V. S. MORLEY.

ADVERTISING DEVICE.

APPLICATION FILED AUG. 17, 1920.

1,430,314.

Patented Sept. 26, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

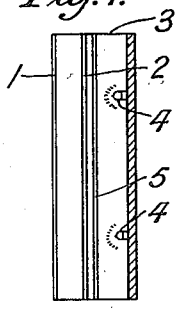


Fig. 2.

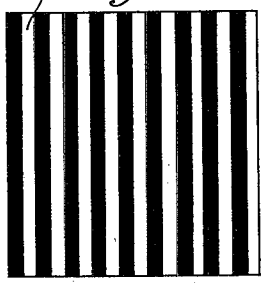


Fig. 3.

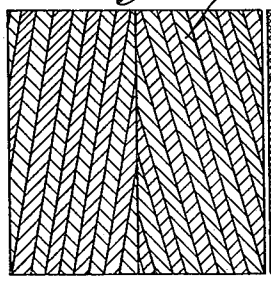


Fig. 4.

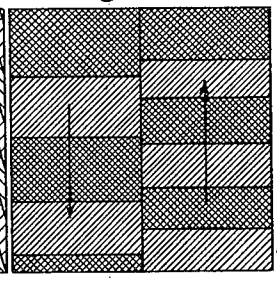


Fig. 5.

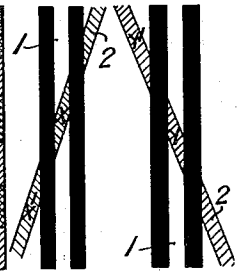


Fig. 6.

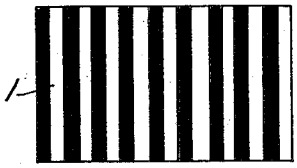


Fig. 7.

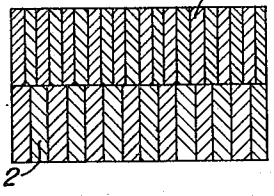


Fig. 8.

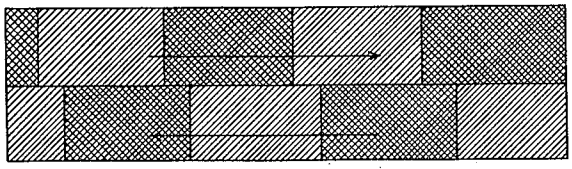
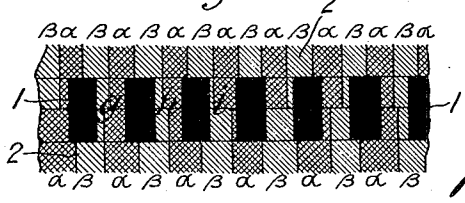


Fig. 9.



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2 SHEETS—SHEET 2.

Fig. 10.

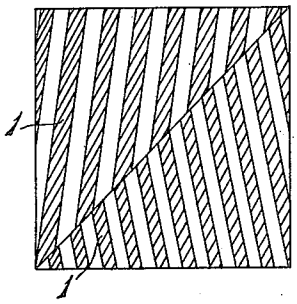


Fig. 11.

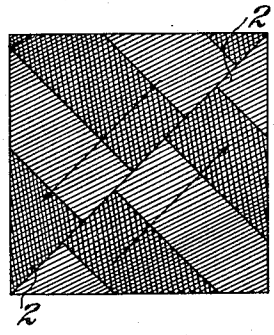


Fig. 12.

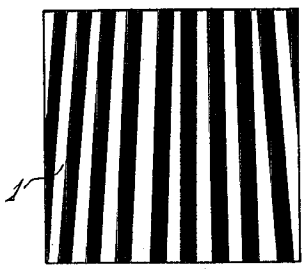


Fig. 13.

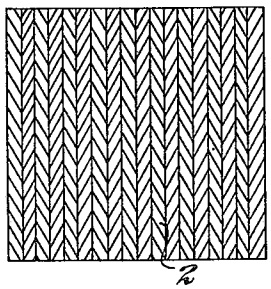
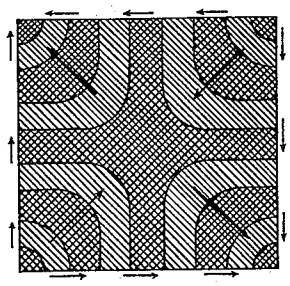


Fig. 14.



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UNITED STATES PATENT OFFICE.

VIVIAN STREATFEILD MORLEY, OF TANKERTON, ENGLAND.

ADVERTISING DEVICE.

Application filed August 17, 1920. Serial No. 404,055.

To all whom it may concern:

Be it known that I, VIVIAN STREATFEILD MORLEY, a subject of the King of Great Britain, residing at Wynn House, Wynn Road, Tankerton, Kent, England, have invented a new and useful Improvement in Advertising Devices, of which the following is a specification.

This invention relates to improved apparatus for obtaining moving colour effects suitable for advertising, displaying and the like, and more especially to that type of apparatus in which a rear screen is viewed through a front screen of transparent material placed a certain distance in front thereof, the front screen having on it a number of opaque lines having between them clear spaces, the opaque lines being adapted to cover different portions of the rear screen as the angle of view is altered.

The object of this invention is to provide an apparatus in which bars of different colours appear to move in any predetermined direction within a single area, or in two or more areas in any different or even opposing directions, also predetermined.

In order to carry my invention into effect I first consider the horizontal and vertical components of the direction in which I may require the coloured bars to move at any point, and then calculate the conditions under which such component motions will be produced, as indicated below.

In order to obtain colour bars moving in opposite vertical directions, the opaque lines on the front screen are of a vertical character and have spaces between them of width equal to that of the lines, whilst the rear screen is provided with lines also of a vertical character of two or more colours in rotation, the complete cycle of coloured lines having a combined width equal to that of a line and space on the front screen; the lines on either of the screens are set at a small angle to those of the other, sufficiently to bring one or more line widths of one screen out of register with those of the other screen when the whole depth of the screen is considered, the lines on either of the screens being inclined to those of the other screen in one portion so as to form a positive angle with them, and in the other portion the lines are inclined to form a negative angle.

In order to obtain colour bars moving in a horizontal direction as set forth and claimed in my application of even date, the opaque lines of the front screen are of a vertical character and parallel, while the lines of the rear screen are parallel to them, and are of two different alternate colours. The lines of the rear screen are of slightly greater or less width than those of the front screen. The relative width of the lines of the front and rear screens is such that over the breadth covered by each pair of colour bands there shall be a number of pairs of coloured lines on the rear screen, one greater or one less than the number of pairs of clear and opaque lines on the front screen. In cases where the angle subtended by the width of the screen to the eye is large, the rulings on the rear screen may be of equal width and in register with the front screen.

In order to obtain colour bars moving in any inclined direction or directions, the vertical and horizontal components of the required motion as hereinbefore mentioned are considered separately, and the conditions of ruling the screens for these two motions are combined, that is to say, the lines of either of the two screens are inclined to and of different width from the lines of the other screen.

In order to obtain colour bars of varying width moving at varying speeds, either of both of the screens are provided with lines which themselves consecutively vary slightly in width. If used in conjunction with a second screen in which the lines are inclined to those of the first mentioned screen, the colour bars will move in an inclined direction.

In order to obtain curved colour bars moving along curved paths either or both of the screens are provided with lines which are not uniform in width throughout their length.

Any or all of the effects hereinbefore described may be produced on a single screen in different portions thereof by providing the required rulings in those portions. Any or all of these effects may be applied to give an effect of motion to part of a fixed picture advertisement. Any lettering or other device may be formed by attaching opaque material to either of the screens, removing portions of the rulings, stencilling, employing different colours, or in any other suitable manner.

It may be observed that the terms "vertical" and 'horizontal" are employed for the

sake of clearness and to define the relative direction of the moving colours with relation to that of the lines or rulings; obviously the front and rear screens may be inclined at any angle.

In the accompanying drawings, which illustrate the invention, Figure 1 is a section of the apparatus to a small scale. Figure 2 shows a front screen, Figure 3 is a rear screen, Figure 4 the effect produced when employed in the apparatus shown in Figure 1; Figure 5 is a diagram showing how the effect of contrary movement in a vertical direction is brought about. Figure 6 shows a front screen, Figure 7 a rear screen, Figure 8 the effect produced when employed in the apparatus shown in Figure 1, and Figure 9 is a diagram showing how the effect of contrary movement in a horizontal direction is brought about. Figure 10 is a rear screen which when used with a front screen such as is shown in Figure 2 produces the effect shown in Figure 11. Figure 12 is a front screen, Figure 13 a rear screen, and Figure 14 shows the effect produced when Figures 12 and 13 are employed.

In Figure 1, 1 is a front screen of transparent material, 2 is a rear screen of translucent material arranged a distance apart in a casing 3. 4 are lamps mounted on the back of the casing 3 and serve to illuminate the rear screen 2. 5 is a ground glass screen interposed between the rear screen and the lamps 4 to distribute the light.

Referring to Figures 2 and 3, the front screen 1, Figure 2, has vertical opaque lines with clear spaces between them of width equal to that of the lines, whilst the rear screen 2, Figure 3, is provided with coloured lines one half of which are inclined negatively and the other half positively to those of the front screen. The color lines of the rear screen are of equal length to that of the lines on the rear screen. If an observer move toward the right the coloured lines will appear to move in a downward direction on the left hand side of the screen, and in an upward direction on the right hand side as shown in Figure 4. The explanation of this is shown in Figure 5 which indicates elementary clear spaces of a front screen through which are seen elementary lines of a rear screen inclined negatively and positively as in Figure 3. If an observer seeing those portions marked x and y of the elementary lines of the rear screen through the clear spaces of the front screen, move to the right, he will eventually reach a position in which he will see those portions of the elementary lines of the rear screen marked x' y' which occupy positions in the clear spaces, lower and higher respectively than they previously occupied. Thus bars formed by elements in which the rear screen lines have negative angles to those of the front screen appear to move downwards whilst those formed from elements of lines of a rear screen forming positive angles with those of the front screen appear to move upwards.

The width of the coloured bars formed is equal to the vertical dimension of the screen divided by the number of rear screen lines by which the rulings are out of register. Each colour bar moves up to the position occupied by the preceding one in the same time; consequently bars of different widths move at different speeds.

Referring now to Figures 6, 7, 8 and 9, Figure 6 is a front screen having vertical opaque lines with clear spaces between them of width equal to that of the lines as in Figure 2. Figure 7 shows a rear screen the upper half of which has lines of less width and the lower half has lines of greater width than those of the front screen. The effect produced in an apparatus employing these screens is shown in Figure 8. The reason for this apparent movement can be explained by referring to Figure 9, which shows on a large scale a strip of the front screen, Figure 6, arranged in front of the rear screen, Figure 7.

Considering the upper half of this screen, and taking any individual clear space h, it will be noticed that a portion of a B line and a portion of an a line is visible through h. If the observer now move to the right he will see more of the B line and less of the a line through space h, and he will eventually reach a position in which he will see through space h parts of a and B in the proportions originally seen through space g. Thus g has apparently moved up to h and thus the whole wave of colour has apparently moved towards the right, that is, in the same direction as that of the observer. Similarly, considering the lower half of the rear screen, in which the lines are of greater width than those of the front screen, if the observer move toward the right he will see through any clear space, say h, more of the B line and less of the a line, and will eventually reach a position in which he sees through space h the proportions of a and B which he originally saw through space i. Thus i has apparently moved up to h, and the whole wave of colour has apparently moved to the left, that is to say, in the direction opposite to that of the observer.

Figure 10 shows a rear screen which may be used in conjunction with a front screen as shown in Figure 2, in order to obtain colour bars moving in two opposite inclined directions as shown in Figure 11. The rear screen, Figure 10, has lines which are respectively at negative and positive angles with, and respectively of greater and less width than, those of the front screen, Figure 2.

Figures 12 and 13 represent front and rear screens respectively which produce curved colour bars moving along curved paths, as shown in Figure 14. As will be seen the lines in the front screen, Figure 12, are tapering, i. e., not of uniform width, the outer lines inclining towards the centre, whilst the lines in the rear screen, Figure 13, are parallel and of equal width.

What I claim is:—

1. In an advertising device, the combination of two screens one of which is provided with a plurality of parallel opaque lines arranged thereon to obtain intervening clear spaces while the other screen is provided with a plurality of color lines of at least two different alternate colors arranged in more than one series, the lines of one series being inclined at a small positive angle, and the lines of another series being inclined at a small negative angle to those of the first mentioned screen.

2. In an advertising device, the combination of two screens one of which is provided with a plurality of parallel opaque lines of equal width arranged thereon to obtain intervening clear spaces, while the other is provided with a plurality of color lines of at least two different alternate colors arranged in more than one series, the lines of one series being inclined at a small positive angle, and the lines of another series being inclined at a small negative angle to those of the first mentioned screen.

3. In an advertising device, the combination of two screens one of which is provided with a plurality of parallel opaque lines of equal width arranged thereon to obtain intervening clear spaces of the same width as the opaque lines, while the other screen is provided with a plurality of color lines of at least two different alternate colors arranged in more than one series, the lines of one series being inclined at a small positive angle, and the lines of another series being inclined at a small negative angle to those of the first mentioned screen.

4. In an advertising device, the combination of two screens one of which is provided with a plurality of parallel opaque lines arranged thereon to obtain intervening clear spaces while the other screen is provided with a plurality of color lines of the same width as the opaque lines of the first mentioned screen and of at least two different alternate colors arranged in more than one series, the lines of one series being inclined at a small positive angle, and the lines of another series being inclined at a small negative angle to those of the first mentioned screen.

5. In an advertising device, the combination of two screens one of which is provided with a plurality of parallel opaque lines arranged thereon to obtain intervening clear spaces while the other screen is provided with a plurality of color lines which differ in width from the opaque lines of the first mentioned screen and are of at least two different alternate colors arranged in more than one series, the lines of one series being inclined at a small positive angle, and the lines of another series being inclined at a small negative angle to those of the first mentioned screen.

6. In an advertising device, the combination of two screens one of which is provided with a plurality of parallel opaque lines arranged thereon to obtain intervening clear spaces while the other screen is provided with a plurality of color lines of at least two different alternate colors arranged in more than one series, the lines of one series being inclined at a small positive angle and the lines of another series being inclined at a small negative angle to those of the first mentioned screen so that different portions of the color lines on the one screen are seen through the clear spaces of the other screen by an observer as the angle of view is altered.

In testimony that I claim the foregoing as my invention I have signed my name this 6th day of August 1920.

VIVIAN STREATFEILD MORLEY.