March 12, 1963 R. REALI 3,080,668

ADVERTISING BILLBOARD SHOWING A MULTIPLICITY OF SUBJECTS

Filed Aug. 1, 1960 2 Sheets-Sheet 1

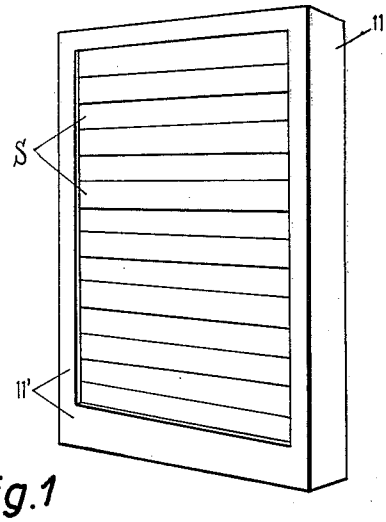


Fig.1

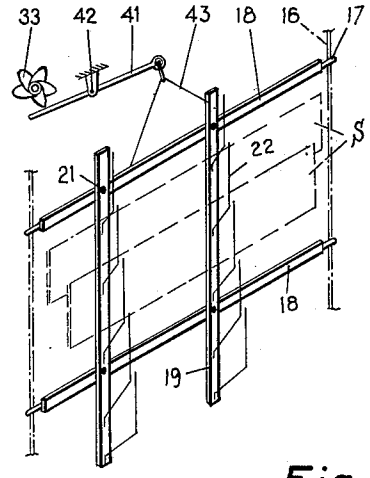


Fig.9

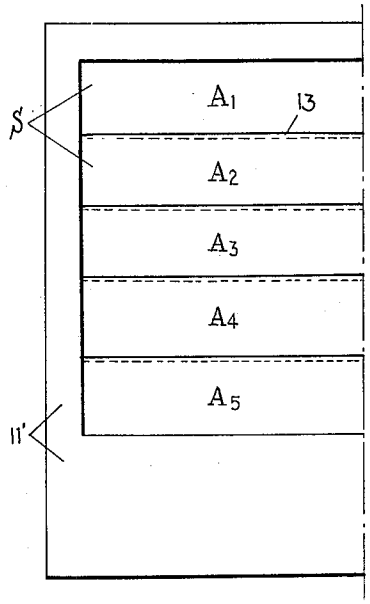


Fig. 2

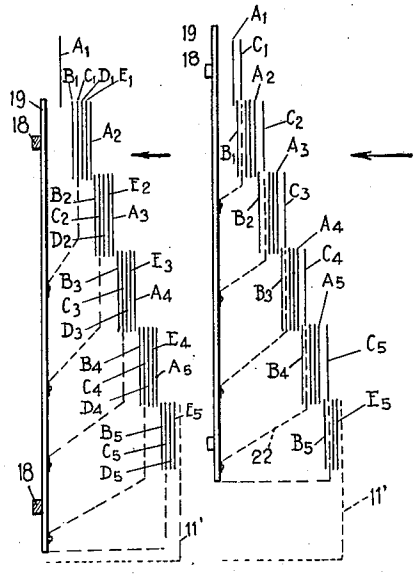


Fig.3

Fig.4

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ADVERTISING BILLBOARD SHOWING A MULTIPLICITY OF SUBJECTS

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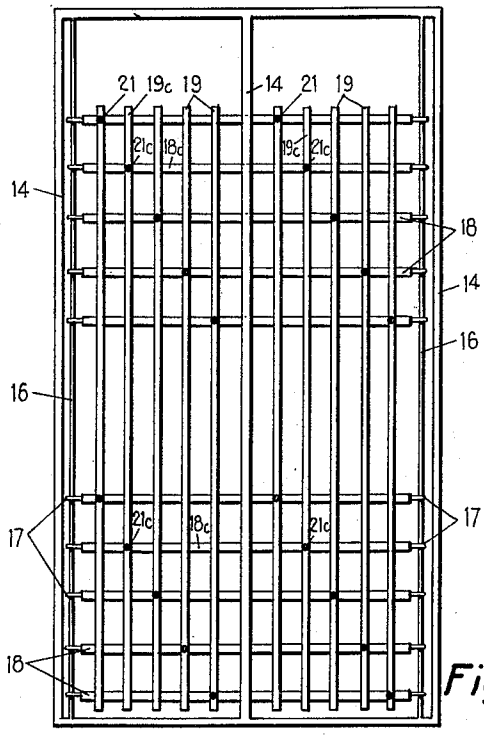


Fig.5

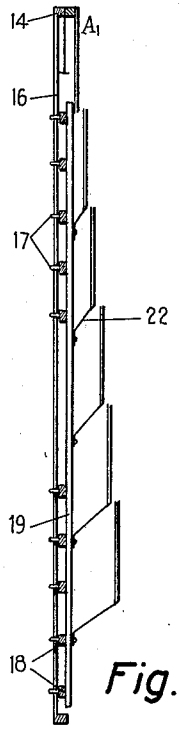


Fig.6

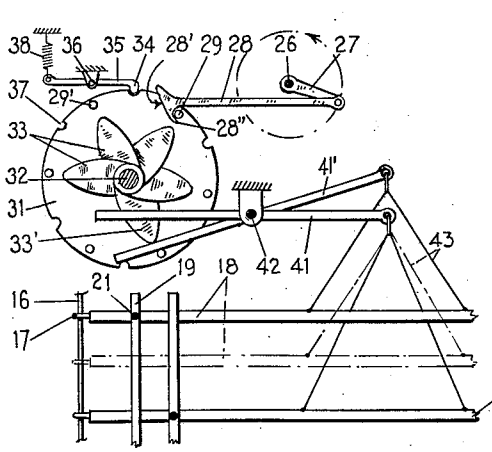


Fig.7

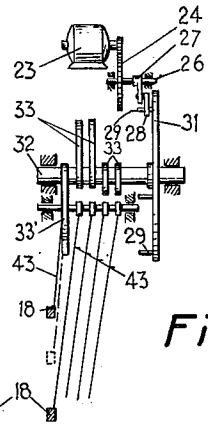


Fig.8

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ADVERTISING BILLBOARD SHOWING A MULTIPLICITY OF SUBJECTS

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3 Claims. (Cl. 40—36)

The increasing popularity of roadside advertising billboards has resulted in the progressive occupation of all available space in the locations where the flow of the public is greatest. This has led the advertisers to use devices whereby, in the same space and at a determined rate, several advertising posters of the same size are caused to be shown in succession, with an effect of motion which attracts the interest of the public and more than offsets the effect of the reduction in the total exposure time.

The device which forms the object of this invention is based on the concept of utilising a given space by causing a succession of advertising pictures to be shown in succession therein. In its simplest embodiment, it consists of a rectangular box, presenting to the observer's view, if necessary with the protection of a transparent panel, a square or rectangular face, such box having a base, roof, two sides and a back panel.

Each picture is divided into several horizontal strips which, appropriately combined together, substantially and apparently on the same plane, compose a complete picture.

A set of these strips forming a complete picture is attached to the sides of the frame with the face turned towards the observer, and the individual strips do not lie precisely on the same plane, but on parallel planes, each slightly behind the preceding one from the bottom upwards. This progressive staggering of the planes on which the picture is inscribed, however, is scarcely perceptible when the picture is viewed as a whole, since the spacing of the various planes is proportional not only to the size of the picture and to the thickness of the strips, but also to the number of the latter.

As it can be understood from the foregoing, the passage from the view of one picture to that of the next is achieved by simultaneously overlapping to each of the fixed strips the first, i.e. the nearest to those which are gathered behind the strip immediately below each fixed strip, then the second, the third and so on, till all strips are successively shown, i.e. till all pictures are exposed to the view. Moreover, as will be described in detail, to the rising of each set of strips corresponds through a mechanical linkage the lowering of another set of strips, so that the number of strips arranged simultaneously on the same alignment does not change.

In order that the moving strips be guided in their movement leading them to face the viewer, without the danger of jamming or twisting, the upper edge of each fixed strip slightly overlaps the lower edge of the fixed strip next above it.

Each set of moving strips is attached to a frame, which performs an upwards or downward movement, the amplitude of which corresponds to the passage from its original position to the position in which it overlaps the strip next above, and to the return to the original position. Each of the frames, therefore, is free to perform these movements without hindering the similar movements of the other frames.

Each picture remains exposed to the viewer for a predetermined time, then the fast change to the next picture takes place automatically.

Since in the final position the lowest strip of the moving pictures is not covered by the corresponding strip of the fixed picture, it is concealed by the frame which, in its lower horizontal side, is suitably widened.

It is obvious that the strips can be made to move horizontally instead of vertically as described above.

The detailed description of the invention will be more easily followed by referring to the enclosed drawings which represent, as non-limiting example, one embodiment thereof.

In the drawings:

FIG. 1 represents a general perspective view of a horizontal-strip advertising billboard according to the invention;

FIG. 2 is a partial front view of a billboard which, for the sake of simplicity, is assumed to be composed of five strips;

FIG. 3 is the same billboard as in FIG. 2, seen from the side and with the strips in an initial position;

FIG. 4 is the same billboard as in FIG. 3, with another set of strips in view;

FIG. 5 is a front view of the complex of the frames which support and actuate the strips;

FIG. 6 is the frame of FIG. 5, seen from the side;

FIG. 7 shows the mechanisms which actuate the frames supporting the strips;

FIG. 8 is a side view of the same mechanisms;

FIG. 9 is a perspective view of one of the moving frames on which are mounted the brackets supporting the horizontal strips.

With reference to the figures, the device illustrated in the example consists of a rectangular box **11**, the front face of which is framed by a frame **11'**, the lower side of which is substantially wider than the sides and top, since it must conceal one set of horizontal strips.

The fixed strips which form picture A are designated as A_1, A_2 . . . A_5. The moving strips are designated respectively as B, C, D, E depending on whether they are parts of picture A, B . . . E and are indexed **1, 2, 3, 4, 5** from top to bottom. All strips present a narrow overlap **13** (FIG. 2), so that in their reciprocating vertical movements they can maintain precisely the initial reciprocal position.

With special reference to FIGURES 3 and 4 in which, as indicated above, the visible strips forming the picture are five, there will be one more set of strips, for constructional and operating reasons, but these strips will be concealed from the observer's view by the lower side of frame **11'**.

In FIG. 4, picture C is displayed. This is achieved by raising the corresponding frame, which presents strips C_1, C_2 . . . C_5 before the corresponding strips A, concealing them from sight.

The strip actuating mechanism comprises the multiple frame shown in FIG. 5, in which is visible the fixed framework **14** consisting of three vertical members (two side and one central) and of two horizontal bars (one top and one bottom). In a fixed position on the framework and towards the sides thereof are arranged two guide bars **16—16**, which may consist for instance of metal rods. Along the said guide bars slide rings **17** attached to the ends of the horizontal bars **18** which are part of the moving strip-supporting frames.

Each of these moving frames consists of two horizontal bars **18**, at the ends of which are attached rings **17** as indicated above, and of two vertical members **19** which, in combination with the said crossbars **18**, form a rectangle whose corners **21** are rigidly interconnected.

Each frame is designed to carry all strips forming a single picture, and therefore it must be free to rise, with respect to the position shown in FIG. 5, performing a vertical excursion approximately as long as the width of

one strip. In FIG. 5, for instance, the frame supporting the strips forming picture C is shown, and are likewise shown all elements composing the same frame, i.e. the two horizontal bars 18C, the two vertical bars 19C and the four rigid fasteners of corners 21C, which can be bolts, welds or the like.

For greater clarity, the same frame is also shown in a perspective view and separately in FIG. 9, which also shows brackets 22 supporting the strips. These brackets have an overhang increasing from top to bottom, and are the elements which locate the different parallel planes in which the strips lie as indicated above. In the same figure are shown in dotted lines two strips of Picture C and are outlined the devices which cause the frame to rise and fall, which devices are more particularly described below with reference to FIGURES 7 and 8.

Motor 23, the speed of which is suitably reduced by means of a device 24 indicated in FIG. 8, drives shaft 26 which, by means of a crank 27, imparts a reciprocating motion to connecting rod 28 pivoted on the said crank. At its free end, the connecting rod presents a sloping face 28' and a hook 28''. The latter engages pins 29 suitably distributed around the circumference of the disc 31 attached to a shaft 32, on which are mounted as many cams 33 as are the frames of the picture.

In its reciprocating motion, connecting rod 28 remains in an approximately horizontal position and extending towards the left side of FIG. 7, in the direction of pin 29', its sloping face 28' slides above the said pin and beyond it, while in the return stroke it pulls the pin back, together with disc 31, over an angle of about 60°. Disc 31, during the non-working strokes of the connection rod, remains stationary because a block 34 at the end of lever 35 pivoted on 36 engages one of the recesses 37 in disc 31 and locks it. This locking device, however, does not prevent the disc from making an angular movement when pulled by connecting rod 28 because a suitably stressed spring 38 allows block 34, at the proper time, to move out of engagement with recess 37.

Disc 31, therefore, is caused to rotate at intervals, the length of which is variable depending on the speed of shaft 26 and on the proportion between the lengths of connecting rod 28 and crank 27. Cams 33, mounted as indicated above on shaft 32, are arranged on different parallel planes and each actuates a lever 41 pivoted on shaft 42, carrying at the end a ring to which are attached two pull rods 43 which raise the individual frames.

FIG. 7 shows the assembly of levers 41 aligned on the same plane and in lowered position, while a lever 41' is in raised position and corresponds to the action exerted by cam 33' which has raised, for instance, frame 18B—19B from the position shown in dotted lines to that shown in continuous lines.

As indicated above, to this rising of one frame corresponds the lowering, by its own weight, of the frame which had been raised in the preceding phase.

Since the advertising billboard is described for purposes of exemplification, any constructional changes as may be introduced by those skilled in the art and which, by applying the same inventive concept, tend to achieve the same result, shall fall within the scope of protection of the invention.

One possible variation to the device is a double billboard, showing on both principal faces of the box two visible surfaces, which may or may not be protected by transparent plates. In this case the mechanical elements, positioned in the upper part of the billboard, may actuate in synchronism both sets of pictures, or the latter can be actuated independently of each other.

Other possible variations with respect to the above description may concern the use of light and sound effects.

What is claimed is:

1. A billboard for displaying a plurality of different pictures, at least some of said pictures consisting of a series of strips located one next to the other but out of alinement with each other, said billboard comprising a fixed frame, guiding means connected with said frame, a separate moving frame supporting each series of movable strips, rings carried by each moving frame and engaging said guiding means, a connecting rod, means reciprocating said connecting rod, a rotary disc having circumferential recesses; pins circularly mounted upon said disc, said connecting rod having a hook and a sloping surface adjacent said hook, said sloping surface sliding over one of said pins when said connecting rod moves in one direction and said hook engaging the last-mentioned pin to turn said disc when said connecting rod moves in the opposite direction; resilient locking means having a block yieldably engaging one of said recesses to hold said disc in one of a plurality of positions, a shaft rotatable along with said disc, a plurality of cams fixed upon said shaft, the number of said cams being equal to that of said series, a separate lever having an end actuated by each cam, and separate pull rod means carried by another end of each lever and connected to a separate moving frame.

2. A billboard for displaying a plurality of different pictures, each of said pictures consisting of a plurality of strips of equal size, said billboard comprising a fixed frame, fixed strips carried by said frame and extending one above the other in different vertical planes, said fixed strips constituting a single picture, movable strips located in groups horizontally alined with said fixed strips, movable strips located in different groups out of vertical alinement with each other and with said fixed strips and forming series of different pictures, two vertical side bars fixed to said frame and located adjacent opposite sides thereof, a separate moving frame for each series of movable strips, each moving frame having two horizontal bars, two vertical members connected to said horizontal bars, rings carried by ends of said horizontal bars and mounted upon said vertical side bars, and brackets carried by said vertical members and carrying said movable strips; a connecting rod, means reciprocating said connecting rod, a rotary disc having means engaged by said connecting rod for moving said disc stepwise in one direction, a shaft rotatable along with said disc, a plurality of cams fixed upon said shaft, the number of said cams being equal to that of said series, a separate lever having an end actuated by each cam, and means attaching each moving frame to another end of a separate lever.

3. A billboard for displaying a plurality of different pictures, each of said pictures consisting of a plurality of strips of equal size, said billboard comprising a fixed frame having a lower edge at least equal in size to that of a strip, fixed strips carried by said frame and extending one above the other in different vertical planes, said fixed strips constituting a single picture, movable strips loacted in groups horizontally alined with said fixed strips, one group of movable strips located behind the lower edge of said frame, movable strips located in different groups out of vertical alinement with each other and with said fixed strips and forming series of different pictures, two vertical side bars fixed to said frame and located adjacent opposite sides thereof, a separate moving frame for each series of movable strips, each moving frame having two horizontal bars, two vertical members connected to said horizontal bars, rings carried by ends of said horizontal bars and mounted upon said vertical side bars, and brackets carried by said vertical members and carrying said movable strips; a connecting rod, means reciprocating said connecting rod, a rotary disc having circumferential recesses; pins circularly mounted upon said disc, said connecting rod having a hook and a sloping surface adjacent said hook, said sloping surface sliding over one of said pins when said connecting rod moves in one direction and said hook engaging the last-mentioned pin to turn said disc when said connecting rod moves in the opposite direction; resilient locking means

having a block yieldably engaging one of said recesses to hold said disc in one of a plurality of positions, a shaft rotatable along with said disc, a plurality of cams fixed upon said shaft, the number of said cams being equal to that of said series, a separate lever having an end actuated by each cam, and separate pull rod means carried by another end of each lever and connected to a separate moving frame.

References Cited in the file of this patent

UNITED STATES PATENTS

2,141,398	Loewenstein	Dec. 27, 1938
2,829,456	Hutterer	Apr. 8, 1958

FOREIGN PATENTS

256,980	Switzerland	Sept. 15, 1948
1,022,214	France	Mar. 2, 1953