Nov. 6, 1945. A. M. RYAN 2,388,646

DISPLAY SIGN

Filed Sept. 23, 1941 2 Sheets-Sheet 1

Fig. 1.

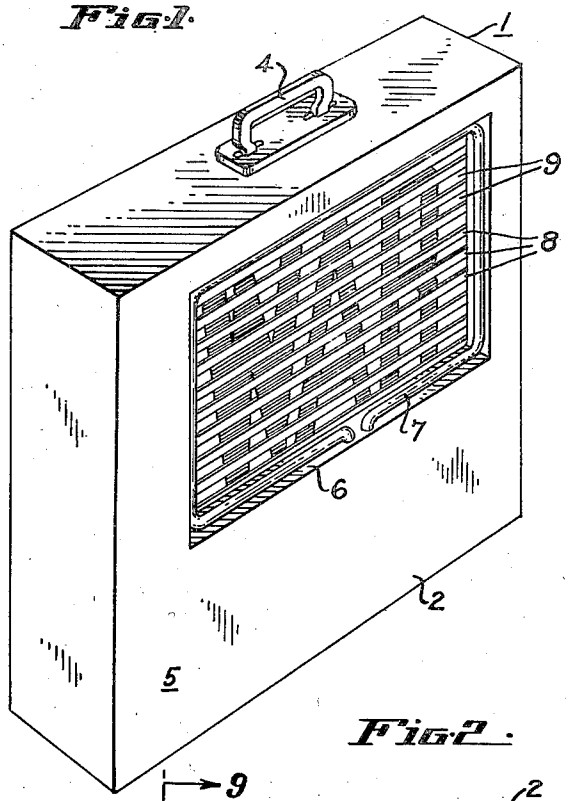


Fig. 2.

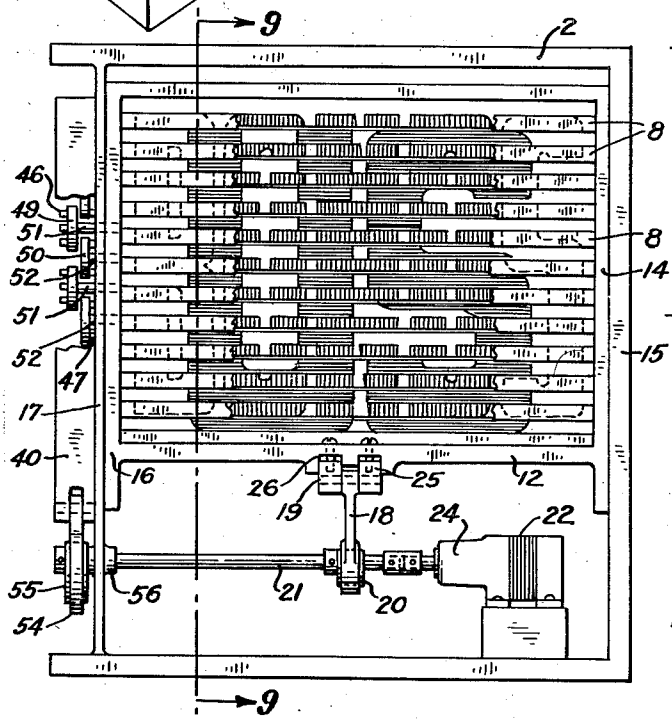


Fig. 3.

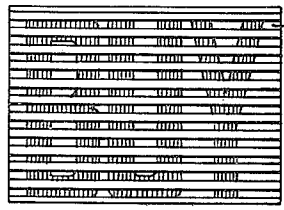


Fig. 4.

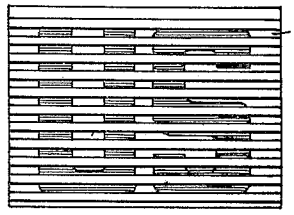


Fig. 5.

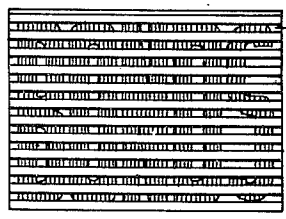


Fig. 6.

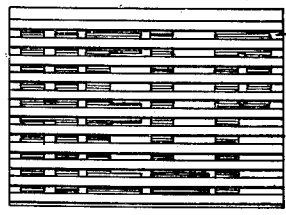
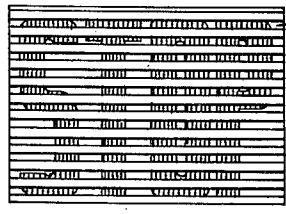


Fig. 7.



INVENTOR.
ARTHUR M. RYAN
BY
Chas. E. Townsend
ATTORNEY

Nov. 6, 1945. A. M. RYAN 2,388,646

DISPLAY SIGN

Filed Sept. 23, 1941 2 Sheets-Sheet 2

Fig. 8.

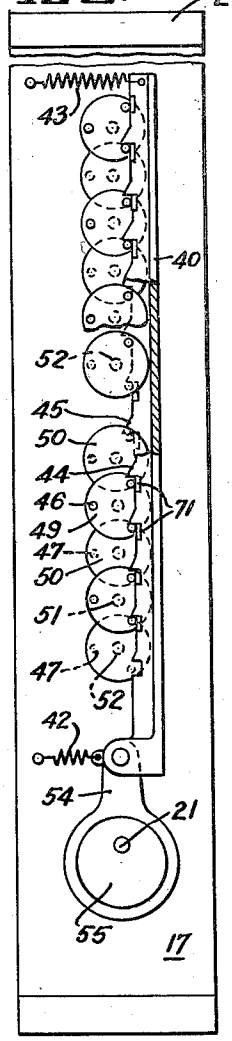


Fig. 9.

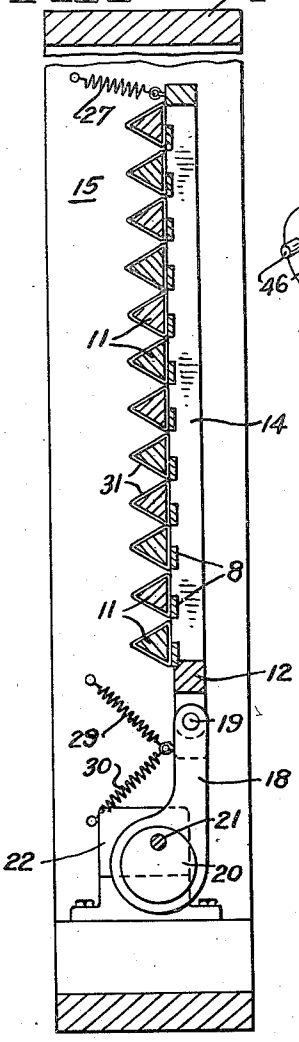


Fig. 10.

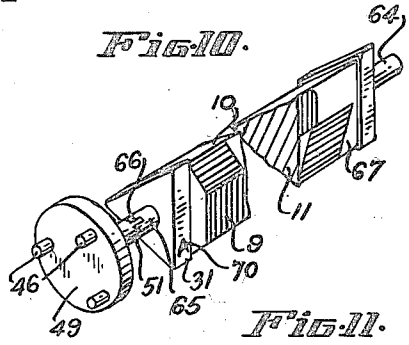


Fig. 11.

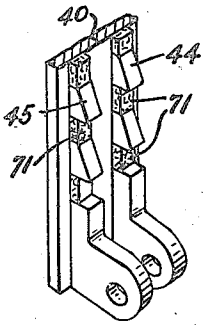
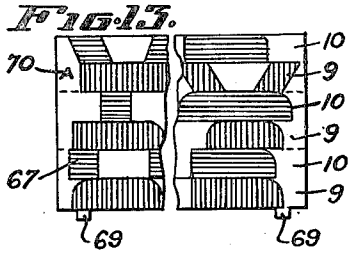


Fig. 13.



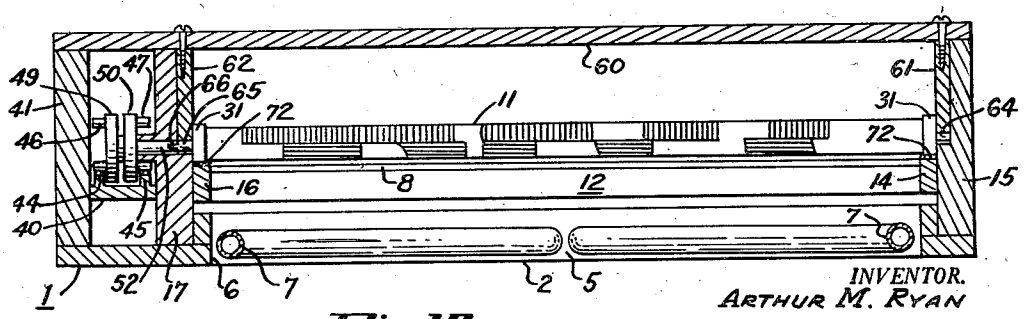


Fig. 12.

INVENTOR.
ARTHUR M. RYAN

BY

Chas. E. Townsend
ATTORNEY.

Patented Nov. 6, 1945 2,388,646

UNITED STATES PATENT OFFICE

2,388,646

DISPLAY SIGN

Arthur M. Ryan, San Mateo, Calif.

Application September 23, 1941, Serial No. 411,955

5 Claims. (Cl. 40—76)

My invention relates to advertising display signs and particularly to an animated sign which presents a series of advertising messages in sequence.

It is a well known principle of advertising that the subject matter of a sign is more likely to attract the eye if it is moving than if it is stationary. To attract the attention of the public, a large number of ingenious display signs have been devised which endeavor to attract the attention by flashing or changing colored lights in different patterns. In other signs an artistic design may be changed at frequent intervals. In those cases where is is desired to focus the attention upon a slogan or written descriptive matter rather than to appeal pictorially, many arrangements have been devised to present a succession of different subject matter groups. Exemplary of such systems is the use of moving picture films, stereoptican slides, and similar means. In other signs a series of cards, each bearing parts of the whole message, is successively presented, allowing sufficient time for the on-looker to read the card before it is removed, and the next portion of the message disclosed to view.

Another simple yet satisfactory embodiment uses a number of parallelly journaled bars having a plurality of bounding faces. Each face of each bar carries a portion of a display, and the bars are rotated in unison by suitable means to present successive displays. If the bars are of triangular cross-section, three complete displays may be presented; if of square cross-section, four displays are available, and so on. This type of sign has proved very satisfactory in service.

The present invention is an improvement on the above arrangement which permits twice as many complete displays for the same number of bar faces, that is, six on triangular bars, eight on square bars, and so forth.

In brief, my invention consists in setting out components of one complete display on the upper halves of a series of parallel bar faces, and a second set of display components on the lower halves of the same bar faces. A shutter having a number of narrow slats is used to cover the upper and lower bar halves alternately, thus exposing the complete displays in sequence. The bars are then rotated to bring the next set of faces into position, and the shutter again exposes first the upper and then the lower bar halves. These steps are repeated until all the bars have been turned through a complete revolution.

Each shutter slat is made one-half the width of one bar face, and the shutter is held close to the bars so that sharp definition is secured. Any desired fineness of detail may be obtained by increasing the number of bars and breaking up the display into smaller segments.

The embodiment illustrated uses triangular bars and has six displays, but it will be obvious that this may be increased to display additional messages by using bars having more than three faces.

It will be seen that the primary object of my invention is to provide a striking advertising display, the character of which changes frequently in sequence to keep the interest of the observer alive. Another object is to produce such an advertising or display unit in a simple mechanical form. Still another object is to double and animate the number of slogans or message components which may be displayed on a sign having parallel rotating display faces.

These and other objects will be apparent to those skilled in the art from an inspection of the drawings forming a part of this specification, and a study of the detailed description thereof hereafter. I do not desire to limit myself to the exact embodiment shown, but to include any modifications in detail and such other embodiments as may fall within the scope of the claims.

In the drawings:

Fig. 1 is a perspective view of a portable display unit embodying my invention;

Fig. 2 is a front view of the device shown in Fig. 1 with the forward face of the case removed;

Figs. 3, 4, 5, 6 and 7 represent sequential steps in the presentation of a complete message by operation of the device of Fig. 1, with the display shown in that figure forming the last unit of the complete message sequence beginning in Fig. 3;

Fig. 8 is a side view from the left of Fig. 2, showing details of the rack mechanism for rotating the parallel bars;

Fig. 9 is a sectional view taken along line 9—9 of Fig. 2, showing the triangular bars and shutter detail;

Fig. 10 is a fragmentary, perspective view of one of the shutter bars and the rotating means;

Fig. 11 is a fragmentary perspective view of the rack for rotating the bars; and

Fig. 12 is a sectional top view of the device shown in Fig. 1.

Referring now to Fig. 1, I have shown my invention embodied in a portable unit, generally indicated at 1, housed in a carrying case 2 having a handle 4. The case 2 is rectangular in the form illustrated, and has a window 6 cut through one of the sides 5, through which the display message is visible. Window 6 is optionally bordered by illuminating means, such as neon tubing 7, providing light for the operation of the display at night. Obviously, it is not necessary that this light be furnished by neon tubing, and any other suitable light source may be employed, or the display messages may be illuminated by conventional lighting entirely separate from the unit 1.

Within window 6 are visible the shutter slats 8, which are actuated in unison by means described hereinafter. Between the slats 8, the upper or

lower halves of the parallel display faces attached to the triangular bars 11 may be seen in Figs. 9, 10 and 12. In Fig. 4, 6 and 1, the shutter is in its lower position, exposing the upper half 9 of each triangular bar. In Figs. 3, 5 and 7, the shutter slats 8 are in their upper position, exposing the lower half 10 of each triangular bar 11. Both halves 9 and 10 of bar 11 are visible in Fig. 10.

Shutter slats 8 are illustrated in detail in Figs. 1, 2, 9 and 12. Each slat 8 is a thin, flat, strip of wood, metal or equivalent material of width exactly one-half that of each face of the triangular bar 11. The slats 8 are secured parallel to each other and spaced apart by an amount equal to their width in a shutter frame 12 slidably disposed within the case 2. At the right end, as shown in Fig. 2, the end member 14 of the shutter frame 12 is disposed in slidable contact with the right end wall 15 of the case 2. At the left end of the shutter frame 12, end member 16 is slidably engaged with a vertical partition 17 in the case 2. The shutter frame 12 is reciprocated vertically within the case 2 by means of a lever 18 pivotally secured to the shutter frame at 19. Lever 18 is driven by an eccentric cam 20 mounted on a drive shaft 21 and coupled to a motor 22 through a reduction gear 24.

The eccentric 20 may revolve at any speed necessary to permit an observer to digest the subject matter of each successive portion of the display, without delaying so long as to tire him. Control means, not shown, may be provided to vary this speed in accordance with the type of message being displayed. Such control means are conventional and form no part of the present invention, so they have been omitted from the drawings. The shutter frame 12 must be vertically adjustable so that the individual shutter slats 8 will cut off exactly that portion of each display face which is desired, and no more. I have illustrated in Fig. 2 the provision for vertical adjustment of the shutter by simple means, namely, by varying the spacing between the shutter frame 12 and journal members 25 which carry pivotal connection 19. The spacing is varied by the use of adjustable shims 26.

The shutter frame 12 is held resiliently against the most forward portions of triangular bars 11 by upper mounting spring 27 and lower mounting springs 29 and 30. Springs 29 and 30 could be replaced by a single spring if desired. The springs 27, 29, and 30 are anchored within the case 2 and hold the shutter snugly against the triangular bars 11. When the bars 11 are turned so that one face of each lies is a common plane with the corresponding face of each of the other bars, the slats 8 are held in close contact therewith so that sharp definition of the advertising or display matter on the upper and lower halves 9 and 10 of the bars 11 is secured. When the triangular bars 11 are rotated to bring the next successive face of each into a common plane, end engaging surfaces 31 press against the side portions 14 and 16 of the shutter 12 and force the entire shutter forward. The shutter 12 will move only enough to permit the bars 11 to rotate to their new positions, and will be immediately returned by the springs 27, 29 and 30 to close contact with the next successive group of bar faces.

The mechanism by which the bars 11 are rotated is shown in end view in Fig. 8 at completion of propelling stroke. A rack 40 is held parallel to shutter 12 between partition 17 and the left hand case end 41 by a bottom spring 42 and a top spring 43 fixed to case 2. Rack 40 has two laterally spaced rows of rack teeth 44 and 45. Rack teeth 44 and 45 engages pins 46 and 47 projecting from outer and inner rows of discs 49 and 50, respectively. The discs are divided into inner and outer rows and alternately disposed therein to insure adequate clearances. Each of the outer row of discs 49 has three symmetrically disposed pins 46 outwardly projecting therefrom parallel to a disc stub shalt 51 on which the disc 49 is mounted. Each of the inner row of discs 50 has three symmetrically spaced pins 47 projecting inwardly therefrom parallel to a disc stub shaft 52 on which the disc 50 is mounted. Rack 40 is reciprocated vertically by a connecting rod 54 engaging an eccentric 55 disposed on motor drive shaft 21, which extends through a journal 56 in partition 17.

Each time the rack 40 is drawn downwardly, rack teeth 44 and 45 engage pins 46 and 47, causing discs 49 and 50 and stub shafts 51 and 52 to turn one-third of a revolution, and rotating the triangular bars through a corresponding arc. Three successive revolutions of shaft 21 thus causes the three faces of the bars 11 to be presented to view.

During each revolution of shaft 21, the shutter-moving eccentric 20 has held the shutter 12 in upper position for almost half the time and in lower position for a similar period. During the transitions between upper and lower positions, the bars 11 are being rotated by the rack 40 and pins 46 and 47.

I provide for replacing the display matter by mounting the bars 11 removably. Rear wall 60, inner end wall 61, and inner partition wall 62 are removable from case 2 as a unit. The bars 11 are mounted on stub shafts 64 and 65, which are journaled between the inner end and partition walls 61 and 62 and the end wall 15 and partition 17, respectively. When rear wall 60 is removed, the bars 11 may be taken out by disengaging stub shafts 65 from the disc stub shafts 51 and 52. A slotted or keyed connection 66 of conventional form may be used for this purpose.

The new display matter, a separately printed cover 67 for each bar 11, is then pasted or otherwise secured about the bar 11, as by tabs 69. Fig. 13 shows how such a cover 67 looks when printed on a flat sheet. The sheet is folded in thirds longitudinally so that the upper and lower halves 9 and 10 will be properly disposed on the bar 11. The sheet 67 illustrated is that used to produce the sequences of Figs. 3–7 and 1, and the upper component part of the first and last letter on each half of each bar is illustrated. Appropriate index marks 70 may be made on the bar 11 and sheet 67 to secure proper alinement of the message components on the separate bars 11. Other means of attachment, such as printing the legends on paper coated with a pressure-sensitive adhesive, will occur to those skilled in the art.

In some cases it may be desired to replace the slotted connection 66 by a connection operable in any rotational position at bar 11. In such case the display sheet 67 may be secured about the bar 11 without regard to the indices 70, and the bars rotated individually until the proper relative positions are found.

I find it desirable to insert pads 71 of felt or similar material between adjacent rack teeth 44 and 45 to deaden the noise of engagement between the rack and pins. Similarly, it is desirable to face the shutter sides 14 and 16 with leather or its equivalent 72 where they are acted

on by the engaging surfaces 31 at the ends of bars 11.

If desired, the device may be used with the bars and shutter slats in a vertical instead of a horizontal position. The driving mechanism is turned, in such case, so that the shutter is reciprocated horizontally and the bars turned about vertical axes. This embodiment has advantages for certain uses, and may require less power to operate.

In summary, it will be seen that I have invented an advertising device which is mechanically simple and which makes it possible to present a greater number of displays with the rotating bar type of construction. It will be seen that an additional number of displays may be provided by increasing the number of faces on each bar, or by subdividing the faces still further and utilizing additional shutter components. My display attracts the eye of the public, and can be operated at low cost compared with other animated or moving signs. It can be changed over to advertise any product by merely changing copy 67. By using black painted shutters and black copy background with luminous painted letters or figures, effective black out animated advertising results.

What I claim is:

1. A device for presenting sequentially a series of displays comprising a plurality of multi-faced members mounted for rotation about parallel axes, a component of a single display disposed on the upper half of each face of each of said members, a component of a second display disposed on the lower half of each face of each of said members, means for alining simultaneously two complete displays formed on said upper and lower face halves of said members, motor-driven means to rotate said multi-faced members in unison, a vertically adjustable shutter frame having spaced slats disposed parallel to said multi-faced members, and motor-driven means to reciprocate said shutter in timed relation to the rotation of said multi-faced members so that the upper face components of said multi-faced members are masked and exposed alternately, and the lower face components of said multi-faced members are masked and exposed alternately and the upper face components are masked and exposed alternately with respect to the lower face components as said multi-faced members are rotated.

2. A device for presenting sequentially a series of displays, comprising a plurality of multi-faced members mounted for rotation about parallel axes, a component of a single display disposed on the upper half of each face of each of said members, a component of a second display disposed on the lower half of each face of each of said members, means for alining simultaneously two complete displays formed on said upper and lower face halves of said members, a shutter arranged to mask half the face of each of said members simultaneously, means for shifting said shutter to expose alternately said displays formed on upper and lower half faces, means for rotating said members to bring succeeding member faces into alinement for alternate half-face exposure, common drive means actuating said member rotating means and said shutter shifting means in timed relation with respect to one another, and means to hold said shutter resiliently against the alined faces of said members.

3. A device for presenting sequentially a series of displays, comprising a plurality of multi-faced members mounted for rotation about parallel axes, a component of a single display disposed on the upper half of each face of each of said members, a component of a second display disposed on the lower half of each face of each of said members, means for alining simultaneously two complete displays formed on said upper and lower face halves of said members, a shutter arranged to mask half the face of each of said members simultaneously, means to hold said shutter resiliently against the alined faces of said members, means for shifting said shutter to expose alternately said displays formed on upper and lower half faces, means for rotating said members to bring succeeding member faces into alinement for alternate half-face exposure, common drive means actuating said member rotating means and said shutter shifting means in timed relation with each other whereby said shutter masks and exposes said multi-faced members in timed relation to the rotation of said multi-faced members and means for removing said multi-faced members for the application of different displays.

4. A device for presenting sequentially a series of displays, comprising a plurality of multi-faced members mounted for rotation about parallel axes, a component of a single display disposed on the upper half of each face of each of said members, a component of a second display disposed on the lower half of each face of each of said members, means for alining simultaneously two complete displays formed on said upper and lower face halves of said members, means to rotate said multi-faced members in unison, a shutter frame having a plurality of spaced parallel slats disposed parallel to said multi-faced members, and means to reciprocate said shutter in timed relation to the rotation of said multi-faced members so that said shutter masks and exposes alternately the upper face components of said multi-faced members and masks and exposes alternately the lower face components of said multi-faced members and masks and exposes alternately the upper face components with respect to the lower face components as said multi-faced members are rotated.

5. A device for presenting sequentially a series of displays, comprising a plurality of multi-faced members mounted for rotation about parallel axes, a component of a single display disposed on the upper half of each face of each of said members, a component of a second display disposed on the lower half of each face of each of said members, means for alining simultaneously two complete displays formed on said upper and lower face halves of said members, means to rotate said multi-faced members in unison, a shutter frame having a plurality of spaced parallel slats disposed parallel to said multi-faced members, means to reciprocate said shutter in timed relation to the rotation of said multi-faced members so that said shutter masks and exposes alternately the upper face components of said multi-faced members and masks and exposes alternately the lower face components of said multi-faced members and masks and exposes alternately the upper face components with respect to the lower face components as said multi-faced members are rotated, and means to hold said shutter resiliently against the alined faces of said multi-faced members.

ARTHUR M. RYAN.