July 30, 1968 D. M. DOWNING 3,394,674

TRAFFIC SIGN

Filed Sept. 2, 1966 3 Sheets-Sheet 1

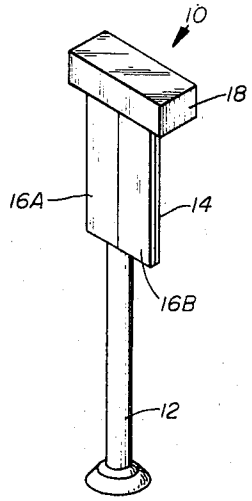


Fig. 2.

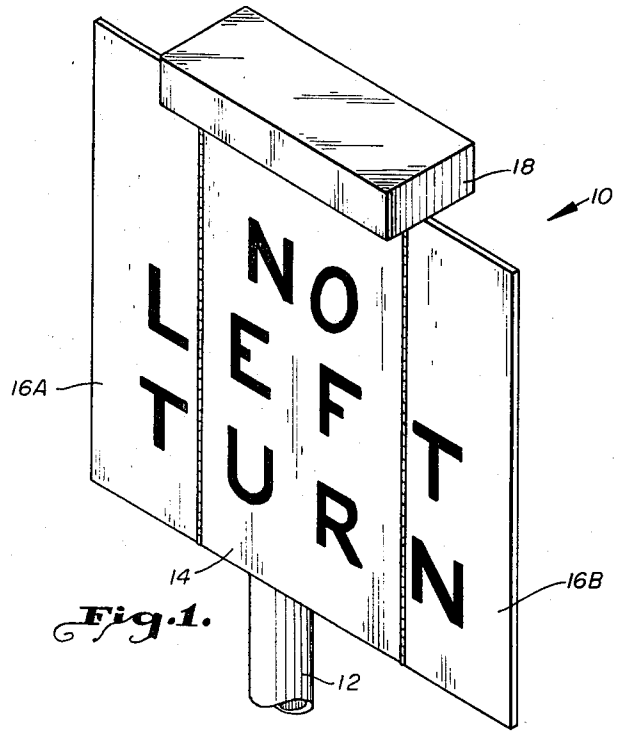


Fig. 1.

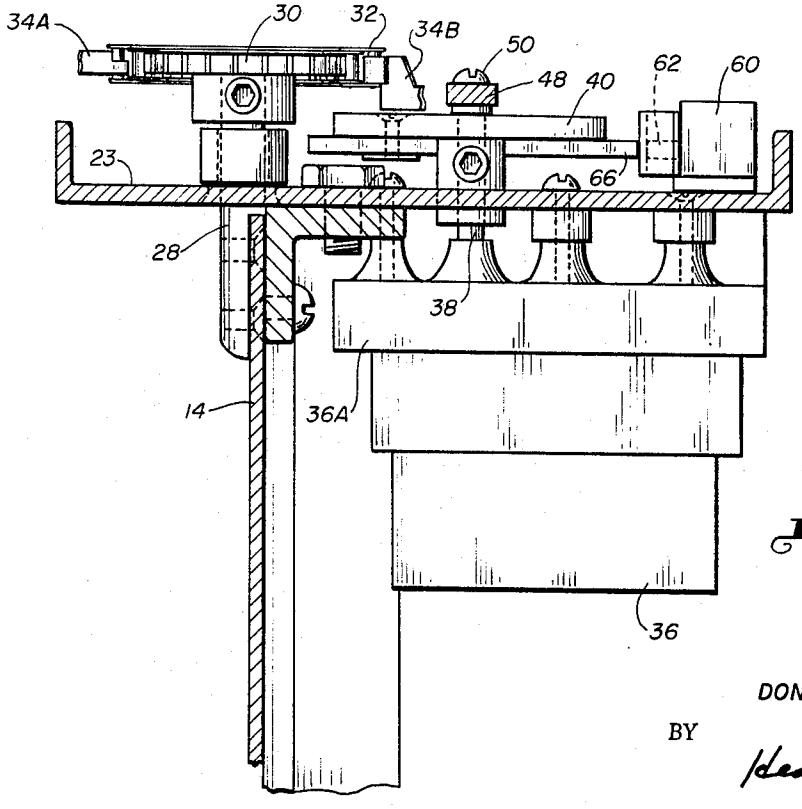


Fig. 4.

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Fig. 3.

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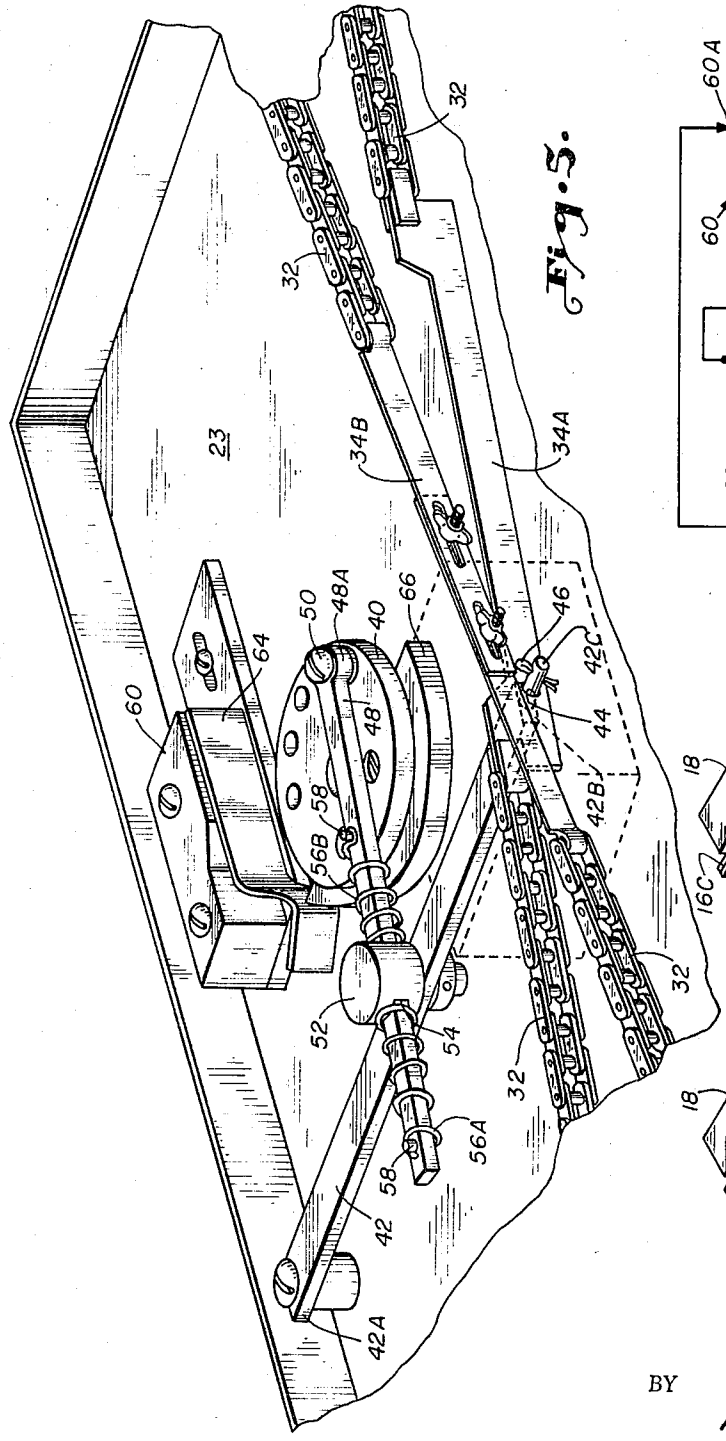


Fig. 5.

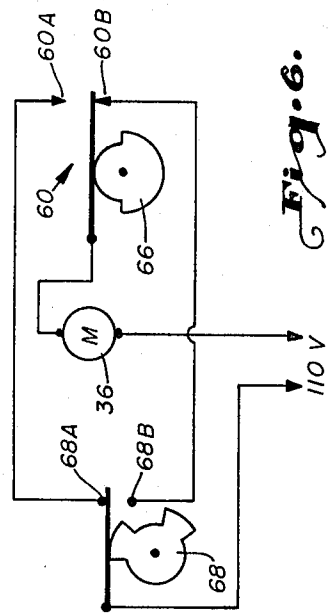


Fig. 6.

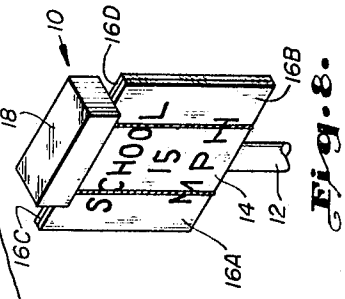


Fig. 8.

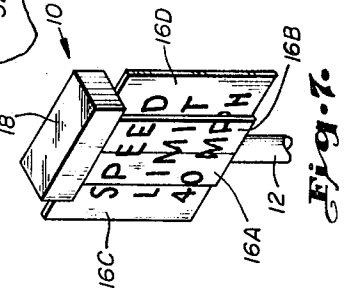


Fig. 7.

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United States Patent Office 3,394,674
Patented July 30, 1968

3,394,674

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Filed Sept. 2, 1966, Ser. No. 577,008
5 Claims. (Cl. 116—63)

This invention relates to an improved traffic control sign. More particularly, the invention relates to a sign for use for traffic control or the like including means whereby, upon actuation, the sign unfolds to display a traffic directory message and upon subsequent actuation folds to conceal the message or, in one embodiment, to display a different message.

The sign of this invention is particularly adapted for period traffic control. One example is the application for use at intersections where during peak traffic periods it is desired that no left turn be permitted whereas during non-peak traffic hours left turns are permitted. In this application the sign includes a message "No Left Turn" which is prominently displayed upon actuation of an electric time control signal at the beginning of peak traffic hours, and at the termination of the peak traffic hours the sign is again actuated by electrical control to obscure the sign, thus permitting left turns. Another example of an application of the sign of this invention is at school crossings wherein the sign unfolds to display a school crossing message during the time when children are on their way to or coming home from school. The sign folds to obscure the message during other hours.

A basic object of this invention is to provide an improved traffic control sign characterized by extreme simplicity, dependability, and economy of construction.

Another more specific object of this invention is to provide a traffic control sign including a center panel and two wing panels pivotally supported to the opposite vertical edges of the panel, the wing panels folding outwardly to provide a unified planar surface on which a message is displayed, and the wing panels folding inwardly into contiguous parallel relationship with the center panel to completely obscure the message.

Another and particular object of the invention is to provide an improved actuating means for a traffic control sign.

These and other objects will be understood with reference to the following description and claims, taken in conjunction with the attached drawings in which:

FIGURE 1 is an external isometric view of the traffic control sign of this invention in open position.

FIGURE 2 is a reduced scale external isometric view of the sign of this invention shown mounted on a post and showing the sign closed, obscuring the traffic control message.

FIGURE 3 is an enlarged isometric view of the sign of this invention shown partially opened and showing the upper cover removed revealing the actuating mechanism.

FIGURE 4 is a cross-sectional view of the operating mechanism of the invention taken along the line 4—4 of FIGURE 3.

FIGURE 5 is an enlarged isometric view of the actuating mechanisms of the invention.

FIGURE 6 is a wiring diagram of the electrical actuating portions of the sign of this invention.

FIGURE 7 is an external isometric view of an alternate embodiment of the sign of this invention, including fixed side panels whereby a message may be displayed by the sign when in closed position.

FIGURE 8 is an external isometric view of the alternate embodiment of FIGURE 7 shown in open position.

Referring now to the drawings, and first to FIGURES 1 and 2, the sign of this invention is indicated generally by the numeral **10**, the sign being supported on a post **12**.

The sign **10** consists basically of a rectangular vertically supported planar center panel **14** presenting a sign bearing face on one side thereof adaptable to have a portion of the traffic control message imprinted thereon, first and second rectangular planar wing panels **16A** and **16B** each pivotally supported at a vertical edge thereof to opposite vertical edges of the center panel, and an actuating mechanism contained in a covered enclosure **18** for pivoting the wing panels **16A** and **16B** to a first position, shown in FIGURE 1, wherein the wing panels are coplanar with the center panel **14** to display a traffic control message and pivoted in a second position illustrated in FIGURE 2 wherein the wing panels **16A** and **16B** are parallel and contiguous with center panel **14** obscuring the message.

Referring to FIGURE 3, the details of the improved traffic control sign of this invention are better illustrated. In FIGURE 3 the wing panels **16A** and **16B** are shown pivotally supported to the vertical edges **20** of center panel **14** by means of piano type hinges **22**. The use of piano type hinges **22** is optional as other type hinges may be utilized, such as the pivotation of the wing panels **16A** and **16B** at the upper and lower edges thereof.

Supported at the upper horizontal edge of the vertical center panel **14** is a base plate **23** which supports the actuating devices of the invention. Affixed to each of the wing panels **16A** and **16B** adjacent the intersection of the inner vertical edge **24** and the upper horizontal edge **26** is a wing shaft **28** by which the wings **16A** and **16B** are pivoted, the shafts **28** extending through openings in base plate **23**. Affixed to the upper end of each of the wing shafts **28** is a sprocket **30**.

A continuous chain **32** is received over the spaced sprockets **30**, the chain being arranged in a figure **8** configuration. Intermediate the sprockets **30** are two planar chain connecting links **34A** and **34B** which extend in parallel planes and overlap each other. The connecting links **34A** and **34B** are configured so as to receive chain **32** at each end thereof and serve to permit the chain to be transported a short length back and forth while retaining the chain in substantially a single plane. When the continuous chain is transported in one direction the wing paels **16A** and **16B** each are rotated a like amount and in corresponding directions, that is, when chain **32** is transported the wing panel **16A** and **16B** are each rotated towards coplanar relationship with the center panel **14** or rotated towards parallel contiguous relationships with center panel **14**, depending upon the direction of transportation of the chain **32**.

As best shown in FIGURE 4, a motor **36** is supported to the bottom surface of the base plate **23**, the motor having a shaft **38** extending vertically upwardly therefrom. Motor **36** includes a gear box **36A** so that the shaft **38** rotates relatively slowly when the motor is energized. Affixed to the shaft **36** above the base plate **23** is a cam plate **40** which functions as a crank arm. A rocker arm **42** (see FIGURE 5) is provided having the inner end **42A** pivotally supported to the base plate **23** and the outer end **42B** affixed to the continuous chain **32**. In the illustrated arrangement the end **42B** is affixed to chain connecting link **34A**. The method of fixing the end **42B** of the rocker arm to the connecting link **34A** can vary greatly. In the illustrated arrangement the planar chain connecting link **34A** has an opening **44** therein receiving a cylindrical integral portion **42C** of the rocker arm. A cotter key **46** retains the cylindrical portion **42** in opening **44**.

It can be seen that the pivotation of rocker arm **42** results in the transportation of the continuous chain **32** to pivot wing panels **16A** and **16B**. A connecting arm **48** has one end **48A** pivotally connected to the cam plate **40**, such as by means of a screw **50**. Affixed to the rocker arm **42** intermediate the ends thereof is a connecting

block member **52** having an opening **54** therein which slidably receives the connecting arm **48**. Received on the connecting arm **48** are cylindrical springs **56A** and **56B**, the springs being positioned to either side of the connecting block member **52**. Pins **58** in the connecting arm retain the springs **56A** and **56B** in compressive relationship relative to the connecting block **52**.

Positioned on the base plate **23** is a switch **60** which, as best shown in FIGURE 4, has an actuating plunger **62** extending therefrom. A switch arm **64** extends from one surface of the switch and engages the actuating plunger **62**. Affixed to the cam plate **40** is a switch actuating plate **66** which engages the switch arm **64**. The switch actuating plate **66** is configured so that as the cam plate **40** rotates the switch actuating plunger **62** will be depressed through 180° and will be extended through the following 180° of rotation.

Operation

FIGURE 6 is a schematic electrical diagram illustrating the manner in which the sign is controlled. A period control switch **68** will be connected to the sign. Switch **68** is not illustrated as part of the sign although obviously it could be easily incorporated with it although in a typical application the period control switch **68** will be mounted elsewhere for utilization to regulate other traffic control devices. When the switch **68** closes energy is applied through contact **60B** to motor **36**. This energizes the motor, rotating the cam plate **40** (see FIGURE 5). The rotation pushes the connecting arm **48** thereby pivoting the rocker arm **42**. The pivotation of the rocker arm transports the endless chain **32** pivoting the wing panels **16A** and **16B**. The direction of pivotation of the wing panels will be towards the position opposite that which the panels occupied before the energization of the motor. As the cam plate **40** continues to rotate, and after 180° of rotation, switch **60** will be actuated breaking contact with point **60B** and making contact with point **60A**. This will de-energize motor **36**. The sign will then have been moved from one position to another. The sign will remain in this position until the period control switch **68** moves the switch contact to point **68A** as illustrated. When this occurs continuity will have been made with switch point **60A** so that a completed circuit will again be provided to energize the motor **36** to cause the cam plate **40** to rotate 180°, again moving the wing panels **16A** and **16B** from one position to the other. Thus, each time the period control switch **68** is moved from contact point **68A** to **68B**, or vice-versa, the sign is actuated from one position to another to either display the message imprinted thereon or to conceal the message.

The provision of springs **56A** and **56B** received on the connecting arm **48** permits a degree of over travel of connecting arm **48** in each direction. Thus, the springs **56A** and **56B** serve to resiliently retain the wing panels in their proper position.

Alternate embodiment

FIGURES 7 and 8 illustrate an alternate embodiment of the invention. These figures disclose a sign as previously described, but with additional fixed panels **16C** and **16D** which parallel the center panel **14** and are of the same width and height as wing panels **16A** and **16B**. This arrangement provides a sign capable of displaying two separate equal size messages. FIGURE 7 illustrates a message displayed when wing panels **16A** and **16B** are closed, a portion of the message being imprinted upon the back side of the wing panels. FIGURE 8 shows the sign having the wing panels extended, displaying a message in the same manner as is displayed in the arrangement of FIGURE 1. Fixed panels **16C** and **16D** may be supported to center panel **14** or panels **14**, **16C** and **16D** may be a single panel with wing panels **16A** and **16B** pivoted to the front surface thereof. Obviously many arrangements can be made incorporating the principles of the alternate embodiment.

The sign of this invention is, as previously indicated, distinguished by its ultimate simplicity, economy of construction and dependability. A minimum number of parts are utilized and the principles of the invention result in a sign which, when properly constructed, has substantially unlimited life and is, for all practical purposes, failproof.

While the invention has been described with a certain degree of particularity it is manifest that many changes may be made in the details of construction and the arrangement of components without departing from the spirit and scope of this disclosure.

What is claimed:

1. A traffic control sign comprising, in combination:
- a rectangular vertically supported planar center panel presenting a sign bearing face on one side thereof having a portion of a traffic control message thereon;
- a first and second rectangular vertical planar wing panel each pivotally supported at a vertical edge thereof to opposite vertical edges of said center panel, said wing panels being of substantially one-half the width of said center panel, each of said wing panels having a sign bearing face on one side each having a portion of a traffic control message thereon whereby when said center and said wing panels are aligned a traffic control message is presented, and wherein when said wing panels are pivoted to paralleled juxtaposed relation to said center panel said traffic control message is obscured;
- an electric motor supported to said center panel, said motor having a shaft extending therefrom;
- a wing shaft extending from each of said wing panels adjacent their pivotally supported vertical edge, the rotation of said wing shafts pivoting said wing panels;
- a sprocket affixed to each of said wing shafts;
- a continuous chain looped over each of said sprockets in a figure 8 configuration;
- means coupling the rotation of said motor shaft to transport said chain whereby said sprockets and thereby said wing shafts are rotated, pivoting said wing panels; and
- means of controllably starting and stopping said motor wherein upon energization of said motor in one instance said wing panels are rotated to align with said center panel to display a traffic control message and upon subsequent energization of said motor in a second instance said wing panels are rotated to paralleled juxtaposed relation with said center panel obscuring said traffic control message.

2. A traffic control sign according to claim **1** including:
- first and second fixed panels of height and width substantially equal to said wing panels, each of said fixed panels being supported at one vertical edge to opposite vertical edges of said center panel and parallel to it, whereby when said wing panels are closed upon said center panels a traffic control message imprinted upon the back surface of said wing panels and upon said fixed panels is displayed.

3. A traffic control sign according to claim **1** wherein said means of controllably starting and stopping said motor includes:
- a switch having electrical connection with said motor; and
- a cam affixed to said motor shaft actuating said switch in response to the angular position of said shaft.

4. A traffic control sign according to claim **1** wherein said means coupling the rotation of said motor shaft to transport said chain includes:
- a rocker arm pivotally supported at one end and affixed to said chain at the other end whereby the pivotation of said rocker arm transports said chain;
- a crank shaft extending from and rotated by said motor shaft; and

a connecting arm having one end pivotally affixed to said crank shaft and the other affixed to said rocker arm.

5. A traffic control sign according to cltim 4 including connecting block member affixed to said rocker arm intermediate the ends thereof, said connecting block member having an opening therein slidably receiving said connecting arm; and

a first and second spring received by said connecting arm each having one end affixed to said connecting arm and compressibly engaging, at the other end thereof said connecting block member.

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