

Oct. 17, 1933.

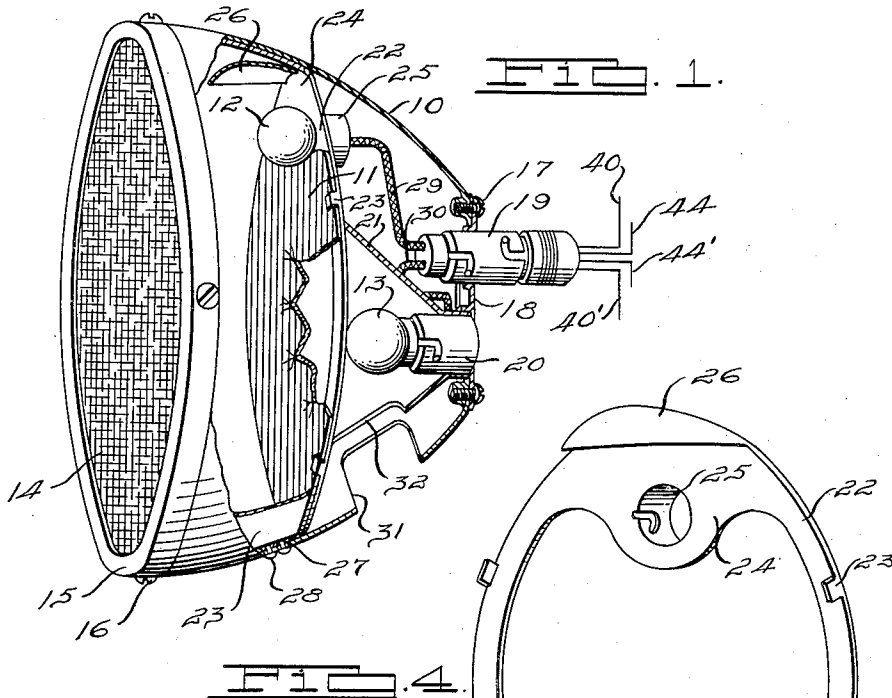
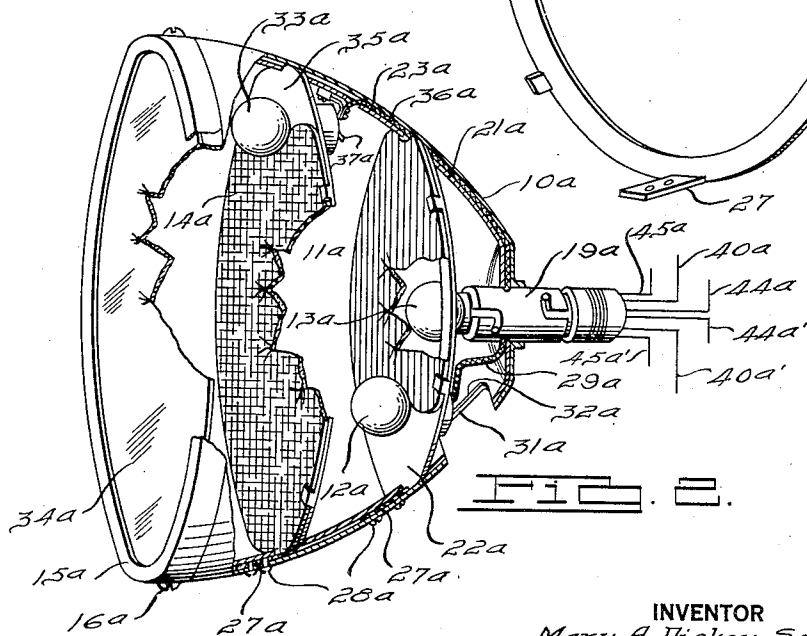
M. A. D. SCHERFEE

1,930,774

VARIABLE COLOR LAMP

Filed Dec. 17, 1930

2 Sheets-Sheet 1



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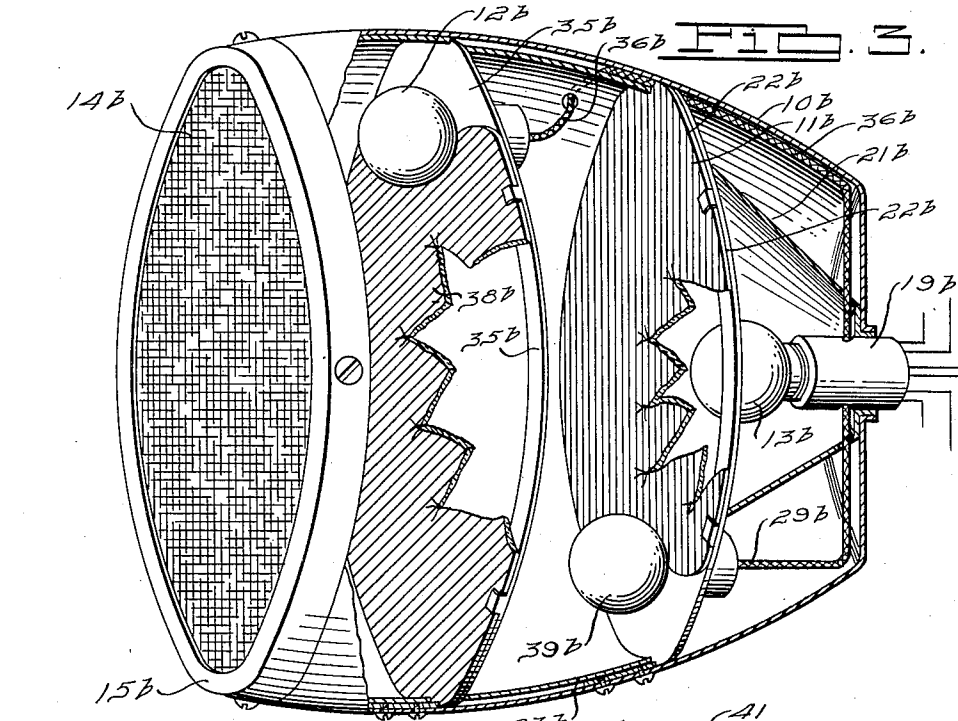
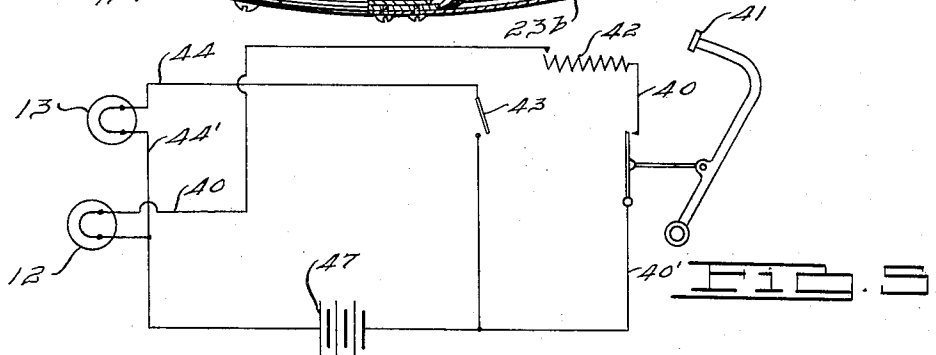
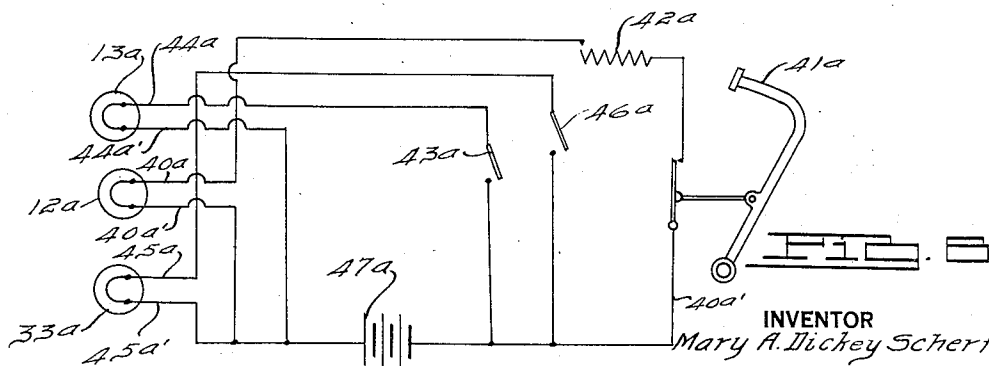
M. A. D. SCHERFEE

1,930,774

VARIABLE COLOR LAMP

Filed Dec. 17, 1930

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,930,774

VARIABLE-COLOR LAMP

Mary A. Dickey Scherfee, Ferndale, Mich.

Application December 17, 1930
Serial No. 503,014

4 Claims. (Cl. 177—327)

The present invention resembles that described and claimed in my pending application Serial No. 448,526, filed April 30, 1930, in that, employing a single translucent element at the front of a lighting unit, I use therewith an interior organization capable of alternatively producing different color effects; and the present unit is characterized by the provision of a series of co-axially and longitudinally arranged compartments each containing a separate light source, a series of unlike transverse filters being so employed as each to constitute the front wall of a compartment. In such a unit, the transmission range of a forward or outer filter obviously must be inclusive of a desired ray or rays transmitted thereto by any inner filter or filters as clearly described in the patent to Moore No. 1,717,617 granted on June 18, 1929, and assigned to the present applicant.

As in the former instance, it is a particular object of this invention, to provide a light unit suitable for use at the rear of automotive vehicles, or the like; and such embodiments of the invention as are designed for this specific use may ordinarily include an inner red filter and an outer amber filter. In certain units, a greenish filter that is however capable of transmitting red may be used between a red filter and an amber filter; but a preferred arrangement for small units is such that upon energization of an innermost light source, an "amber" filter, or a lens at the outlet opening, appears red (adapting the unit to use as a "tail" light) whereas energization of a source placed in advance of the red filter, but to the rear of the amber filter, provides a satisfactory "stop" light,—a back-up light being optionally provided by the disposition of an additional light source in a front compartment enclosed by a clear glass lens, or by a lens having but a slight tinge of any preferred color, as yellow.

As above intimated, it is found practicable to so interpose a greenish color filter between a red filter and an amber filter, with a separate light source in each of the resultant compartments, as to provide means for imparting to said amber filter, or to a lens in advance thereof, either a red color, a greenish color or an amber color. But it should be understood not only that specific colors are, in general, herein referred to only by way of illustration, but also that, in addition to its proposed uses upon vehicles or in stationary traffic signaling organizations (suitable for use at street corners and obviating the present expensive duplication of light units) various modifications of the present invention may be found suitable for use in "spot" lights and/or "flood" lights,—and also

for a great variety of alternative advertising or aeronautical or industrial or artistic uses.

To facilitate manufacture and to assure the retention of all parts in a desired anti-rattling relationship in use, the present invention contemplates the employment, within a suitably formed outer casing, of special separate carrier frames, each adapted to support a single light filter element or an assembly of light filter elements and one or more incandescent bulbs,—said carrier frames being adapted either to self-retention by a wedging engagement with the walls of a suitable casing within which a series of like frames may be received, in spaced relationship, or to be spaced apart by interposed reflector element, generally corresponding in curvature with said casing; but, in preferred embodiments of the invention, each of the mentioned carrier frames may be provided with one or more apertured lugs, adapted to receive fastening elements,—such as screws entering said casing or an interposed reflector.

Other objects of the present invention, including optional special features of reflector construction, connector construction and the like, may be best appreciated from the following descriptions of illustrative embodiments thereof, taken in connection with the appended claims and the accompanying drawings.

Fig. 1 may be referred to as a perspective view, somewhat diagrammatic, with parts broken away,—a two-compartment unit being provided with two light filters and two light sources.

Fig. 2 is a view similar to Fig. 1, but showing a three-compartment unit and illustrating optional features of modification.

Fig. 3 is a similar view of a further alternative,—three color screens which differ in transmission range being each provided with a separate light source in a separate compartment and said light sources being presumably of sufficient power to adapt this unit to use as a traffic signal.

Fig. 4 is a separate perspective view of a single filter-carrying frame, of one advantageous construction.

Fig. 5 is a diagram of one wiring arrangement suitable for use in connection with such a unit as is shown in Fig. 1.

Fig. 6 is a wiring diagram pertinent to the use of a unit such as is shown in Fig. 2.

Referring first to general features of the unit shown in Fig. 1, and using such words as "forward" with reference to the direction of light propagation, a main shell or housing is there subdivided into a forward compartment and a rear compartment by a color filter 11,—light

sources 12 and 13 being respectively provided in the mentioned compartments and the front compartment being closed by an additional light filter element 14. Any desired means may be used to hold the mentioned parts in their indicated relationship. For example, a flanged ring 15 being secured adjacent the front end of the casing 10 by means of screws 16, additional screws 17 may optionally be employed in the retention of a rear closure plate 18. This is shown as carrying both a connector 19 and a socket 20, in addition to an inner reflector 21; and a special carrier frame 22 may be retained between the reflector 21 and an additional reflector 23, disposed at the periphery of the mentioned forward compartment.

As best shown in Fig. 4, each carrier 22 may advantageously constitute a separate stamping, and each may be provided with integral or other filter-retaining tabs 23,—characterized by a degree of resiliency and/or adapted when integral to be so re-bent as to retain a filter plate; and an enlarged portion 24 of each carrier frame may advantageously be provided with an integral or other socket 25, and/or with a reflector 26,—these being shown as disposed substantially opposite an apertured attachment lug 27, adapted to receive screws 28.

In Fig. 1, twin wires 29 and 30 are shown as carried, through a space exterior to the reflector 21, from the connector 19 to the respective bulbs 12 and 13; and, a transparent closure being omitted, coincident openings 31 and 32 are shown as so provided, in casings 10 and in said reflector, as to assure satisfactory illumination of a license plate therebelow.

Fig. 2 will be seen to suggest a construction in which no separate rear assembly plate (like plate 18 of Fig. 1) is employed,—a bulb 33a being used at the rear of a clear glass lens 34a and a filter-carrying frame 35a being disposed in advance of a frame 22a. Bulbs 33a and 12a are shown as carried by the frames 35a and 22a, to provide a back-up light and a stop light respectively; and (characters applied to Fig. 1 being similarly employed in Fig. 2 but with an added "a"), it will be seen that a tail light is provided by a substantially central bulb 13a, directly carried by the connecting element 19a.

Across the inner compartment a twin wire 36a, shown as disposed exteriorly of reflectors 21a and 23a, may be terminally connected with suitably positioned resilient conduction clips 37a (only one being shown) carried by but insulated from the reflector 23a and/or the filter-carrying frame 22a. It will be noted that various light sources are, in each instance, so staggered as to enable each light source to illuminate the entire filter immediately in front thereof; but it will be obvious that a frame 22 or 22a or 35a may be provided with any desired number of attachment lugs 27 or 27a, any retaining screws 28 or 28a used therewith being preferably rendered inconspicuous by positioning the same within or at the lower surface of the unit; and the location of the interior parts relatively to the openings 31, 32 or 31a, 32a should obviously be such that the purpose of the latter shall not be defeated.

The embodiment shown in Fig. 3 (mentioned characters being used therein with an added "b") is suggested as suitable for use in a stationary traffic signal at a street intersection,—although it may be found suitable also for use in flood lighting or for other purposes. This embodiment

will be seen to differ from that disclosed in Fig. 2 primarily in that three color filters are employed,—the inner color filter 11b being adapted to pass a preponderance of red rays, or red rays exclusively, and a filter 14b being adapted to transmit not only red rays but additional rays such as may be received through an intermediate color filter 38b. This latter may be adapted to transmit a preponderance of green light when illuminated only by a "white" light such as the bulb 39b; and, in this instance, the energization of the bulb 12b being effective to impart an amber color to the filter 14b and a green effect being obtainable by the exclusive energization of the bulb 39b, a red effect may be obtained by the energization of the bulb 13b,—the principle involved being that an outer filter is, in each instance, permeable to the predominant rays transmitted by an inner filter or filters; and it will be obvious that although three-candle power bulbs may be suitable for use in such organizations as are shown in Figs. 1 and 2 (the bulbs 33a, if employed, being optionally given a greater power suitable to its use as a back-up light) bulbs of any desired power may be used at the rear of any of the filter elements referred to,—and that additional filters, each with a separate source at the rear thereof, may be used. In any case the described construction will be seen to minimize both the number of units required and the outlay for light bulbs. The word "filter" as employed in the specification and claims is not to be construed in a limited sense as being capable of passing only a single color, void of any white light, but is to be understood as covering a filter of the more or less imperfect type wherein "white-light" and a predominant color is passed as is true of colored lenses and windows of conventional form.

It will be obvious that the mentioned color filters may be formed from any usual or preferred material such as glass or the like; and that any desired wiring system may be used. For example, wires 40, 40' of Figs. 1 and 5 may serve for the energization of stop light 12 upon a depression of a brake pedal 41, a variable resistance being indicated at 42; a manual or other closing of switch 43 may be effective to complete a circuit through the wires 44, 44', for energization of the bulb 13, to provide a tail light; and the same principles will be seen to be applied to Fig. 6, excepting that the back-up light 33a, in a circuit comprising wires 45a, 45a' is subject to control by an additional switch 46a,—a source of electrical energy being indicated at 47 in Fig. 5 and the characters used in preceding figures being employed in Fig. 6 each with an added "a".

Although the foregoing description has included details of but a limited number of embodiments of the present invention, it should be understood not only that various features thereof might be independently employed, but that numerous modifications, additional to any suggested herein, might easily be devised by skilled workers, if informed of the foregoing,—all without departure from the scope of the present invention, as the latter is indicated above and in the following claims.

I claim:

1. In a traffic signal unit including, in combination a plurality of co-axially and longitudinally arranged compartments, each compartment containing a separate light source, a series of unlike light filters constituting the front walls of said compartments and differing in transmission range, the transmission range of each outer filter

being inclusive of the predominant rays transmitted by an inner filter and the outer filter being so illuminable, throughout its entire area, by light transmitted from any one of said sources, that the apparent color of said outer filter is dependent upon the source selected to produce an amber, a green, and a red signal.

2. A traffic signal light unit including, in combination, a casing which is transversely subdivided into three compartments, a separate light source in each compartment, an outer filter element which appears amber when separately illuminated by a light source, an inner filter element which produces a green color on the outer filter element when illuminated by another light source, and a third filter element which produces a red color on the outer filter element when light from the third source projects rays through all of the filter elements.

3. A traffic signal light which includes in combination, a casing which is transversely subdivided into a plurality of compartments, a separate

light source in each compartment, spaced light filters extending substantially across said casing to form said compartments, said filters being so chosen that the first produces an amber color when directly illuminated by light from an adjacent source, the second and first together produces a green color when light from another source is projected therethrough and the three filters in combination produce a red color when light is projected from the third source through the third filter element.

4. A traffic signal unit comprising a plurality of serially arranged compartments separated by light filters and each containing a light source, frames for supporting said filters, annular reflectors disposed between said frames for spacing said frames and filters, means for positioning said reflectors, frames and filters relative to each other and said unit, and means on said frame for supporting a light source to illuminate the reflector and filter disposed thereof.

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