

Sept. 11, 1934.

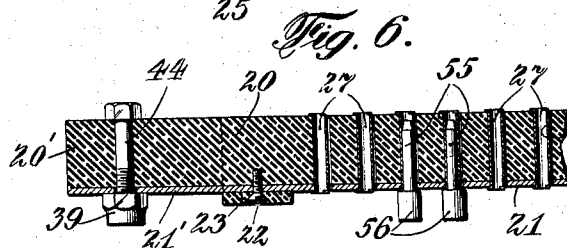
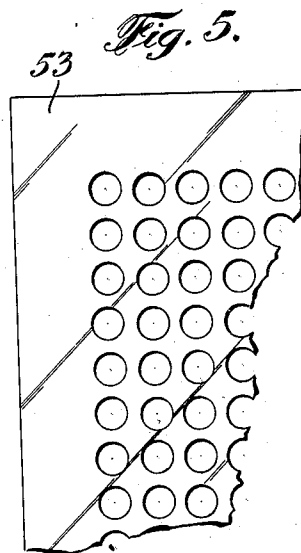
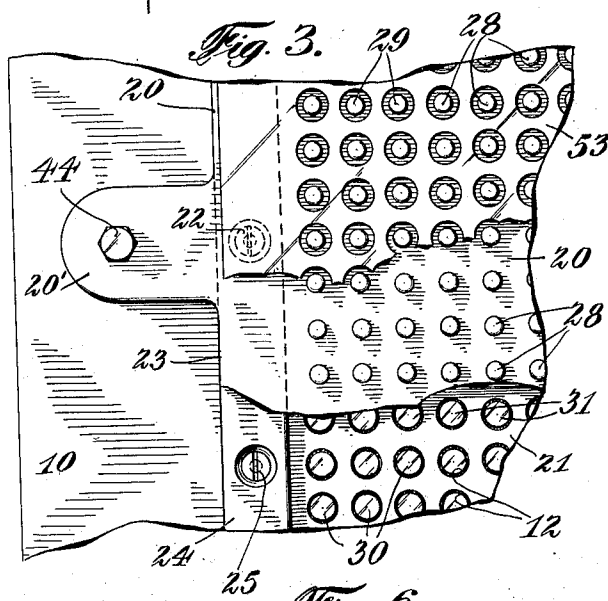
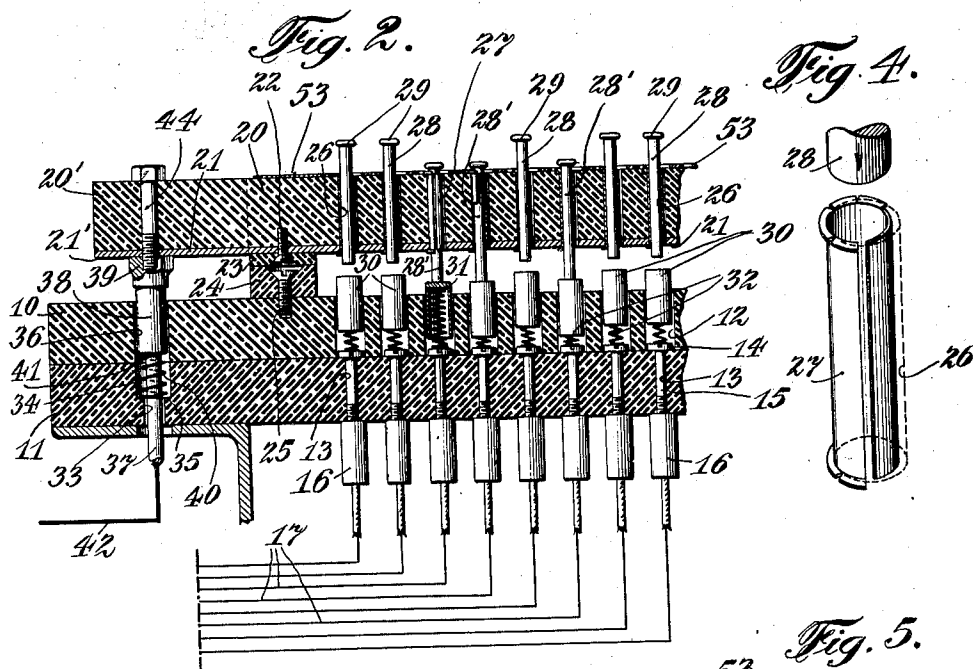
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1,973,305

ELECTRIC LIGHT SIGN SWITCH

Filed Aug. 22, 1931

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,973,305

ELECTRIC LIGHT SIGN SWITCH

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Application August 22, 1931, Serial No. 558,758

13 Claims. (Cl. 200—46)

My invention relates to electric light signs and refers particularly to devices of that character in which the arrangement of illuminated lights may be readily changed.

The value of illuminated electric light signs for purposes of convenience and publicity is generally recognized and their adoption has become extensive.

While permanency of the illuminated design is sometimes desirable, it is more frequently necessary that the design be changed from time to time.

Devices are known whereby illuminated effects can be changed, but they are generally expensive in construction and complicated in operation.

Among the desirable attributes of signs of this description are cheapness of construction, simplicity of mechanical and electrical operation, economy in the production of a plurality of effect means, ease in operating the device, certainty of action and low cost of operating overhead.

The device of my invention overcomes the objectionable features of the present applied mechanism and possesses all of the above mentioned and other desirable features.

In my device the effect changing mechanism consists simply of a drawing upon a sheet of cardboard, paper or similar material, and a plurality of movable pins.

In its operation it is not necessary that the artist be present as the drawings may be made at any place and when so made are capable of being conveniently utilized for producing the corresponding illuminated effect without the production of new mechanical devices and without the attention of expert operators.

This attribute of my device of using the same mechanism without change for any and all desired effects is of great value and a great advance in the art of illuminated electric signs.

The only cost incident to a change of illuminated effects by my device is a pencil or pen drawing of the desired result upon paper or cardboard.

The novelty, economy and other advantages of my device will be evident upon a consideration of my specification and its accompanying drawings in which similar parts are designated by similar numerals.

Figure 1 is a perspective view of one form of the device of my invention.

Figure 2 is an enlarged fragmentary section through the line 2—2 of Figure 1.

Figure 3 is a fragmentary top view of the device

of Figure 1, partly broken away for purposes of clearness of explanation.

Figure 4 is an enlarged perspective view of one of the movable contact pins and its accompanying parts.

Figure 5 is a fragmentary view of the drawing sheet of my device.

Figure 6 is a fragmentary vertical cross-section of a modified form of the upper contact carrying element.

Figure 7 is a fragmentary vertical cross-section of the electric light board.

The particular form of the device of my invention shown in the accompanying drawings comprises a non-electric conducting base member formed by the two non-conductive plates 10 and 11, plate 10 having a plurality of holes 12, 12 passing therethrough and in alignment with a plurality of smaller holes 13, 13 in the plate 11.

Passing through each hole 13 of the plate 11 is a pin, or plug, made of electric conductive material and having the inner head 14, the shank 15 and the outer head 16. For purposes of assembly, the shank 15 is threaded and meshes with an interiorly threaded recess in a head 16. Each head 16 is electrically connected by means of a wire 17 to an electric light bulb 18 in the electric sign board 19.

A plate 20 of non-electric conductive material abuts upon a sheet of electric conductive material 21. The plate 20 and the sheet 21 are maintained in abutment by means of a plurality of screws 22, 22 threaded through a sheet of non-conductive material 23. A sheet of non-conductive material 24 is affixed to the plate 10 by means of screws 25, 25, the plates 23 and 24 acting as spacers between the plates 10 and 20.

A plurality of holes 26, 26, passes through the plate 20 and the sheet 21 in alignment with the holes 12, 12, of plate 10. A sheet of cardboard, or similar material 53, is placed upon the upper face of the plate 20 and has a plurality of holes corresponding to those of plate 20. Within each hole 26 is a split cylindrical member 27 of resilient conductive material preferably very slightly smaller in diameter than the hole 26. A pin 28 of conductive material very slightly larger in diameter than the cylindrical member 27 is capable of longitudinal movement through the cylindrical member 27, the resiliency of the latter frictionally maintaining the pin 28 from gravitational movement. A head 29 upon each pin 28 limits the downward movement of the pin.

Within each hole 12 of the plate 10 is a cylindrical contact member 30 of conductive ma-

terial longitudinally movable within the hole, said member 30 being open at the bottom and closed at the top 31. A spring 32 of conductive material connects the head 14 with the top 31 of the movable member 30.

The pins 28, 28 and the contact members 30, 30, are normally spaced from each other, a downward movement of the pins 28, 28 causing contact with the members 30, 30, which then may resiliently yield, whereby their springs 32, 32 assure good contacts being made and maintained.

The plates 20, 21, 10 and 11 have a plurality of extended members, or ears, 20', 21', 10' and 11'. The plate member 11' has a hole passing therethrough having the restricted portion 33 and the larger portion 34, thus forming a shoulder 35. The plate member 10' has a hole 36 passing therethrough in alignment with the hole 34 of the plate member 11'. Longitudinally movable within the holes 33 and 36 is an electric conductive contact member having the smaller portion 37 and the larger portion 38, the latter being enlarged exteriorly of the plate member 10' into the head 39. A spring 40 abuts upon the shoulders 35 and 41. The members 37, 37 are connected by wires 42, 42, to a lead wire 43 which in turn is connected to a source of electric energy (not shown).

A screw bolt 44 passes through aligned holes in the plate 20' and 21' and is threaded within a recess in the head 39 in order to produce abutment between the plate 21' and the head 39.

The springs 32, 32 and the springs 40, 40 may be of ordinary resilient conductive material, or of resilient conductive material which loses its resiliency under an excessive electric load, thus acting as a fuse.

The electric light board 19 consists of a plate of conducting material 45 and a plate of non-conductive material 46. The plate 45 is connected by means of the wire 47 to the source of electric energy. The electric light bulb sockets 48, 48 are screwed into threaded openings within the plate 45 and each extends into a recess 49 in the plate 46, and contact is made with a wire 17 by means of the conductive elements 50, 51 and 52.

The electric light bulbs 18, 18 conform with the openings in the plates 20, 21, 10 and 11 with respect to both number and position.

A switch 54 serves to make and break the electric circuit.

The operation of the device is as follows:—

The design which it is desired to reproduce in electric lights is drawn upon the sheet of paper 53, as is shown in Figure 1 for one such design. It is of course immaterial to the operation of the device whether the drawing is made on the sheet 53 before or after this sheet is perforated with the holes, as shown in Figures 2, 3 and 5. Ordinarily probably the artist would prefer to make the drawing on an unperforated sheet. The paper 53 is then placed upon the device with all of the pins 28, 28 extending upwardly through the holes in the paper 53.

By means of a hammer, or by any other suitable means, the pins 28, 28 corresponding to the drawing upon the paper 53 are driven, or moved, downwardly, each pin thus moved making contact with its aligned member 30 and illuminating the corresponding electric light bulb 18 upon the sign board, the frictional contact of the pins in the resilient members 27, 27 being sufficient to compensate the resiliency of the springs 32, 32. The springs 32, 32 assure and maintain a good

electrical contact. In Figure 2, the pins 28', 28' have thus formed electric contact. When it is desired to change the illuminated design, the used paper, or cardboard, 53 is removed, the pins 28, 28 positioned in their original upwardly extended position, the new cardboard carrying the desired drawing placed upon the device and the proper pins moved downwardly.

In the modified form of the upper plate elements of my device, the pins 28, 28 of the described device are substituted by contact pins 55, 55, each having a head 56, the pins being frictionally maintained in position within the holes 26, 26. In operating this modified form, the attached plates 20 and 21 are removed and reversed. The necessary pins 55, 55 required for the desired illuminated effect are positioned within the holes, extending upwardly, passing through holes in the sheet 53 corresponding to the drawing thereon, with their heads 56, 56 projecting therefrom. The upper plate section 20 and 21 is then reversed and placed above the lower plate section and the two spaced from each other as shown in Figure 1, the heads 56, 56 of the pins 55, 55 thus abutting upon their corresponding contacts 30, 30.

It will thus be seen that my invention presents a device which is economic in production and simple in operation, whereby any desired illuminated effect can be readily produced by drawing the design upon cardboard, or paper, and moving pins designated by said drawing.

It will be noted that the two contact carrying elements of my device are in fixed spaced relation with respect to each other; that is, these two plates do not move during the making of the desired contacts, this being accomplished solely by the movements of the upper pins or contact members. This is a great advantage in operation as it eliminates the difficulties and power incident to the movement of these heavy elements during the contact making.

A further advantage of my device is that observation will readily disclose whether or not all of the desired pins 28, 28 have made contact.

Another advantage of the device shown in Figures 1 to 5 is that the illuminated effects can be changed without movement of any parts other than that of the pins 28, 28, by simply moving these pins upwardly, substituting a new perforated sheet carrying a drawing of the new design and moving the desired pins downwardly into contact. This overcomes the necessity of moving heavy parts of the device.

I do not limit myself to any particular size, shape, number, arrangement of material or parts as shown and described as these are given simply as a means for clearly describing the device of my invention.

What I claim is:—

1. In a controlling device for an electric light sign, in combination, a field of exposed passive contacts, a field providing for corresponding activating contacts, a plurality of activating contacts to be manually positioned in the latter field in accordance with a desired design and to co-operate with corresponding passive contacts to close an electric circuit, the contacts in one of said fields being electrically insulated individually from one another, and a drawing to be superposed on the field of activating contacts and provided with a corresponding field of perforations to be utilized in positioning activating contacts while following the drawing as a guide for thus reproducing the design presented thereby.

2. In a controlling device for an electric light

sign, in combination, a fiat field of passive contacts mounted to be exposed at the same side of said field, a fiat field of movably mounted activating contacts corresponding to the field of exposed passive contacts with this field of activating contacts arranged in opposed parallel relation with the field of passive contacts at the side thereof at which the latter contacts are exposed, said activating contacts being mounted to be individually moved in accordance with a desired design towards and into abutting contact-making relation with the corresponding respective passive contacts and subsequently to be moved in an opposite direction out of such contact-making relation, spring means rendering the contacts in one of said fields resiliently yieldable and constantly acting between the respective contacts in the respective fields thereof in a direction to press the contact-making contacts against each other in spring-pressed abutting contact-making relation when the activating contacts have been moved to contact making position, and friction means adapted to be effective to hold the respective movable activating contacts against having movement imparted thereto by said spring means so that thereby said contacts belonging to the respective fields will be maintained in spring-pressed abutting contact-making relation by reason of said activating contacts being thus held by said friction means.

3. In a controlling device for an electric light sign, in combination, a fiat field of exposed passive contacts, a fiat field of movable activating contacts corresponding to the field of exposed passive contacts with this field of activating contacts arranged in opposed parallel relation with the field of passive contacts at the side thereof at which the latter contacts are exposed, said activating contacts comprising individually longitudinally slidable contact-making push pins to be manually pushed into contact-making relation with the respective passive contacts, mounting means for all of said contacts in both fields thereof providing a fiat outwardly exposed face beyond which the outer ends of said push pins at all times project, and a sheet of drawing provided with a field of perforations corresponding to the field of activating contacts and to be superposed on said fiat face of the mounting means with the outwardly projecting outer ends of all of said push pins projecting through the corresponding perforations in said sheet so that thereby a required number of said contact-making push pins may be pushed into contact-making position in accordance with a desired design which is determined by following the drawing as a guide for thus reproducing the design displayed thereby.

4. The invention defined in claim 3, in combination with a spring mounting for each of said passive contacts arranged so that the latter will resiliently yield when it is abutted by the inner end of the corresponding inwardly sliding contact-making push pin and thereafter will be spring-pressed against this inner end of the push pin in the contact-making position of the latter, and a friction mounting for each of said slidable contact-making push pins adapted to be effective to hold the latter against outward sliding movement from the pressure thereon of the corresponding spring-pressed passive contact.

5. In a controlling device for an electric light sign, in combination, a fiat field of exposed passive contacts, a fiat field of movable activating contacts corresponding to the field of exposed

passive contacts with this field of activating contacts arranged in opposed parallel relation with the field of passive contacts at the side thereof at which the latter contacts are exposed, said activating contacts comprising individually longitudinally slidable contact-making push pins to be pushed into abutting contact-making relation with the respective passive contacts in accordance with a desired design, mounting means for all of said contacts in both fields thereof providing an outwardly exposed face exposing the outer ends of said push pins, a spring mounting for each of said passive contacts arranged so that the latter will resiliently yield when it is abutted by the inner end of the corresponding inwardly sliding contact-making push pin and thereafter will be constantly spring-pressed against and held in abutting contact-making relation with this inner end of the push pin in the contact-making position of the latter, and a friction mounting for each of said slidable contact-making push pins adapted to be effective to hold the latter against outward sliding movement from the pressure thereon of the corresponding spring-pressed passive contact.

6. In an electric circuit control device, in combination, an exposed passive contact, a movable activating contact normally in spaced open-circuit relation with said exposed passive contact and adapted to be moved into abutting closed-circuit relation therewith, mounting means for said contacts, friction means adapted to resist the movement of said activating contact in a direction away from its abutting closed-circuit position, and spring means adapted to press one of said contacts against the other, said spring means being adapted to act against but being incapable of overcoming the frictional resistance of said friction means, so that thus by reason of said friction means said contacts will be maintained in spring-pressed abutting contact-making relation after said activating contact has been moved into abutting closed-circuit relation with said passive contact.

7. In an electric circuit control device, in combination, an exposed passive contact, an activating contact comprising a longitudinally slidable contact-making push pin having its inner end normally in spaced open-circuit relation with said exposed passive contact and adapted to be pushed into abutting contact-making relation therewith, mounting means for said contacts providing an outwardly exposed face exposing the outer end of said push pin, a spring mounting for said passive contact adapted to render it resiliently yieldable when it is abutted by the inner end of said contact-making push pin as the latter slides inwardly and thereafter to exert constant spring pressure against said push pin tending to slide the latter outwardly, and a friction mounting for said slidable contact-making push pin effective to hold the latter against outward sliding movement under the constant pressure thereon of said spring-mounted passive contact so that thereby said contacts will be maintained in spring-pressed abutting contact-making relation by said friction mounting.

8. In a controlling device for an electric light sign, a sheet to be utilized as a guide in effecting the display of a desired design comprising a sheet carrying a drawing of the desired design on a surface thereof and provided with a complete field of substantially uniformly distributed perforations with said drawing disposed within said field of perforations so that thereby said drawing may

be followed as a guide for utilizing the perforations in said field which coincide with said drawing.

9. In a controlling device for an electric light sign in combination, a unitary separable contact-carrying member having a flat face and provided with a field of tubular holes opening to said flat face, a plurality of contact pins to be inserted in said holes in accordance with a desired design to be reproduced and each having a head projecting beyond said flat face with each such projecting head constituting an individual circuit-controlling contact element, and means adapted to maintain said headed contact pins in place in said holes in said member.
10. In a controlling device for an electric light sign, in combination, a unitary separable contact-carrying member having a flat face and provided with a field of tubular holes opening to said flat face, a plurality of contact pins to be inserted in said holes in accordance with a desired design to be reproduced and each having a head projecting beyond said flat face with each such projecting head constituting an individual circuit-controlling contact element, means adapted to maintain said headed contact pins in place in said holes in said member, and a sheet of drawing provided with a field of perforations corresponding to said field of holes in said contact-carrying member and to be superposed on said flat face of the latter with its perforations in alignment with said holes and beyond which the heads of such contact pins may project so that thereby said headed contact pins may be inserted in said holes through said perforations in the sheet of drawing according to a desired design while following the drawing as a guide for thus reproducing the design displayed thereby.
11. In a controlling device for an electric light sign, in combination, a plate-like unitary separable contact-carrying member provided with a field of perforations and having an exposed face, a plurality of circuit-controlling push pins individually longitudinally slidable in said perforations and to be pushed inward from said exposed face from an inactive position to an active circuit-controlling position in accordance with a desired design to be reproduced, and a resilient friction member carried by said plate-like member for each of said push pins and frictionally engaging with the latter thereby respectively to maintain them at a desired position relatively to said plate-like member by which they are carried.
12. In a controlling device for an electric light sign, in combination, a plate-like unitary separable contact-carrying member provided with a field of perforations and having an exposed face, a plurality of circuit-controlling push pins individually longitudinally slidable in said perforations and to be pushed inward from said exposed face from an inactive position to an active circuit-controlling position in accordance with a desired design to be reproduced, friction means adapted to maintain said push pins frictionally at their inactive position and at their active position in said perforations in said member, and a sheet of drawing to be superposed on the exposed face of said plate-like member and provided with a field of perforations which correspond to and are in alignment with the perforations of said field of perforations in said plate-like member so that thereby said push pins may be pushed in through the perforations in said sheet of drawing according to a desired design while following the drawing as a guide for thus reproducing the design displayed thereby.
13. In a controlling device for an electric light sign, in combination, a unitary separable contact-carrying member comprising an electrically insulating plate and a metal sheet fixedly secured together in juxtaposed flatwise contact, said member being provided with a field of substantially uniformly distributed tubular holes through it, a resiliently contractile metal friction-providing sleeve in each of said holes in conductive relation with said metal sheet, and a plurality of contact pins having individual frictional sliding engagement in the respective said sleeves.

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