

Oct. 9, 1928.

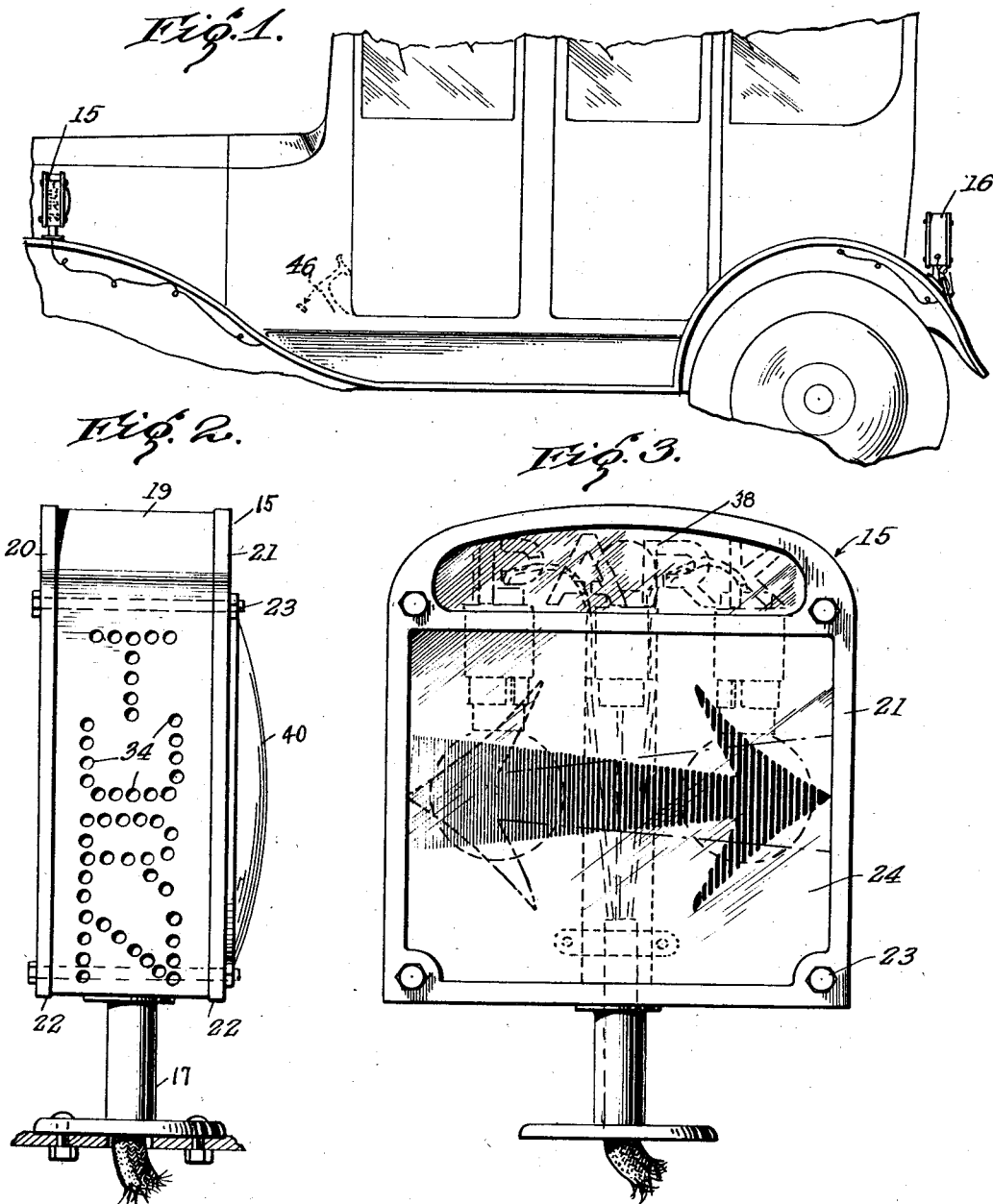
1,686,850

R. FRENCH

TRAFFIC SIGNAL

Filed Sept. 27, 1924

3 Sheets-Sheet 1



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Oct. 9, 1928.

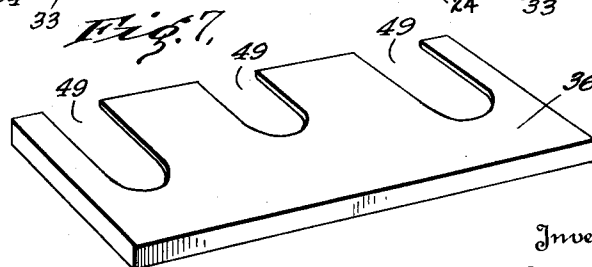
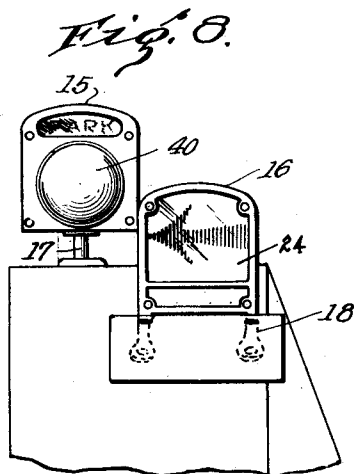
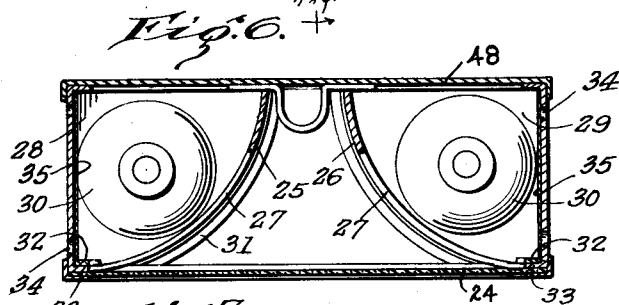
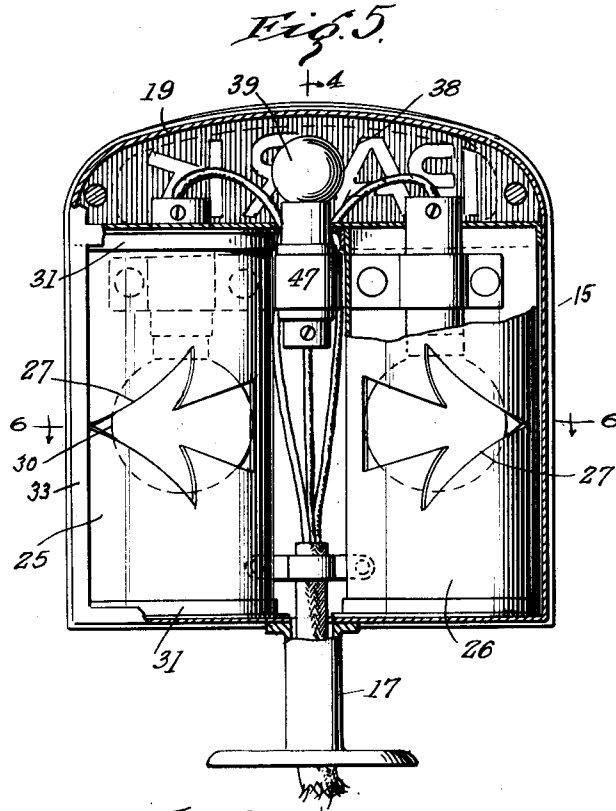
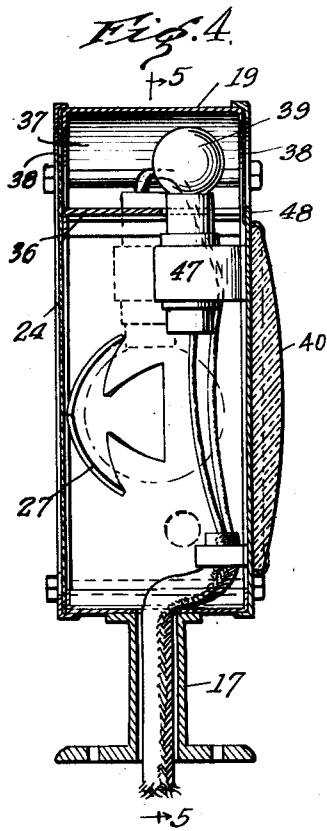
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3 Sheets-Sheet 3

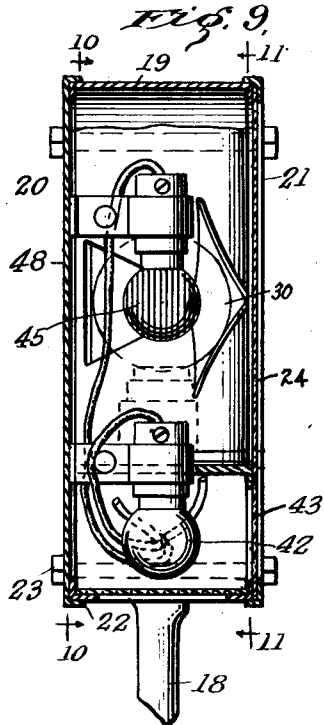


Fig. 9.

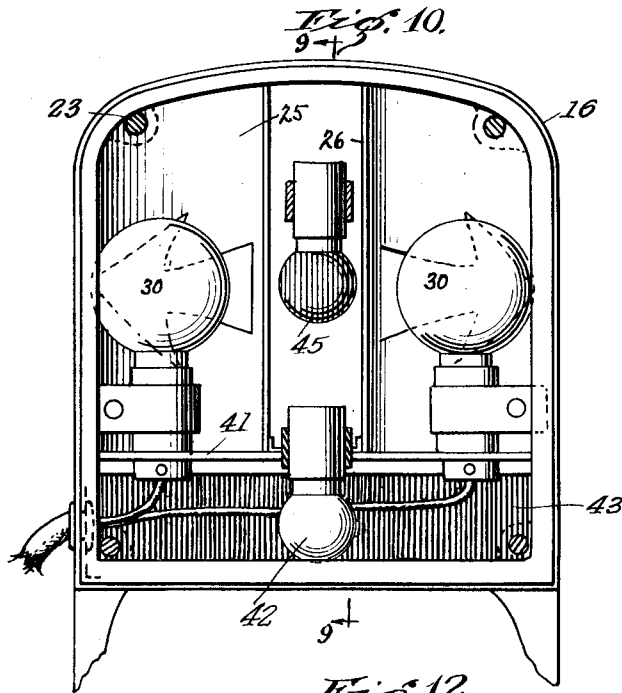


Fig. 10.

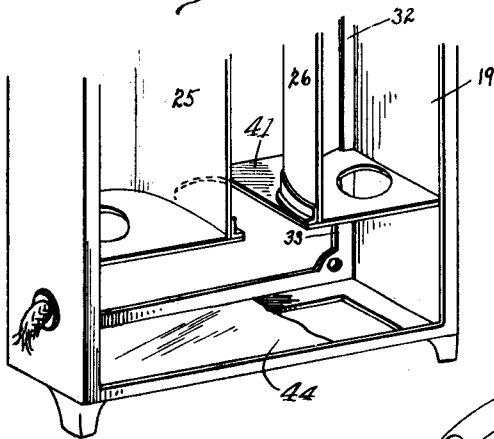


Fig. 11.

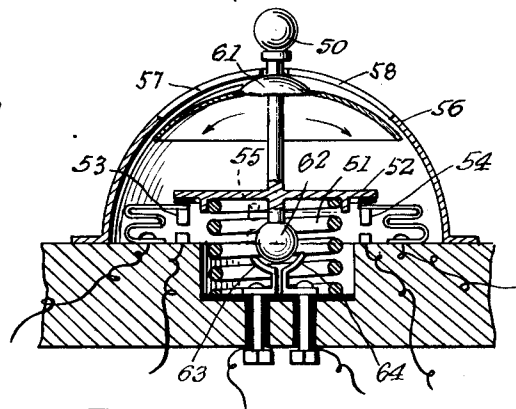


Fig. 12.

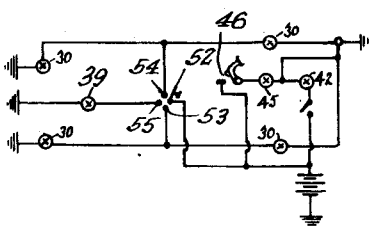
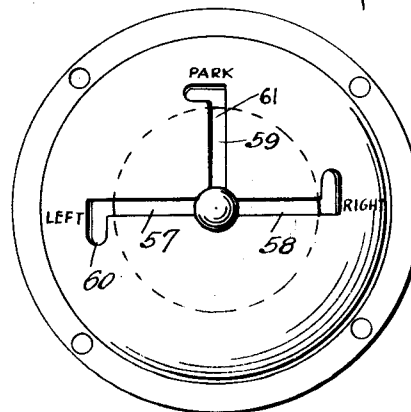


Fig. 13.



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UNITED STATES PATENT OFFICE.

RAINSFORD FRENCH, OF WASHINGTON, DISTRICT OF COLUMBIA.

TRAFFIC SIGNAL.

Application filed September 27, 1924. Serial No. 740,212.

Some of the more important objects of this invention are to provide signal mechanism for indicating the intended movements of automobiles or other vehicles to the directors of traffic as well as to other drivers; which will show in a plain, unmistakable way to traffic ahead, at the side or at the rear, the intentions to turn one way or the other, to slow down or to stop; which will be of simple, compact design, readily applicable to various types of cars, inexpensive in construction and easily actuated without distracting the operator's attention from the driving of the car.

In the accompanying drawings I have illustrated a practical and at present, the preferred embodiment of the invention, but it should be understood that the structure may be modified in various respects without departure from the broad spirit and scope of the invention.

Figure 1 is a broken side elevation illustrating an application of the invention by mounting the front and rear signal boxes on the left front and rear fenders of a car.

Figures 2 and 3 are side and front views respectively of the front signal box.

Figures 4 and 5 are vertical sectional views of the same as taken on substantially the planes of lines 4—4 and 5—5 of these figures.

Figure 6 is a horizontal sectional view as on substantially the plane of line 6—6 of Figure 5.

Figure 7 is a perspective view of the horizontal partition separating the "park" signal compartment from the direction signal compartment.

Figure 8 is a rear view illustrating the offset relation of the front and rear signal boxes.

Figures 9 and 10 are vertical sectional views of the rear signal box as taken on substantially the planes of lines 9—9 and 10—10 of these figures, the bolts in Figure 10 showing in section after removal of the cover.

Figure 11 is a broken perspective view of the box body with the rear flange and screen removed, as on substantially the plane of line 11—11 of Figure 9.

Figures 12 and 13 are vertical sectional and plan views respectively of the signal controlling switch.

Figure 14 is a simplified wiring diagram which may be used.

The front and rear signal boxes are designated 15, 16, respectively, and are shown carried by suitable posts or brackets 17, 18, secured in this particular instance on the left

front and rear fenders in offset relation, Figure 8, so that one does not obscure the other.

Structurally these boxes are alike in that they each consist of an open box body or casing 19, over the front and back of which are secured, cover flanges 20, 21, having rims 22 overlapping the front and rear edges of the casing to make tight joints therewith and removably secured in place by the through bolts 23.

In both signals, indications of turning movements are given by flashing arrows or pointers onto translucent screens with a combined stencil and projector effect so as in each instance to cause the head or tip of the pointer to stand out in brighter contrast to the body or tail of the pointer. This is accomplished by means of screens 24 of ground glass or the like, held in place by the flanges 20 and 21 of the front and rear signals, in back of which in each instance are placed stencils 25, 26, bearing the outlines of arrows or other suitable pointers 27, said stencils being supported with the tip portions of such arrows substantially in contact with the rear face of the screen so as to produce bright stencil effects at the points of the arrows and inclined from such contact portion rearwardly away from the screen so as to produce a gradually more diffused effect for the shafts or tails of the arrows.

As shown in Figure 6, this curvature or inclination of the stencils away from the opposite edge portions of the screen provides in the opposite sides of the casing, substantially triangular compartments 28, 29 for the electric lamps or other light sources 30. This accentuation of the tip of the pointer by stencil effect and the gradual fading away of the body of the pointer is indicated by the heavier and lighter shade lines in Figure 3, showing the outline of the arrow stencilled and projected on the screen and occupying substantially the entire field of the screen. In this same view, the broken lines indicate how the reversely pointing arrow when flashed upon the screen also occupies practically the entire field of the screen so that in each instance the full capacity of the screen is utilized to provide in a signal box of fairly small size, a relatively large easily readable signal indication, which is the more noticeable because of the accentuation of the tip of the pointer.

At present the preferred practice is to use colored stencils of transparent or translucent

material so that the arrows will appear on the screen in bright outline against a color field. Green or other suitably colored celluloid may be used for the purpose, the advantage of celluloid being the ease with which it can be slipped into place and held, for instance, by confining flanges 31 at top and bottom. To gain the full width of the screen, the tips of the arrows are shown in Figure 6 as cut through the edges of the stencils, such cut portions being braced at the back by strips 32 of similar stencil material, glued or otherwise secured over the back of the stencils and engaging behind flanges 33 at the edges of the box body to assist in holding the stencils and preventing the stencils from snapping out of place when the screens are removed.

By suitable control mechanism, corresponding signals are displayed by the front and rear signal boxes so that the director of traffic is notified of the driver's intention by the front signal and at the same time, the following traffic is warned of the driver's intended movements by the rear signal. Thus the front signal in Figure 3 would indicate to the traffic officer that the driver intended to make a left-hand turn and this same intention would be indicated to the car following, as shown in Figure 8.

A further notice and warning of such intentions are given to pedestrians and traffic at the side by the provision of a "turn" indication formed as by means of stencils 34 in the sides of the front signal box. These may be formed simply by rows of perforations, as indicated, which may be covered over at the inside by red or other colored transparent shields 35.

The front signal box further serves as a parking signal and a rear vision mirror and for such purposes is shown provided with a horizontal partition 36 defining a compartment 37 at the top, covered at the front and back by suitable "park" stencils or lights 38, and containing a lamp or suitable light source 39, the mirror being shown at 40 mounted on the rear, unused wall of the box.

The rear signal box is utilized for tail light and license illuminator purposes by providing a horizontal partition 41 defining a compartment in the lower portion of the box containing a lamp 42 which shows a red light to the rear through the glass 43 and throws a white light downwardly over the license plate through a transparency 44.

The rear signal box also is used for "stop" signal purposes by providing the same with a stop signal light 45 in the space between the direction stencils which may be colored red or covered with a red shield so as to flood the screen with a warning color which will be fully apparent even though one or the other of the direction signals is on and which, furthermore, will not interfere in any way

with such direction signals. This stop signal may be controlled, as usually in such cases, by means of a switch suitably controlled from the brake pedal at 46.

A convenient and practical method of mounting some or all of the light sockets is to support them by suitable brackets 47 secured to the plain or unused back wall 48 of each of the signal boxes so that when this wall is removed the lighting equipment will come off with it and thus enable inspection, repairs and changes to be readily made. Such bodily removal of the sockets is permitted by slotting the partitions as indicated at 49.

A suitable selector switch is provided for flashing the direction signals which may be operated manually or automatically as desired. In the present disclosure this switch comprises a lever or handle 50 resiliently supported on a coil spring 51 and carrying a disc 52 overstanding two cooperating pairs of oppositely located direction signal contacts 53, 54 and forwardly located "park" signal contacts 55.

The operation of the switch will be understood particularly from the wiring diagram, Figure 14, where it will be seen that upon rocking the switch to the left, circuit will be closed through contacts 53 to flash the left-hand turn signal, that upon rocking right-handedly, circuit will be closed at contacts 54 to flash the right-hand turn signal and that upon rocking forwardly, the park signal will be brought into operation.

The resiliently supported stem of the switch is shown as guided within a substantially hemispherical casing 56; slotted at 57, 58, 59, to enable the movements described and provided at the ends of such slots with suitable locking recesses 60 by which the stem may be locked in any one of these various signal positions. The upward or outward lifting movement of the stem is governed by a rounded shoulder 61 on the stem arranged to slide over the inner curved surface of the switch casing. This shoulder is shown extended as a shield for closing the slots in the switch casing.

The switch illustrated serves also as a horn button for which purpose it is equipped with a contact head 62 at its lower end, arranged for engagement with suitable contacts 63, 64 in the horn or audible signal circuit. It will be observed that the structure is such that the horn signal can be sounded in any position of the switch handle by a simple inward pressure on the end of the handle so that if necessary the operator may sound the horn when in the act of giving a direction signal.

The stencil effect may be produced in any suitable way; for instance as illustrated, by cutting the outlines of the arrows or pointers directly in the stencil material. The terms stencil and stencil element therefore are to

be construed broadly, as well as other expressions used herein in a descriptive rather than in a limiting sense.

What is claimed is:

1. In a traffic signal, a light transmitting screen, a stencil back of said screen extending away from a point closely adjacent the back of the screen and bearing the outline of a pointer with the tip portion of the same closest the screen and a light source behind said stencil in position to cast its light through the stencil onto the screen and to accentuate the tip of the pointer presented by that part of the stencil which is closest to the screen.

2. In a traffic signal, a light transmitting screen, a stencil back of said screen extending away from a point closely adjacent the back of the screen and bearing the outline of a pointer with the tip portion of the same closest the screen and a light source behind said stencil substantially directly back of the tip portion of the pointer.

3. In a traffic signal, a light transmitting screen, a stencil back of said screen extending away from a point closely adjacent the back of the screen and bearing the outline of a pointer with the tip portion of the same closest the screen and a light source behind said stencil and partially surrounded by the rearwardly extending tail portion of the stencil.

4. In a traffic signal, a translucent blank screen, stencils for casting the images of reversely facing pointers in overlapping relation across the field of said screen and illuminating means for said stencils, said stencils having the head portions of the pointers closest the screen and the tail portions curved back from the screen and the illuminating means being located in back of said rearwardly curved parts of the screen to thereby accentuate the heads and to produce a fading effect of the tail portions of the pointers.

5. In a traffic signal, a translucent blank screen, illuminating means in back of opposite ends of said screen, stencils extending from the end portions of said screen partially about said illuminating means for casting the images of reversely facing pointers in overlapping relation across the field of said screen, and means for producing an independently visible arbitrary signal on the field of the screen irrespective of which directional signal may be effective.

6. In a traffic signal, a light transmitting screen, a stencil back of said screen extending away from a point closely adjacent the back of the screen and bearing the outline of a pointer with the tip portion of the same closest the screen, a light source behind said stencil and means for superposing a stop signal on the same area of the screen over the image of the pointer without obliterating the outline of the same, whereby the tip of the

pointer will be clearly visible over the stop signal and the stop signal will be clearly visible over the less prominent portion of the direction signal.

7. In a traffic signal, a screen, means for illuminating said screen and means cooperating with said illuminating means for selectively impressing on the illuminated field of said screen, reversely facing pointers overlapping on a common area of the screen with the tip portions of such pointers standing out in contrast to the body portions of the pointers to thereby accentuate the directional indications.

8. In a traffic signal, a screen and means for projecting the tip portion of a pointer in sharply defined outline thereon and for projecting the body portion of the pointer on the screen in a gradually fading outline extending from the sharply defined portion of the same.

9. In a traffic signal, a screen, reversely directing stencil elements in back of and at opposite ends of said screen and independently controlled lamps at opposite ends of said screen, one in back of each of said stencil members and positioned to cast two separate images the full length of said screen.

10. In a traffic signal, a casing, a screen carried by and constituting the front of said casing, traffic signal stencils extending from opposite ends of said screen rearwardly to the back of said casing and thereby providing substantially triangular corner compartments in the ends of the casing and independently controlled signal lamps in said corner compartments, said lamps being positioned each to cast a signal image through the adjacent stencil substantially the full length of the screen.

11. In a traffic signal, a screen, a stencil element in back of said screen, said stencil element bearing the outline of a pointer and arranged with the head end of said pointer substantially in contact with the back of the screen and the tail portion of the pointer curved rearwardly away from the back of the screen and a lamp in back of said stencil element and partially surrounded by the curved portion of the stencil element to thereby project its light therethrough onto the screen.

12. In a traffic signal, a screen, stencil elements in back of opposite end portions of said screen, said stencil elements bearing the outlines of pointers and having the head portions of said pointers substantially in contact with the back of the screen and the tail portions of the pointers curved rearwardly away from the screen, said curved portions of the stencil elements having a space therebetween at the back of the screen, a stop signal light located in said space and arranged to project its light onto the intermediate portion of the screen, lamps behind and partially surrounded by the rearwardly curved por-

tions of the stencil elements and means for arbitrarily controlling said lamps.

13. In traffic signals, a screen, stencil elements in back of opposite ends of said screen, said stencil elements bearing the outlines of reversely facing pointers and arranged with the tips of said pointers closest to the back of the screen and the tail portions of said pointers spaced to the rear of said screen, said screen elements having a space between them at the rear of the screen, a stop signal lamp mounted in said space between the screen elements, direction signal lamps behind the rearwardly directed portions of the stencil elements and means for controlling said signal lamps.

14. In traffic signals, a casing, a screen across the front of said casing, stencil elements extending from opposite end of portions of said screen reversely in opposite directions toward the back of the casing, said stencil elements being spaced from each other at the rear to thereby leave a space between them within the casing, a stop signal positioned in said space to illuminate the intermediate portion of the screen, lamps in the corners of the casing behind said rearwardly

directed stencil elements and means for selectively controlling said lamps.

15. A traffic signal comprising a substantially rectangular casing open across the front of the same, a screen covering the front of the casing and constituting a display area of substantially the full size of the casing, stencils having reversely directing indications, said stencils extending from two opposite marginal portions of the screen rearwardly on convergent angles toward the back of the casing and thereby providing substantially triangular compartments in the rear corners of the casing behind said screens and lamps positioned in said substantially triangular rear corner compartments to produce the outlines of the opposite indications over substantially the full area of the screen with the head portions of the indications which are closest to the back of the screen brightly illuminated and the tail portions of the indications which are receding from the back of the screen in fading illumination.

In witness whereof, I have hereunto set my hand, this 26th day of September, 1924.

RAINSFORD FRENCH.