Dec. 16, 1930. F. E. J. WILDE 1,784,861

ELECTRIC SIGN

Filed Sept. 4, 1926 2 Sheets-Sheet 1

Fig. 1.

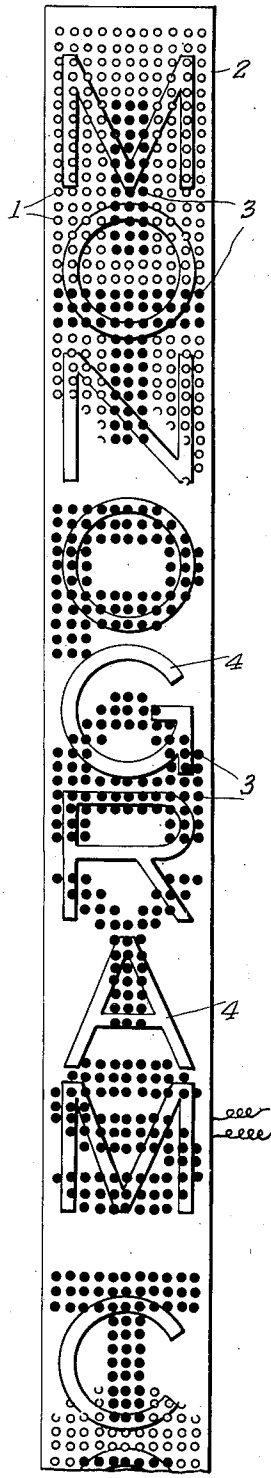
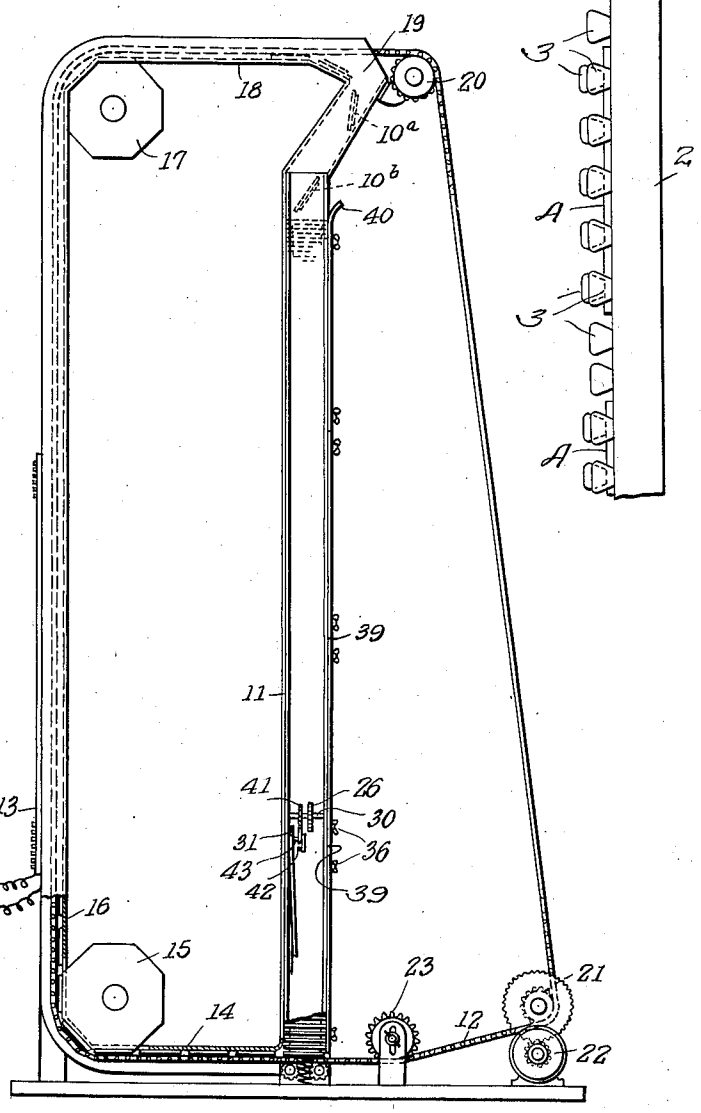


Fig. 1a



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Fig. 2.

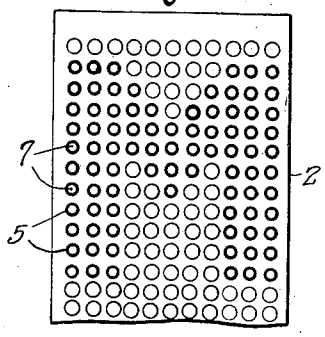


Fig. 6.

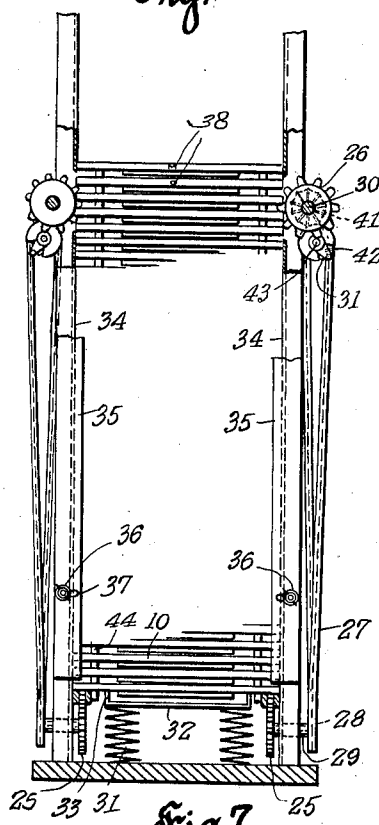


Fig. 4.

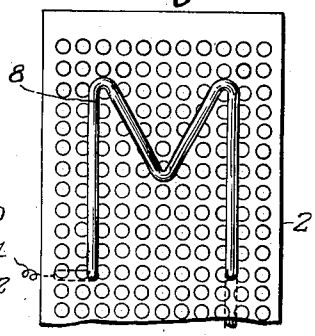


Fig. 3.

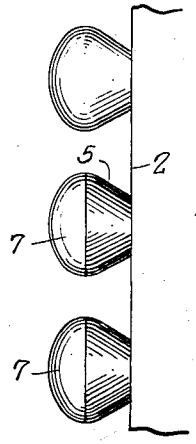


Fig. 5.

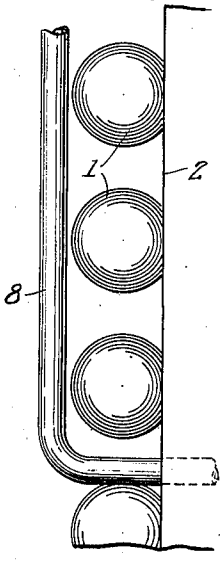


Fig. 7.

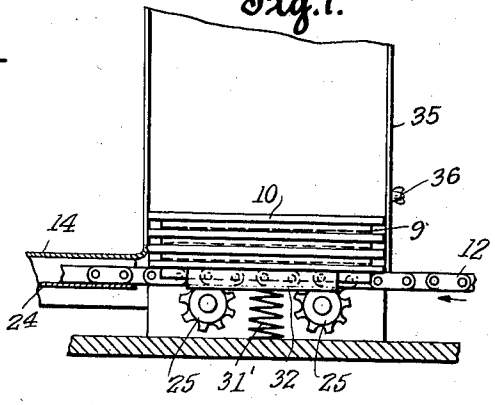
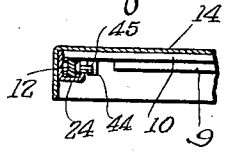


Fig. 8.



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UNITED STATES PATENT OFFICE

FRANCIS E. J. WILDE, OF MEADOWMERE PARK, NEW YORK

ELECTRIC SIGN

Application filed September 4, 1926. Serial No. 133,676.

This invention relates to what are known as "talking signs". These signs heretofore have consisted of a bank of lamps arranged in the form of a horizontal panel, the lamps being flashed to carry the letters or other figures across the panel from right to left. Such signs necessarily require considerable space and for this reason are suited only to special locations.

An important object of this invention is to provide a talking sign which will occupy less space than that required by the horizontal signs in use. This object is attained by providing the bank of lamps in a vertical panel and by traversing the letters or other sign characters from the bottom to the top of the panel.

A further object of the invention is to utilize the panel for daylight display purposes, This object is attained by providing stationary sign characters on the panel which will show in daylight and which will not interfere in any way with the traverse of the traveling sign characters.

Further objects of the invention are to provide improved mechanism for flashing the letters and to simplify and make entirely practical the mechanism for such purposes.

The novel features of construction, combinations and relations of parts by which all the foregoing and other desirable objects are attained are set forth in the following specification which includes as part of the same, the drawings wherein a concrete example of the invention is illustrated.

Figure 1 is a partial front elevation of one of the new vertical sign panels, illustrating as best can be done, the vertical travel of the moving letters and the stationary letters appearing in the background, with the control mechanism shown at the side of the same.

Figure 1*a* is a broken side view of a portion of the panel showing the stationary characters in raised outline on the face of the panel.

Figure 2 is a broken front view illustrating how the background letters forming the stationary display for daylight purposes may be provided by equipping the lamps which are appropriately positioned to form the daylight letters with special reflectors or the like which will cause these particular lamps to stand out by contrast with the other lamps in the bank.

Figure 3 is a broken side view showing two of these special reflector lamps and one of the regular lamps of the bank.

Figure 4 is a broken detail illustrating the possibility of providing the daylight letters by specially shaped neon tubes overstanding or otherwise arranged so as not to interfere with the regular moving sign lamps.

Figure 5 is a broken side view illustrating this latter possibility.

Figure 6 is a broken part sectional view of the stack of moving sign characters, as viewed from the right in Figure 1.

Figure 7 is a sectional detail showing particularly the method of supporting and withdrawing the individual characters.

Figure 8 is a broken sectional detail across the guideway for the chains and plates which shows at the left in Fig. 7.

As shown particularly in Figure 1, the lamps 1 which by their flashing form the traveling letters, are mounted in suitably spaced relation on the face of a vertical panel 2 and are energized according to their locations to form the vertically traveling letters indicated at 3.

On the face of the vertical lamp panel, stationary letters are shown at 4 formed in such a way as to appear in daylight or when the sign is illuminated by an outside source and designed, furthermore, so as not to interfere with the traveling sign letters.

In Figs. 1 and 1*a* the stationary characters 4 are indicated in raised outline on the face of the panel preferably painted in distinguishing color from the panel so as to be readily readable in the daytime, when the traveling letters are not in operation. At night, the letters traveling up the signboard illuminate these stationary background letters and provide an additional point of interest. In the daytime, of course, the stationary letters alone will appear and these give the sign a daylight advertising value.

Another way of providing the fixed daylight display characters is illustrated in Figures 2 and 3 by painting or coating the back

portions 5 of certain of the lamps with light reflective or coloring material so that these lamps designated 7 will in effect stand out from the others so as to form the stationary letters.

A similar effect may be obtained as shown in Figures 4 and 5 by using neon tubes 8 to form the letters, these tubes being shown as supported above or in front of the lamps in the bank. These neon tube letters may be illuminated at the same time as the flashing lamps but usually they will be lighted only when the flashing lamps are inactive.

The traveling letters are produced by flashing mechanism similar in a general way to that disclosed in my Patents 1,591,917, 1,626,899 and 1,626,900 and comprising sign characters 9 of different letter shapes mounted on plates 10, stacked in a vertical holder 11. These sign characters are engaged and withdrawn one at a time from the bottom of the stack by traveling chains 12 which traverse the bottom of the stack and serve to strip off the sign plates one at a time and to carry them up through a bank of switch contacts indicated generally at 13. The contacts of this bank are individually connected to the correspondingly located lamps in the lamp bank and are selectively actuated, according to their position by the differently shaped characters.

The sign characters are shown as passing from the foot of the stack through a horizontal guideway 14 to an octagon shaped pulley 15, the sides of which substantially correspond each to the length of one sign plate and which acts to carry the plates and propelling chains around the corner to the vertical section 16 of the guiding structure.

After the sign characters pass upwardly through the control bank they are carried to the rear over another octagonal pulley 17 and rearwardly extending guideway 18 from which they fall into a reversing chute 19 which turns them over as shown at 10*a*, 10*b*, and drops them letter-side down onto the top of the stack in the vertical receiver 11. The chains are shown as passing over suitable guide sprockets 20 at the top and in rear of the reversing chute and downwardly over sprockets 21 driven by motor 22. A take-up sprocket is indicated at 23 adjustable to remove undesired slack.

The lower horizontal reaches of the chains are shown as sliding over rails or tracks 24. To minimize friction where the weight of the stack comes on the chains, sprockets 25 may be provided, these serving as rolling supports over which the chains travel with a minimum of friction. These sprockets turning with the chains are utilized to drive the sprockets shown at 26 in Figure 6 for positively feeding the plates down in the stack.

Sprockets 26 turn with a step by step motion so as to advance one plate downwardly as another plate clears the foot of the stack. Suitable intermittent drive may be provided for the purpose, the same being indicated in a general way by the intermittent gearing consisting of sprockets 28 on the shafts 29, Fig. 6, of the lower inside sprockets 25, said sprockets 28 driving the chains 27 for turning the upper sprockets 31 on shafts 43 carrying Geneva gearing elements 42 meshing with cooperating Geneva gear elements 41 on the shafts 30 carrying sprockets 26, designed to turn the feed sprockets 26 intermittently only as fast as the plates are withdrawn from the foot of the stack. To minimize the shock of the plates dropping on the sprocket supported chains, cushioning springs are indicated at 31′ supporting a cushion plate 32 located beneath the foot of the stack and having unstanding flanges 33 to engage and at least partially support the edge portions of the plates.

The stack guide is shown as a more or less open frame work, loosely confining the plates. To enable insertion and removal of the plates, either as a complete stack, portion of a stack or individual letters, the guide may be left open at the rear the full length of the letter plates as shown at 34 in Figure 6 with corner strips 35 secured by thumb screws 36, the slots 37 in said strips enabling the same to be shifted outwardly, when the screws are loosened to leave the back of the guide wholly open, for free removal of the plates. As shown in Figure 1 the strips may be made in sections with joints at 39 so that only a portion of the guide may be opened up at a time, thus holding in place those plates which are not to be removed. To prevent mistakes in withdrawing the plates, the plates may be marked on their exposed edges as shown at 38, Fig. 6 to indicate the character on each plate.

To permit extra plates being readily added to the top of the stack, the upper ends of the corner strips 35 may be bent outwardly as at 40 in Figure 1 at a point just below the reversing chute. This leaves a small portion at the top of the stack open to the rear so that plates may be readily added to or taken off the top of the stack without unfastening the corner strips.

Suitable interlocking connections are provided between the chains and plates, the same automatically engaging as the chains pass beneath the foot of the stack to enable the chains to carry off the lowermost plate. In the illustration such interlocking means consist of spaced pins 45 on the chains projecting inwardly in opposition and adapted to engage behind the ribs or runners 44, Fig. 8 on the edges of the plates. These pins, it will be seen, carry the plates from the foot of the stack through the horizontal way 14, remain engaged with the plates in the travel of the same with the first octagonal pulley and dur-

ing the travel up past the switch contacts, over the upper octagonal pulley and through the return way 18 to the reversing chute. The movement of the plates, therefore, is positive and assured, making the travel of the flashing letters constant and even from the bottom to the top of the vertical panel.

This feature of traversing the letters vertically is an attraction in itself, holding the observer's attention and adding to the intrinsic value of the sign. When the moving letters are not in use, the stationary letters give an advertising value to the sign so that actually the sign has full value at all times. The stationary letters may be illuminated at the same time or alternately with the moving letters, for instance, where the stationary letters are formed by reflector lamps as in Figures 2 and 3 these special letter-forming lamps may be flashed or be allowed to remain on for any desired period following a certain cycle of the "talking" letters. The stationary letters formed by the neon tubes also may be illuminated constantly or intermittently, following some definite, or indefinite cycle according to the effects desired.

The spring support at the foot of the stack and the rolling supports for the chains at this point cushion the dropping action of the plates and reduce the friction so that only relatively small power is required to operate the control mechanism. The feed sprockets 26 afford a positive downward feed of the plates and also act in the nature of movable supports temporarily carrying the weight of the stack above a certain number of plates at the bottom of the stack. This supporting of the main body of the plates is important because the weight of the plates resting on the chain can thereby be reduced to the point where only very little energy is required to draw out the bottom plate and the action thereby becomes smoother, easier and quieter.

It will be evident that various changes may be made in the structure without departure from the true spirit and broad scope of the invention. The stationary letters, for instance, instead of being fixed and immovable, may be made changeable, in the nature of stencils or the like.

What is claimed is:

In a "talking" sign, a panel of traveling-letter-forming lamps, means carried by said panel for forming stationary letters visible independently of the traveling letters and means for flashing the lamps to effect traveling of design sign characters over the panel, the stationary letter-forming means comprising appropriately shaped neon tubes supported on the panel in the same field but clear of the traveling letter-forming lamps.

In witness whereof, I have hereunto set my hand this 11th day of August, 1926.

FRANCIS E. J. WILDE.