I. N. HEARTSILL.

HEAD OR TAIL LIGHT FOR AUTOMOBILES.

APPLICATION FILED JAN. 6, 1917.

1,305,282.

Patented June 3, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

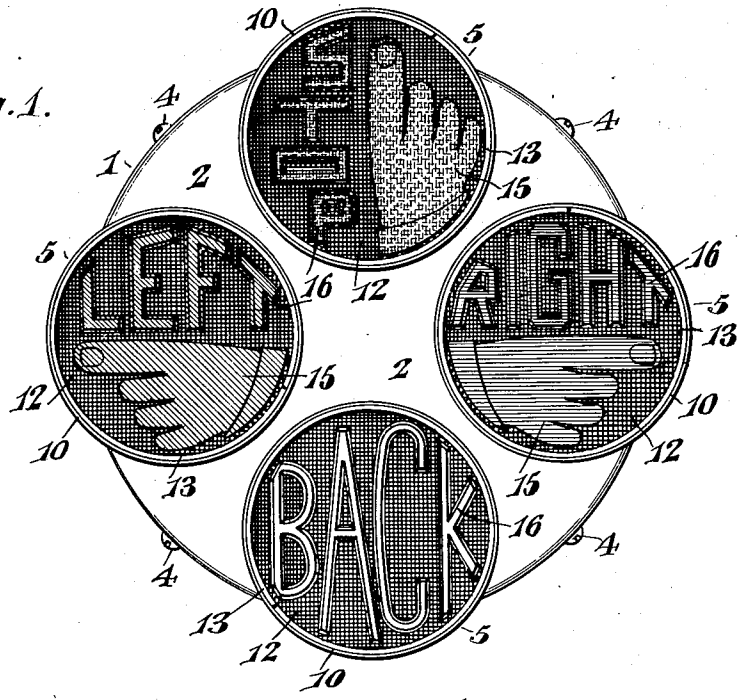
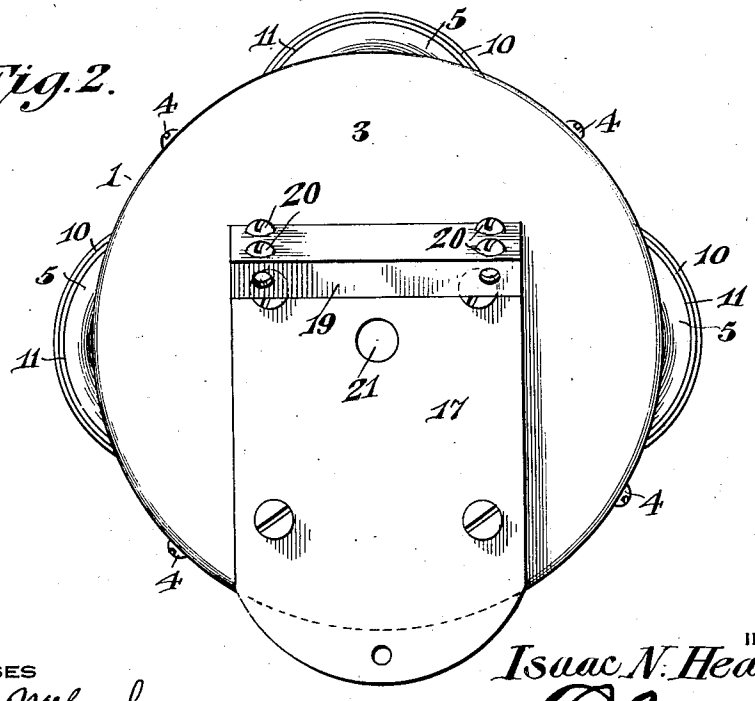


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

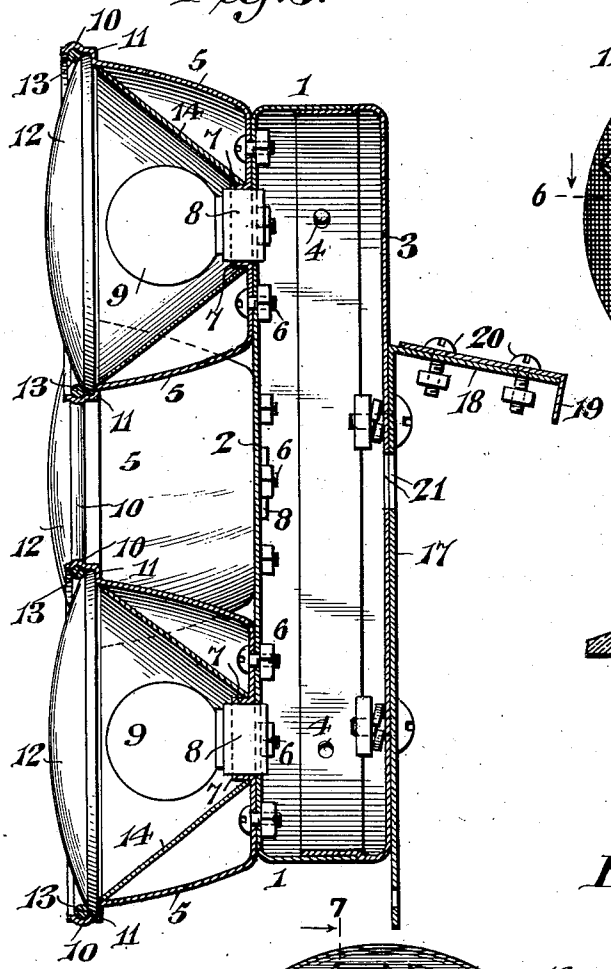


Fig. 4.

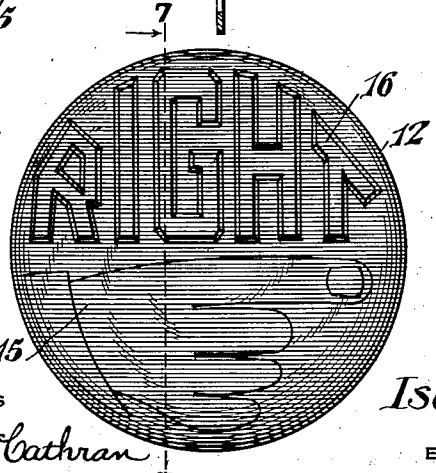


Fig. 5.

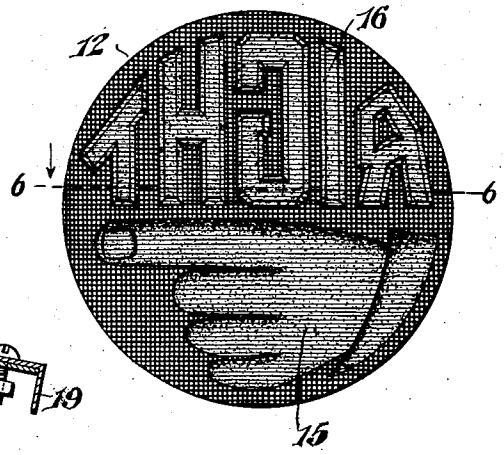


Fig. 6.

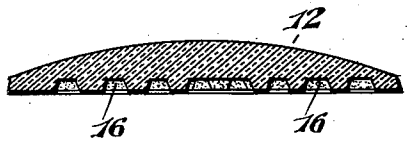
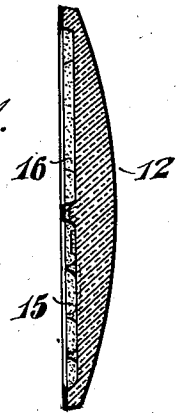


Fig. 7.



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UNITED STATES PATENT OFFICE.

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HEAD OR TAIL LIGHT FOR AUTOMOBILES.

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Application filed January 6, 1917. Serial No. 140,957.

To all whom it may concern:

Be it known that I, ISAAC N. HEARTSILL, a citizen of the United States, residing at Austin, in the county of Travis and State of Texas, have invented a new and useful Head or Tail Light for Automobiles, of which the following is a specification.

This invention has reference to head or tail lights for automobiles, and while the invention is applicable for both purposes, for convenience and simplicity of description the device will hereinafter be referred to as a tail light.

The object of the invention is to provide a structure by which the intended course of the vehicle may be revealed to any one viewing the tail light, the arrangement being such that indicia carried by the tail light are made visible at night by suitably placed illuminating units.

The invention comprises a casing with means for attaching it to a suitable portion of the automobile, the casing having a series of containers thereon, preferably arranged about a common center, with each container provided with a support for an electric bulb, a reflecting element mounted in the container and a glass or other transparent structure constituting the visible end of the container, such glass structure being of plano-convex form with indicia impressed in its plane face and the convex face outermost. In order to readily distinguish the indicia, it is customary to make certain of the indicia of pointing or indicating form and accompanied by suitable words, whereby the observer is apprised of the contemplated direction of the driving of the vehicle.

The cover element of each container may be in the form of a glass bull's-eye, each bull's-eye differing in color from the colors of the other bull's-eye. The indicia are of light-transmitting charactr with the surrounding portions rendered opaque to light by a suitable coating on the rear face of the bull's-eye. Such opaque coating is preferably of a character to appear in daylight as of approximately the same color as the light-transmitting indicating portions, so that such indicating portions are but feebly visible in daylight, and hence are not liable to be mistaken by an observer as then indicating an intended course. By artificial light, however, with the light shining through the light-transmitting portions of an indicating element, such indicating element becomes prominently visible because the light transmitting portion of the glass is rendered light diffusive by sand blasting or other suitable treatment, while the opaque coating prevents any transmission of light except in the circumscribed area represented by the indicia.

In the practical installation provision is made for lighting any of the light-giving elements to illuminate a corresponding one of the indicating devices, but such arrangement is not shown since it does not form part of the present invention.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming part of this specification, with the further understanding that while the drawings show a practical form of the invention the latter is not confined to any strict conformity with the showing of the drawings, but may be changed and modified so long as such changes and modifications come within the scope of the appended claims.

In the drawings:—

Figure 1 is a face view of a tail or headlight constructed in accordance with the invention.

Fig. 2 is a rear view of the structure shown in Fig. 1.

Fig. 3 is a diametric section of the structure of Fig. 1, but drawn on a larger scale.

Figs. 4 and 5 are front and rear views, respectively, of one of the glass bull's-eyes.

Fig. 6 is a section on the line 6—6 of Fig. 5.

Fig. 7 is a section on the line 7—7 of Fig. 4.

Referring to the drawings there is shown a casing 1 which, as seen from Fig. 3, consists of two telescoping members 2, 3, respectively, held together by screws 4, or in any other suitable manner.

Fast to the casing member 2 constituting the outer or front member of the casing is a series of cup-like receptacles 5 secured to the casing member 2 by bolts 6, or in any other suitable manner. Each receptacle 5 at its inner or basic end is formed with an annular flange 7 defining a passage axially through the cup and matching a similar passage in the casing member 2. Such passages are of suitable size to contain receptacles 8 for electric lamp bulbs 9 of the size

usually employed in automobile head or tail lights.

Each cup or receptacle 5 has its outer end formed into a beaded flange 10 provided with a shoulder 11 designed to seat the marginal portion of a bull's-eye 12 held to the flange by an elastic split ring 13 sprung into the beaded portion of the flange 10.

Lodged in each cup 5 is a conical reflector 14 having its small end shaped to lodge about the flange 7 so that the reflector surrounds the lamp 9 in proper relation thereto in order that light from the lamp will be intensified by rays directed by the reflector 14 through the bull's-eye 12.

The bull's-eyes 12 are of plano-convex form, with the convex surface outermost in the installed position, and the plane surface toward the interior of the cup.

In the particular arrangement shown in the drawings there are four cups or receptacles and four bull's-eyes, each with indicia thereon differing in one way or another from the indicia of the others. Moreover, the bull's-eyes are made of different colored glass, or one of these bull's-eyes may be made of uncolored glass, but for convenience of description it may be considered that all the bull's-eyes are of appropriately colored glass without however excluding clear or uncolored glass.

Certain of the bull's-eyes are formed with indicating devices such as a pointing hand 15 accompanied by a word 16, such word varying in accordance with the desired indication.

Where the head or tail light is provided with four receptacles, those arranged in a horizontal plane in the installed position contain the words "Right" and "Left", respectively, and are located so that when rendered visible the observer is apprised of the fact that the driver of the vehicle intends to turn to the right or left. The word "Right" or "Left", of course, apprises the observer of the intended direction of travel, but this warning is emphasized by the presence of the pointing hand. Such hand is more readily observable than the word accompanying it, and so if the observer for some reason or other be unable to readily read the word, the pointing hand itself will give the necessary warning.

It is frequently necessary for the traveling vehicle to stop, and to give warning of such impending condition, the top bull's-eye is provided with a pointing hand directed upwardly and the word "Stop" associated therewith. Occasionally it is necessary for a vehicle to back, and for this reason the device has the bull's-eye in the lowermost cup provided with the word "Back", or the lowermost bull's-eye may be formed of red glass and constantly illuminated at night, as is customary in tail lights.

The colors chosen for the indicating bull's-eyes may be amber for the uppermost or "stop" bull's-eye, blue for the right bull's-eye and green for the left bull's-eye, and when the word "Back" is employed for the lowermost one the glass may be clear.

In each case those portions of the bull's-eye which it is desirable should be opaque to transmitted light, are covered by a coating of some opaque substance, such as paint or enamel, but that portion of the coating visible through the bull's-eye is preferably made of the same color, or a near approach to the color of the glass, whereby the indicating portions are in most part invisible by day light.

In the showing of Fig. 1 it is assumed that all the bull's-eyes are illuminated, which condition, however, does not occur in practice for only one of the bull's-eyes is illuminated at any one time.

In Fig. 4 the attempt is made to indicate in some measure the appearance of the bull's-eye by day light, although in actual practice the contrast between the opaque background and the light transmitting portions of the bull's-eye is much less than would appear from the showing of Fig. 4.

Since the rear face of the bull's-eye back of the colored background has no particular effect, it may be coated with any suitable black substance, such as paint or enamel, and such arrangement is assumed to be present in Fig. 5.

In order to avoid unpleasant glares through the bull's-eyes where of light-transmitting character, especially when illuminated from the light units represented by the electric bulbs 9, the rear face of each bull's eye is sand blasted or otherwise treated to have the effect of ground glass. The attempt is made in Fig. 5 to represent such ground glass effect by stippling.

The letters and the pointing hand are formed in the rear face of each bull's-eye by being depressed therein during the process of manufacture. The depression representing the hand is of more or less rounded form, while the letters may be plane with beveled edges, thus causing the parts to appear to stand out with more or less relief.

The outer surface of each bull's-eye is smooth as well as convex, and this tends to enhance the relief effect, and consequently produces a clearer appearance than would be the case with a flat glass member having the indicia merely outlined thereon.

Fast to the rear face of the member 3 of the casing 1 is a bracket 17 with an angle extension 18 at one end to which an angle plate 19 is attached by bolts 20 or by other means, so that the structure is readily attachable to an automobile.

The casing 1 provides a convenient protection for the spread-out ends of a suit-

able electric cable introduced into the casing through a rear passage 21 through both the bracket 17 and the casing member 3, whereby only the protected cable is exposed to weather and other conditions outside of the casing 1.

While the structure is particularly useful as a tail light, it may be used as a head light in conjunction with a similar tail light with an appropriate arrangement of the right and left indicating bull's-eyes to agree with those of the tail light, and to properly designate the intended course.

While the bull's-eyes or glasses covering the fronts of the cups have been described as provided with visible backgrounds corresponding in color to the color of the glass itself, it will be understood that black backgrounds may be employed, if desired. Nor is it obligatory that the glass members 12 be plano-convex since they may be otherwise shaped.

When desired, the tail light may be arranged to illuminate a license number by suitably cutting away an available one of the cups 5.

The glass cover members need not necessarily be convex on the outer faces nor need the indicia be sunken into the rear faces thereof.

It will be understood, of course, that the indicator is capable of use in daylight by energizing appropriate ones of the lighting units.

What is claimed is:—

1. A direction indicating head or tail light, comprising a body portion with a series of cup-like receptacles projecting therefrom, holding means for electric lamp bulbs at the base portions of the cup-like receptacles, glass cover members individual to and mounted in the ends of the cup-like receptacles remote from the body portion, and a reflector in each cup-like receptacle lodged between and directly engaged and clamped by the glass member and the base portion of the cup.

2. A glass cover member for indicating units of a direction indicating head or tail light, having impressions in its rear face constituting indicia of both readable and indicating design, with the indicating design rounded to produce a relief appearance and the readable portions in the form of associated letters of the alphabet to constitute words, with the letters having bevel margins to produce relief appearance.

3. A glass cover member for indicating units of a direction indicating head or tail light, having a smooth front face and impressions in its rear face constituting indicia of both readable and indicating design, with the indicating design rounded to produce a relief appearance and the readable portions in the form of associated letters of the alphabet to constitute words, with the letters having bevel margins to produce relief appearance, said cover member having the indicating portions transmissible of light and the remainder opaque to light.

4. A glass cover member for indicating units of a direction indicating head or tail light, having a smooth convex front face and impressions in its rear face constituting indicia of both readable and indicating design, with the indicating design rounded toward the front face to produce a relief appearance and the readable portions in the form of associated letters of the alphabet to constitute words, with the letters having bevel margins to produce relief appearance, said cover member having the indicating portions transmissible of light and the remainder opaque to light, and said cover member being of a color individual and characteristic thereto.

5. A glass cover member for indicating units of a direction indicating head or tail light, having impressions in its rear face constituting indicia of both readable and indicating design, with the indicating design rounded to produce a relief appearance and the readable portions in the form of associated letters of the alphabet to constitute words, with the letters having bevel margins to produce relief appearance, said cover member having the indicating portions transmissible to light and the remainder opaque to light, and said cover member being of a color individual and characteristic thereto and also having the visible face of the opaque portion of substantially the same color as that of the body of the cover member, whereby a blending of colors causes the indicia to be invisible when not illuminated by light back of it, thus avoiding confusion when it is not intended to give the signal.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ISAAC NEWTON HEARTSILL.

Witnesses:

H. M. MARKS, Jr.,

J. L. WILLIAMSON.