 is formed with holes to receive the assemblies to form two reflecting lenses, one above the other facing each way of the device. The lenses, assembled in pairs back to back as described, are embraced in metal annular channel strips 10, which are in turn spot welded in place in the holes of the openwork metal of the cross plate. This is only one way in which this mounting plate and lenses may be constructed.

The reason why the metal cross plate is preferably made of openwork construction is to cut down wind resistance of the device when in use.

The closing plates of the device are preferably formed of heavier metal than the case as now described. There are two of these as indicated at 11 and 12. These plates have right angle side flanges 13. Each has one end provided with supporting studs 13a, which pass through the slots 5 and through the side flanges and are riveted in place in assembling. By means of these studs, one end of each plate slides in the slots 5, 5, at one side of the cage, and may be pushed to a position of completely closing the case, or to a position where the flare portion thereof is completely exposed, as shown in Figs. 1 and 2. The side plates 4 have flanges 14 under which the plates 11 and 12 slide. The ends 14a of the plates 11 and 12 are curved to close the lower end of the casing when the device is in its closed position, as in Fig. 3.

With this construction, the position in which the flare mounting plate stands with reference to the two closure plates 11 and 12, depends upon the lower termination point of the flanges 14 on the two side plates.

As shown in Fig. 2, when the closure plates are pulled completely down where their supporting studs are in the lower ends of the slots 5 of the side plates, they can be swung outwardly, in which case the lower ends of the flanges 14 will rest on the extended plates, and the lens mounting will stand vertically upright, as shown in said figures. If the lower end of the flanges 14 were higher up, then the cover plates would swing to a wider angle before the ends of the flanges would rest upon them. In no event can the cover plates be swung out to support the flare until they are pulled clear down to their lower position.

As a result, the edges 14a of the cover plates can be placed on the ground, it being relatively easy to find a place where this can be done while supporting the body of the flare in a position that is perpendicular with reference to the roadway to be equipped. The device will withstand any wind pressure which needs to be provided for in connection with a traffic signal for flare purposes, because of the weight of the cover plates, and the overall width of the structure. The slots in the sides of the case permit the case to withstand a strong wind.

It can obviously be arranged that the end plates 2 of the case can be arranged to rest on the ground when the device is set up, by providing for a wider angle for the open position of the two cover plates in the manner above described.

To permit the manipulation of the cover plates, small handles 15 may be provided on each of them, although it is contemplated that finger ledges could be provided by forming up the metal of the plates at the point where the handles are located.

To hold the cover plates in position when closed against sliding downwardly, in case of wear or careless variation of dimensions of the parts so that the fit of the cover plates is not snug, I provided holes 16 in the lower portions of the flanges 14 of the side plates, and small knobs 17 on the outside of the cover plates to snap into these holes when the covers are in home position.

Referring now to the modification of Fig. 7 et seq. of the drawings, the frame of the device is formed of a single piece, bent to form a top 20 and sides 21. Both edges of the plate are flanged as at 20a and 21a to form the outer walls of a

slideway for the closing plates. As shown the flanges are cut in at the corners to permit of forming up the three sided structure.

The plate 23 carrying the prismatic lenses 24 is formed with tongues on each side as at 23a and 23b, which tongues are inserted into slots in the sides 21 of the frame. Before inserting the plate in the frame a cam piece 25, (see Fig. 13) is secured to its two upper ends by means of a slot 25a in each cam piece and a tongue 26 on the upper corner of the plate.

To hold the frame together about the plate, the lower ends of the two side frame branches thereof are secured together by tie rods 27, two in number in this case, which tie rods also serve another and important function. Prior to inserting the tie rods, the two sliding cover plates are set into the frame. The cover plates consist of flat plate portions 28 curved inwardly at 29 at the bottom, so that when the plates are in position of closing the frame the ends of the plates will abut each other as indicated at 30 in Fig. 10. The plates also have flanges 28a, 28a, at each side, which flanges are deeper at the one end of each plate, and are cut to form hooks 31.

Examination of Fig. 11 will show that the hook portions are of such dimension that the plates cannot be withdrawn through the space between the tie rods and the lower portions of the side frame pieces. Also, the space between the tie rods at the lens carrying plate is such that when the hooks lie over the tie rod, in each instance the inner edge of the plates will abut against the lens plate so that the two closures plates cannot be swung to an angle which is of 180 degrees, as was the case of the first example described. Furthermore, if desired, the flanges of the side frame pieces may be cut so as to engage the tops of the plates when swung out as in Fig. 11 and Fig. 8. In either case the entire structure rests on the closure plates when moved to the position of Fig. 11, and the balance of the structure is such that this insures a vertical position for the frame and the lens plate.

The closure plates can readily be swung to a position so that with the hooks engaging the tie rods, the plates lie generally parallel with the side frame parts. The space between the flanges on the side parts and the lens carrying plate is such that the hooked ends of the closure plates may then be slid up in the channel thus provided.

By reference to Fig. 9, it will become evident that when the closure plates reach the upper end of this sliding movement the hook portions are cammed outwardly by the two slopes of the cam pieces located at the upper corners of the frame, which provides a relatively snug fit for the upper ends of the closure plates at the point when their lower ends are in abutment, as illustrated in Fig. 10.

There are holes 32, in the two cover plates, and the lens plate is provided with a hole 33, said holes coming into juxtaposition when the closure plates are in their upper position. The case is to be carried by means of these holes, so that the act of inserting the finger in the holes will keep the closure plates in position. The case is stored vertically in a carrier, in this position. The standard carrying case will take three of the devices.

In order that the device withstand the wind test, a series of holes 34 are formed in the two side frames and the lens plate has holes in it as at 35, cutting down wind resistance.

It can be noted that the structure of this form

5

is simpler than the other, but that it is alike to the other in its general structure and behavior.

Additional modifications within the scope of the appended claims are contemplated as within my invention, where equivalent means is employed functioning in a like manner to attain the ends recited therein.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a highway flare having a three sided frame, a flare plate secured between the sides of the frame, a pair of tie rods connecting the sides of the frame at the open end thereof, closure plates held in place in the frame between the sides thereof and the flare plate, by means of said tie rods, said plates arranged to slide in the space between the flare plate and the frame sides, and said closure plates having hooks to engage over said tie rods.

2. The structure of claim 1 in which the closure plates have hooks thereon which will engage over the tie rods at the lower portion of said plates, whereby the plates will swing to a position to serve as a support for the frame on a supporting surface, the relation of the side

6

frame portions and the flare plate being such that the closure plates cannot swing to an angle of as much as 180 degrees.

3. The combination of claim 1 wherein the closure plates are formed with holes therein, and the flare plate is formed with a hole, all of said holes coming into registry when the closure plates are slid to a position of enclosing the flare plates for the purpose described.

4. The combination of claim 1 in which the flare plate is held in the frame by means of tongues thereon engaging in slots in the sides of said frame.

HAROLD B. FRYE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,213,409	Pfeifer	Jan. 23, 1917
1,991,030	Schimmel	Feb. 12, 1935
2,256,014	Carver	Sept. 16, 1941