May 17, 1927. 1,628,903

J. H. NORTHROP

ATTENTION ARRESTER

Filed April 12, 1923 2 Sheets-Sheet 1

Fig. 1.

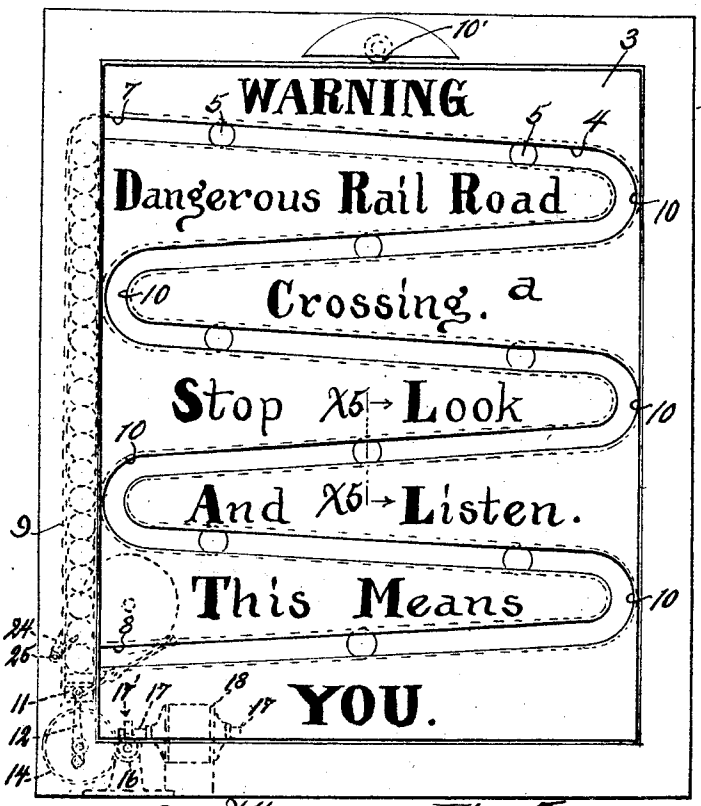


Fig. 2.

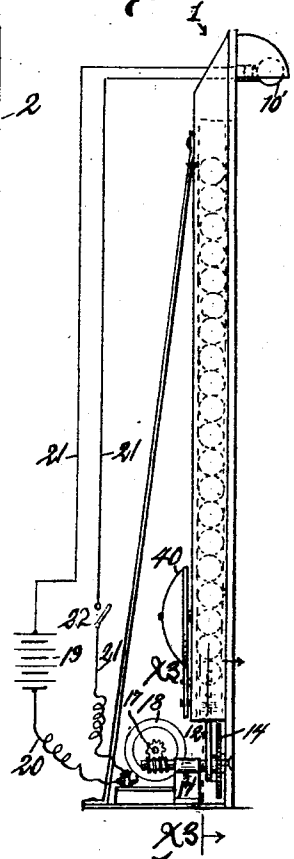


Fig. 3.

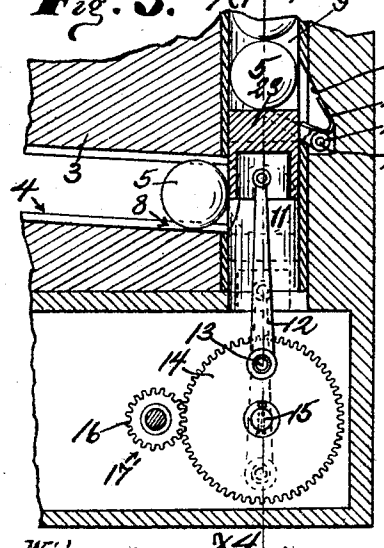


Fig. 4.

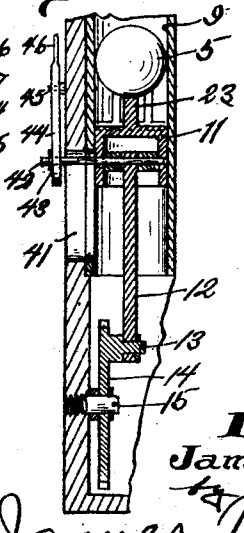
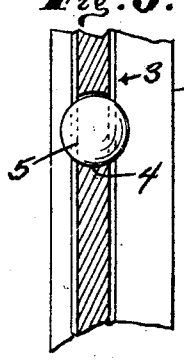


Fig. 5.



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Filed April 12, 1923 2 Sheets-Sheet 2

Fig. 6.

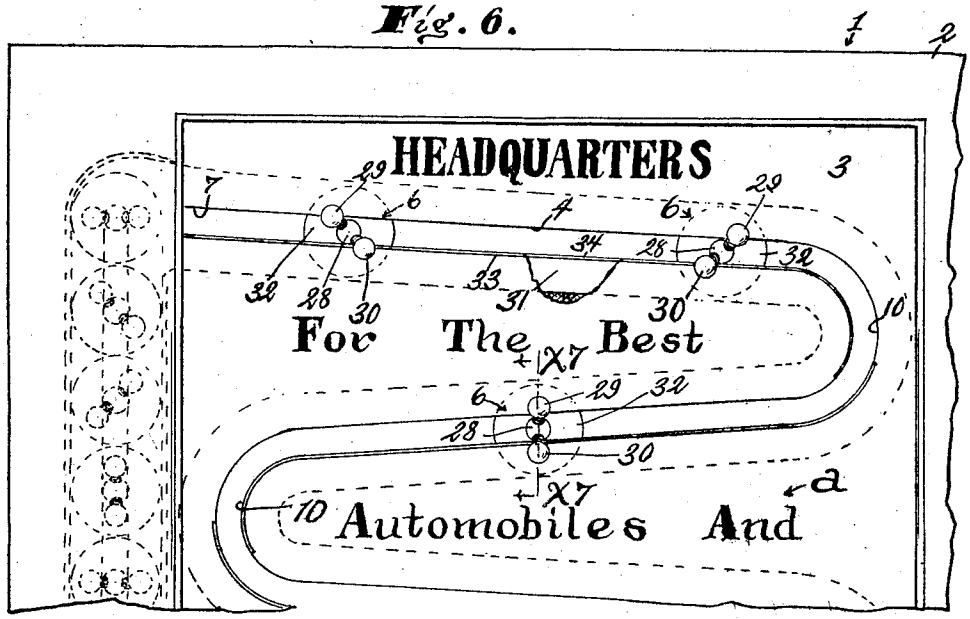


Fig. 7.

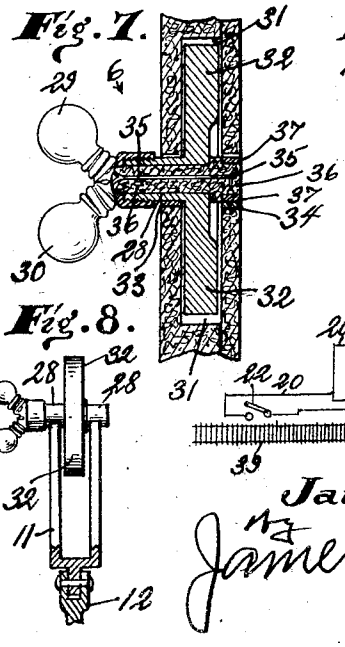
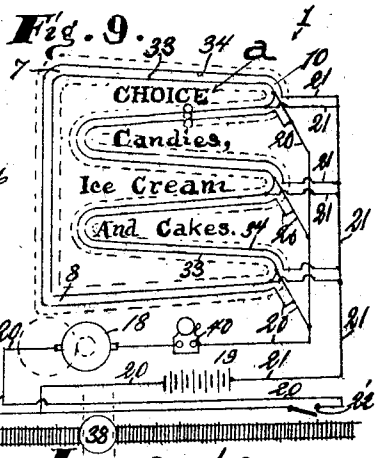


Fig. 8.

Fig. 9.



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Patented May 17, 1927. 1,628,903

UNITED STATES PATENT OFFICE.

JAMES H. NORTHROP, OF SANTA ANA, CALIFORNIA.

ATTENTION ARRESTER.

Application filed April 12, 1923. Serial No. 631,570.

An object of this invention is to provide means for arresting attention and attracting it to advertisements or the like. To that end I provide a sign board having display matter thereon at different levels and provide means whereby attractive objects are made to move along adjacent such matter so that the public will be attracted to look at the objects and be thus impelled to note the display matter.

Another object is to provide a sign board with novel moving lights specially adapted to attract the attention; and the device may be used with or without a gong rung intermittently to aid in attracting attention, and may be used as a danger signal.

An object is to provide a novel, simple and attractive sign board for stores, offices, amusements and other places.

A feature of the invention is the combination and arrangement in a sign board of a sloping runway, rolling devices as light-reflecting balls or spherical reflectors adapted to roll down such runway, and means to automatically return such devices to the top of the runway.

Another feature is the arrangement whereby such devices cause an intermittent illumination of the sign.

An object is to provide a pleasing intermittently illuminated sign that is distinctive from and more agreeable than the flashing lights heretofore known to me.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

The accompanying drawings illustrate the invention.

Figure 1 is a front view of a sign board constructed in accordance with this invention; concealed parts being indicated in broken lines.

Fig. 2 is a side elevation of the sign board as shown in Fig. 1; and with electric motor in place, and a battery connected thereto; said battery being diagrammatically shown, and the return way and column of spherical reflectors being shown in broken lines.

Fig. 3 is an enlarged fragmental section on line x^3, Fig. 2.

Fig. 4 is an enlarged fragmental section on line x^4, Fig. 3.

Fig. 5 is an enlarged fragmental section on line x^5, Fig. 1.

Fig. 6 is an enlarged fragmental sectional front view of the board with a light runway provided with lights that travel in elliptical arcs in addition to moving over the runways.

Fig. 7 is an enlarged fragmental section on line x^7, Fig. 6.

Fig. 8 is a view of the piston yoke in position to lift one of the signal lights.

Fig. 9 is a diagrammatic view of the sign board installed at a railroad crossing to give warning of approaching cars or trains.

The sign board 1 comprises a frame 2 in which there is arranged a plate or back ground 3 and has a runway 4 for light diffusing bodies or other rolling objects that may be spherical reflectors 5 as shown in Figs. 1–5 or the electric globe appliance 6 shown in Figs. 6–9. The objects may or may not be transparent and are preferably of a light reflecting character.

The runway 4 has its upper and lower ends 7, 8 respectively connected to the upper and lower ends of an elevator way 9, and the runway consists of reversely inclined limbs connected by bends 10, so that reflectors 5 entering the runway at 7 will cross and recross a plane of vision paralleling the plane of the plate 3 in a zig-zag course from top to bottom; and the light from the lamp 10′ at the upper end of the board will be reflected from the transparent rolling reflectors; and on account of a continual change of position relative to the lamp 10′ the beams of such light reflected from such reflectors will be correspondingly changed in direction and thereby attract attention to the plate 3 on the face of which can be arranged, printed, written, or other matter, as for instance words as shown at *a* in Fig. 1.

The reflectors 5 are pushed upward and out of the passage 9 by means of a piston 11 that is connected by rod 12, with an eccentric pin 13 on the spur wheel 14 that is mounted on a spindle 15 secured in the frame 2; and the wheel 14 is driven by a pinion 16 that is connected by a worm drive 17′ with the shaft 17 of a motor 18 which can be driven by any desired means as from a source of electrical power such as the battery 19 that is connected to the motor by wiring 20, 21 in which there is shown the interposed lamp 10 and a switch 22.

The piston 11 is provided with an extension 23 that is adapted to engage the under side of reflectors 5 and lift them above a dog 24 that is pivoted on a pin 25 in a re-

cess 26 in the wall of the passage 9 and frame 2 so as to allow the reflectors to pass up, and to prevent them from returning.

The free end of the dog 24 is normally held in the way 9 by a spring 27 so that when the piston is in its lowest position the dog will support the reflectors above it until another reflector is forced upward by the piston.

From the dog 24 upwards the passage 9 is filled with reflectors so that each time the piston forces one upward the top one in the upright passage or way 9 will be forced outward onto the runway 4 at 7 from which point it will travel downward by gravity to again enter the passages 9 at 8.

Preferably about nine of the reflectors 5 are kept out in the runway 4; although a greater or less number may be used, as desired.

In the appliance shown in Figs. 6–9 cylindrical rollers 28 are substituted for the reflectors 5 and these rollers carry the lamps 29, 30 that are substituted for the lamp 10′; and the runway 4 is recessed above and below to form a passage 31 for the flywheels 32 that are connected to the rollers 28, to cause the rollers 28 to roll by gravity down the runway 4; and to also overcome unbalancing effects the extended lamps 29, 30 might otherwise have on the rollers. That is to say the diameters of the wheels 32 are much greater than the extreme space between adjacent lamps; and are of considerable weight so that gravity will cause them to easily overcome any balancing of the lamps and cause the rollers to move down the inclined runway 4.

The rollers 28 and associated parts are adapted and arranged to be raised through the passage 9 substantially in like manner as are the reflectors 5 except that the construction of the passage 9 is arranged to conform to the combination of rollers 28 and the parts connected thereto; and also the piston 11 is so constructed that its fork arms will engage opposite ends of the rollers 28 as illustrated in Fig. 8 so as to lift them above the dog 24; and in doing so discharge the upper roller into the runway 4 at 7.

As each roller 28 rolls down the runway 4, the lamps 29, 30 revolve describing courses that attract the observer to determine the unusual light movement.

The lamps 29, 30 are in circuit with the battery 19 by the wires 20, 21 that can be connected directly with contact strips 33, 34 laid in the bottom of the runway 4 as shown in Figs. 6 and 7 or connected thereto; as diagrammatically illustrated in Fig. 9 in which the sign board is associated with a railroad crossing.

As illustrated in Fig. 7, with parts in circuit, current will pass through wire 20 to contact strip 33 then through the lamps 29, 30 through a wire 35 in the fiber portion 36 of the roller 28 to the metal hub 37 that rolls on the contact strip 34, and back to battery over the wire 21.

When the sign board is used in connection with a railroad crossing as illustrated in Fig. 9 the wire 20 is provided with open switches 22, 22′ that are positioned on opposite sides of a rail crossing 38; and a sufficient distance therefrom to give timely warning to persons crossing the track 39; and these switches are opened and closed by trains passing over the track. The means for opening and closing these switches are old and are well understood and are therefore not shown or described in detail.

When either of the switches are thrown into circuit, the motor 18 will be actuated intermittently to force the rollers 28 out onto the runway 4 where their lamps 29, 30 will be lighted to illuminate the face of the plate 3; and to travel in a course that will attract attention to the markings printed or written on the plate.

If desired also a gong 40 can be connected in the circuit as shown in Fig. 9 or directly operated by action of the motor 18 as illustrated in Figs. 1, 2, 4.

As seen therein the back walls of passage 9 and frame 2 are slotted at 41, and a wrist pin 42 is extended therethrough and connects the piston 11 with the rod 12; and this pin is extended through a slot 43 in the end of the striker arm 44 that is pivoted at 45 in position for its spring end 46 to strike the gong 40 each time the piston 11 descends to its lowest position.

In operation the actuation of the piston 11 on each upward stroke, forces a spherical reflector out onto the upper end of the runway into the rays of light that are directed by a lamp onto the board from where it and others following descend in a zig-zag course over the face of the board to the lower end; and by their movement and reflected light therefrom as well as the action of the gong, will attract attention to the matter on the sign board.

I claim:

1. A sign board comprising a plate adapted to have printed matter thereon; a runway across said plate; light reflecting balls operable in said runway; means for continuously moving the light reflecting balls along said runway; and means for illuminating the moving objects to attract attention to said board.

2. A sign board comprising a plate adapted to have printed matter thereon; a runway on said plate; means for continuously and automatically passing balls over said runway; and means for illuminating said balls as they pass over said runway.

3. A sign board comprising a plate adapted to have written or printed matter

thereon; a zig-zag runway in said plate; light reflecting balls operable on said runway; means for intermittently forcing said light reflecting balls onto said runway; and means for directing light on the balls as the same pass over said runway, so that the reflected light from said balls will attract attention to said board.

4. A sign board comprising a plate adapted to have written or printed matter thereon; a downwardly inclined zig-zag runway, said runway having upper and lower ends; rolling reflectors operable on said runway; means for intermittently forcing said rolling reflector onto the upper end of said runway; means for directing light onto said reflectors as they pass downward over said runway; and an elevator passage way connecting the lower with the upper end of said runway.

5. A sign board comprising a frame; a plate in said frame; a runway in said plate, said runway having upper and lower ends; an elevator passage connecting the lower with the upper end of said runway; rolling reflectors operable on said runway; means for intermittently forcing said rolling reflectors upward through said passage and out on the upper end of said runway; and means for illuminating said reflectors as they pass downward over said runway.

6. A sign board comprising a frame; a plate in said frame; a zig-zag downwardly inclined runway in said plate said runway having upper and lower ends; a passage in said frame that connects the lower with the upper end of said runway; spherical reflectors in said passage; a piston for intermittently forcing said reflectors out onto the upper end of said runway; means for illuminating said reflectors as they pass downward over said runway; and means for actuating said piston.

7. A sign board comprising a frame; a plate in said frame; a zig-zag downwardly inclined run-way in said plate said runway having upper and lower ends; a passage in said frame that connects the lower with the upper end of said runway; spherical reflectors in said passage; a piston for intermittently forcing said reflectors out onto the upper end of said runway; a lamp for illuminating said reflectors as they pass downward over said runway; and a motor for actuating said piston.

8. A sign board comprising a frame; a plate in said frame; a zig-zag downwardly inclined runway in said plate said runway having upper and lower ends; a passage in said frame that connects the lower with the upper end of said runway; a column of spherical reflectors in said passage; means for supporting the reflectors in said passage so that the topmost ball is adjacent to the upper end of said runway; a piston for intermittently actuating said column of reflectors to force the top one out onto the upper end of said runway at each upward thrust of said piston; a lamp for illuminating said reflectors as they pass over said runway; and a motor for actuating said piston.

9. A sign board comprising a plate having an inclined zig-zag runway formed therein; spherical reflecting elements adapted to run in said runway; lighting means for illuminating said reflecting elements during downward movement in said runway; and means to automatically and continuously move the reflecting elements from the lower to the upper end of the way.

10. A sign board comprising a plate provided with advertising matter; an inclined runway in said plate adjacent the advertising matter; light reflecting elements adapted to move down the way; means to automatically and continuously move said light reflecting elements from the lower to the upper end of the way, and means for illuminating said elements during their downward movement in the way.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 2nd day of April, 1923.

JAMES H. NORTHROP.