

Nov. 2, 1971

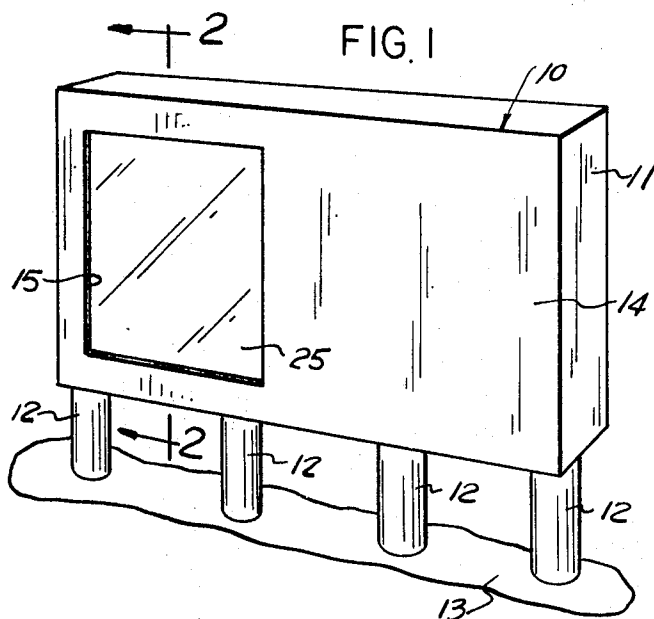
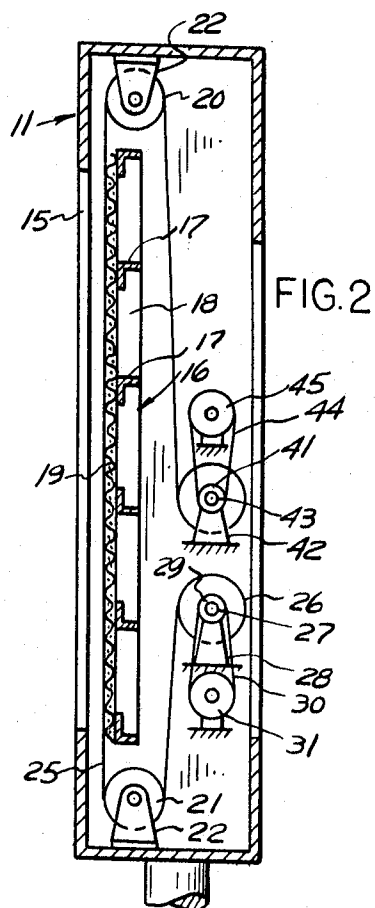
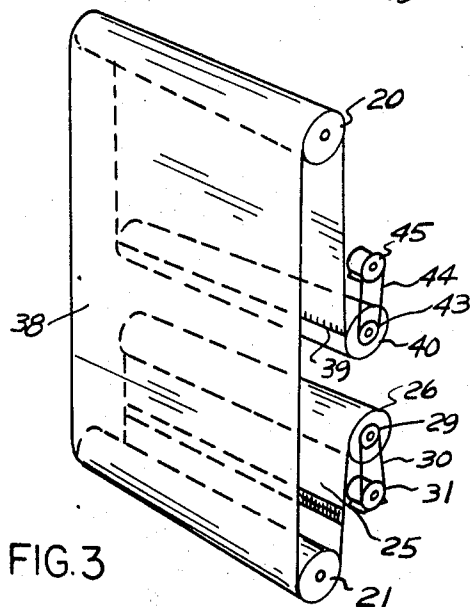
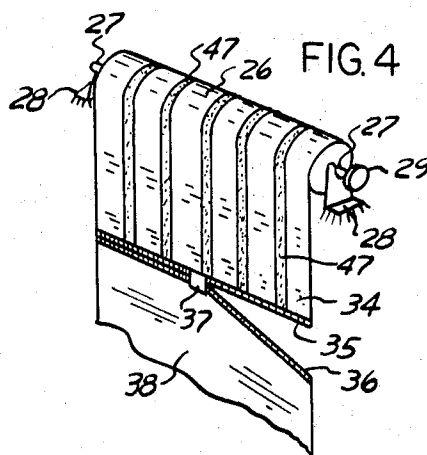
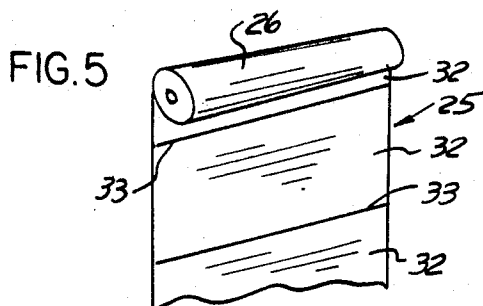
K. SINGER ET AL

3,616,554

CHANGEABLE MESSAGE OUTDOOR ADVERTISING SIGN

Filed Sept. 2, 1969

2 Sheets-Sheet 1



INVENTORS  
KARL SINGER  
LEWIS VOGEL  
BY Cullen, Sloman & Cantor  
ATTORNEYS

Nov. 2, 1971

K. SINGER ET AL

3,616,554

CHANGEABLE MESSAGE OUTDOOR ADVERTISING SIGN

Filed Sept. 2, 1969

2 Sheets-Sheet 2

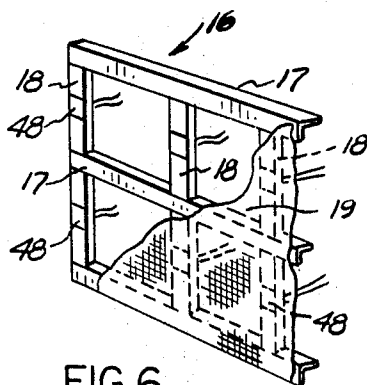


FIG. 6

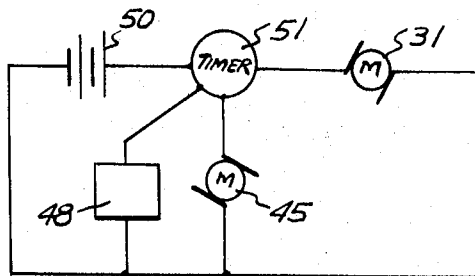


FIG. 7

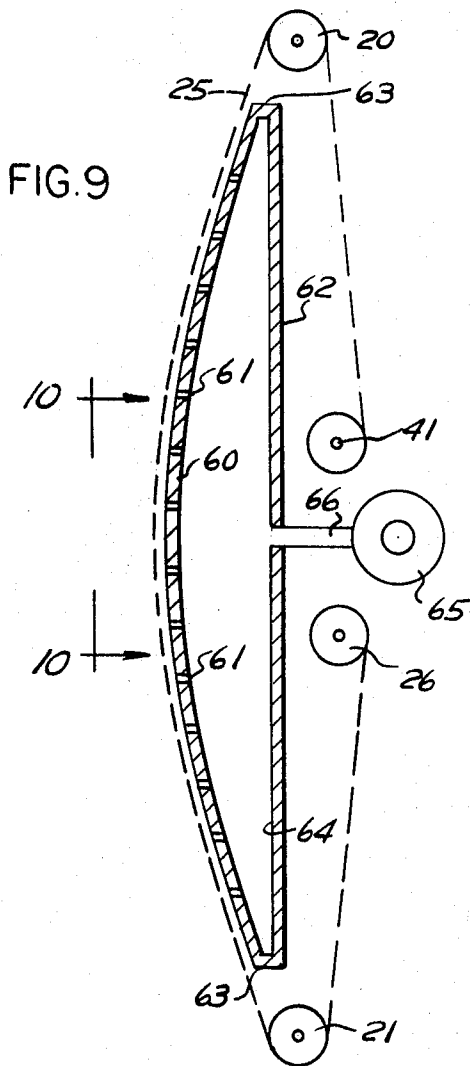


FIG. 9

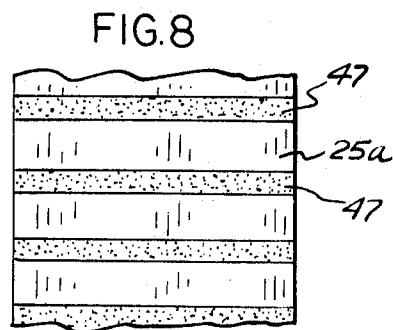


FIG. 8

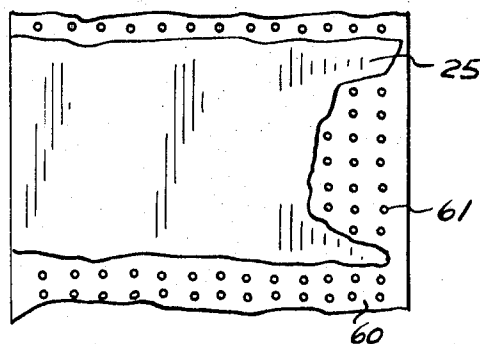


FIG. 10

INVENTORS  
KARL SINGER  
LEWIS VOGEL

BY *Cullen, Slocum & Cantor*  
ATTORNEYS

1

3,616,554

## CHANGEABLE MESSAGE OUTDOOR ADVERTISING SIGN

Karl Singer, 26126 Meadowcrest, Huntington Woods,  
Mich. 48070, and Lewis P. Vogel, Livonia, Mich.;  
said Vogel assignor to said Singer

Filed Sept. 2, 1969, Ser. No. 854,449

Int. Cl. G09f 11/295

U.S. Cl. 40—31

4 Claims

### ABSTRACT OF THE DISCLOSURE

A large outdoor advertising sign having a support surface and a long, advertising message strip arranged in contact with the surface, extending around opposite edges of the surface and wound upon powered rolls at the rear of the surface, so that the strip is first wound around one roll to move along the surface in one direction and then reversely in the opposite direction. One roll is removable for replacing the advertising strip, the other is normally non-removable and has a lead strip fastened thereto for extending around the surface to the other strip where it may be releasably joined to the advertising strip by a conventional zipper. Means is provided for holding the strip upon the surface against wind pressures.

### BACKGROUND OF INVENTION

Conventional outdoor advertising signs which are of large size, as for example in the order of 15 to 20 feet high and 30 to 50 feet wide, usually have a flat surface upon which advertising is painted or otherwise applied. Various attempts have been made to provide such type signs with changeable message areas such as by using movable or rotatable strips or sign portions which when moved change the advertising message in the area in which they are located.

However, the large size of such signs, coupled with the fact that they are exposed to outdoor weather conditions at all times has made it difficult and expensive to provide changeable message areas thereon. The expense of such signs is additionally increased by the fact that they must work automatically and be easily serviceable by relatively unskilled personnel.

Hence, the invention herein relates to providing a changeable message area on such a large outdoor advertising sign utilizing relatively simple and inexpensive equipment which may be operated automatically, may be easily serviced and replaced when necessary and has the durability to resist outdoor weather conditions.

### SUMMARY OF INVENTION

The invention herein contemplates utilizing an elongated cloth-like strip upon which advertising is imprinted with the strip wound around a roller, then led beneath and in front of a large flat support surface against which it is contacted, then around the support surface to a second roller, with the two rollers being powered and sequentially operated so that the strip is first wound from one onto the other and then vice-versa to thereby constantly change the message appearing on the face of the support surface. The strip is initially prepared in a roll form which is applied to the rear of the support surface and is connected to the opposite roll by means of a lead strip having one end connected to the opposite roll and its opposite end releasably fastened to the strip, such as by means of a zipper.

In addition, it is contemplated to use additional means, such as magnetic devices, for retaining the advertising strip in face to face contact with the support surface despite heavy wind pressures which arise from time to time.

2

While the size of the advertising strip may vary, an example of its size would be in the area of approximately 10 feet wide with an exposure or support surface face area of about 15 feet high. Thus, the ultimate length of the strip would be many times the exposure area of 15 feet.

Thus, it is an object of this invention to form the sign using large and bulky and difficult to manage advertising message strips formed in removable and replaceable rolls and supported by the support surface and attachable to an opposite roll by means of a lead strip. With this construction, maintenance of and replacement of the advertising strips is relatively simple and can be done by relatively unskilled people in minimum time.

Other objects and advantages of this invention will become apparent upon reading the following description, of which the attached drawings form a part.

### DESCRIPTION OF DRAWINGS

FIG. 1 is a perspective view of a large outdoor advertising sign.

FIG. 2 is an enlarged cross-sectional view taken in the direction of arrows 2—2 of FIG. 1.

FIG. 3 is a perspective view of the advertising message strip and related mechanisms for moving it within the sign.

FIG. 4 is a perspective view of the advertising strip roll and its connection to the lead strip.

FIG. 5 is a perspective view of the advertising message imprinted area of the strip.

FIG. 6 is a perspective view of a portion of the support frame and illustrates a modification.

FIG. 7 is a schematic diagram of a typical control circuit.

FIG. 8 shows a modification wherein the magnetic stripes are arranged horizontally on the advertising strip.

FIG. 9 is a cross-sectional elevational view of a modification, and

FIG. 10 is a fragmentary view taken in the direction of arrows 10—10 of FIG. 9.

### DETAILED DESCRIPTION

FIG. 1 illustrates a typical outdoor advertising sign 10 which is of large size, as for example 20 feet high by 50 feet wide, although the dimensions may vary considerably. The sign is formed of a suitable box-like structure 11 mounted upon supporting legs 12 which may be secured to the ground or some other base support 13. The sign is provided with a message face 14 upon which advertising may be painted or applied by adhering printed material thereto.

An open window 15 is formed in the box-like structure to form a changeable message area. Behind the window is a support frame 16 which may be formed of a number of horizontal bars 17 to which are connected vertical bars 18 with a covering screen 19.

Above the frame is a horizontal upper guide roller 20, with a similar roller 21 located beneath the frame and with both rollers supported upon suitable brackets 22.

The advertising strip 25 is formed of a cloth-like material such as coated fabric or a suitable plastic cloth upon which various advertising message are imprinted or painted. The strip is formed into a roll 26 which is slipped upon a support shaft 27 located at the rear of the support frame 16. The shaft is supported upon conventional brackets 28 mounted in some conventional manner to the sign structure.

The roll with its support shaft 27 is powered for reversible rotation by means of a gear or pulley 29 formed on the shaft and connected by a belt or chain 30 to a reversible motor 31 supported upon the sign structure.

3

The advertising strip may be of considerable width such as somewhere in the order of 10 or 12 feet in width and its length is made up by sheets or sections 32, each imprinted with an advertising message on one face thereof, with the sections joined together at 33 by means of suitable connections such as stitching or adhesive or the like.

The free edge 34 of the roll 26 of the advertising strip 25 is provided with a conventional zipper half 35 of sufficient length to extend the full length of the strip. A corresponding zipper half 36 for connection to the zipper half 35 by means of a suitable zipper slider 37 is mounted upon a lead strip 38 which is of the same width as the advertising strip but of sufficient length to fit around the lower roller 21, across the support surface formed by the frame 16, around the upper roller 20 and down to a point where its end 39 is permanently connected to a roll 40. Such roll is mounted upon a shaft 41 supported by brackets 42, with a gear or pulley 43 formed on the shaft for connection by a belt 4 to a reversible motor 45.

The lead strip permits the advertising strip to be secured to the roll 40 by means of simply zipping the lead strip to the advertising strip or unzipping the two for removal or replacement of the advertising strip roll. Once the lead strip and advertising strip are joined together, the roll 40 is powered by its motor 45 so that the lead strip winds upon the roll 40 and in addition takes with it the advertising strip.

The motor 45 is operated until it almost completely unwinds the roll 26 and then the opposite motor 31 is operated to rewind the roll 26 so that the advertising strip is wound back and forth between the two rolls and constantly passes along and in front of the support surface formed by the frame 16.

Since the strip is of such large size, it is subject to rippling or blowing away from the support in unfavorable wind conditions. Therefore, to maintain the strip against the support, a magnetic means is provided.

In one form, as shown in FIG. 4, the magnetic means comprises strips of magnetic tape 47 secured to the support contacting face of the advertising strip. Such tape is commercially available and is flexible and normally provided with an adhesive backing for securing to its surface. In this manner, the strip is magnetically held upon the screen 19 or the support frame members 17 and 18 where these are made of a ferrous, magnetically attractive material.

Where this sort of construction may result in too great a magnetic force, tending to stretch or tear the strip, a second magnetic means may be used, namely, electro-magnets 48 mounted in various places upon the support frame 16 with magnetically attractive coating stripes applied to the advertising strip for magnetic attraction to the electromagnets. Here, instead of operating the motors constantly to continuously move the advertising strip, the motors may be sequentially operated intermittently, that is, operated to move a certain length of the strip and then stop and then continue again with the electro-magnets timed to actuate during the time the strip is stopped and to deactuate when the strip is being moved by the rollers.

Electrical circuitry for controlling the movement of the rolls and electro-magnets when the are used, are available to those skilled in the art. As an example of such a circuit, FIG. 7 illustrates a power source, shown schematically as a battery 50, connected to a timer mechanism 51 which is connected to the motors 31 and 45 and to the electro-magnets 48. The timer sequences the motor so that one operates at a time and with the magnets operating between the operations of the motors.

#### OPERATION

In operation, a workman servicing the sign first installs a roll 26 of advertising strip by placing the roll upon

4

the shaft 27. Then he zips the end 34 of the advertising strip to the end of the lead strip 38. Next, he actuates motor 45 to wind up the lead strip and to continuously wind the advertising strip 25. From then on, the circuitry, such as the timer 51, automatically operates each of the motors, one by one, to move the advertising strip 25 first in one direction and then in the opposite direction.

For removal of the advertising strip and replacement by another one, the process is reversed, that is, the zipper is opened to disengage the strip 25 from the lead strip 38 and the new roll of advertising strip is replaced.

#### MODIFICATION—FIG. 8

FIG. 8 shows the rear face of a section of the advertising strip 25a, having strips of magnetic tape 47 extending horizontally, rather than vertically as in FIG. 4. The horizontal arrangement reduces bunching and wrinkling of the cloth advertising strip when it is rolled up.

#### MODIFICATIONS—FIGS. 9-10

FIGS. 9 and 10 show a modification wherein vacuum is used to hold the advertising strip 25 (shown in dotted lines) against flapping. The sheet support is formed as a large curved rigid plate 60 having numerous perforations 61, with a spaced rear plate 62 and upper and lower end plates 63 forming a hollow space connected to a vacuum pump 65 by a pipe 66. Operation of the pump reduces pressure in the space causing the advertising strip 25 to press against the plate 60. The pump can be timed to regularly turn off for advancing the strip 25.

Having fully described an operative embodiment of this invention, we now claim:

1. A changeable message outdoor advertising sign comprising a support framework including a vertically arranged flat support surface;

a flexible, elongated, cloth-like advertising strip, having advertising messages imprinted thereon arranged in face to face contact with said surface and extending around the rear of said surface, with the opposite ends of said strip secured to powered rolls arranged at the rear of said surface;

with the strip length being many times its width and with at least one end of the strip normally being wound a number of times around its powered roll; means for sequentially rotating the powered rolls for first winding the strip around one roll so that the strip moves along said surface for exposing the advertising messages, until the strip is substantially unwound from the other powered roll and then reversing the roll operation for reversing movement and winding of the strip;

with one of the powered rolls being removable for changing the advertising strip for another advertising strip having other advertising messages imprinted thereon;

and the other powered roll being non-removable and having a lead strip permanently connected to it and being of a length to extend around and over said support surface to the removable roll;

and fastener means for releasable connecting an end of said strip to the lead strip for thereby releasably connecting the strip to the non-removable roll;

and said support surface being in the form of a perforated plate and means for applying a vacuum to the rear surface of the plate for causing the advertising strip to press against the plate.

2. A sign as defined in claim 1, and said plate being slightly bowed relative to the vertical.

3. A changeable message outdoor advertising sign comprising a support framework including a vertically arranged flat support surface;

a flexible, elongated, cloth-like advertising strip having advertising messages imprinted thereon arranged

5

in face to face contact with said surface and extending around the rear of said surface, with the opposite ends of said strip secured to rolls arranged at the rear of said surface;  
 with the strip length being many times its width and with at least one end of the strip normally being wound a number of times around its roll;  
 means for rotating the rolls for first winding the strip around one roll and then the other roll, so that the strip moves along said surface for exposing the advertising messages;  
 and said support surface being in the form of a perforated plate and means for applying a vacuum to the rear surface of the plate for causing the advertising strip to press against the plate.

5

10

15

6

4. A sign as defined in claim 3, and said plate being bowed relative to the vertical.

# References Cited

## UNITED STATES PATENTS

|           |         |         |        |
|-----------|---------|---------|--------|
| 327,038   | 9/1885  | Thomas  | 242—74 |
| 1,650,659 | 11/1927 | Sharkey | 40—31  |
| 3,358,393 | 12/1967 | Lewis   | 40—31  |

ROBERT W. MICHELL, Primary Examiner

L. ANTEN, Assistant Examiner

U.S. Cl. X.R.

242—74