Sept. 1, 1964 R. B. HINER 3,146,613

HIGHWAY FLARE SIGNAL DEVICE

Filed May 6, 1963

Fig. 1.

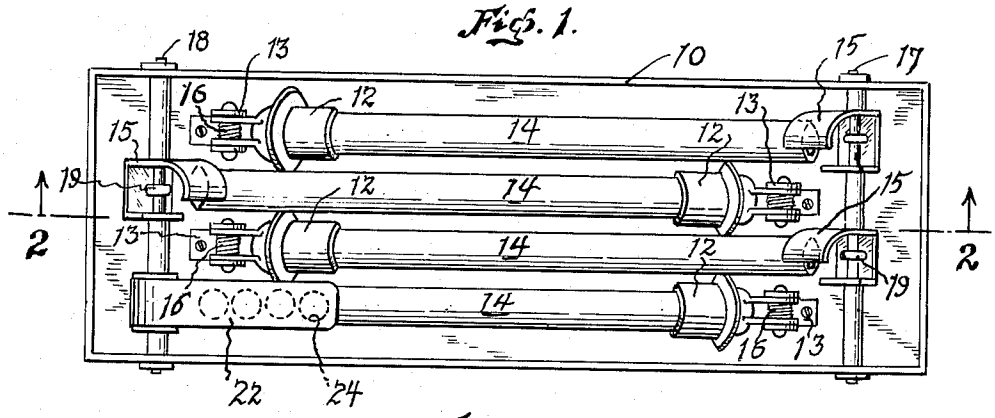


Fig. 2.

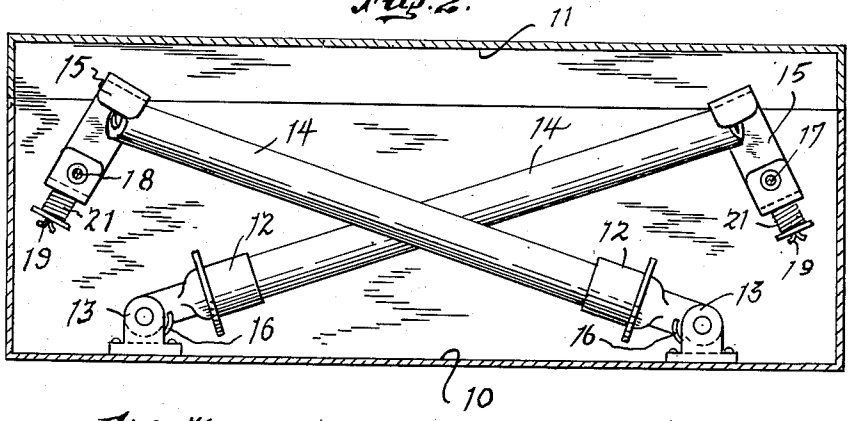


Fig. 3.

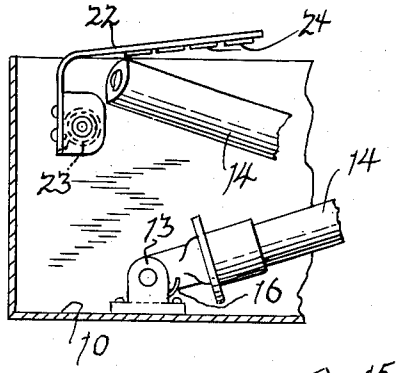


Fig. 4.

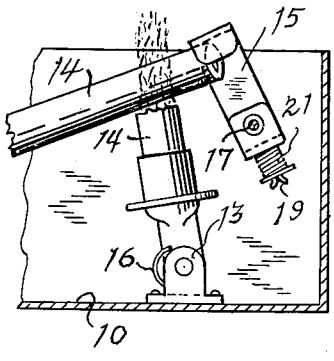
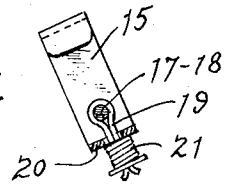


Fig. 5.



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HIGHWAY FLARE SIGNAL DEVICE

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4 Claims. (Cl. 67—3)

My present invention relates to signal flares and more particularly to a multiple highway signal flare supporting means for providing a continuation of succesive warning signals with a plurality of individual flare producing torches.

A primary object of the invention is to provide a highway warning flare supporting means for use upon travelled highways where a breakdown or accident may necessitate a prolonged warning to approaching traffic in which a number of conventional flare producing torches are employed to maintain a sustained signal for a period as long as or, if necessary, longer than that provided by a single flare producing torch.

Another object of the invention is to provide an arrangement whereby a plurality of individual flares may be carried in a safe and convenient manner for immediate use without danger of pre-ignition or other damage.

Other objects and advantages will be in part evident to those skilled in the art and in part pointed out hereinafter in connection with the accompanying drawing, wherein there is shown by way of illustration and not of limitation a preferred embodiment of the invention.

In the drawing, wherein like numerals refer to like parts throughout the several views:

FIGURE 1 is a top view of my device with a cover removed,

FIGURE 2 is a vertical sectional view of the device as shown in FIGURE 1 with an enclosed cover,

FIGURE 3 is a fragmentary sectional view showing means for igniting the first of a series of flare torches,

FIGURE 4 is a similar fragmentary sectional view showing the manner of igniting a subsequent flare producing torch, and

FIGURE 5 is a view showing a detail of the torch retaining means.

In carrying out my invention I provide a portable box or container in which there is mounted a plurality of flare producing torches arranged in such a manner that the ignition of an initial one of said torches will automatically operate to subsequently ignite an adjacent torch, which operation will in turn be completed in succession throughout a plurality of torches and in which the number of torches to be automatically ignited may be determined in advance of use.

For a more detailed description, reference is now made to the accompanying drawing, wherein the numeral **10** designates a portable container or box which is provided with an enclosing cover **11**. Secured to the bottom of the box **10** there are four similar flare supporting sockets **12**, each of which are mounted upon hinged supports **13**. The flare receiving sockets **12** are disposed alternately in opposed relationship so that when torches, designated by the numeral **14**, are placed therein the free ends of the torches will be engaged by holding means **15**, where they will be held in an inclined and depressed position against the action of a biasing spring means **16**, carried by the hinged supports **13**. This spring means **16** is adapted and arranged to move and retain the flares **14** carried by sockets **12** in a substantially vertical position as the flares **14** are successively released by a related holding means **15**.

The several holding means **15** are hingedly supported upon tie rods **17** and **18** that extend laterally across the ends of the container **10** and, as illustrated in FIGURE 5, they are clamped by a friction type arrangement with cotter pins **19** that extend through a bottom flange **20** and a compression spring **21**. In this manner the holding means **15** is frictionally held in its torch retaining position as shown, but is free for manual release of a related torch **14** should this be desired. For example, if the device is to be set up for use with only a first and second flare signal the holding means **15** associated with the third torch **14** will be manually operated to release this third torch and thus position it out of range for ignition by the second torch **14** when the latter is burned down to its end.

As an additional feature, as shown in FIGURE 3, the first torch **14** of the assembly, namely the lower torch, as illustrated in FIGURE 1, is held in its inoperative, depressed position by a latching means **22** that is biased into its latching position by a coil spring **23** and when this latching means **22** is manually lifted it will release the first torch for the initial signal. A feature to be noted with respect to this latching means **22** is that it carries on its underside torch striking members **24**, against which the fused end of this torch is drawn to provide for an initial lighting of the torch; then, as shown in FIGURE 4, as the preceding torch burns down to its end the flame produced thereby will heat up and ignite the next succeeding torch and as this second torch is ignited the latch engaging end will collapse and permit it to assume a vertical position under the influence of the spring **16** carried by its supporting socket **12**. Then as each preceding torch **14** burns down in this manner the entire array of torches will be brought into operation; however, as suggested above, if a continuous operation of the four or more torches of the assembly is not desired the number of flares to be ignited may be controlled by releasing the torch that would become the next to be ignited.

While I have, for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described and illustrated a specific form and arrangement, I desire to have it understood that this invention is not limited to the specific form disclosed, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and all such changes as come within the scope of the appended claims are to be considered as part of this invention.

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

1. A warning signal device employing conventional flare producing torches, comprising an open box-like supporting container, means for individually supporting a plurality of flare producing torches within said container in alternate oppositely extending substantially horizontal relationship with each other, each of said means being mounted for upward pivotal movement within said container, means for biasing each of said first means into a position to support a torch in a substantially vertical position, and means engaging the free ends and holding a flare producing torch carried by said supporting means in a depressed position, means igniting one of said flare producing torches said supporting means being so arranged that when released at its free end the ignited operating flare will ignite and thus release an adjacent flare at its depressed end when said ignited flare has burned down to the end of its active flare producing life.

2. A warning signal device employing conventional flare producing torches, comprising a supporting container, a plurality of torch receiving sockets mounted in alternately opposed relationship into each of which a single flare producing torch may be positioned, said torch receiving sockets being mounted upon hinged supports that are biased to normally maintain a torch carried thereby in a vertical position, holding means engaging the free ends of the torches carried by said sockets for hold-

ing said sockets against said bias and the torches in a depressed non-vertical position, means for igniting one of said flare producing torches said sockets being so related to each other that a vertically positioned ignited operating flare will ignite an adjacent depressed flare at its free end and cause the latter torch to burn free from said holding means and assume a vertical position when the ignited flare has burned down to the end of its active flare producing life.

3. The invention as set forth in claim 2, characterized by the fact that the holding means for the first of the series of torches carries an abrasive torch igniting means, whereby a raising of said first torch will operate to ignite said torch and thus set the warning signal device in operation.

4. In a highway danger signal, the combination of an elongated horizontally extended support, a plurality of conventional torch flares pivotally mounted upon said support in spaced substantially parallel relationship with each other and being arranged alternately in oppositely extending directions, whereby the pivotally mounted end of each of said flares will be located at the free end of an adjacent flare, means for biasing each of said flares into a substantially vertical position, means for igniting one of said torch flares means engaging the free ends of each of said flares normally operating to hold said flares against said biasing means and in a depressed position adapted and arranged to release a depressed flare when ignited by an adjacent ignited flare as the latter flare burns down to the end of its useful life.

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