

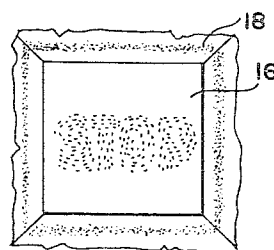
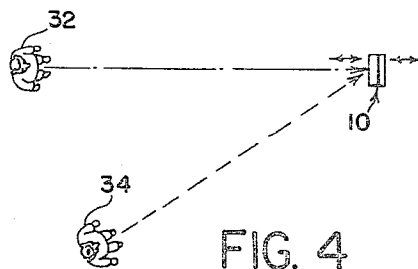
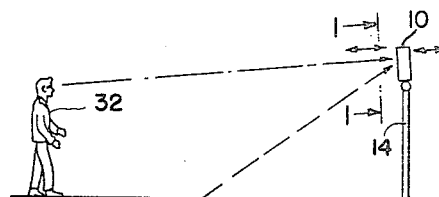
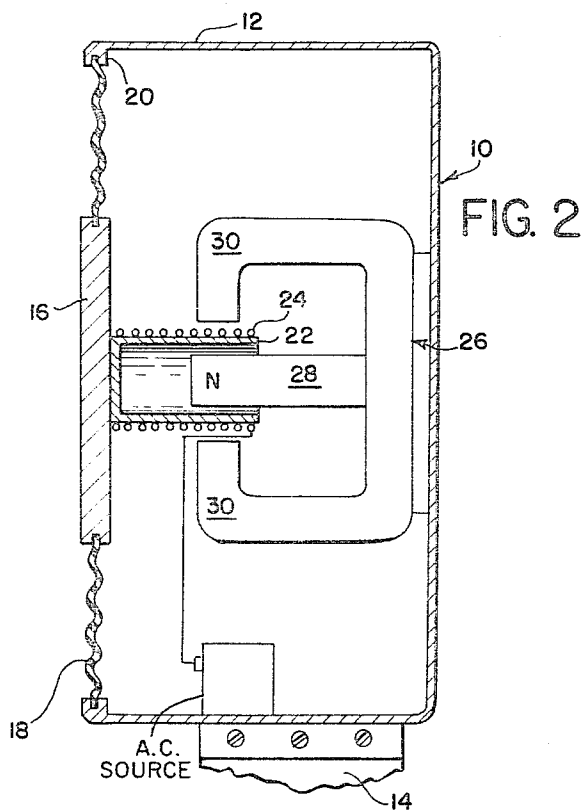
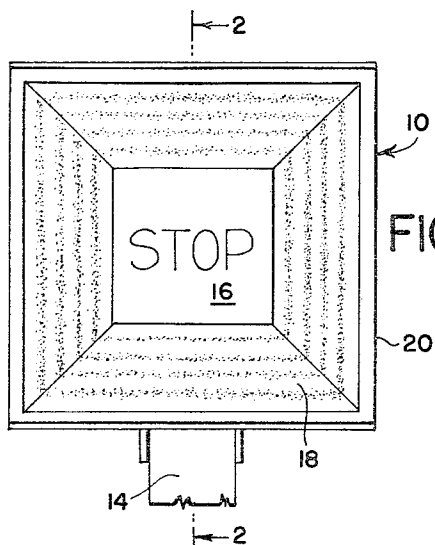
March 14, 1967

D. A. KOHL

3,309,665

PROCESS AND APPARATUS FOR COLLIMATED SIGN

Filed July 19, 1963



INVENTOR.

DOUGLAS A. KOHL

BY *Robert B. Hughes*

ATTORNEY

1

3,309,665

PROCESS AND APPARATUS FOR
COLLIMATED SIGN

Douglas A. Kohl, Osseo, Minn., assignor, by mesne assignments, to Litton Systems, Inc., Beverly Hills, Calif., a corporation of Maryland

Filed July 19, 1963, Ser. No. 296,218

6 Claims. (Cl. 340-120)

This invention relates generally to the display sign art and more particularly to a process and apparatus directed to a collimated sign, i.e. one which can be viewed intelligibly only when the viewer is properly aligned with the sign.

It is an object of the present invention to provide an improved process and apparatus relating to a sign of the above-mentioned type, whereby the sign can be read or viewed intelligibly only when the viewer is properly aligned both vertically and horizontally with respect to the sign.

It is a further object to provide such a process and apparatus especially adapted for use as a traffic sign to communicate a traffic signal only to those who are at a predetermined location.

FIGURE 1 is a front elevational view of a collimated traffic sign or indicator embodying preferred teachings of my invention,

FIGURE 2 is a longitudinal sectional view taken on line 2-2 of FIGURE 1,

FIGURE 3 is a schematic view taken generally in side elevation and indicating in a partially broken line the sight of a viewer properly positioned to intelligibly interpret the traffic indicator, and in a dotted line the sight of a viewer not so positioned,

FIGURE 4 is a top plan view illustrating the same subject matter as indicated in FIGURE 3, and

FIGURE 5 depicts the general appearance of the traffic indicator of my invention as seen by a viewer along the direction of the dotted line of FIGURES 3 and 4.

Referring to the accompanying drawing, numeral 10 generally designates a traffic signal indicator, comprising a housing 12 mounted on a supporting post 14 and having an open front to provide a suitable display face or area for a plate 16 or other like member presenting a visible representation. This representation could be letters, numbers, a diagram, etc., and for purposes of illustration the word "STOP" has been selected to be shown on the front face of the plate 16. To permit the plate 16 to move relative to the housing 12, and to effectively seal the interior of the housing 12, the plate 16 is joined by a peripheral diaphragm 18 to a border frame 20 mounted on the front of the housing 12.

Fixed to and extending rearwardly from the plate 16, is a cylindrical shell 22 which is wound with a coil 24 that is in turn connected to a source of alternating current of a desired frequency. A suitable magnetic member, such as the one indicated at 26, is fixedly mounted in the housing 12 and disposed relative to the coil 24 so as to create thereabout a magnetic field so directed that the alternating current in the coil 24 will cause the coil 24 with its shell 22 and the plate 16, to reciprocate longitudinally. As shown herein, this magnetic member 24 comprises a center member 28 extending into and axially aligned with, the coil 24 and the shell 22, and two outer portions 30 surrounding the coil 24.

The traffic indicator 10 is so positioned that the oscillating path of the plate 16 (these oscillations being caused by the alternating current in coil 24) is parallel to the direction along which a viewer can read the representation on the plate 16. The frequency of oscillation of the plate 16 should be at least as high as an observer's flicker frequency (i.e. the frequency at which an

2

object oscillates so as to flicker or become blurry and indistinct). For most humans, this flicker frequency is between approximately 15 to 20 cycles per second. For the viewer whose line of sight is aligned with the reciprocating motion of the plate 16 (such a viewer being indicated at 32 in FIGURES 3 and 4), the plate 16 would appear to be stationary (as shown in FIGURE 1) and would thus be intelligible to such a viewer. However, for a viewer not so aligned (as shown at 34 in FIGURES 3 and 4) the plate 16 would be seen to oscillate and be blurry and indistinct, as illustrated in FIGURE 5.

Desirably, the plate 16 should be oscillated within the flicker frequency of the person or persons viewing the sign 10, since under such conditions, the blurriness or obscurity of the representation to the person not properly aligned with the oscillating path of the sign is more pronounced. The amplitude of these oscillations will depend upon various factors, such as the size and amount of separation of the various portions of the representation which must be distinguished to be viewed intelligibly, the desired degree of departure from the path of oscillation within which the representation is to be intelligible, and other factors.

It should be noted that the viewer, to intelligibly view the sign, must be aligned both vertically and horizontally with respect to the plate 16. Thus for example, when this indicator is appropriately placed on a multi-lane highway, not only will such sign be visible only to drivers traveling a certain lane or lanes, but the sign will become intelligible only when the driver has reached a certain predetermined area or location along such lane or lanes.

Now therefore I claim:

1. A collimating display sign designed to visibly and intelligibly communicate information to a viewer only along a predetermined line of sight, which comprises: a display member having a representation to be visually communicated to said viewer only along said predetermined line of sight, and

means for reciprocating said display member along a rectilinear path parallel to said predetermined line of sight so that only to a viewer who is looking at said representation along a line of sight parallel to said path of reciprocation does said display member appear to be stationary and the representation appear intelligible.

2. The sign as recited in claim 1, wherein the reciprocating means is such that said display member is reciprocated at a frequency at least as great as the flicker frequency of the viewer.

3. The sign as recited in claim 1, wherein said reciprocating means is such that said display member is reciprocated within the flicker frequency of the viewer.

4. An indicator for visually communicating a representation only along a given direction, said indicator comprising:

a housing;

a display member mounted in said housing for rectilinear motion along a path parallel to said given direction, said display member having an indicia bearing surface substantially perpendicular to said path of motion so that said indicia on said surface faces said given direction; and

means for reciprocating said display member along said path at a selected flicker frequency so that said representation is unintelligible to a viewer viewing said representation along a line of sight that is at a given angle with respect to said given direction.

5. The indicator as recited in claim 4, wherein said means comprises a first member to create a desired magnetic field and a second member adapted to receive an alternating current and so disposed in said field that when said second member is excited by said current, said

3

first and second members oscillate with respect to each other, one of said first and second members being secured to said housing and the other being secured to said display member.

6. A device for visually and intelligibly communicating information to a person viewing the device from a given location along a given lane of a multi-lane means of travel, which comprises:

a member bearing indicia providing information to be intelligibly communicated to said person;

means for mounting said member for reciprocation along a path aligned with said given location, said mounting means maintaining said member with said indicia facing said given location; and

4

means for reciprocating said member along said path and at a selected flicker frequency of said person so that said indicia is intelligible only to said person at said given location along said given lane.

References Cited by the Examiner

UNITED STATES PATENTS

2,063,687	12/1936	Lefrand	40—139
2,982,179	5/1961	Lace	88—73

NEIL C. READ, *Primary Examiner*.

T. A. ROBINSON, *Assistant Examiner*.