June 5, 1923. 1,457,669

P. L. ODLE ET AL

MOVING SIGN

Filed Oct. 20, 1920 2 Sheets-Sheet 1

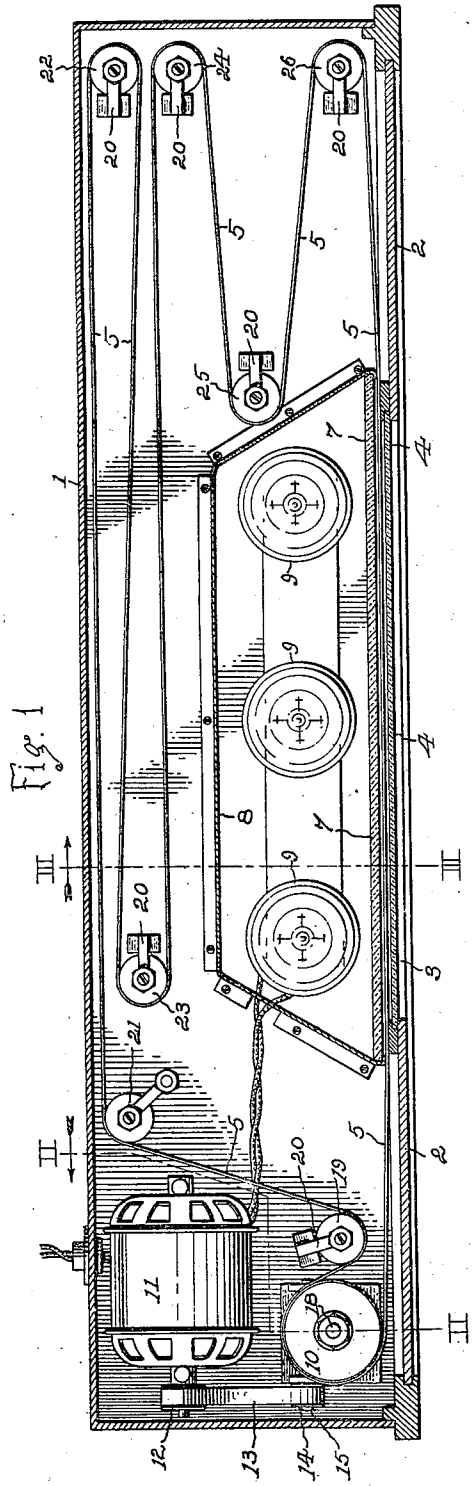


Fig. 1

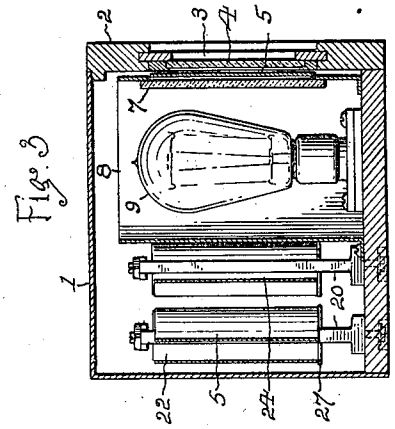


Fig. 3

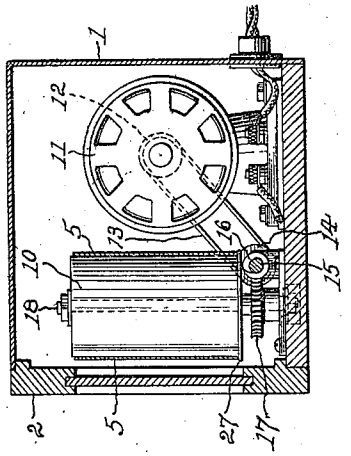


Fig. 2

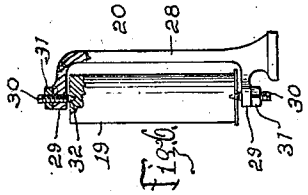


Fig. 10

Inventors
Paul L. Odle
Guy L. Odle

By Barthel & Barthel

Attorneys

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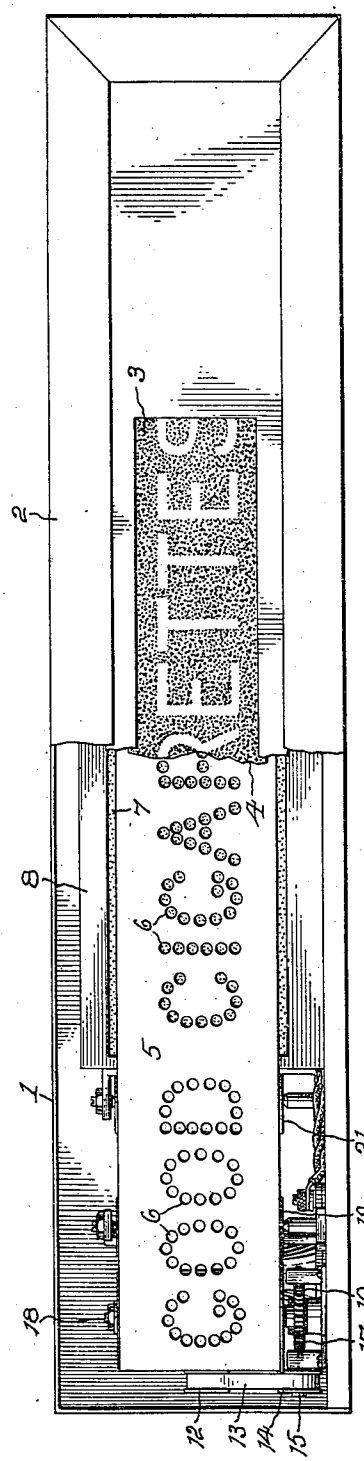


Fig. 4

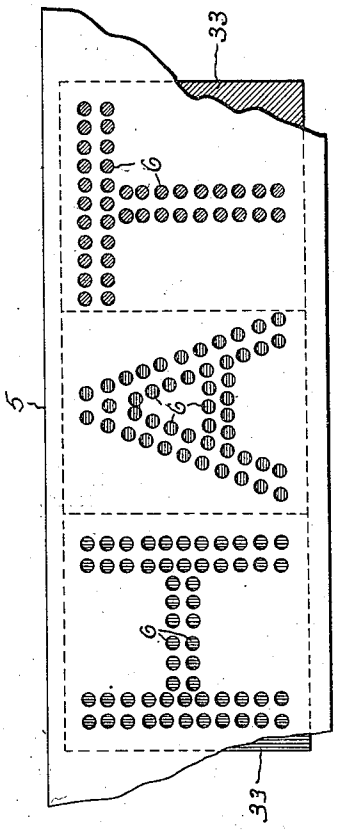


Fig. 5

Inventors
Paul L. Odle
Guy L. Odle

By Bartholf & Bartholf

Attorneys

Patented June 5, 1923.

1,457,669

UNITED STATES PATENT OFFICE.

PAUL L. ODLE AND GUY L. ODLE, OF DETROIT, MICHIGAN.

MOVING SIGN.

Application filed October 20, 1920. Serial No. 418,210.

To all whom it may concern:

Be it known that we, PAUL L. ODLE and GUY L. ODLE, citizens of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Moving Signs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to display signs and more particularly to reading or traveling signs in which a series of words, letters, or other characters are progressively and consecutively displayed.

An object of this invention is to provide a sign or similar device of this character wherein simplicity and durability are secured by the use of an endless traveling perforated member through the perforations of which light is projected to disclose the form or outline of the word or device to be displayed. A further object is to so diffuse the light projected through the perforations of the traveling member as to make the outline of each perforation indistinct and give the appearance of the common electric sign wherein each character comprises a multiplicity of separate electric lamps.

It is also an object to provide simple means whereby any portion or all of the characters or designs outlined by said perforations may be given any desired color, and a very compact device secured which may be manufactured at small expense, and wherein the travel member may be removed by an inexperienced person and replaced by another member differently perforated.

A further object is to provide certain other new and useful features in the construction and arrangement of parts, all as hereinafter more fully described.

With the above and other ends in view, the invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of a device embodying the invention and showing the casing thereof in section;

Fig. 2 is a transverse section substantially upon the line II—II of Fig. 1;

Fig. 3 is a like transverse section substantially upon line III—III of Fig. 1;

Fig. 4 is a front elevation of the device with portions thereof broken away to more clearly show the construction;

Fig. 5 is an enlarged detail of a portion of a perforated traveling member or belt and illustrating the manner in which different characters outlined by the perforations may be given different colors, and

Fig. 6 is a detail view of a roll supporting bracket with parts broken away and in section.

As shown in the drawings, 1 indicates a suitable casing which is preferably of substantially rectangular form, and has a front side or door 2 which may be detached. In this detachable front is a window opening 3 which is closed by a suitable transparency or glass 4, said glass being preferably translucent to partially conceal an endless traveling member or belt 5 which is guided in its travel lengthwise of the window and adjacent the inner side thereof. This flexible endless member or belt may be formed of any suitable material which is adapted to withstand the strain of being driven to cause it to travel over a series of rolls supported within the casing and is preferably opaque and of a material which lends itself to being perforated so that the outline of suitable letters or other characters or designs may be formed in this belt by means of such perforations 6. These perforations may be of any desired size and form but are preferably circular and of small diameter, and may be arranged in any desired manner and in any number of single or double rows to give the desired form to the letter or design by the rays of light projected through the several perforations, and blended by the translucent plate 4.

Adjacent the inner side of the belt 5 and in opposed relation to the transparency 4, is a transparent or translucent plate 7 detachably held within a suitable reflector casing 8 contained within the casing 1. This plate 7 is also preferably translucent so that the rays of light passing therethrough from a series of lamps 9 contained within the reflector casing 8 will be diffused and the outline of each lamp thus made indistinct to a

person looking through the window in the casing. This plate 7 may, if found desirable, comprise two or more separate plates of differently colored glass or other transparency and in a like manner the transparency 4 may be made up of two or more thicknesses.

The endless flexible belt 5 is caused to travel endwise between the glass plates 4 and 7 by motion imparted to a large driving roller or drum 10 from a suitable electric motor 11 mounted in the casing and having a pulley 12 on its armature shaft to engage a driving belt 13 which passes over a similar pulley 14 on the end of a worm shaft 15 having a worm 16 thereon engaging a worm gear mounted upon the drum 10 or otherwise connected thereto to turn therewith, said drum being rotatable upon an upright supporting shaft or pin 18 in a position to receive the belt 5 which is passed around the drum in engagement therewith and thence passes over a small pulley 19 mounted upon a suitable bracket support 20 in the casing adjacent the drum. From the pulley 19 the belt passes over a second pulley which is in the form of a belt tightener 21 located adjacent the opposite or back side of the casing 1 and thence extends longitudinally of the casing adjacent said side to a pulley 22 supported by a bracket similar to the bracket 19 adjacent the end of the casing opposite to that at which the drum 10 is located. From the pulley 22 the belt is looped back and forth over the pulleys 23, 24, 25 and 26 and then extends lengthwise of the casing between the transparencies 4 and 7 to the drum 10. The belt may be carried back and forth over any desired number of pulleys within the casing to give a large number of runs to the belt and thus make it possible to use a belt of extended length within a casing 1 of small dimensions. The greater the length of the belt, the greater number of letters or other characters may be outlined thereon and the efficiency of the belt is increased thereby, as advertising signs, words, or sentences of considerable length may be displayed during one travel of the full length of the belt.

The drum 10 is preferably provided with an end flange 27 to engage the lower edge of the belt and support the same in place upon the drum and each of the pulleys is provided with a similar flange for the same purpose.

As shown in Fig. 6, each bracket 20 for supporting each of the rolls, comprises a standard 28 provided with arms 29 extending laterally therefrom over and below the ends of the roll and carried by each of these arms is a centering pin 30 which is adjustable in the arm by being screw-threaded to engage a screw-threaded opening in each arm and is held in adjusted position by a lock nut 31. The end of each pin which engages the roll is preferably of conical form, as shown at 32, to engage an opening in the axis of the roll and thus each roll is mounted between two conical bearing points which may be adjusted to take up wear and which produce a minimum of friction to retard the turning of the roll. Each roll over which the belt travels is therefore mounted in anti-friction bearings so that but little power is required to cause the traveling movement of the belt and a very small electric motor may therefore be employed for the purpose.

As the perforated belt travels past the window in the front of the casing, the light rays of the lamps 9 are projected by the reflector 8 through the multiplicity of comparatively small perforations in the opaque belt and these light rays are so diffused by the translucent plates 4 and 7 adjacent the outer and inner sides of the belt that a person looking through the window cannot distinguish the outline of anyone of the perforations but as these perforations are arranged close together, the light rays passing therethrough will be blended and the shape of the figure outlined thereby will be clearly apparent.

Because of the separate perforations, each figure or design will appear to the observer as it travels past the window, to be made up of a large number of light spots which blend together and give an appearance which is similar to that of an electric sign in which the letters or other characters are made up of a large number of separate electric bulbs.

As illustrated in Fig. 5 any portion of the perforated belt may be given any desired color, that is, any letter, word or character outlined by the perforations of the belt may be given such desired color, by gluing or otherwise securing strips or pieces of thin transparent or translucent material, indicated at 33, to the face of the belt over the perforations therein. This colored film 33 may be of any very thin flexible material which will freely bend without cracking or breaking in passing over the drum 10 and several rolls during the travel of the belt.

A very simple device which is cheap to manufacture, is self contained and will occupy but a small space, is thus provided, such device being particularly adapted for window display purposes as it presents a very neat and attractive appearance and has all of the attractive features of the common large and expensive electric traveling sign in commercial use.

Obviously the device may be made in any desired size and the length of traveling belt may be varied to give greater advertising space. The particular construction and arrangement of the parts, as shown in the accompanying drawings, may obviously be

changed without departing from the spirit of the invention and within the scope of the appended claims, and we do not therefore limit ourselves to the particular arrangement shown.

Having thus fully described our invention, what we claim is:

1. In a device of the character described, the combination of a casing having an opening in the front wall thereof, a plate closing said opening, a reflector chamber in the casing opposite said opening with a space at each end thereof between it and the casing ends, said chamber being also spaced from the said plate, a lamp in the chamber, an endless belt having characters depicted thereon, rolls in the casing over which the belt travels and arranged to provide a plurality of runs comprising long runs extending longitudinally of the casing between the back wall thereof and the back of said chamber and short runs between one end of said chamber and one end of the casing, with a single long run adjacent the front wall of the casing passing between said chamber and said plate closing the opening in the front of the casing, a driving drum located at the end of the casing opposite that in which the short runs are located, a tightener roll adjacent said drum and forming a loop in said belt passing around said drum, a motor in the casing adjacent the drums, and means for transmitting motion from said motor to said drum to impart a traveling motion to said endless belt.

2. In a device of the character described, the combination of a casing having an opening, a transparent plate covering said opening, a reflector chamber in the casing opposite said opening, a lamp in said chamber, a transparent plate closing the chamber and in opposed relation to the plate closing the casing opening, an endless belt of opaque material having a multiplicity of perforations depicting characters, rolls in the casing over which the belt travels and arranged to provide a plurality of runs comprising long runs extending longitudinally of the casing between the back wall thereof and said chamber, short runs between one end of the chamber and the adjacent end of the casing, and a single large run extending between said transparent plates with a loop formed in the belt at the end of the casing opposite that in which the short runs are positioned, a driving drum engaging said loop, a motor adjacent said drum, a worm and worm gear for driving the drum, means for transmitting motion from the motor to said worm and worm gear, and takeup means for taking up the slack in the belt and to cause the loop of the belt to closely engage the drum.

In testimony whereof we affix our signatures in presence of two witnesses.

PAUL L. ODLE.
GUY L. ODLE.

Witnesses:
LEWIS E. FLANDERS,
ARTHUR MINNICK.