Sept. 19, 1939. R. H. GEISER 2,173,329

DISPLAY APPARATUS

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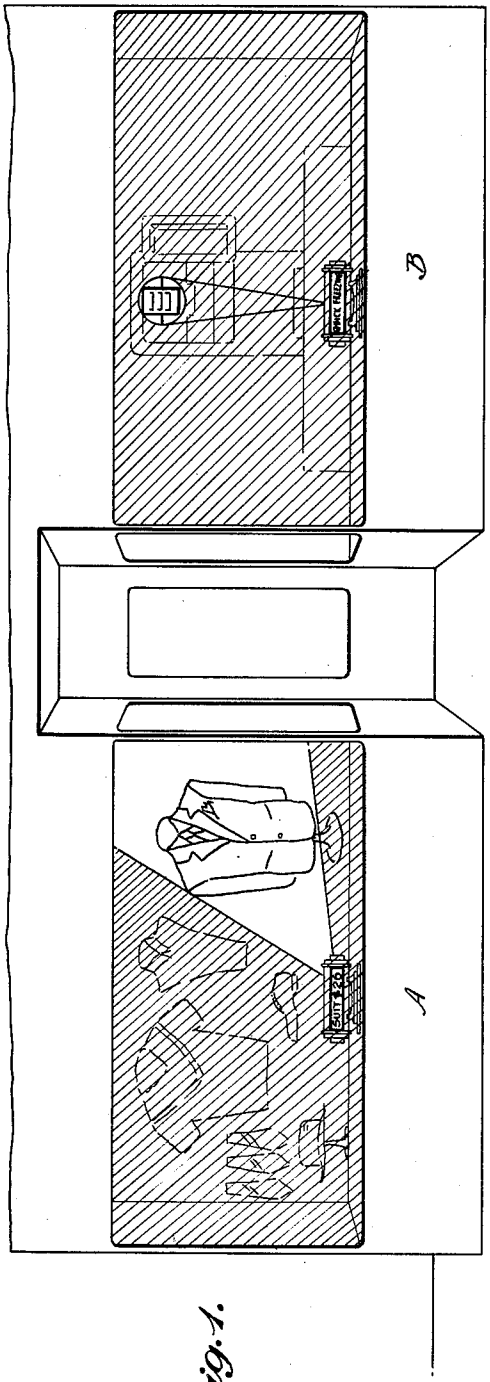


Fig. 1.

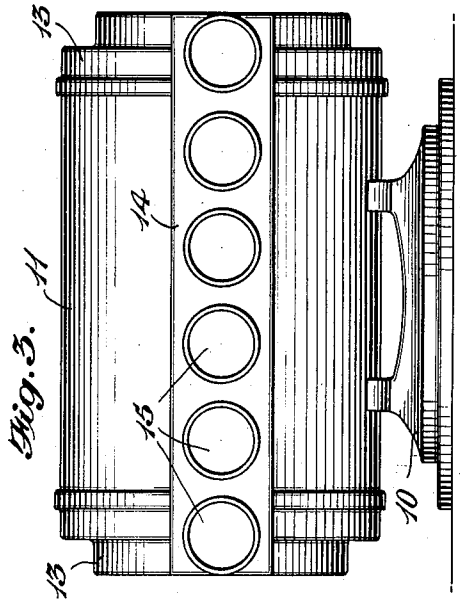


Fig. 3.

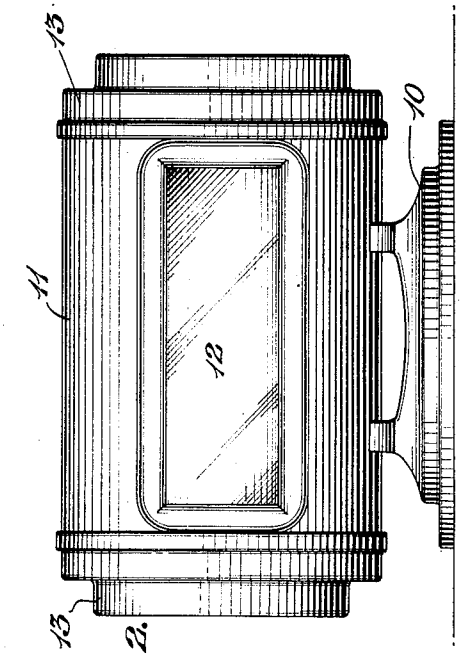


Fig. 2.

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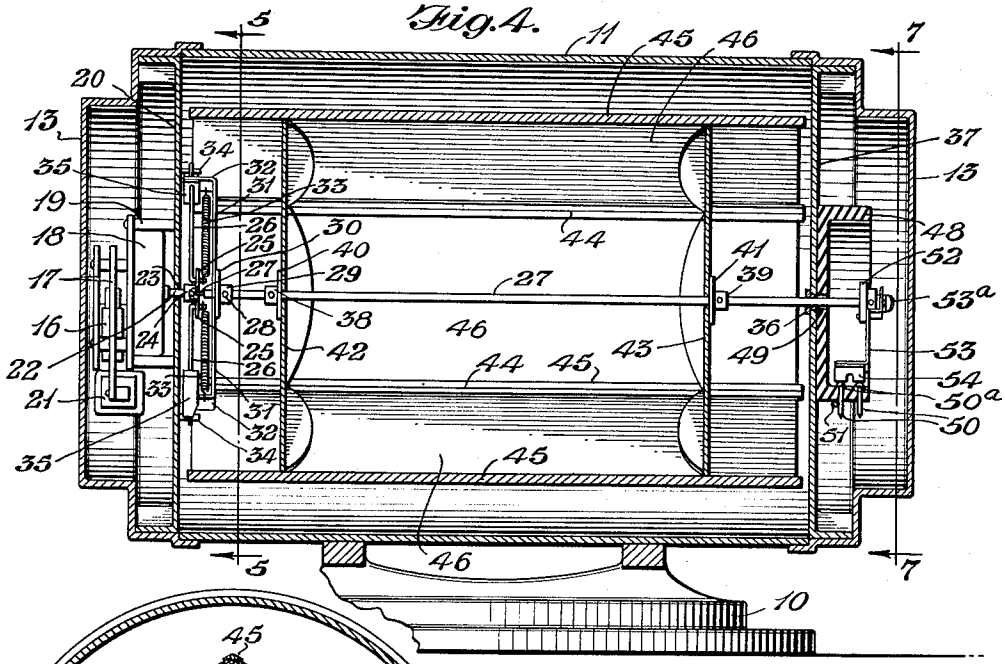
By A. Yates Dowell
Attorney

Sept. 19, 1939. R. H. GEISER 2,173,329

DISPLAY APPARATUS

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Fig. 4.



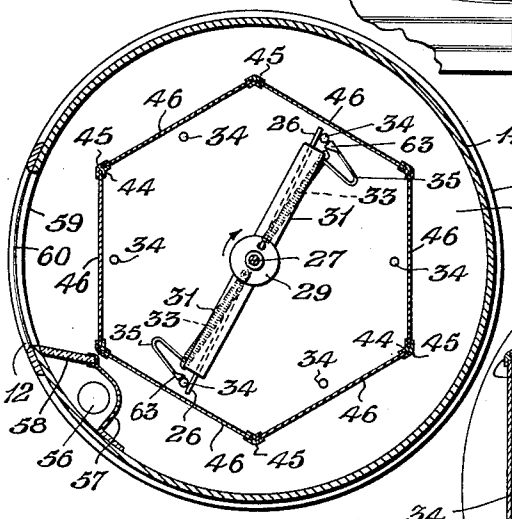


Fig. 5.

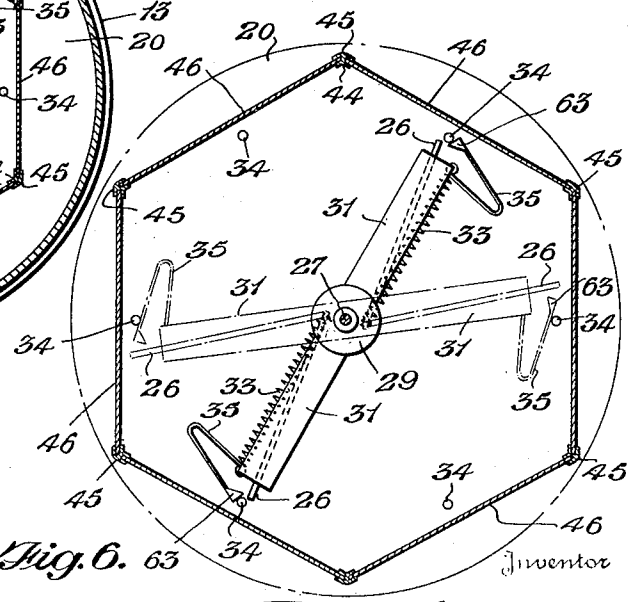


Fig. 6.

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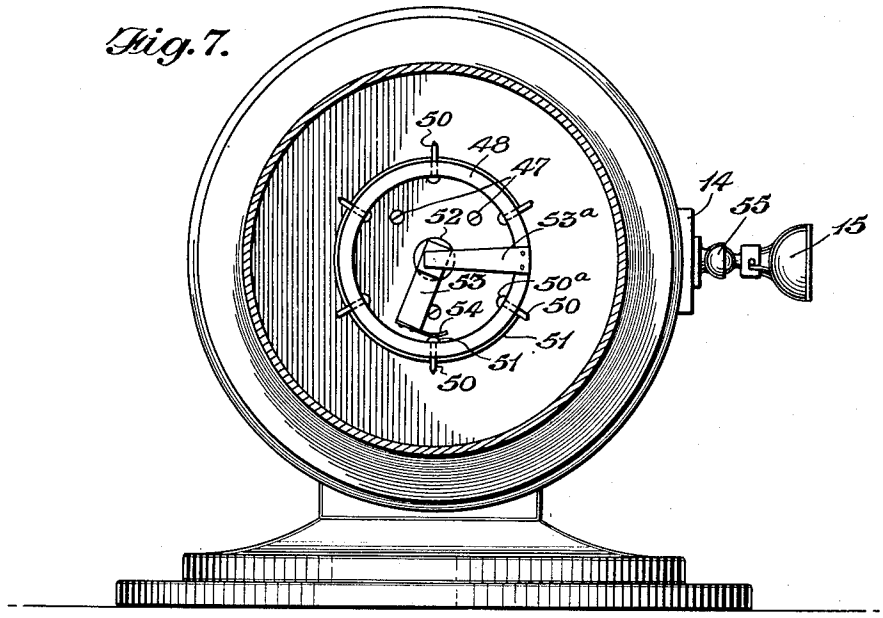
Attorney

Sept. 19, 1939. R. H. GEISER 2,173,329

DISPLAY APPARATUS

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Fig. 7.



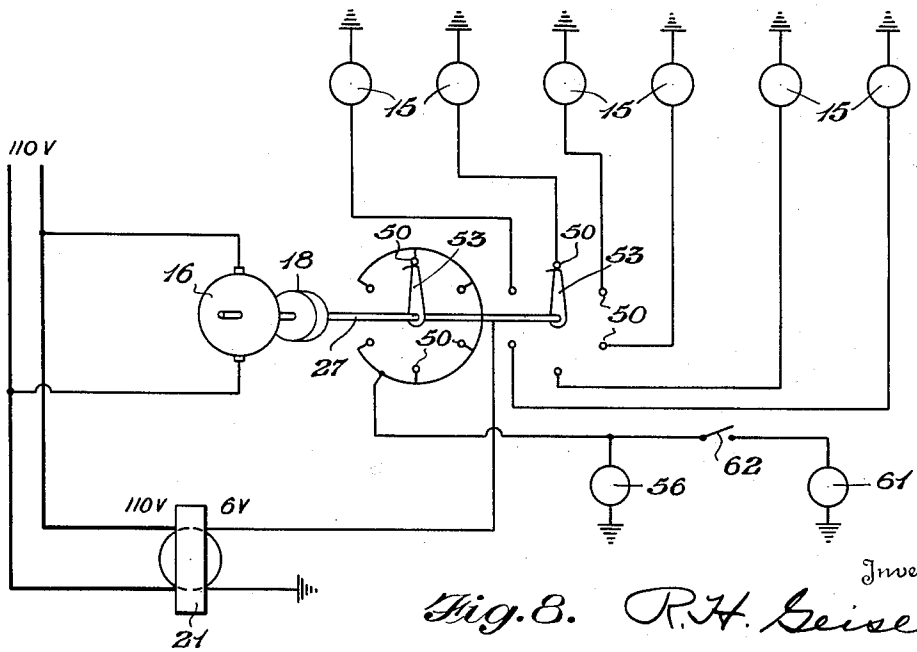


Fig. 8.

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DISPLAY APPARATUS

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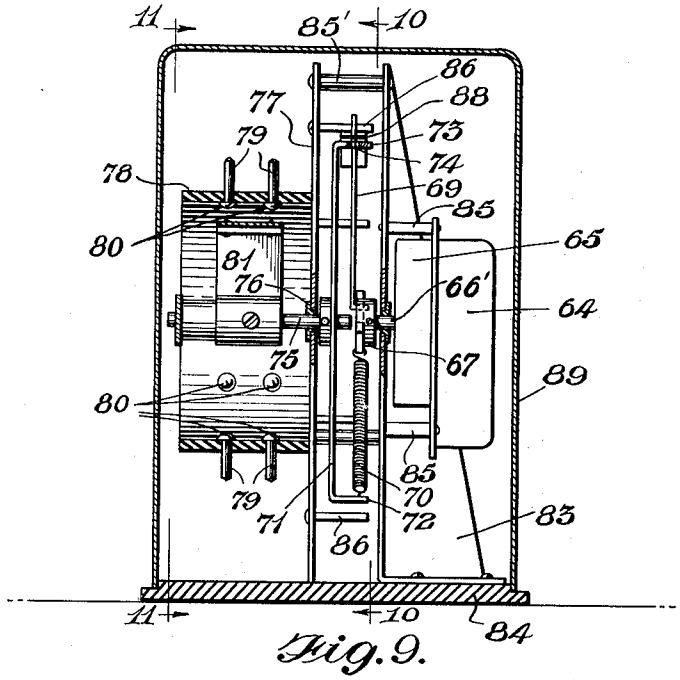


Fig. 9.

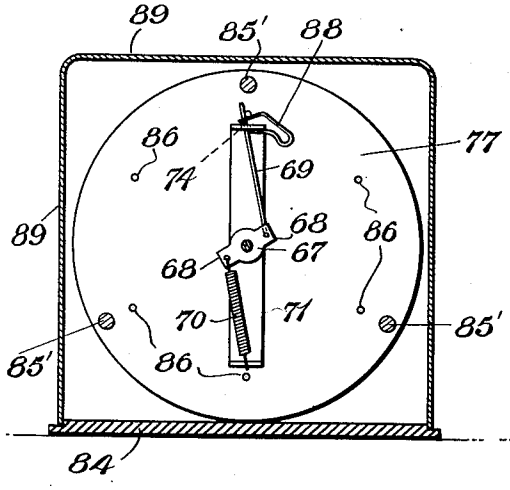


Fig. 10.

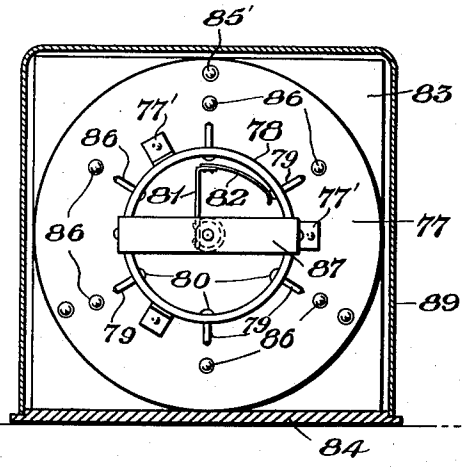


Fig. 11.

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Patented Sept. 19, 1939

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UNITED STATES PATENT OFFICE

2,173,329

DISPLAY APPARATUS

Robert H. Geiser, Waynesboro, Pa.

Application August 5, 1937, Serial No. 157,613

8 Claims. (Cl. 40—52)

This invention relates to a sign apparatus and more particularly to a device suitable for use in store windows and in display rooms where it is desired to effectively attract attention to a number of articles or important features of one particular article.

The device is suitable for use in a dark or darkened store window or display room in a manner such that the sign changing apparatus, which is illuminated and other illuminating means which may be arranged for coaction therewith, effectively attract attention and point out matter which the operator desires to convey to the minds of prospective buyers and other observers.

The apparatus is also suitable for use in theatres, night clubs, schools and in other places where an operator desires, by the use of mechanical means such as the present invention, to simultaneously convey certain facts to an audience and at the same time ingeniously hold the attention of the said audience in a manner that the subject matter to be conveyed is effectively impressed upon the mind of the observers because of the association with the facts conveyed of the attractive signs, lights and fascinating operation thereof.

An object of the invention is to provide an apparatus for displaying a sign in an attractive manner.

Another object of the invention is the provision of an apparatus for displaying a sign and simultaneously therewith illuminating an object.

Another object of the invention is to provide a method for displaying a sign and illuminating an object.

Other objects and the nature and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a view in perspective of a store having two front windows, in each of which is located an apparatus in accordance with the present invention;

Fig. 2 is a front elevation of the sign changing apparatus casing;

Fig. 3 is a rear elevation of the sign changing apparatus casing;

Fig. 4 is a longitudinal section through the casing showing some of the apparatus therein;

Fig. 5 is a cross sectional view taken along the line 5—5 of Fig. 4 looking in the direction of the arrows, showing the sign drive and positioning apparatus;

Fig. 6 is an enlarged view similar to Fig. 5 but showing the sign drive and positioning apparatus in different phases of its operation;

Fig. 7 is a cross sectional view through the apparatus casing taken along line 7—7 of Fig. 4 in the direction of the arrows;

Fig. 8 is a schematic diagram of the electrical connections;

Fig. 9 is a vertical cross section of a circuit making apparatus;

Fig. 10 is a section taken on line 10—10 of Fig. 9; and,

Fig. 11 is a section taken on line 11—11 of Fig. 9.

Referring to the drawings, Fig. 1 discloses the front of a store having two show windows A and B, respectively. In the window A an apparatus in accordance with the invention is utilized to illuminate an article therein and simultaneously with such illumination present advertising matter relating thereto on a sign. In the window B a similar apparatus is utilized to illuminate a particular feature of an article and at the same time present to the observer a sign setting forth description of such feature.

Fig. 2, the sign apparatus is disclosed as having a base 10, a central cylindrical body portion 11 having a front framed window 12 and removable end caps 13.

A rear view of the same device, shown in Fig. 3, discloses a panel member 14 mounted on the rear of the cylindrical body portion 11 and six search lights 15 disposed symmetrically along said panel 14.

A longitudinal section taken through the body portion 11 and caps 13, referring to Fig. 4, discloses an alternating current motor 16 mounted on suitable supports 17 to a gear casing 18 which in turn is mounted by suitable supports 19 to a disc like end piece 20. A transformer 21 is secured to the motor supports 17 in any suitable manner not shown, and is utilized to commute the usual house current of one hundred and ten volts supplied to the apparatus to six volts for use in the search light and lamp circuits later to be described. The electric motor 16 is designed to operate on approximately one hundred and ten volts and is not connected in the secondary circuit of the transformer. The motor 16, while operating on ordinary house current, is designed to drive the relatively shoft shaft 22 through the gearing within the casing 18 at a speed of approximately one revolution every fifteen to thirty seconds. The shaft 22 passes through a hole 23 in disc like end piece 20 and is secured to a bearing piece 24 in any suitable

manner. Secured to said bearing piece 24 is a disc piece 25 having formed therein openings through which pass crank arms 26 which may be fabricated of ordinary wire.

Cooperating with the bearing piece 24 is a shaft 27 having one end rotatable within said bearing piece 24 and having mounted thereon and secured thereto by a key 28 a collar 29 to which is secured, by suitable means, across its disclike face 30, a bar piece 31 having two bent end portions 32 to which are attached helical spring members 33 in any suitable manner as for example by hooking the ends of the springs through holes in said bent end portions 32. The opposite ends of said springs 33, respectively, are attached to the inner ends of said crank arms 26 in a manner similar to that by which the springs are fastened to the bent end portions 32 of bar 31. The bent end portions 32 of bar 31 are provided with holes through which may pass the outer ends of crank arms 26. Disposed at equal distances from each other and on the circumference of an imaginary circle, on said disclike end piece 20, said circle having a radius slightly less than that distance from the center of the shaft 22 to the outermost end of a crank arm 26, are six stop pins 34.

Attached to end portions 32 of bars 31 are substantially U-shaped leaf spring members 35. The opposite end of the shaft 27 passes through a bearing 36 in a disclike end piece 37 similar to the disclike end piece 20. A collar 38 and a collar 39, each fastened to the shaft 27 by suitable means, have secured thereto at their disclike end portions 40 and 41, respectively, sign frame end pieces 42 and 43 respectively, which are formed from metal discs having segments thereof turned inwardly at right angles to the body of the disc to form a flat regular hexagon. Disposed in parallel relation to the shaft 27 and secured to the sign frame end pieces 42 and 43 at the corners 44 of the regular hexagon are bars 45 having their edges formed to receive signs 46.

Secured to the end piece 37 by screws 47 is a fiber cup shaped piece 48 having a central opening 49 through which may pass the shaft 27.

Referring to Fig. 7 metallic contact pins 50 having heads 50*a* are disposed in pairs at distances of 60 degrees apart about the cylindrical body of the cup shaped piece 48. In contact with the pins 50 is an electrical conductor 51 wrapped about the circumference of the fiber cup 48. A fiber collar 52 is secured by suitable means to the end of shaft 27 having attached thereto a revolving metallic arm 53 cooperating with stationary contact arm 53*a* to which revolving arm is secured leaf spring contact 54 for engagement with the heads 50*a* of pins 50. Also referring to Fig. 7, search light 15 is shown secured to the panel 15 through the medium of a ball and socket joint 55.

Referring to Fig. 5, an electric lamp 56 is shown in association with reflector 57 for illuminating translucent window 58 for causing diffused light to illuminate sign 46 and reflect through the opening 59 in cylindrical body casing portion 11 which also may have a window of transparent material 60 disposed therein, to the eye of an observer.

Signs 46 may be inserted in position between the bars 45 of the sign holding frame by flexing said cards and slipping them between the grooves formed in the bars 45 for that purpose. Other means may be employed for holding the signs than that shown, for example, the signs may be pasted to the frame or they may be bolted thereto by suitable bolts or they may be secured to the frame by special clips or other fasteners.

When the apparatus is connected to a one hundred and ten volt source, the motor 16 operates to drive the shaft 22 through gearing 18 at a speed of approximately one revolution every fifteen to thirty seconds causing the inner ends of crank arms 26 which are secured to the disclike flange portion 25 of collar 24 to take positions at variance to their initial position causing springs 33 to be placed under tension as shown in Fig. 6 in full lines. Continued rotation of collar 24 by shaft 22 causes the crank arms to recede from bearing relation with stop pins 34 whereby springs 33 under tension tends to assume a neutral position driving the bar 31 secured to the ends of springs 33 to the position shown in dotted lines in Fig. 6 and then to locking position and engagement with pins 34 as shown in Fig. 5. This operation causes the sign holding frame to move from a position showing one sign to an observer to a position showing a second adjacent sign to the observer. Simultaneously with the change of signs the revolving arm 53 is rotated from one set of pins 50 to a second set causing window lights 61, see Fig. 8, and lamp 56 to flicker during the sign changing interval and also to shift current from one search light 15 to a second light in the series, the first search light being arranged for focus on a feature of an apparatus or an article of merchandise relating to the matter depicted on said first sign and the second search light focused on a second feature of a machine or a second article of merchandise relating to the matter depicted on said second sign. It is to be noted that whereas the driving motor operates on one hundred and ten volts that the lights all operate on a much lower voltage for example, six volts and are in the secondary circuit of the transformer. The motor may be of very small capacity as it is only called upon to rotate the disc 24 through reducing gearing in casing 18 at a very slow rate of speed; it is also to be noted that all the illumination is derived from a six volt circuit making for a very economical system.

From the above specification of the elements of the apparatus and their arrangement in an electrical circuit, it will be clear that the apparatus may be used in a darkened or completely dark window, that the apparatus may only be illuminated when the sign is in position, that the article or feature to be illuminated will only be illuminated when the sign relating thereto is in position, that the illumination of both sign and article or feature occurs for a reasonable length of time, and that by operation of hand switch 62 the store window light may be entirely cut out. A separate lighting circuit may, of course, be installed to produce any desired collateral effect.

With the spring 35 and crank arm 26 cooperating with pin 34 in the manner described, there will be no bounce when the frame passes from one sign showing position to another for the forward speed will be in part absorbed by the spring 35 and after impact of the crank arm 26 with the pin 34, it will be locked in position by the bent end portion 63 of the spring 35 and the end of the crank arm 26 making for a silent, smooth and satisfactory operation.

Though two revolving doors 53 are shown in schematic Fig. 8, for the sake of clearness, it is to be understood that a single arm 53, as shown for example in Figs. 4 and 7, having a contact

piece 54 broad enough to contact both sets of pins 50, may be utilized.

Referring to Figs. 9, 10 and 11, a modified form of circuit making apparatus is disclosed which may be used in conjunction with search lights for window display as already described collaterally to or independently of any sign apparatus. A motor 64, in Fig. 9, is arranged to drive through suitable gearing, now shown, within housing 65, a shaft 66 upon which is mounted a collar member 67 having earlike extensions 68. Through one of said ears 68 is pivotally secured a crank arm 69 and to the other ear 68 of collar 67 is fastened one end of a helical spring 70. The other end of the helical spring 70 is fastened to a cross bar member 71 at its bent portion 72. At the other end of cross bar member at the bent end portion of the other end of the bar member 71 opening 74 is provided through which crank arm 69 projects. The cross bar member 71 is mounted upon a driven shaft 75, mounted in bearing 76, supported in platelike discs 77 upon which is secured by suitable means such as bracket 77' fiber cylinder 78 in which are mounted contact pins 79 having heads 80. Mounted upon shaft 75 for cooperation with heads 80 of contact pins 79 is revolving arm 81, fabricated of fiber or other insulating material, having secured at its outer end a metallic springlike leaf piece 82 for successive cooperation with the heads 80 of each pair of contact pins 79.

The motor 64 is arranged to be supported upon bracket member 83 secured to base 84 by means of bolts 85. The disclike piece 77 is supported in parallel spaced relation to bracket member 83 by suitable bolts 85'. A series of stops 86 are arranged at suitable intervals, for example, 60 degrees apart, on disclike piece 77, for cooperation with crank arm 69. A series of circuits, not shown, may include a suitable source of current and a series of electric lamps for illuminating objects successively for predetermined lengths of time and may be connected to contact pins 79 in such a manner that when each pair of contact pins 79 is bridged by metallic spring member 82 a particular lamp for illuminating a predetermined object will have its circuit closed, whereby said object will be illuminated for a predetermined time. The operation of the device insofar as it provides for intermittent rotation of the shaft 75 is similar to that described with reference to the sign changing apparatus depicted in Figs. 4, 5 and 6 in that it shows means for causing crank arm 69 to recede until it releases the driving mechanism from the stop pins 86 permitting the spring member 70 which has been placed under tension to drive the cross bar member 71 and the shaft upon which it is mounted 75 to rotate until crank arm 69 again engages a stop 86 whereupon the cycle of the operation repeats itself.

Instead of the electric circuit being bridged by metal spring member 82 contacting two contact pins 79, the said two pins may be arranged in two separate circuits having a common side which may be brought in through stationary metal bar 87 and thence through revolving arm 81 where the current may divide, part of it going to one contact pin 79 through its circuit and the other part of the current going through the second pair of contact pins 79 to a second circuit, respectively. If the apparatus is to be utilized in a manner just described the revolving arm 81 is to be fabricated of a good metal conductor. The spring member 88 attached to cross bar member 71 is pierced in order that crank arm 69 may project through it and performs a similar function in this apparatus to that performed by spring member 35 in the apparatus shown in Figs. 4, 5 and 6. It is formed in the manner shown to prevent "bounce" and also to relieve shock. This construction makes for a quick acting switch which eliminates arcing. At the time when the crank arm 69 has receded to the point where it is no longer held by stop pin 86, the spring is under full tension and will quickly drive the mechanism to the next stop providing for a quick "make and break". The entire apparatus may be encased in a housing 89 which cooperates with base 84 to form a neat casing.

It will be obvious to those skilled in the art that various changes may be made in this device without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

I claim:

1. An apparatus for causing intermittent rotation of a shaft comprising an electric motor of relatively small capacity, a gear reducing mechanism arranged to be driven by said motor, a shaft extending from said gear reducing mechanism, a disc associated with said shaft, a crank arm pivotally secured thereto, a spring member associated with said disc, a second shaft to be driven, a bar piece secured to said shaft and to an end of said spring, bearing means for said shaft associated with the shaft extending from said gear mechanism, all of said elements being so arranged that when the disc is rotated by the motor through the medium of the gear mechanism the spring member will be placed under tension causing rotation of said second shaft in order to relieve said tension and to assume a neutral position, stop means arranged in spaced relation to the first shaft for cooperation with said crank arm in such a manner that when the spring member is in neutral position the stop means will prevent rotation of the entire crank arm about the axis of the first shaft but will cause rotation of the crank arm at its pivotal connection with said disc about said shaft in a manner such that when the disc is rotated the outer end of the crank arm will recede from said stop means until it no longer engages therewith, simultaneously with such recession the spring member will be placed under tension and cause rotation of said second shaft to relieve said tension.

2. In a circuit making and breaking apparatus, a motor, a spring, a contact arm and a series of consecutive contacts, a source of electric current leading to said contact arm and from said contacts, means cooperating with said motor and said spring to store up in said spring energy from said motor, driving mechanism cooperating with said contact arm and said spring for effecting movement of said contact arm from one contact to the next successive contact whereby a relatively short period of open circuit condition exists.

3. The apparatus recited in claim 2, and stop mechanism whereby said spring is prevented from actuating said contact arm, and release mechanism to cause said stop mechanism to have no effect on the motion of said contact arm whereby said contact arm is permitted to pass from one contact to a second contact.

4. For use in a show window a sign appa-

ratus and an illuminating apparatus, the former including a plurality of sockets and the latter including mechanism for illuminating different objects, means coordinating the sign apparatus and the illuminating apparatus including an electric motor of relative small capacity, a gear reducing mechanism arranged to be driven by said motor, a shaft extending from said gear reducing mechanism, a disc associated with said shaft, a crank arm pivotally secured thereto, a spring member associated with said disc, a second shaft to be driven, a bar piece secured to said shaft and to an end of said spring, bearing means for said shaft associated with the shaft extending from said gear mechanism, all of said elements being so arranged that when the disc is rotated by the motor through the medium of the gear mechanism the spring member will be placed under tension causing rotation of said second shaft in order to relieve said tension and to assume a neutral position, stop means arranged in spaced relation to the first shaft for cooperation with said crank arm in such a manner that when the spring member is in neutral position the stop means will prevent rotation of the entire crank arm about the axis of the first shaft but will cause rotation of the crank arm at its pivotal connection with said disc about said shaft in a manner such that when the disc is rotated the outer end of the crank arm will recede from said stop means until it no longer engages therewith, simultaneously with such recession the spring member will be placed under tension and cause rotation of said second shaft to relieve said tension.

5. In a quick make and break switch apparatus, a motor, a spring, a contact arm and series of consecutive contacts, an electric circuit including at least two of said contacts, means cooperating with said motor and said spring to store up in said spring energy from said motor while said contact arm is stationary, driving mechanism cooperating with said contact arm and said spring for effecting rapid movement of said contact arm from the first of said two contacts to the second of said two contacts.

6. An apparatus for causing intermittent rotation of a shaft comprising an electric motor, a gear reducing mechanism and spring motor, a shaft driven by said spring motor, said electric motor arranged to be driven continuously, said spring motor arranged to be energized intermittently and deenergized intermittently, said spring motor comprising an elastic medium, one end of which is fastened to means driven by said electric motor and the other end of which is fastened to said driven means, means for preventing rotation of said driven means, and means for releasing said rotation preventing means responsive to a predetermined number of revolutions of said electric motor.

7. For use in a display compartment such as a show window or the like having therein a series of objects on display, lighting devices arranged to illuminate said objects, sign apparatus including a plurality of rotatably mounted signs, means for rotating said signs to bring the latter into view in consecutive order, an electric circuit operatively connecting said sign-actuating means with said lighting devices, said circuit including means arranged to effect closing of the circuit at predetermined intervals and energize said lighting devices to thereby illuminate a certain object in accordance with an appropriate visible sign.

8. For use in a display compartment such as a show window or the like having therein a series of objects on display, lighting devices arranged to illuminate said objects, sign apparatus including a plurality of signs and means for successively holding said signs in a single viewing position, means for moving said signs to bring each of them into view in consecutive order, an electric circuit operatively connecting said sign moving means with said lighting devices, said circuit including means arranged to effect closing of the circuit at predetermined intervals and energize said lighting devices to thereby illuminate a certain object in accordance with an appropriate visible sign.

ROBERT H. GEISER.