Sept. 2, 1941. A. R. WILL 2,254,810

DISPLAY DEVICE

Filed Dec. 27, 1939 2 Sheets-Sheet 1

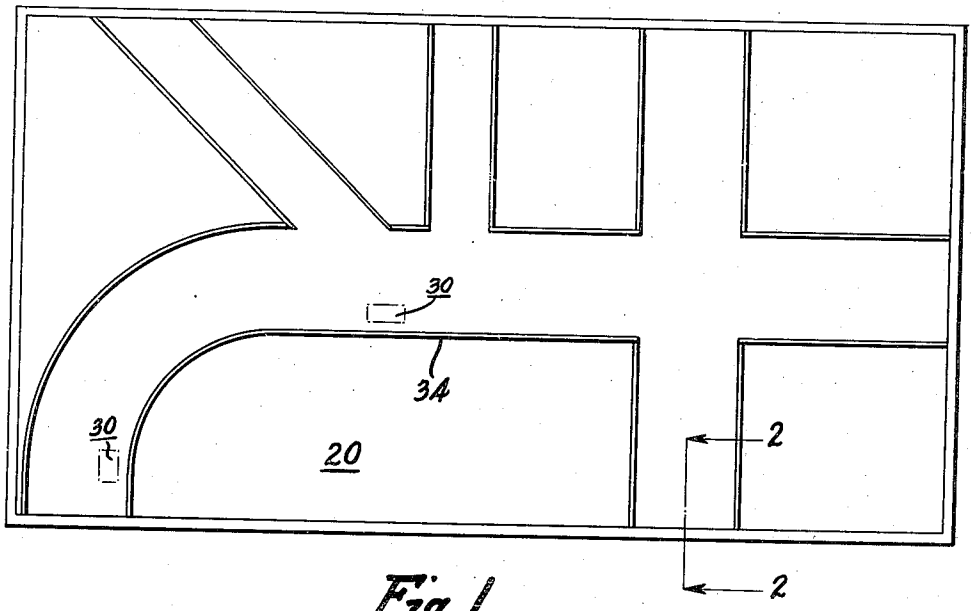


Fig. 1

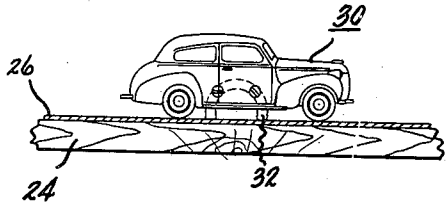


Fig. 2

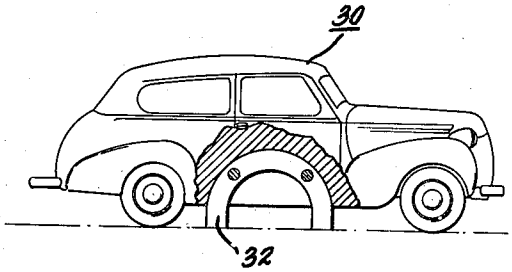


Fig. 3

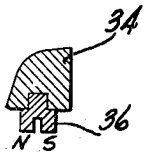


Fig. 4

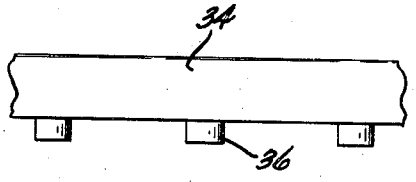


Fig. 5

INVENTOR
AMBROSE R. WILL
BY John T. Marcin
his ATTORNEY

Sept. 2, 1941. A. R. WILL 2,254,810

DISPLAY DEVICE

Filed Dec. 27, 1939 2 Sheets-Sheet 2

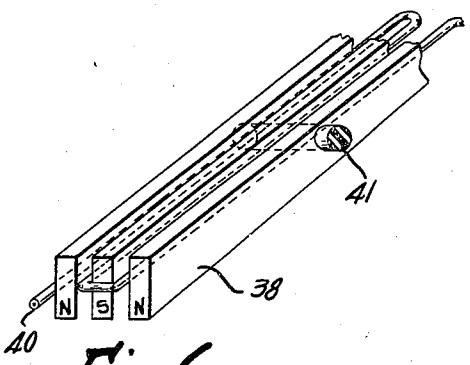


Fig. 6

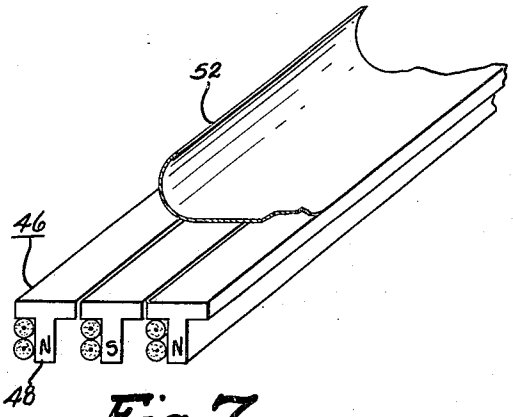


Fig. 7

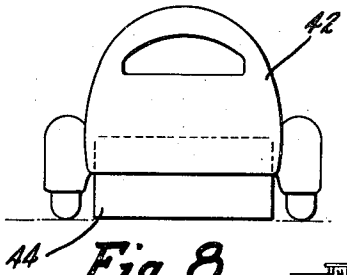


Fig. 8

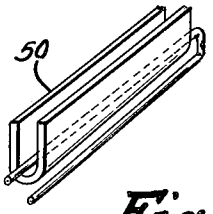


Fig. 9

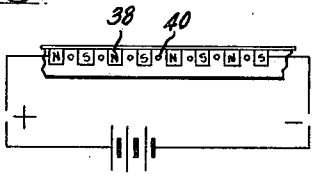


Fig. 10

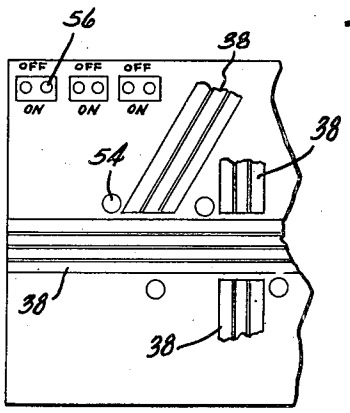


Fig. 11

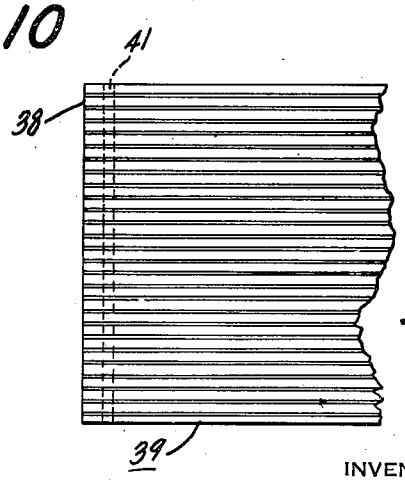


Fig. 12

INVENTOR
AMBROSE R. WILL
BY John T. Marvin
his ATTORNEY

Patented Sept. 2, 1941 2,254,810

UNITED STATES PATENT OFFICE

2,254,810

DISPLAY DEVICE

Ambrose R. Will, Dayton, Ohio

Application December 27, 1939, Serial No. 311,162

7 Claims. (Cl. 35—7)

This invention relates to display devices and is particularly concerned with devices which may be placed in a vertical position and which include a plurality of movable indicating symbols.

It is an object of the invention to provide a traffic display device which includes a board, or table, that is marked to designate the location to be displayed and which also includes symbols, or indicating devices, which may be manipulated to various positions on the board, either the board or the symbols being magnetized so as to prevent accidental movement of the symbols after placement thereof.

In carrying out the above object it is a further object to provide elongate indicating members of readily deformable material which may be conformed to desired shapes and which may likewise be magnetically attached to the board.

Another object, in some cases, is to provide a magnetic board or table which comprises a plurality of relatively narrow elongated magnetizable bars which are held in spaced proximity to one another adjacent their elongated edges in the same plane, said bars having windings thereon adapted to carry an electric current whereupon the bars are magnetized, said windings being so disposed that adjacent bars are of opposite magnetic polarity.

In carrying out the above object it is a further object, in some cases, to provide electrical windings on said bars which are formed from a single continuous strand or wire which is wound about adjacent bars in opposite directions.

Further objects and advantages will be apparent reference being had to the description which follows and to the accompanying drawings which show preferred embodiments of my invention.

In the drawings:

Fig. 1 is a plane view of the device used in connection with a traffic display.

Fig. 2 is an enlarged fragmentary view taken on line 2—2 of Fig. 1 and showing a symbol in position, in this case an automobile.

Fig. 3 is a view of an automobile symbol showing the disposition of the retaining magnet.

Fig. 4 is a view in section of an elongated deformable member, in this case a curb, showing particularly the disposition of one of the retaining magnets.

Fig. 5 is a fragmentary side view of the curb member shown in Fig. 4.

Fig. 6 is a perspective view of the bar magnets used in one embodiment of the device.

Fig. 7 is a fragmentary view of another type of bar magnet and also showing a portion of the covering material.

Fig. 8 is a view of a symbol to be used in connection with a magnetized table, or board.

Fig. 9 is a perspective view of the magnet shown in Fig. 8 without the electrical winding thereon.

Fig. 10 shows a fragmentary diagrammatic view of a device using the magnet bars as shown in Fig. 6.

Fig. 11 is a fragmentary view of a display device showing the use of bar magnets to designate street intersections, and

Fig. 12 is a fragmentary view showing the surface of a display board or table using bar magnets as shown in Figs. 6, 7 or 9 with the covering material removed.

The graphic display of various traffic incidents or vehicle placements wherein movable objects must necessarily be placed in a multitude of changing positions has long been a problem when showing the display to an audience. This problem is occasioned by the fact that when the board or table upon which the display is made is placed in a horizontal position it immediately limits the number of persons who may view it simultaneously. It is apparent that the symbols or objects will not stay in place when the board is raised to a position wherein the surface thereof forms an angle with the horizontal in excess of the angle or repose of the symbols. My invention is particularly directed to obviating this problem so that the board may be raised to any desired position and wherein the symbols are readily movable but are also capable of remaining in any position desired. My invention further contemplates great flexibility wherein one display board may be used for a number of purposes by simple manipulation of various indicating members thereon.

The invention is particularly applicable to displays of traffic conditions and accidents wherein model automobiles may be placed upon streets and street intersections designated on the board and be visible to large audiences due to the vertical position of the board.

The board as shown at 20 in Fig. 1 may be painted on the surface thereof to simulate streets 22 or any other desired designation. The board 20 may be made from plywood 24 and have attached thereto a thin layer of magnetic material 26, such as steel or iron. Symbols are provided, such as automobiles 30, which include a per-

manent magnet 32 therein and fastened thereto so that the magnet pole ends are in the same plane as the wheels or slightly below. In the preferred embodiment the cars are made from a non-magnetic material such as white metal, molded plastics or the like, or the cars may be of a magnetic material such as cast iron. In the first case the magnet 32 can be fastened directly to the body of the car but in the second case it is necessary to insulate the magnet from the car to prevent dissipation of the magnetism.

When the board is used under variable conditions it is sometimes best to make the metal surface plain and provide movable and deformable elongate indicating members such as curbs 34. The curb indicating members 34 may be bent to the desired shapes and then magnetically attached to the board by means of a plurality of small magnets 36 suitably attached to the curb member. The curbing is preferably made from lead wire of the desired cross section, or from leather, thermoplastic resins, rubber, or the like. In the case of the plastic of the thermo setting type the piece must be heated before bending thereof. When the curbing 34 is made from a magnetic material such as soft iron it is necessary to insulate the magnet 36 from the curb member 34. While the description limits the member 34 to a curb it is not intended to limit the scope of this invention and it is to be understood that similar members of desired cross section may be used under any condition wherein an elongate deformable member is desired.

In many cases it is desirable to have lights and beacons on the board and likewise have a board 39 that is magnetized rather than have magnetized symbols. Such a board is particularly desirable if it is of moderate weight. I have discovered that such a board can be made by placing a plurality of elongated bars 38 of iron or the like in close proximity at their elongated edges and all in the same plane and held in spaced relation by suitable means such as by Bakelite rods passing through the bars, one of such rods being shown at 41. Windings as indicated at 40 are wrapped around the bars 38 so that current passing therethrough is reversed in direction with respect to adjacent bars. In this manner adjacent bars 38 are of different magnetic polarity. The symbols 42 may be of any desired material and preferably carry a bridging bar 44 transversely thereof. The bar 44 is preferably fabricated from soft iron. The bar 44 should be used even when the symbols 42 are fabricated from magnetic material since it provides for positive bridging of a north and south pole on the magnetic board.

Fig. 7 shows another construction wherein bars 46 of T-shape cross section are used. In this case it is possible to have the bars in closer proximity since the shape thereof permits space for windings 40 on the reduced elongated shank 48. Fig. 9 shows another type of bar 50 wherein the cross section of the bar is U-shaped. In this case the windings 40 provide, when energized, a north and a south pole on each bar.

A board or table using any of the aforementioned types of bars may be constructed so that the bars extend completely across the surface thereof as shown in Fig. 12. If desired a covering of thin fabric, paper or other non-conducting material may be provided as shown at 52 in Fig. 7. This covering may be painted to carry various designations or may be plain as desired. When a fixed display is used the bars 40 are not required to cover the board but may be placed only on the portions of the board used as shown in Fig. 11. In this case the bars are placed in the position of streets. In this instance care should be exercised that the adjacent ends of bars for abutting streets do not contact one another.

In all embodiments wherein the magnetic type board is used the windings may be of one continuous strand of wire or may be individual coils in series. The strength of the magnetic field of the bars may be regulated by the intensity of the current and by the number of coils per bar although in most cases a single coil per bar is all that is required for bars having a small cross section. The magnetism required is however a function of the weight of the symbols and therefore it is best to determine by trial the coils required. The current source is necessarily D. C. and can be obtained from batteries, rectified A. C. or any other available source. In each case lights or beacons 54 may be energized from the same source and may be changed or operated by means of switches 56.

The curb members 34 shown in Fig. 4 can also be used in connection with the magnetized board. In this case magnetic curbs can be used or non-magnetic curbs wherein portions of magnetic material are inserted in place.

While the forms of embodiment herein disclosed constitute preferred forms, other forms may be utilized all coming under the scope of the invention which is claimed as follows:

1. A traffic display device comprising in combination; a magnetic sheet-like support comprising: a plurality of relatively narrow elongate bars of iron or the like held in spaced proximity adjacent their elongate edges; an electrical winding disposed around an elongated portion of each bar and adapted when energized to cause adjacent bars to be of opposite magnetic polarity; and indicating devices made from magnetic material and adapted to be magnetically associated with the support whereby said devices may be placed and held in various indicating positions on the support regardless of the position of the support.

2. A traffic display device in accordance with claim 1 wherein the elongate bars are of T-shape cross section for permitting closer spacing thereof.

3. A traffic display device comprising in combination; a magnetic sheet-like support comprising: a plurality of relatively narrow elongate bars of iron or the like held in spaced proximity adjacent their elongate edges; an electrical winding disposed around an elongated portion of each bar and adapted when energized to cause adjacent bars to be of opposite magnetic polarity; a current source for energizing the said winding; magnetic symbols adapted to be magnetically held to said support when the said winding is energized; a plurality of indicating lights adapted to be energized by said current source; and control means for said lights, whereby the symbols may be manually changed in position as desired and the lights may be controlled in agreement with said symbol positions.

4. A traffic device in accordance with claim 3 wherein the electrical winding consists of a continuous wire which is wound in opposite directions around adjacent bars.

5. A traffic display device, comprising; a sheet-like table member adapted to be disposed in a vertical position, a strip-like roadway defining member of substantial length formed of deformable material capable of being repeatedly manu-

ally bent into any of a number of desired illustrative planar configurations, and magnetic means associated with said table member and said strip-like member and effective to secure said strip-like member, regardless of the planar configuration into which it be bent, firmly upon said vertically positioned table member in corresponding roadway-defining relation therewith.

6. A traffic display device of the type described in claim 5 wherein the magnetic means are carried by the strip-like member.

7. A traffic display device of the type described in claim 5 wherein the magnetic means are carried by the table member.

AMBROSE R. WILL.