Nov. 8, 1932. A. BULOVA 1,887,479

ILLUMINATED CLOCK

Filed Aug. 6, 1930

Fig. 1.

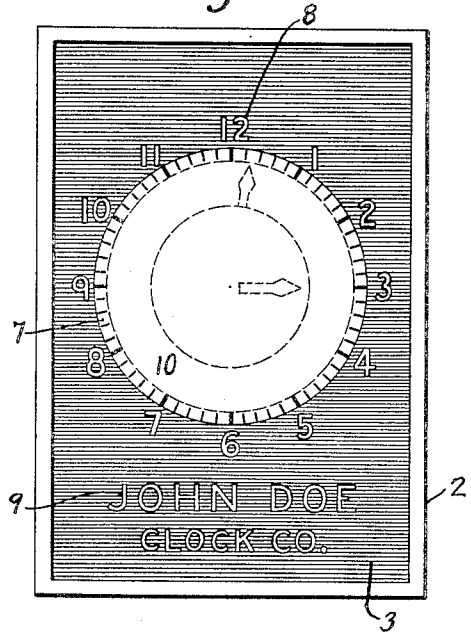


Fig. 2.

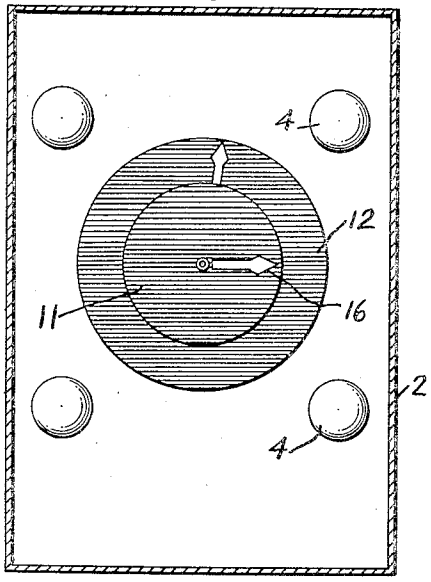


Fig. 3.

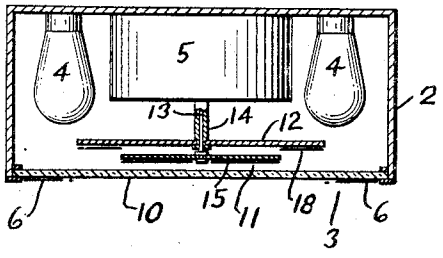
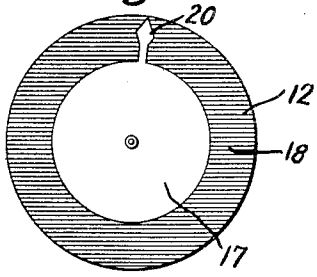


Fig. 4.



INVENTOR

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UNITED STATES PATENT OFFICE

ARDE BULOVA, OF NEW YORK, N. Y., ASSIGNOR TO BULOVA WATCH COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

ILLUMINATED CLOCK

Application filed August 6, 1930. Serial No. 473,326.

A striking effect, especially valuable for night advertising, is obtainable with a clock set in a light-box the front of which is a glass pane preferably though not necessarily colored, all of the pane being rendered opaque by black paint with the exception of areas left transparent to form a graduated dial outline, numerals, and such lettering or display matter as may be desired. If the arbors or sockets carrying the hands pass through the pane so that the hands move over the outer face of the dial, the hands are difficult to see against the strong light passing through the transparent regions, even if the hands are coated with luminous paint.

The object of the present invention is to overcome this difficulty and to provide hands which are illuminated by transmitted light in the same manner as the dial, numerals, etc. To accomplish this I employ discs which are partly opaque and partly transparent or translucent, in such manner that the hands or indicators are formed by transparent portions of the discs. The discs are preferably of glass painted black except where the light is to shine through from behind, but obviously the discs, and also the front of the light box, could be of metal or other opaque material, preferably painted black or a dark color, with pieces of glass or other light-transmitting material let into them or applied over openings to form the indicators, dial, numerals and so forth, or the parts might even have unclosed openings cut through them where the light is to pass.

The best effect is obtained by placing the indicator discs behind the pane or front screen of the light-box which provides the dial and display matter, and in that event a circular area of such screen within the dial should be left transparent, instead of being opaque as it would be if more or less luminous hands were used in front of the screen. The discs might, however, be placed in front of the screen, and in that case also the dial area should be transparent. Placing the discs behind has the further advantage that it is not necessary to pierce the screen.

In the accompanying drawing forming part hereof:

Fig. 1 is a front elevation of an illuminated timepiece embodying the invention;

Fig. 2 is vertical section taken behind the screen;

Fig. 3 is a horizontal section; and

Fig. 4 is a face view of one of the indicator discs.

The part marked 2 represents a suitable light-box or frame carrying a screen 3, through portions of which light given by appropriately arranged lamps 4 will shine. The clock proper 5 is preferably of the electric type driven by a synchronous motor, but of course it might be spring driven or of any type.

The screen 3 is preferably a pane of glass having a considerable or major part of its surface covered by black paint 6, making these regions opaque. Transparent spots, areas or lines are left, or are otherwise provided, to form a graduated dial outline 7 (though a dial outline is not absolutely essential), hour numerals 8, and such lettering 9 or other display matter as may be desired. A circular area 10 within the dial region is also left transparent.

A plurality of discs one behind the other are mounted on suitable shafts or sockets projecting from the clock mechanism. Two discs, 11 and 12, attached to concentric shafts 13 and 14 are shown, but obviously a third disc could be provided in the same manner for a second indicator.

The discs are of different diameters, with the larger disc, or successively larger discs, behind the smaller disc. The smaller front disc 11 is preferably the hour indicator disc, and the larger disc 12 is preferably the minute indicator disc, the gearing, which it is unnecessary to illustrate, being arranged to cause these discs to make their revolutions once in twelve hours and once an hour, respectively.

The discs are preferably of glass or the like, though as previously stated, this is not essential. Assuming that the disc 11 is made of glass, all or practically all of its surface, is covered with a black or opaque coating 15, leaving, however, a transparent region or

light aperture 16 in the form of a hand or pointer.

The central area 17 of the larger disc 12 is left transparent, this area being large enough so that the light from behind can always shine through the pointer 16 on the front disc. The marginal area of the rear disc extending beyond the front disc is made opaque, as by a black coating 18, except for a light aperture 20 forming the minute pointer.

The light-transmitting dial area 10 of the screen is large enough so that both of the indicators are visible.

The indicator discs might well be of metal or other material, having openings cut through them where light is to be allowed to pass. Manifestly the discs need not actually be of different diameters or even circular. Thus, the front disc could be as large as the rear disc, if a sufficient margin of the front disc were transparent, the effect then being the same as if the discs were of different sizes. Other modifications of the invention will doubtless suggest themselves.

I claim:

1. An illuminated clock of the kind described having a plurality of light-intercepting indicator discs one behind the other, each of said discs having a light aperture forming an indicator, the central area of the disc in the rear being adapted to permit the passage of light to the light aperture forming the indicator of the disc in front.

2. In an illuminated clock, the combination with a light-intercepting screen having light-transmiting areas to form dial numerals, and a light-transmitting area within the dial region, of a plurality of light-intercepting indicator discs of different diameters, each having a light aperture forming a hand or indicator, said discs being located behind the light-transmitting dial area of the screen.

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