June 5, 1934. C. M. BOLSER 1,961,629

HIGHWAY FLARE

Filed May 15, 1933

Fig. 3.

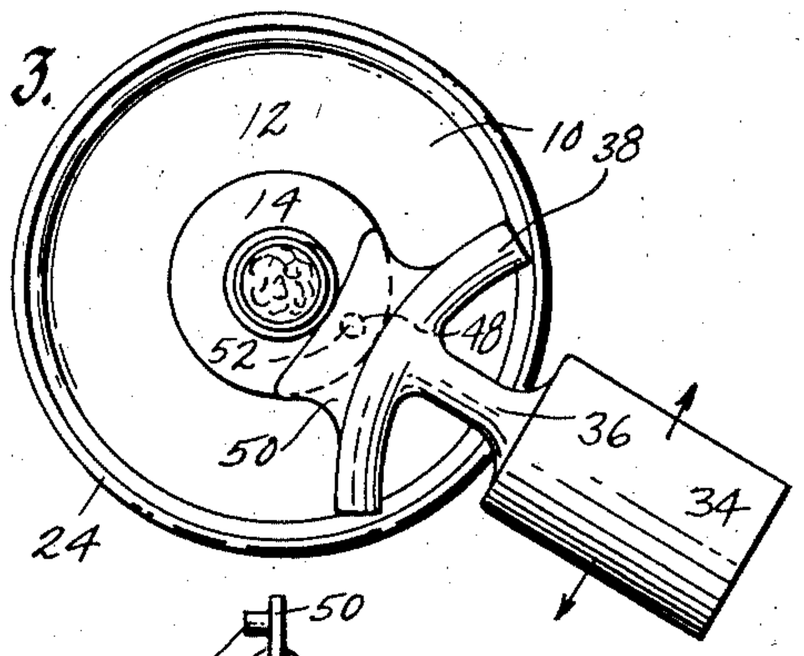


Fig. 1.

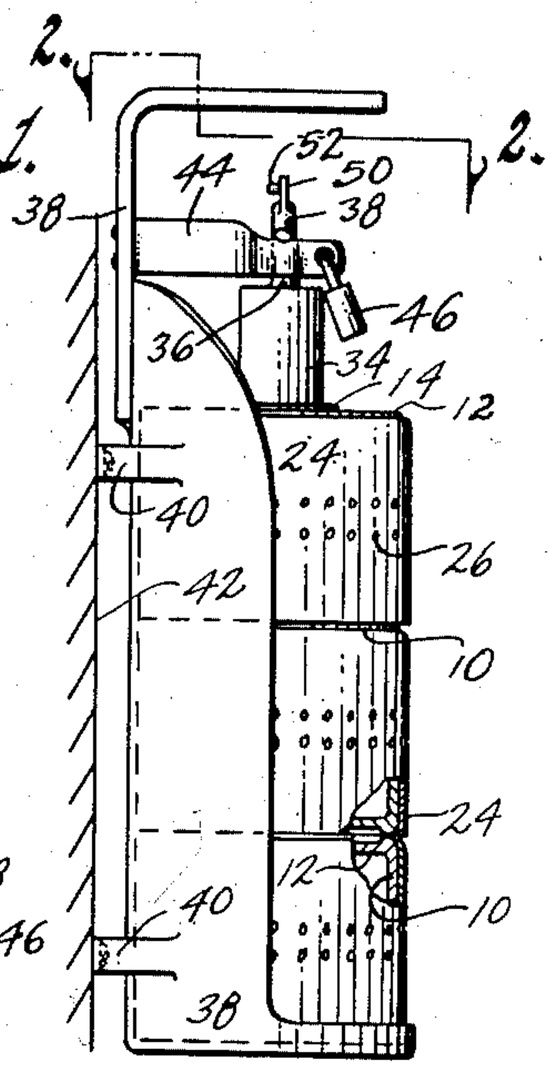


Fig. 4.

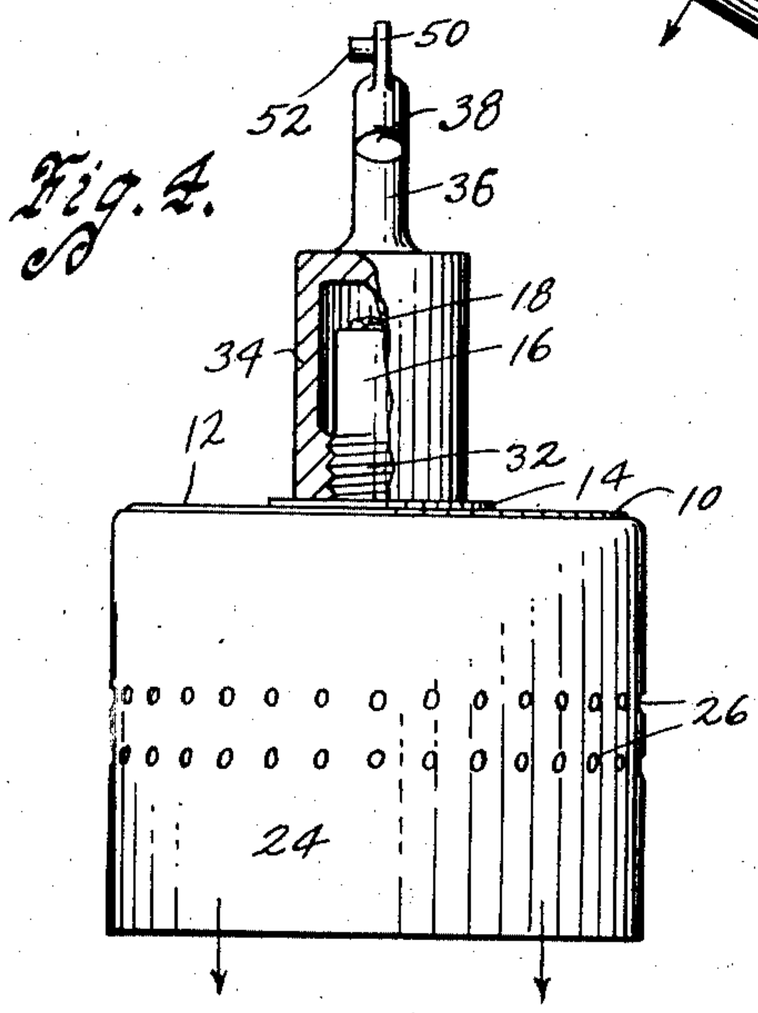


Fig. 2.

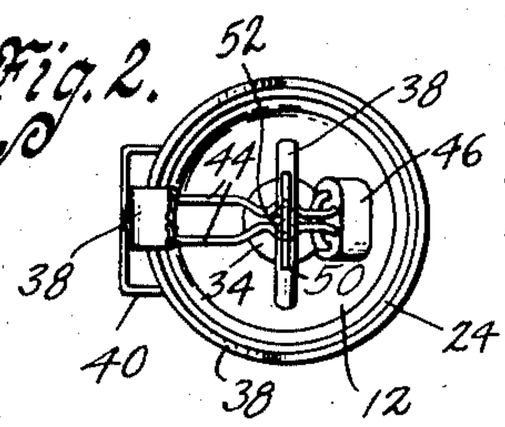
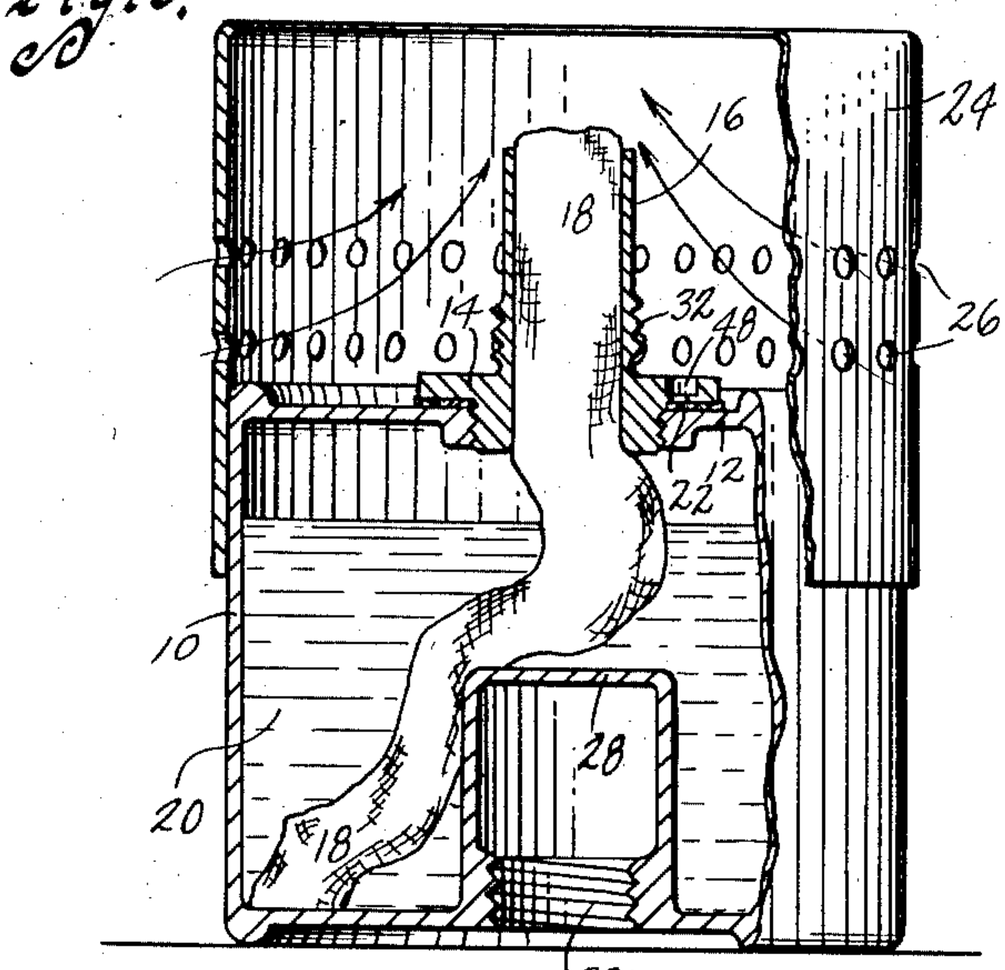
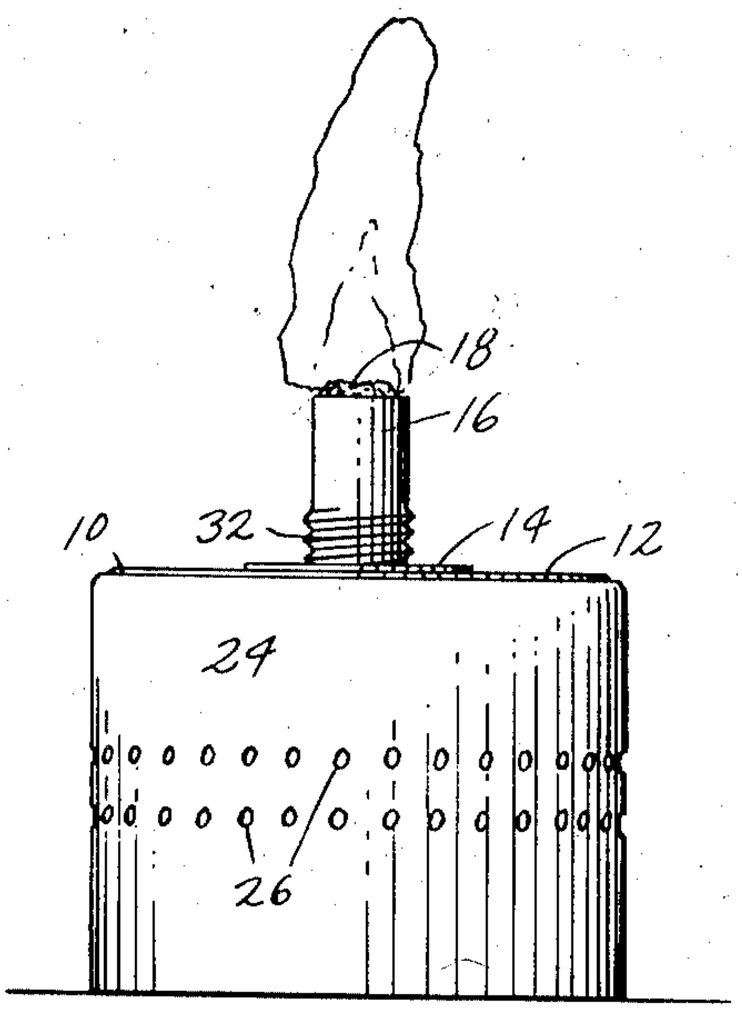


Fig. 5.





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UNITED STATES PATENT OFFICE

1,961,629

HIGHWAY FLARE

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Application May 15, 1933, Serial No. 671,146

7 Claims. (Cl. 67—55)

This invention relates to portable flares of the type which are employed on highways as warning signals to approaching drivers and involves particularly improvements which make it convenient to support and carry a plurality of the devices on an automobile, truck or other vehicle for use when occasion may arise.

One object of the invention is to provide an improved construction for highway flares whereby a series of units may be connected and conveniently supported when not in use.

A further object of the invention is to provide improved means for extinguishing the light and preventing the escape of fumes thereafter, each unit embodying the means for carrying out such function when it is superposed upon and connected to another unit for support and transportation within the vehicle.

Still another object is to provide for the uppermost unit of the series a separate cap which involves not only the function of extinguishing the light and preventing the escape of fumes, but also the function of a supporting handle for the series and a spanner wrench for use in removing and replacing the filling plugs of the units.

A further object of the invention is to provide a flare device having a telescoping apertured sleeve-like member which may be extended above the burner when the device is placed in position for use, for the purpose of shielding the flame from the wind.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:—

Figure 1 is a side elevation, partly in section, showing a plurality of flare units connected to each other in series and carried by a support which may be rigidly mounted in a motor vehicle for the purpose.

Figure 2 is a plan view, partly in section, on the line 2—2 of Figure 1.

Figure 3 is an enlarged plan view of one of the units and illustrating in connection therewith the combined extinguisher cap, supporting handle and wrench in position for use as a wrench in applying or removing the filler plug of the unit.

Figure 4 is a side elevation, partly in section, illustrating how one of the units is applied to another for the purpose of extinguishing the light of the latter unit and preventing the escape of fumes thereafter, as well as to establish a connection between the two units for convenience in transportation.

Figure 5 is a vertical sectional elevation of one of the units with its telescoping wind-break sleeve extended in position for use.

There are many instances where accidents occur resulting in serious damage to property, injury to persons and loss of life, because of the stopping on highways at night of trucks and automobiles. Most, if not all, of these accidents could be prevented by the use of adequate warning signals such as portable flares placed on or near the roadway at suitable distances in front and to the rear of the parked or stalled vehicle. My invention contemplates the production of a flare or warning device of this character which is so constructed as to be conveniently carried in a truck or passenger automobile and so arranged that a number of units may be connected in series for convenience in supporting and carrying them.

Moreover—the construction of the units is such that the means for so connecting them in series involves also a means for dousing and extinguishing the flare of the lower one of two units thus connected, and preventing the escape of fumes which would naturally follow the act of extinguishing the flame. By this provision I remove the objection which would naturally follow the immediate placing of a flare device in a vehicle after its flame had been extinguished.

In addition, I provide a separate cap member which may be mounted on the uppermost unit of a series for extinguishing the flame and confining the products of combustion and which may also be used as a supporting handle for carrying the series, and at times as a wrench.

Each of the flare units includes a container body 10 which may be of cylindrical or other suitable form. The container body 10 is closed at its top and the top wall 12 is formed with a central threaded opening which is normally closed by a screw-threaded filler plug 14 which is flanged on its outer face to overlap the marginal portion of the filling opening. The filler plug 14 is of annular formation and is formed with an upwardly extending burner sleeve 16 and a wick 18 is mounted through said sleeve and through the plug and depends into the container body 10, its lower portion being immersed in fuel oil such as 20 contained within the body. An annular gasket 22 preferably is mounted between the top wall 12 and the flanged portion of the plug 14.

The construction thus far described constitutes a simple form of oil burning lamp, which may be

used as a flare by igniting the projecting upper portion of the wick 18.

For the purpose of protecting the flame and preventing its being extinguished by the wind, a wind-break device 24 is provided which has a snugly fitting telescoping relation with the container body 10. The wind-break sleeve 24 preferably is of substantially the same vertical height as the container body 10, and when the device is not in use it is pushed down on the container body so that it does not add materially to any of the dimensions thereof. When it is desired to use the flare the wind-break sleeve 24 is projected upwardly on the container body as illustrated in Figure 5 to such position as to enclose the burner sleeve 16 and upper end of the wick and thereby afford a shield against air currents or gusts of wind. The wind-break sleeve 24 is provided with a plurality of apertures 26 which permit circulation of air when the device is extended, for the purpose of providing oxygen for the flame.

The bottom wall of each container body 10 is formed centrally with a cap-like extension 28 projecting upwardly within the container body and opening through the bottom wall. The cap-like extension 28 is internally threaded at 30. It is of somewhat greater diameter and length than the burner sleeve 16. The cap-like extension 28 of one unit is adapted to embrace and engage the burner sleeve 16 of another unit and its threaded portion 30 is arranged to engage a threaded portion 32 on said burner sleeve, thereby affording a means for operatively connecting the units in series, one above another.

For the uppermost unit of a series of the devices so connected I have provided a separate cap member which is designated generally by the numeral 34. The cap 34 is of substantially the same dimension as the internal projection 28 of each of the units and is internally threaded to engage the threaded portion 32 of one of the burner sleeves.

The cap 34 is formed with an upwardly projecting stem 36 and on this stem is formed a cross head 38, which is suitable for use as a handle in lifting a series of the units to which the cap is applied.

The cap-like internal projections 28 of the units, as well as the separate cap 34, have the further function of quenching, dousing or extinguishing the lights of the flares when they are no longer needed. This is accomplished by superposing one unit upon another by downward movement, as indicated in Figure 4, so that its cap-like projection 28 will embrace and engage the burner sleeve 16 of the lower unit, thereby smothering the flame. The two units are then relatively rotated to cause an interengagement of the threaded connections 30 and 32, which not only connects them for convenience in transportation, but also provides a seal against leakage of fuel oil and the escape of fumes or other products of combustion of the extinguished flame. This sealing relation is highly desirable when the devices are to be placed immediately in a vehicle or other enclosure. The cap 34 is applied in a similar manner to the uppermost unit of the series to thereby extinguish its flame, enclose its burner sleeve and provide a convenient means for lifting and carrying the series of devices.

Any suitable means may be supplied in a vehicle for supporting the collocated series of flare units. In Figures 1 and 2 I have illustrated a convenient means composed of a substantially L-shaped bracket 38 which is formed with apertured ears 40 by means of which it may be attached to a wall or flame member 42. The bottom part of the L-shaped bracket 38 is designed to receive and support the series of flare units. If desired, a clip member 44 may be provided at the upper part of the bracket 38, said clip member being forked to embrace the stem 36 of the cap 34, after which a padlock 46 or other securing means may be applied to the apertured outer ends of the forked clip. The upright wall of the L-shaped bracket 38 preferably is shaped so as to fit and engage partially about the container bodies 10 of the respective units.

The filler plug 14 of each unit is designed to have a tight and sealed fit with the filling opening of the top wall 12. Any suitable means may be employed for loosening and tightening the filler plug 14 in its threaded seat. I have here shown the plug 14 formed with an upwardly opening socket 48. I have also shown the cap 34 as being formed with a web 50 which projects above the cross head 38 and is formed centrally with a laterally projecting stud 52 which is designed to be received in the socket 48 of the filler plug.

Because of this construction the cap 34 may be employed as a spanner wrench by inserting the stud 52 in the socket opening 48 and swinging through an arc in either direction as illustrated in Figure 3. The engagement of the upper edge of the web 50 with the burner sleeve 16, when the stud 52 is inserted in the socket, prevents the wrench from rotating freely about the stud as a pivot and hence turning force which is applied will tend to cause the filler plug to be rotated relative to the container body 10, sufficient force of course being applied to prevent rotation of the latter member.

My invention thus provides a convenient and efficient set of flare devices which are capable of being carried in a convenient location in a vehicle so that they can be removed, placed in suitable locations and ignited when the vehicle makes a stop on the highway at night, thus providing safety against accidents, not only to those who may be within or about the vehicle, but to the drivers and passengers of approaching vehicles. This type of warning device provides a greater degree of warning and emphasizes the need of caution to those who are approaching, and a consistent use of this type of device should be effective in preventing many accidents of a type which are now very common.

The threaded connection between the burner sleeves and the cap devices, either the cap-like extensions 28 or separate cap 34, may be by way of threads of ordinary pitch or by quick acting threads or similar connecting means, capable of association by relative rotary movement.

I claim as my invention:—

1. A set of highway flares comprising a plurality of like units each including a container body having an upwardly projecting, wick-carrying burner sleeve, and each container body having its bottom formed with a reentrant cavity as an internal cap-like projection adapted to embrace and to have a threaded engagement with the burner sleeve of a similar unit, whereby the units may be connected in series and whereby means is provided for quenching and extinguishing flames at the burner sleeves and sealing against escape of fumes.

2. A set of highway flares comprising a plurality of like units each including a container body having an upwardly projecting, wick-carrying burner sleeve, and each container body

having its bottom formed with a reentrant cavity as an internal cap-like projection adapted to embrace and to have a threaded engagement with the burner sleeve of a similar unit, whereby the units may be connected in series and whereby means is provided for quenching and extinguishing flames at the burner sleeves and sealing against escape of fumes, together with a separate cap adapted to embrace and have a threaded engagement with the burner sleeve of the uppermost unit of the series.

3. A set of highway flares comprising a plurality of like units each including a container body having an upwardly projecting wick-carrying burner sleeve, and each container body having its bottom formed with a reentrant cavity as an internal cap-like projection adapted to embrace and to have a threaded engagement with the burner sleeve of a similar unit, whereby the units may be connected in series and whereby means is provided for quenching and extinguishing flames at the burner sleeves and sealing against escape of fumes, together with a separate cap adapted to embrace and have a threaded engagement with the burner sleeve of the uppermost unit of the series, said last named cap being formed with a carrying handle.

4. A set of highway flares comprising a plurality of light units, each including a container body having an upwardly projecting burner, and each container body having its bottom formed with a re-entrant cavity as an internal cap-like projection adapted to receive the burner of a similar unit, and to have sealing engagement with said unit for quenching and extinguishing the flame of the burner itself and sealing against escape of fumes.

5. A set of highway flares comprising a plurality of light units, each including a container body having an upwardly projecting burner, and each container body having its bottom formed with a re-entrant cavity as an internal cap-like projection adapted to receive the burner of a similar unit, whereby said units may be nested one above the other, combined with a support for a nested series of said units, comprising a bottom element, an upright member connected with the bottom element at one side thereof, and a means at the upper end of the upright element for holding engagement with the upper end of the upper unit.

6. A set of highway flares comprising a plurality of flare units, each including a container body having an upwardly projecting burner, each said container body having its bottom formed with a re-entrant cavity adapted to receive the burner of a similar unit, whereby a series of the units may be nested and stacked in a vertical pile, with the burner of each lower unit received in and protected by the body of the next upper unit.

7. A set of highway flares comprising a plurality of flare units, each including a container body having an upwardly projecting burner, each said container body having its bottom formed with a re-entrant cavity adapted to receive the burner of a similar unit, whereby a series of the units may be nested and stacked in a vertical pile, with the burner of each lower unit received in and protected by the body of the next upper unit, the units having coacting parts whereby they may be locked in nested position, so that the top unit may be grasped and the whole series may be thereby conveniently carried.

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