Dec. 27, 1938. H. P. HUBERTZ 2,141,473

SIGNALING SYSTEM

Filed Nov. 8, 1937

Fig. 1.

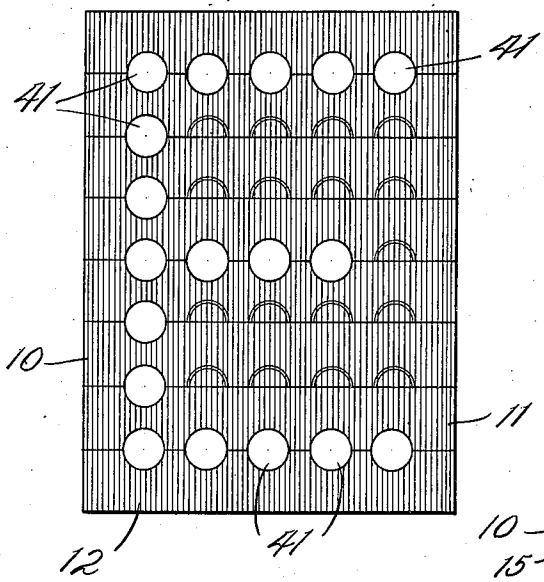
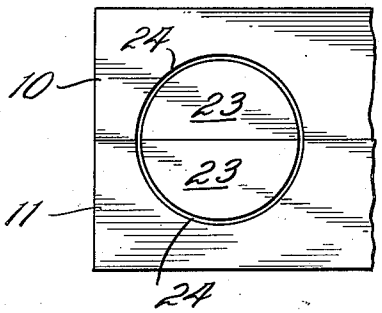


Fig. 2.



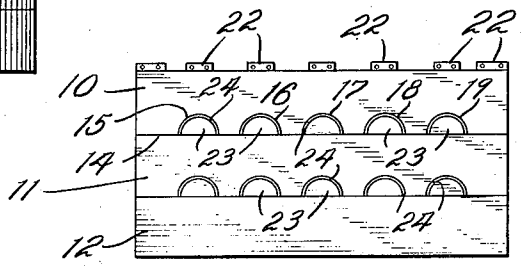
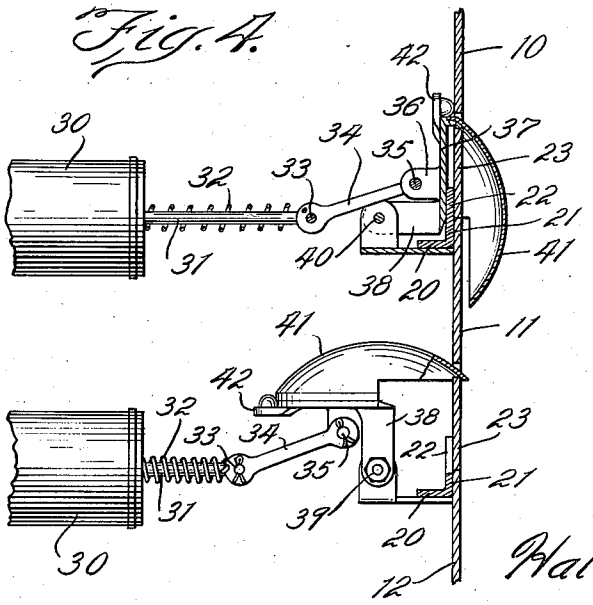


Fig. 3.

Fig. 4.



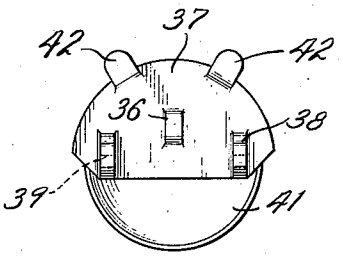


Fig. 5.

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SIGNALING SYSTEM

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12 Claims. (Cl. 40—28)

This invention relates to a signaling system and more particularly to remote controlled signs for indicating letters or figures. It has been customary in signs of this character to provide a large number of electric light bulbs and to choose a number of such bulbs for indicating some number or letter. Thus, the bulbs chosen for one particular operation might either be illuminated against the dark background of the remaining bulbs, or might be dark against the lighted background of the remaining bulbs. In both cases, the lighting of the bulbs has been the means for indicating the contrast between the particular bulbs and the background.

In systems of this character, such as are used for indicating in baseball, football, or racing, it frequently occurs that the entire board is brightly illuminated by the sun or by some searchlight. In such a case, the degree of illumination of the entire board is so intense that the distinction between the lighted and unlighted bulbs is generally lost, thus rendering the system inoperative unless viewed from some particular angle.

An object of this invention is to devise a system of this character which will be free of the above objections and which may be effectively used in any kind of light and under all conditions. In general, I accomplish this by utilizing a small flag or disc which offers an effective contrast to the general background. Thus, if the entire board is uniformly dark, I dispose a plurality of reflecting discs which are normally hidden from view but which may be snapped into signaling position. Obviously, the optical effect may be reversed by having the entire board light as with aluminum, metal or stainless steel and having dark discs delineate the signal.

Another and additional object is to devise a signaling means of this character in a simple and cheap manner and which will be thoroughly foolproof and positive in operation.

Referring to the drawing:

Figure 1 shows an entire board with the letter E spelled out.

Figure 2 is a detail of some of the board elements in the process of manufacture.

Figure 3 is a view of several sections of the board assembly.

Figure 4 is a sectional view showing two units in closed and open position respectively.

Figure 5 is a rear view of one of the signaling flags.

The sign shown in Figure 1 is composed of a plurality of sections, three of which are shown in Figure 3 and indicated by numerals 10, 11 and 12. The number of sections is greater by one, than the number of signaling elements and may, of course, be provided in as great a number and to as great a width as may be desired. Since all the sections are identical, a detailed description of one will only be made. Thus, referring to section 10, there is provided along the bottom edge 15 a plurality of semi-circular cut-outs here shown as 15 to 19 inclusive. These cut-outs are placed at intervals, each cut-out corresponding to one signaling element. Lengthwise of the section, an angle iron 20 is bolted, this angle iron being adapted to extend over the edge on to the adjacent section 11 and join the two sections together. The vertical flange 21 of the angle iron is preferably provided with a plurality of upstanding tongues 22 which are adapted to be symmetrically disposed with respect to the semi-circular cut-outs. Each tongue 22 has bolted thereto a semi-circular cover plate 23 and is adapted to provide a semi-circular slot 24 at each cut-out.

Suitably supported behind each cut-out, is an assembly including a solenoid 30 having its armature 31 pressed outwardly by a spring 32 toward each sign section. Pivotally secured at 33 to the end of armature 31 is a push rod 34 which is secured at 35 to the ear 36 of a signal supporting bracket 37. This bracket has a pair of arms 38 at the bottom thereof extending to the rear of each sign element and terminating in pivots 39. A pivot point 40 suitably supported from angle iron 20 permits the bracket to be moved as shown in Figure 4. Each bracket has a plurality of stop ears 42 and carries on the front face thereof a signaling element 41. This element is preferably of metal and preferably has a spherical curvature. By adjusting the curvature to the curvature of the slot 24 and by proportioning the length of the arm 38 for each bracket, it is evident that each signaling element may be pulled down into view as shown in Figure 4 or withdrawn as shown in this same figure. In order to provide the semi-circular cut-outs in each signal section, I preferably dispose two sections such as 10 and 11 together and cut out the two semi-circular slots 24 in one cutting operation. The resulting semi-circular cover plates 23 may then be used as shown in Figure 3, so that but little metal is wasted.

Obviously, the cover plates prevent the entrance of dirt to the operating portion of the system so that the system is quite effectively protected against weather. The solenoids may be mounted in any suitable manner and may be disposed so

that in the attracted position of the armature, the signaling element may either be in the visible or invisible position as viewed from the outside of the sign. In practice, I have found that the use of aluminum signaling members **41** against a dark painted background of sections **10** and **11**, is clearly visible either in the daylight or under artificial illumination at night. It is understood, of course, that the signal elements may be painted if desired and may be treated in any manner whatsoever, so that a decided contrast with the background results. Also, one solenoid may operate any desired number of signal elements.

It is understood, of course, that sufficient clearance between various parts must be provided to prevent jamming. In particular, clearance between bracket **37** and support member **22** is necessary in order to permit the entire device to swing around point **35**.

What is claimed is:

1. In a signaling system of the type wherein a plurality of signaling elements are energized to delineate a signal, the combination of a board having a plurality of slots therethrough at intervals, a signal element disposed at each slot and carried by said board at the rear thereof, each signal element having a substantial surface area, and means for moving each signal element in response to a signaling impulse edgewise through the corresponding slot and disposing said signal element in front of said board with its maximum area available to cover the board, said signal elements being adapted to offer a decided optical contrast to said board.

2. In a signaling system of the character described, a supporting board having a plurality of slots therethrough, a signal element carried by said board in the rear thereof at each slot and being normally invisible from the front of said board with an edge of said signal element disposed in said slot, and means responsive to signaling impulses for moving each element through a slot and disposing said element against said board to cover a maximum surface, said signal elements being adapted to contrast with the board.

3. In a signaling system of the character described, a board having a plurality of narrow slots, a thin signaling element carried by said board at the rear thereof adjacent each slot and being normally in the rear of said board with an edge of said element disposed in said slot, and signal responsive means for dropping each element through the slot and disposing the element flatwise against the board under the slot.

4. In a signaling system of the character described, a board having a plurality of semi-circular slots, a signaling element carried by the board at the rear thereof adjacent each slot, said signaling element having a curvilinear cross-section to correspond with the board slot, means for mounting said element so that normally said element is disposed in the rear of said board in a generally perpendicular plane thereto with the edge of said element disposed in the corresponding slot, and signal responsive means for rotating each element about an axis to move the entire element through the slot and occupy a position of maximum visibility against said board.

5. In a signaling system of the character described, a board composed of a plurality of sections, each section extending across one dimension of said board and having a plurality of semi-circular cut-outs along one of the edges abutting an adjacent section, a signal element carried by each section but one at each cut-out, means for normally disposing said signal element behind the section with an edge of said element adjacent the cut-out, and signal responsive means for moving each element through said cut-out to cover substantially all of the section cut out and a portion of the adjacent section.

6. In a signaling system of the character described, a board formed of a plurality of component sections, each section but one having a plurality of semi-circular cut-outs along one of the edges abutting an adjacent section, all the sections being disposed so that the semi-circular cut-outs are disposed in spaced formation, a signal element at each cut-out, means for supporting each signal element behind the cut-out and normally in a place perpendicular to the plane of the board with the edge of said element at the semi-circular edge of the cut-out, and signal responsive means for swinging each element down through the cut-out to cover substantially all of the corresponding cut-out and a portion of the adjacent section.

7. The structure of claim 6 wherein each semi-circular cut-out is provided with a semi-circular cover plate somewhat smaller than the cut-out to leave a semi-circular slot in which said signal element operates.

8. In a signaling system, a board having a plurality of semi-circular slots, a signal element carried by the board at the rear thereof at each slot, each signal element being shaped and forming part of the surface of a sphere, means for disposing each element with one edge thereof disposed adjacent the corresponding slot and normally invisible from the front of the board, and signal responsive means for moving each element around an axis and through the slot to cover an area in front of said board.

9. In a signaling system, the combination of a board having a slot therethrough, a signal element, having substantial surface area, disposed at said slot and carried on the rear of said board, and means for moving said element in response to a signal impulse edgewise through said slot and disposing said element in front of said board with its maximum area available to cover the board.

10. The structure of claim 9 wherein said element is pivotally mounted at the rear of said board and is movable through said slot by virtue of said mounting.

11. The structure of claim 9 wherein said slot is semi-circular and wherein said element forms part of a spherical surface.

12. In a signaling system, the combination of a board having a slot therethrough, a bracket pivotally mounted at the rear of said board near said slot, a signal element carried by said bracket, said signal element having substantial surface area, means for moving said bracket on its mounting to move said element edgewise through said slot and dispose said element in front of said board with its maximum area available to cover said board, and at least one stop carried by said bracket adapted to engage the board at the rear thereof to limit the movement thereof.

HALVARD P. HUBERTZ.