

[54] **TRAFFIC SIGNAL BOX**

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 [51] Int. Cl.² G08B 5/14
 [58] Field of Search 340/138, 139, 141, 143, 340/144, 145, 323, 122, 124, 29, 22, 273, 84, 123, 42; 40/312, 28.6, 52 R, 125 N, 33, 67, 77.7, 28 R, 28 C; 116/22, 18, 19, 63 R, 63 P, 173, 42, 44, 50

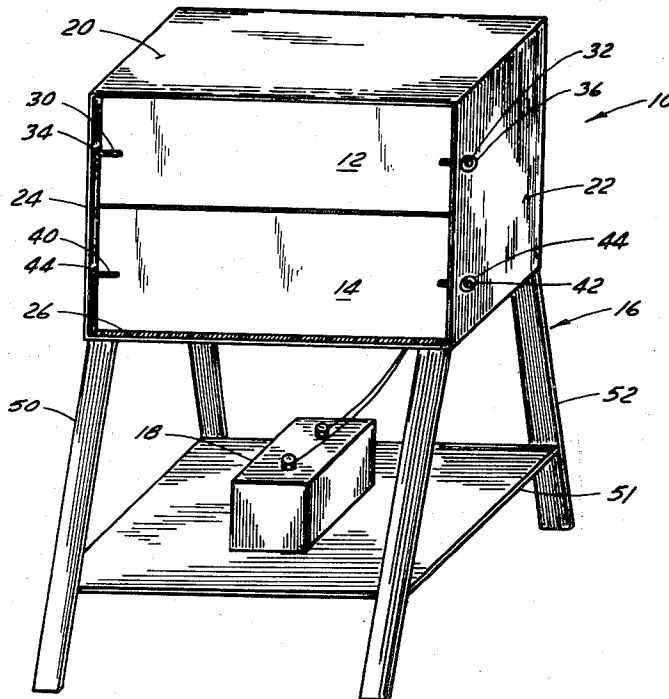
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[57] **ABSTRACT**

A traffic signal box made of a hollow housing on the front of which two panels are pivotally mounted. A mechanism is mounted on the housing to pivot the panels in synchronism. The outer side of the panels exhibits a distinctive bright color while the inner side of the panels and the rest of the housing is a mat black. The panels pivot so as to alternately show the color side and the black side therefore giving the impression of a flashing signal. The mechanism is adapted to be remotely controlled.

10 Claims, 6 Drawing Figures



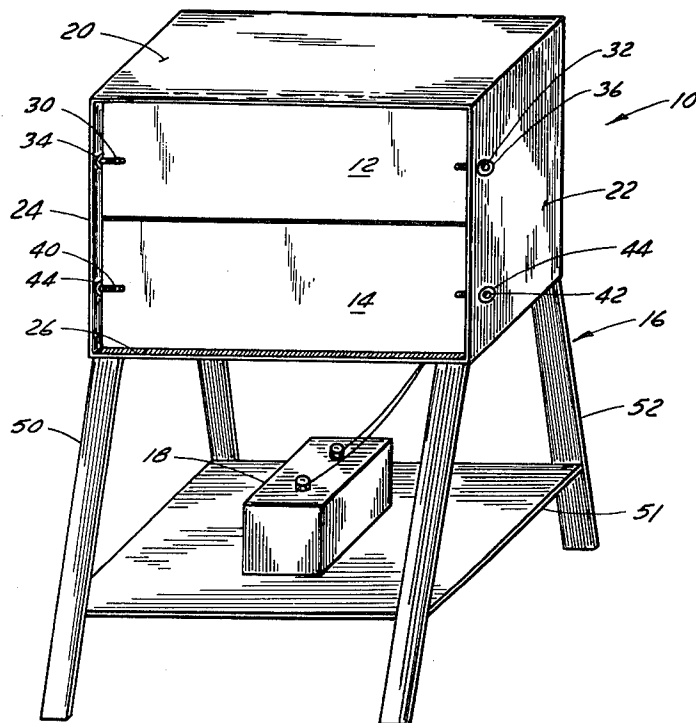


FIG. 1

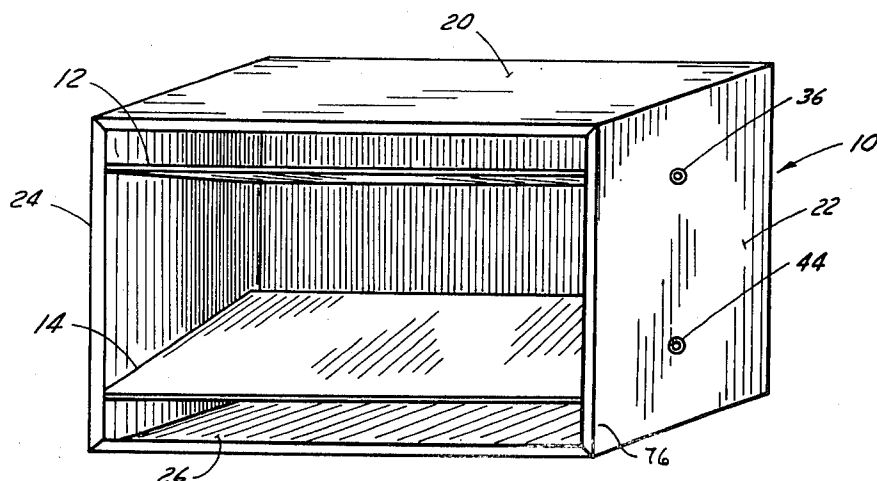


FIG. 2

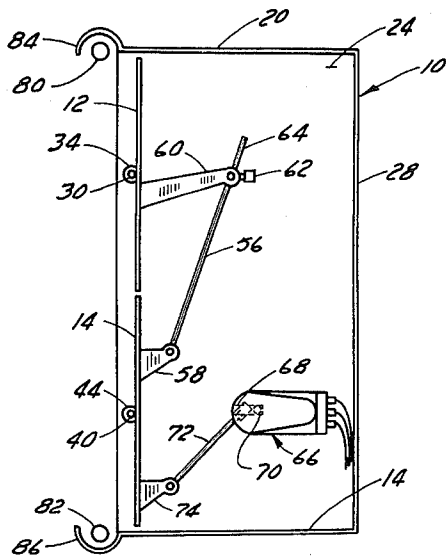


FIG. 4

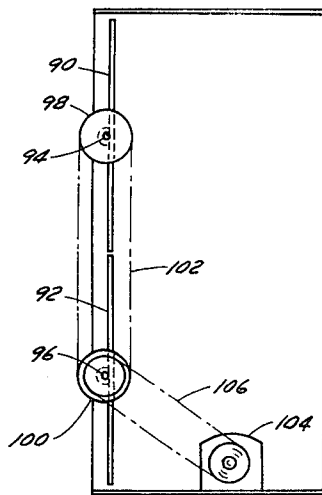


FIG. 5

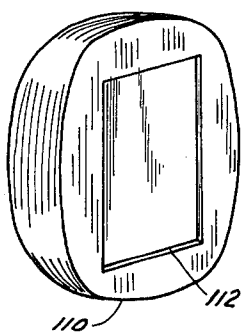


FIG. 6

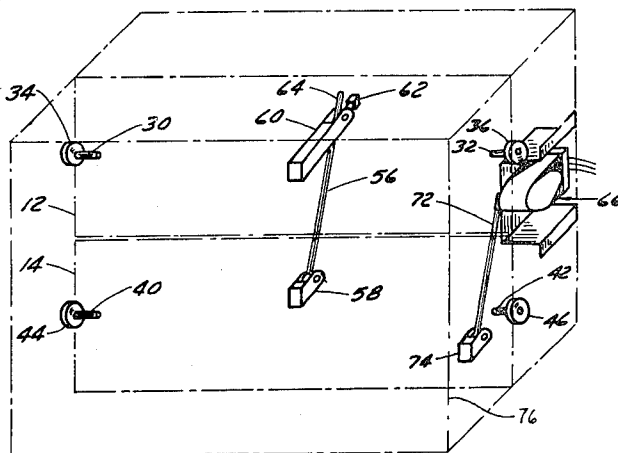


FIG. 3

TRAFFIC SIGNAL BOX

The present application relates to a signalling device for traffic and more specifically to pivoted coloured panels adapted to provide alternating signals on a race track.

Presently and for years back the general and conventional way to signal drivers on a race track is to wave coloured flags adjacent the track race path. The flag which is best known is the yellow flag. Whenever some danger occurs on the road, a special attendant waves the flag when he sees the danger.

This signalling device has many disadvantages. It is in general considered too small to be seen at a sufficient distance. Furthermore, its size is considerably reduced when it is waved. Also the attendant must be at the exact location of the signal for the obvious reason that he holds the flag. It would be preferable if he could produce the signal at a distance for the oncoming cars which would have the time to slow down. Another disadvantage of the flag system, which is not the least, is due to the laziness, distraction or even the poor visibility. Even a paid attendant has obvious reasons to become intensely interested in the sport event. Because the signal he produces is at the exact place he stands, a distraction of a fraction of a second or reduced visibility can mean a long distance for a race car, a distance sufficiently long to cause or prevent an accident.

Some flashing lights have also been tried but were not considered reliable because the system was too sophisticated.

The object of the present invention is to produce a reliable visual signal, with a simple device, the signal being obvious for the drivers, controllable at a distance and identifiable with the conventional signal.

The new traffic signal is a box having at least one front coloured panel adapted to pivot in front of a dark background. The box is hollow and the panel or panels constitute at least part of the front wall. All the inside and outside of the box has one color which is contrasting with the outside surface of the panels. The panels may have the same color on both sides or have the back side the color of the rest of the box depending on the means for rotating them. The panels rotating means is also adapted so as to stop the panels in a predetermined position. The device in operation produces a surface which alternately makes a contrast with the background constituted essentially by the interior of the box. In general, black is used for the background.

The present invention will now be described in greater details by referring the annexed drawings wherein:

FIG. 1 is a perspective view of a traffic signalling device according to the invention.

FIG. 2 is a perspective view of the embodiment shown in FIG. 1, wherein the front panels are opened and covered with a shade.

FIG. 3 is a perspective view of the panel operating mechanism inside the device.

FIG. 4 is a side view of the signal box similar to the one shown in FIG. 1 and having tubular lights wherein the proximate side panel is removed.

FIG. 5 is a side view of the signal box without the proximate side panel illustrating another embodiment of the panel operating mechanism.

FIG. 6 is a perspective view of another type of signal box.

The preferred embodiments of the invention are illustrated in FIGS. 1, 2, 3 and 4. The invention is essentially made of a hollow box 10, two front panels 12 and 14, a stand 16 and a battery 18 for actuating a panel operating mechanism. The box is a right prism having a top panel 20, two side panels 22 and 24, a bottom panel 26 and a back panel 28. The panel 12 is pivotally mounted on the side panels 22 and 24. The spindles 30 and 32 are rigidly fixed to the panel 12 along the median axis thereof and the outer end of these spindles are pivotally supported in the bearings 34 and 36. Similarly the panel 14 has two similar side spindles 40 and 42 pivotally mounted in the bearings 44 and 46. The bearings 34, 36, 44 and 46 may be of the ball bearing type or simple cylindrical sockets made of brass to receive brass spindles 30, 32, 40, 42 so that the rotation of the panels will not cause premature wear of the sockets and spindles.

The box 10 is supported by sturdy legs 50 and 52 to make the device very steady even in case of normal shocks or to prevent it from being tilted by a strong wind.

A rectangular plate 51 is secured to the lower pulses of the legs 50 and 52 to support a battery which is used to actuate a mechanism which pivots the panels about their spindles.

A mechanism for pivoting the panels is particularly illustrated in FIGS. 3 and 4. A synchronous motion between the two panels is obtained by a connecting rod 56 pivotally fixed at one end to a bracket 58 secured to on the rear surface of the panel 14 and at the other end to a bracket 60 secured to on the rear surface of panel 12. The adjustment for setting the two panels 12 and 14 in the same plane is obtained by the tightening screw 62 which determines the operating length of the rod 56. The full length of the rod 56 may also be adjusted so that portion 64 has a predetermined length. The free end of the portion 64 will be used as an abutment when the top of the panel 12 hits it during its rotation.

The rotating power comes from a motor 66 energized by a battery 18. The motor 66 has a rotating shaft 70 on which is rigidly secured a lever arm 68. A connecting rod 72 is pivotally fixed, at one end to a bracket 74 secured to the rear side of the panel 14 and, at the other end, is pivotally connected to the arm 68. The rotation of the arm 68 will alternately pivot the panel 14 from a vertical position (FIG. 4) through an angle slightly exceeding 90° (FIG. 2) so that its back surface will appear to the viewer located in front of the box 10. The synchronization mechanism described above will rotate panel 12 through an angle adapted to bring its back surface in the line of sight of the same viewer. The back surface of both panels 12 and 14 are painted black as well as all other parts and surfaces inside the box 10. Accordingly, when the motor 66 is actuated, the colored front surfaces of both panels 12 and 14 will alternately appear and disappear to the front viewer.

The motor 66 is designed so that when it is not energized, the arm 68 will return and stop to the same position, that is, in a position which will make both panels 12 and 14 blend with rest of the box and in particular in the position shown in FIG. 2. This type of motor is well known and is particularly used for windshield wipers for cars which requires the wipers to return to a stop position which is constantly the same.

FIG. 2 illustrates a position of the panels 12 and 14, wherein the box 10 will appear substantially black from the view point of the driver coming on the race track.

3

As stated above, this is due to the fact that every surface inside the box is painted black. FIG. 2 also illustrates a shade 76 which extends in front of the four sides 20, 22, 24 and 26 of the box 10. The two main functions of this shade is to eliminate light reflection inside the box and also to cover the portions of the panels 12 and 14 which exceed outside the box 10 when they are tilted as shown in FIG. 2.

A further characteristic of the invention is illustrated in FIG. 4. It is expected to be used at night or when the weather is not sufficiently clear. It consists of fluorescent tubes disposed along the upper and lower front edges of the box 10. Reflectors 84 and 86 are respectively mounted above and below tubes 80 and 82 to reflect the light on the colored surfaces of the panels 12 and 14 while obstructing all direct lighting in the direction of the drivers. With fluorescent tubes, luminescent colors on the panels can be appropriately selected. However, floodlights can also be used for other visual effects.

Another embodiment for pivoting the panels is illustrated in FIG. 5, which shows a side view of a signal box without the proximate side panel. The panels 90 and 92 are pivoted respectively about axles 94 and 96 on which are mounted gears 98 and 100 located along the edge of the panels 90 and 92. The two gears 98 and 100 are connected by a chain belt 102. The gear 100 is actuated by a motor 104 interconnected by a chain belt 106.

In this embodiment, the speed of the chain 106 is considerably reduced by a gear box (not shown). It rotates at a uniform speed but it may be possible to include a cam which would slow down the movement of the panels 90 and 92 at desired positions and in particular, when the colored side of the panels is showing. With this arrangement, the panels could be colored on both sides.

The housing 110 illustrated in FIG. 6 has a general shell shape on the front surface of which pivots a single panel 112 around a vertical axis. The mechanism for pivoting the panel 112 may be one described above and located inside the shell 110.

The embodiments described above combine panels having one color with a dark background. This combination is preferred and the colors used will maintain the usual conventions for races. For instance, yellow means danger, blue indicates that a conductor is followed closely by another one, red requires an absolute stop, green indicates that the state of the race has been stabilized, white signifies that an ambulance is on the race track, etc... It may be realized that the present invention may work within these conventions. In order to provide all these signals, few of these signal boxes may be superposed or joined, side by side, each one displaying a different color. Also, each box may be controlled at a distance and as far a distance as the signal is required. It is even possible to have one control for all the boxes around the track which carry a specified signal such as the presence of an ambulance or an absolute stop.

What I claim is:

1. A traffic signal box for race-tracks comprising:

4

a hollow housing having a substantially flat front wall, the said front wall comprising two superposed panels pivotally mounted about their median axis, the said axes being parallel with each other, motor means for moving said panels from a closed position to an opened position,

a first linking means pivotally mounted to said motor means and a first one edge portion of one of said panels so as to rotate the said one panel until it shows the rear surface of the said one panel to a first viewer, the said front one edge portion being vertically outside one of the median axes,

a second linking means pivotally mounted to a second edge portion of said one panel on the other side of its said one median axis and to the edge portion of the other panel adjacent the said second edge portion to rotate the said other panel in a direction opposite the said one panel until it shows the rear surface of the said other panel to said front viewer, the said box being characterized by the fact that the front surface of the panels has one color and the inner and outer surfaces of the rest of the housing, including the rear surface of the panels, have a single other color which is contrasting with the color of the front surface of the panels, whereby the color of the front surface of the panels is adapted to provide a visual signal when closed, the said signal disappearing when the panels are rotated and the rear surface of the panels appears to the front viewer to blend with the color of the said rest of the housing.

2. A box as recited in claim 1, wherein the said second linking means is a connecting rod pivotally connected at both ends to the back of the panels.

3. A box as recited in claim 2, wherein the said connecting rod is longitudinally adjustable.

4. A box as recited in claim 1, wherein the said motor means comprises a motor and a gear box for rotating a shaft and an arm mounted on said shaft, the first linking means comprises a link pivotally connected at one end to one end of said arm and at the other end to one of said panels.

5. A box as recited in claim 1, comprising a shade extending in front and around the housing for covering the forwardly projecting part of the panels when positioned in a substantially horizontal plane.

6. A box as recited in claim 2, wherein the free end of the rod is dimensioned so as to constitute an abutment for one rotating panel when the latter has reached the end of its predetermined pivoting movement.

7. A box as recited in claim 1, comprising a support for a battery, the said motor being a D.C. motor adapted to be connected to said battery.

8. A box as recited in claim 1, wherein the said inner and outer surfaces of the rest of the housing and the rear surface of the panels are black and the outer surface of each of the said panels has a bright color finish.

9. A box as recited in claim 8, wherein the black surfaces are mat and the bright finish is luminescent.

10. A box as recited in claim 1, comprising fluorescent lighting means mounted around the forward edge of the housing for projecting a light on the said panels.

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