Nov. 15, 1955 N. R. HASTINGS 2,724,100

PEDESTRIAN SIGNALING DEVICE

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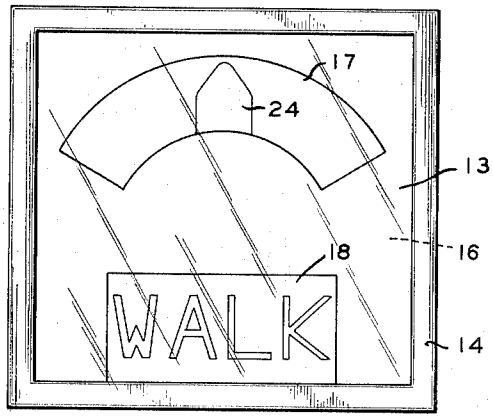


FIG. 1

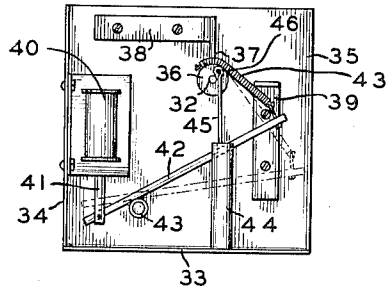


FIG. 5

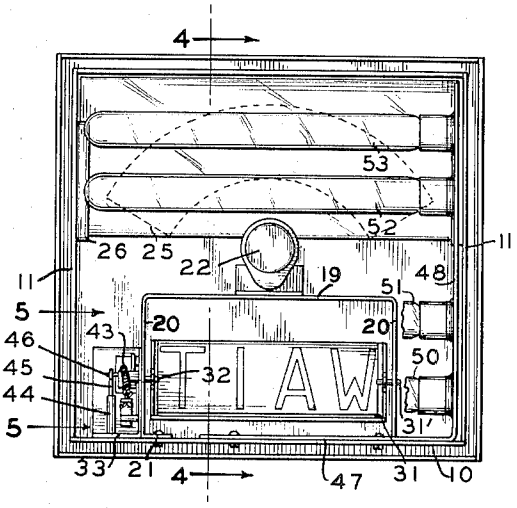


FIG. 2

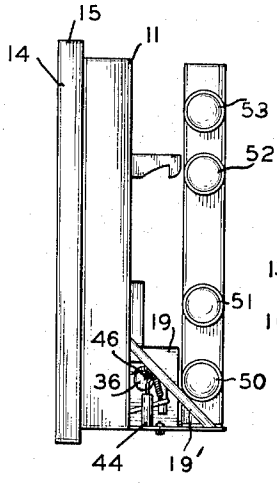


FIG. 3

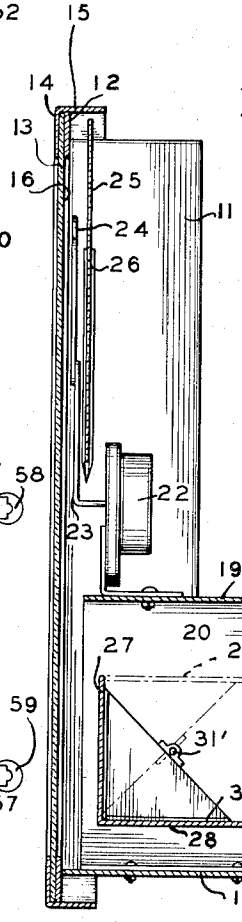


FIG. 4

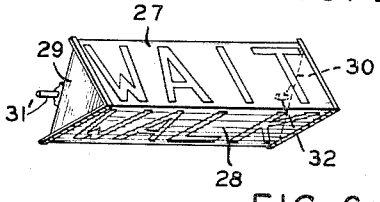


FIG. 6

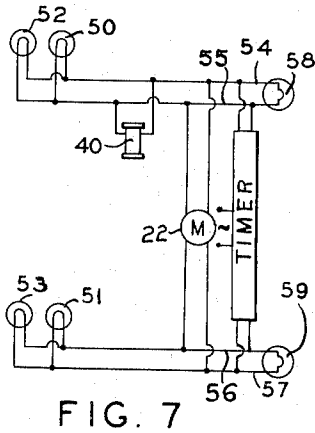


FIG. 7

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PEDESTRIAN SIGNALING DEVICE

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10 Claims. (Cl. 340—43)

The present invention relates to a signaling device and more particularly to a signal used at street intersections to give instructions to pedestrians and to indicate the time remaining for crossing the street.

Heretofore conventional "red green" traffic signals have been provided at busy street intersections for directing vehicular traffic with very little concern to the problems of the pedestrian. Although "walk" signals have been used at some intersections, these "walk" signals have not indicated the length of time remaining for the pedestrian to cross the street. As a result, young people who walk rapidly have ignored the signals and infirm persons have started to cross the street with the "walk" signal on, but the crossing has required so much time for such infirm persons that the vehicular traffic starts moving endangering such infirm pedestrians. Consequently, the signals heretofore used have not been adequate.

An object of the present invention is to overcome the defects of the prior art signaling devices and provide an efficient pedestrian signaling device.

Another object of the invention is to provide a signaling device with indication of how long the signaling device will remain with the same indicia exposed.

A further object of the invention is to provide a signaling device which will be efficient in the bright sunlight, in the dark, and in any intermediate lighting conditions.

Another object of the invention is to provide signaling means suitable for attachment to existing vehicular signaling systems without requiring complicated connections.

Another object is to provide a signaling system which is arranged for rapid servicing and repair.

Other and further objects will become apparent as the description proceeds and upon reference to the accompanying drawing wherein:

Fig. 1 is a front elevation of the signaling device;

Fig. 2, a rear view of the removable frame and the mechanism with the rear casing omitted and parts broken away;

Fig. 3, a side elevation of the removable frame with the mechanism supported thereon;

Fig. 4, an enlarged section taken substantially on line 4—4 of Fig. 2;

Fig. 5, an enlarged detail view taken generally on line 5—5 of Fig. 2 of the operating mechanism for the "walk" "wait" signaling means;

Fig. 6, a perspective view of the movable "walk" "wait" signaling means; and

Fig. 7, a diagrammatic illustration of the wiring connections for the timing motor, the solenoid operating means for the "walk" "wait" signal, and for energizing the lamps.

Briefly, the present invention relates to a signaling device including "walk" and "wait" indicia which are alternately exposed to view and a timing device including a pointer having a swinging movement of a definite duration to indicate the time remaining for the "walk" or "wait" indicia to be exposed. The signaling device is designed for attachment to existing systems, by a simple wiring connection to the same sources of energy which energize the green and red signals for directing vehicular traffic.

Referring more particularly to the drawings, a main frame includes a base plate 10 and upstanding side plates 11 which are integrally connected to a plane rectangular window frame 12 in front of which window frame a transparent panel 13 is positioned and such panel 13 is held in position by an outer window frame which includes a plane peripheral portion 14 engaging the front of the panel 13 and a flange peripheral portion 15 which extends rearwardly. The flange portion 15 is spaced from the base plate 10 and the side members 11 of the main frame providing a recess for receiving the open front of a box-like casing (not shown) to which the main frame and the window frames are secured by suitable attaching screws to permit ready removal of the main frame with the mechanism and the panel thereon from the box-like casing.

The transparent panel is coated with an opaque coating 16 with the coating omitted to provide an arcuate shaped upper window 17 and a rectangular lower window 18 for the purpose of exposing a timing pointer and a "walk" "wait" signal, respectively.

The base plate 10 is additionally supported by diagonal braces 19' extending from the ends of the base plate 10 to the side plates 11. Upon the base plate an inverted U-shaped frame having a top 19 and parallel legs 20, 20 is secured to the base plate 10 by bolts passing through lugs 21 at the lower end of the legs. Upon the top 19 a dual "Haydon" motor 22 is mounted by means of suitable bolts and such motor carries an arm 23 having a wide pointer 24 movable in an arcuate path so as to be visible through the window 17. The "Haydon" motor is of a type which causes the arm 23 to move at a definite rate over its entire path so that a definite elapsed time occurs between the movement of the hand from one end of the window 17 to the other end. The "Haydon" motor 22 is reversible and by energizing the same through other connections, the arm 23 and the pointer 24 will move in the opposite direction. This type of motor can be stalled at the limit of its movement and such stalling will have no harmful effect. Suitable stops may be provided to limit such movement as desired and such stops may be made adjustable.

Positioned rearwardly of the arm 23 and pointer 24 is a translucent plate 25 which is mounted in supports 26, 26 so that the pointer is freely movable between such translucent plate 25 and panel 13.

A hollow triangular prism having a translucent plate 27 on one surface and a translucent plate 28 on another surface is provided with the word "wait" and the word "walk" imprinted thereon with fluorescent paint of red and green color respectively. The prism is open on one face and has ends 29 and 30, which have inwardly extending flanges 31 secured to the translucent plates 27 and 28 in any suitable manner as by bolts, rivets or the like. Secured to the end plate 29 is a pivot pin 31' and secured to the end plate 30 is another pivot pin 32, said pivot pins 31' and 32, respectively, passing through bearings formed in legs 20, 20 of the inverted U-shaped frame and pivotally mounting the prism signal. Suitably enlarged bearings and spacing means may be provided to maintain the parts in operative relation. A corner bracket having a base plate 33, a front plate 34, and a side plate 35 is fixed to the base plate 10 of the main frame by suitable bolts with the side plate 35 abutting one leg 20 of the inverted U-shaped frame, the pivot pin 32 extending through such side plate and carrying a cylinder 36 suitably fixed thereon by a set-screw, a key, or the like. An arm 37 projects outwardly from the cylinder 36 an

appreciable distance for engagement with a fixed stop **38** to limit rotation in one direction and another fixed stop **39** to limit rotation in the other direction, said stops being located at positions to limit the movement of the prism whereby the "wait" or the "walk" signal, respectively, will be aligned with the window **18**.

Fixed to the front plate **34** of the corner bracket is a solenoid **40** having a vertically movable armature **41** connected to one end of a lever **42** pivoted at 43 to the side plate **35**, the other end of the lever **42** being connected to a spring **43** which has its opposite end fixed to the periphery of cylinder **36** by a suitable fastening element so that said spring at least partially embraces the cylinder **36** when the "wait" signal is exposed and when the arm **37** is in engagement with stop **38**. A dash pot 44 is fixed to the base plate **33** of the corner bracket and has its piston rod **45** pivotally connected to a crank pin 46 on the cylinder **36** whereby said dash pot retards rotary movement of the "walk" "wait" signal and prevents excessive strains on the arm **37** and upon the other mechanism. The spring **43** serves to cushion the sudden force exerted by armature **41** when solenoid **40** is actuated.

A lamp supporting bracket includes a base leg **47** secured to the base plate **10** by suitable bolts and an upstanding leg **48** upon which a plurality of elongated incandescent lamps **50**, **51**, **52**, and **53** are mounted in suitable sockets the lamps being positioned rearwardly of the prism signal and rearwardly of the time indicating pointer.

Referring to Fig. 7, when the green vehicular directing traffic light **58** is energized through a timer, leads **54** and **55** are connected to the source of energy of the green light or leads **54** and **55** may be energized by a relay actuated when the green light is energized. The energization of such leads **54** and **55** results in actuation of the solenoid **40** and illumination of the lamps **50** and **52**. The "green" light is represented by the lamp **58** and the "red" light by the lamp **59**. The energization of solenoid **40** causes the armature **41** and the lever **42** to move to the dotted line position shown in Fig. 5 causing the "wait" "walk" prism signal to move to the dotted line position shown in Fig. 4 thereby exposing the word "walk" through the window **18**, the lamp **50** providing a source of light to pass through the plate **28** making the "walk" signal clearly visible. At the same time, the "Haydon" motor **22** is energized to cause the pointer **24** to move in one direction as, for example, to the right or clockwise as viewed in Fig. 1, the lamp **52** serving to provide light through the translucent panel **25** with the pointer **24** blocking such light and the silhouette of pointer **24** being visible through illuminated window **17**. The pointer **24** may be painted a distinctive color as desired so as to be visible in the event that the illumination source should fail for any reason.

When the red light **59** of the vehicular traffic signal is energized through the timer the leads **54** and **55** are deenergized and leads **56** and **57** are energized either by a connection to such red light or by means of a relay, and the lamps **51** and **53** will be illuminated and the motor **22** will be operated in the reverse or counter-clockwise motion as viewed in Fig. 1. The "wait" signal on the prism will then be exposed through the window **18** since the force of gravity acting on the prism will urge the prism to the "wait" position and the arm **37** by engagement with stop **38** will prevent excessive motion of the prism signal.

During the night and other times when the red and green signals are not operating and the red and yellow signals flash on and off continuously, the "wait" signal will remain exposed and the solenoid **40** will not be energized and the force of gravity will continue to maintain the "wait" signal in position. The flashing signals will produce the flashing effect on lamps **51** and **53** in a similar manner and the "Haydon" motor **22** will be maintained in its end position, but the energization of the motor will have no effect since the hand will be maintained at its extreme position. The "Haydon" motor is not adversely affected by being energized when in its stalled position and therefore the flashing signals have no objectionable effect.

From the above description it will be apparent that the present invention provides a signaling device of general utility which gives instructions for a definite period with means to indicate the duration of such definite period so that the observer of the signal may determine his plan of action to the best advantage. Although a specific manner of indicating the time and displaying the signals has been disclosed, applicant intends to cover the invention in the accompanying claims as broadly as possible consistent with the state of the prior art.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings nor by that which is described in the specification but only as indicated in the appended claims wherein:

What is claimed is:

1. A walk-wait signaling device comprising a main frame having a base plate, an inverted U-shaped frame mounted on said base plate and extending upwardly therefrom, a hollow triangular prism open on one face, large diameter pivot means on one end of the prism and pivot means on the other end of said prism providing a longitudinal axis, said pivots being mounted on the legs of the U-shaped frame, a corner bracket mounted on said base plate and abutting one leg of said inverted U-shaped frame, the axis of said prism extending through said corner bracket, an arm projecting from said large diameter pivot, stops mounted on said corner bracket for engagement with said arm to limit movement thereof so that in one position one surface of said prism will be vertical and in the other position the other surface of said prism will be vertical, a dashpot mounted on said corner bracket, a crank on said large diameter pivot and connected to said dashpot whereby the dashpot limits the speed of movement, a spring fixed on said large diameter pivot and at least partially surrounding the same, a lever pivoted on said corner bracket intermediate its ends and connected at one of its ends to the spring, a solenoid mounted on said bracket, means connecting said solenoid to the other end of said lever, a motor mounted on the bight portion of said U-shaped frame, a pointer on said motor, a front panel mounted on said main frame and having an arcuate shaped window for observation of said pointer and having a rectangular shaped window for observation of the vertical surface of said prism, a lamp bracket mounted on said base plate, a plurality of lamps on said lamp bracket behind said pointer and said prism, a translucent plate between said pointer and said lamps, and said surface of said prism being translucent and having indicia thereon, means to simultaneously energize some of said lamps, said motor and said solenoid causing said motor to move the pointer in one direction and move said prism to its upper position, and means to energize other of said lamps and said motor for causing said pointer to move in the other direction, said prism then returning to its normal position.

2. A signaling device including two opposed instructions and means to indicate the time in which the displayed instruction will be exposed, said instructions being located on two angularly arranged plates which are pivoted on an axis parallel to the plate, light sources behind said plates, and means for moving said angularly arranged plates to expose one plate and the timing means indicating the time of such one plate exposure and means to expose the other plate, the timing means indicating the time of exposure of such other plate.

3. A signaling device including two opposed instructions and means movable alternately in opposite direction to indicate the time in which the displayed instruction will be exposed, said instructions being located on

two angularly arranged plates which are pivoted on an axis parallel to the plates, and means for moving said angularly arranged plates to expose one plate when the timing mechanism moves in one direction and to expose the other plate when the timing means moves in the other direction.

4. A traffic signaling device comprising a housing, an arcuate window in said housing, a second window in said housing, means within said housing for displaying two different traffic instruction signals, a pointer mounted for movement across said arcuate window and means to move said pointer in one direction across said arcuate window at a definite rate to indicate the time remaining for one traffic instruction signal to be exposed through the second window, and means for moving the pointer in the opposite direction to indicate the time remaining for a second traffic instruction signal to be exposed through the second window, whereby a pedestrain or operator of a vehicle may be apprised of the time remaining for passing through an intersection or for the time of waiting before starting across an intersection.

5. A traffic signaling device comprising a housing provided with a pair of windows one of which is arcuate in shape, a pointer mounted for movement across the arcuate window, plate means carrying opposed signal instructions pivotally mounted in the housing in rear of the other window, means for moving said plate means to expose either signal instruction through the other window, and a motor for moving said pointer across the arcuate window to indicate the time each signal instruction is exposed through the other window.

6. A traffic signaling device as set forth in claim 5, said motor having means for moving the pointer in one direction to indicate the time interval of exposure of one signal instruction, and in the opposite direction across the arcuate window to indicate the time interval of exposure of the other signal instruction.

7. A traffic signaling device comprising a housing provided with a pair of windows, one of which is arcuate, a pointer mounted for movement in rear of the arcuate window, two different traffic instructions mounted for alternate exposure through the other window, and means for moving said pointer in an arcuate path in one direction to indicate the time interval of one traffic instruction and for moving said pointer in an arcuate path in the other direction to indicate the time interval of the other traffic instruction.

8. A traffic signaling device comprising a housing provided with two windows, means for alternately displaying two different instructions through one window, arcuately movable means visible through the second window for indicating the time remaining in which each displayed instruction will be exposed; said arcuately movable means includes a pointer movable in opposite directions, one direction of movement of the pointer occurring when one instruction is displayed and the reverse direction of movement occurring when the other instruction is displayed.

9. A walk-wait signaling device comprising a frame, a front panel mounted on said frame and having an upper arcuate shaped window and a lower rectangular window, a pointer mounted for movement across the arcuate window, a hollow triangular prism mounted for pivotal movement in rear of the rectangular window, one surface of the prism bearing direction indicia to walk and another surface of the prism bearing direction indicia to wait, a solenoid for pivotally moving said prism to expose alternately the "walk" and "wait" indicia through the rectangular window, a motor for moving the pointer across the arcuate window, means to support the prism, motor and solenoid from the frame, and means to simultaneously energize said motor and solenoid to either move the pointer in one direction and pivot the prism to expose the indicia "walk," or to move the pointer in the other direction and pivot the prism to expose the indicia "wait."

10. A walk-wait signaling device comprising a frame, a front panel mounted on said frame and having an upper arcuate shaped window and a lower rectangular window, a pointer mounted for movement across the arcuate window, a pair of plates, one bearing the indicia "walk" and the other bearing the indicia "wait," a solenoid for moving said plates to expose alternately the walk and wait indicia through the rectangular window, a motor for moving the pointer across the arcuate window, means to support the plates, motor and solenoid from the frame, and means to simultaneously energize said motor and solenoid to either move the pointer in one direction and move the plates to expose the indicia "walk," or to move the pointer in the other direction and move the plates to expose the indicia "wait."

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