

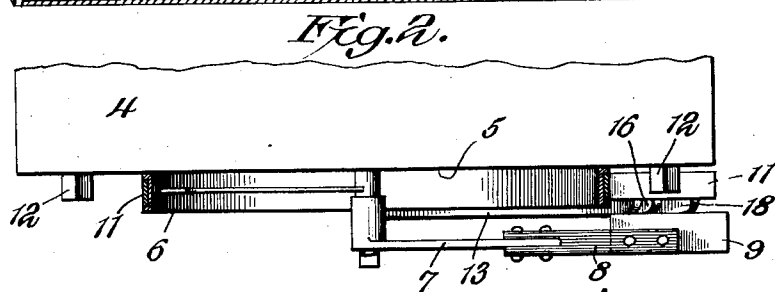
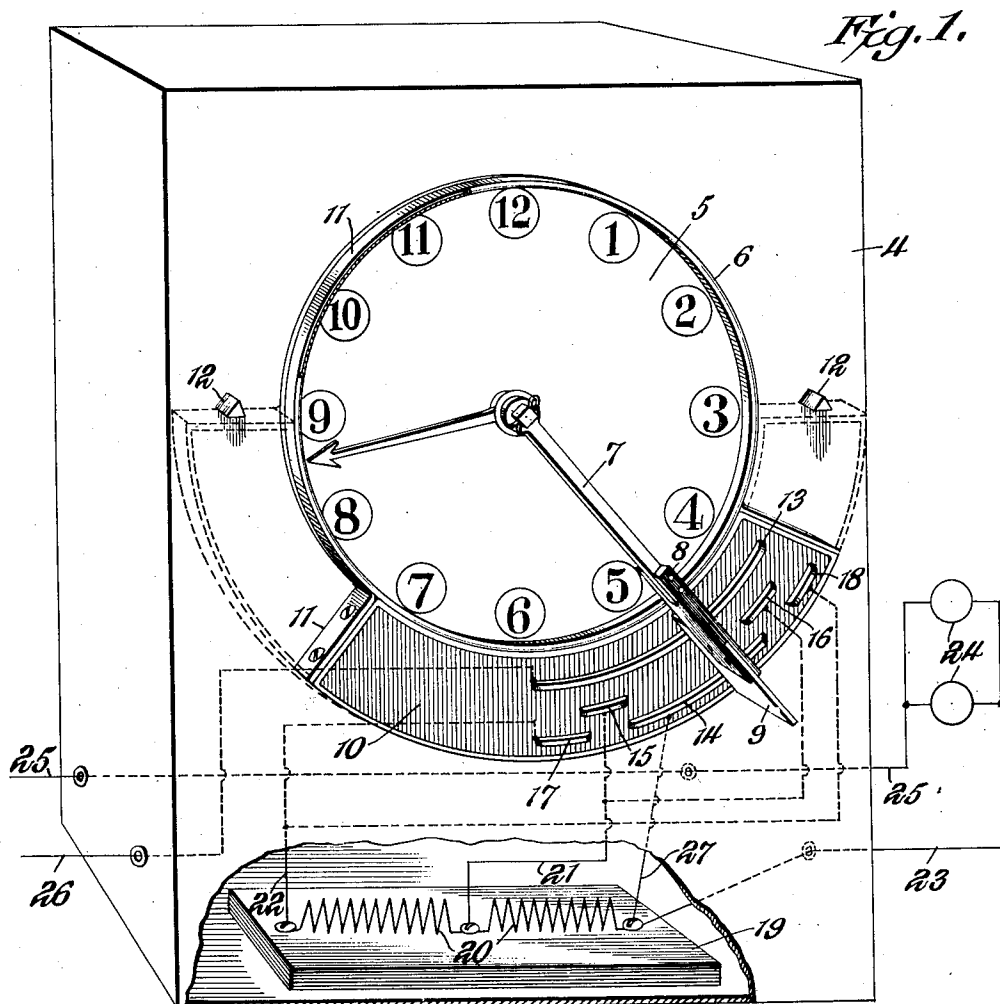
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CONTROLLING DEVICE FOR ELECTRIC LIGHTING SYSTEMS

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CONTROLLING DEVICE FOR ELECTRIC-LIGHTING SYSTEMS

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This invention relates to a controlling device for an electric lighting system, which has been devised with special reference to its use in poultry houses, although it is not necessarily limited thereto.

It has been conclusively demonstrated that animal and vegetable growth may be stimulated by artificial lighting, and it is not uncommon for poultry men to attempt to increase winter egg production by such means. Efforts along this line, however, have not generally resulted in unqualified success, due to the fact that the sudden turning on of the lights startles the hens, and to a large extent defeats the object for which the lights are used. When the lights are turned off, after several hours of artificial lighting, the hens are left in utter darkness, and often injure themselves in trying to go to roost.

The object of the invention is to provide an arrangement whereby the lights may be turned on gradually without startling the hens, and may likewise be turned off gradually, so as to allow sufficient twilight for the hens to go to roost. This arrangement is preferably controlled automatically by a clock, which may be adjusted so as to become effective at an earlier or later hour, which hour will depend upon the time of sunset, and also upon whether the weather is clear or cloudy.

The specific construction of the invention and its mode of operation will be more fully explained in connection with the accompanying drawing, illustrating the same in its preferred form.

In the drawing:

Figure 1 is a perspective view of the invention with parts broken away, the wiring being shown diagrammatically.

Figure 2 is a plan view of the front part of the clock, the dial rim being shown in section.

The invention comprises a clock 4 of well known construction, having a dial 5 surrounded by a rim 6. In adapting the clock for use in the present system, the hour hand is replaced by an arm 7, having a suitable insulating block 8 secured to its outer end, and carrying a contact plate or brush 9. Beneath

the path of the contact brush 9, an arcuate insulating block 10 is mounted in a frame 11, which is carried by the rim 6, and is adjustable circumferentially thereof. Suitable stops 12 may be arranged in the front face of the clock to limit the movement of the frame 11.

Secured in the block 10 is an arcuate contact member 13 in the path of the brush 9, long enough so that it requires several hours for the brush to pass the same. Opposite the intermediate portion of the contact member 13 and spaced therefrom is a shorter contact member 14, and near the ends of the member 14 and separated therefrom are two short contact members 15 and 16, while opposed to the outer ends of the contact member 13 and separated from the members 15 and 16 are two other contact members 17 and 18. At a convenient point within the clock casing 4, there is mounted an insulating block 19, on which is secured a resistance coil 20. The middle point of this resistance coil is electrically connected, as indicated at 21, to the contacts 15 and 16, and one end of the coil is electrically connected, as indicated at 22, to the members 17 and 18. The other end of the coil is connected by a wire 23 to one side of the lighting system 24, which may be arranged in any suitable manner about the poultry house. The other side of the lighting system is connected to one of the service wires 25, while the other service wire 26 is connected directly to the contact member 13. The wire 23 is also directly connected by a wire 27 to the contact member 14.

In the operation of the invention, it will be seen that as evening approaches, the brush 9 bridges the space between the contact members 13 and 18, so that an electric circuit is established from the wire 26, through contact 13, brush 9, contact 18, wire 22, and through the entire length of the resistance coil 20, thence through wire 23 and lights 24 to the service wire 25. This causes the poultry house to be dimly lighted. After a short time has elapsed, the brush 9, while still in contact with the member 13, engages the member 16, so that half of the resistance coil 20 is cut out, and the circuit is established through

the wire 21 and the remaining half of the coil, thereby causing the lights to become brighter. After another short period of time, the brush 9 bridges the space between the member 13 and the member 14, thereby cutting out the remainder of the resistance coil, and establishing a circuit through the wire 27 and wire 23, causing the poultry house to be fully lighted. After the poultry house has been thus artificially lighted to the fullest extent for a considerable length of time, the brush 9 leaves the contact member 14, and engages the contact member 15, so that the circuit is again established through half of the resistance coil 20, and the lights become dim. The hens then begin to look toward the roost. Shortly after this, the brush 9 leaves the contact member 15 and engages the contact member 17, thus establishing the circuit through the entire length of the coil 20, and causing the lights to become still dimmer, and by the time the brush 9 leaves the member 17, all of the fowls will have gone to roost.

By this means, several hours equivalent to daylight are added to the day, while the conditions accompanying the approach of darkness are preserved. The hours of daily activity will be increased without any accompanying adverse conditions, and the egg production will be stimulated.

As the winter solstice draws nigh, the frame 11 with the block 10 and contact members carried thereby will be adjusted toward the right, as viewed in Figure 1, so that the lights will be turned on earlier in the afternoon. On cloudy days, it will be adjusted to turn on the lights earlier than on clear days.

While the invention has been described particularly in connection with a poultry house, it is obviously not limited to such use, but may be used in any relation where it is desired to control a lighting system automatically in a similar manner. It is also apparent that various modifications may be made in the details of construction and in the arrangement of the same without any material departure from the salient features of the invention as set forth in the claims.

What is claimed is:

1. In a lighting system, the combination with a clock having a dial and an hour hand, a bank of electric lamps connected at one side to one side of the line, a main contact member connected to the other side of the line, a shorter intermediate contact member opposite to the intermediate portion of the main contact member, a pair of end contact members opposite to the end portions of the main contact member, the contact members being mounted on the clock outside the periphery of the dial, a resistance coil with one end directly connected to said end contact members and the other end directly connected to said intermediate contact member and to

the other side of the bank of lights, and a brush carried by the hour hand and operable first to bridge the main contact member and one of the end members, later to bridge the main contact member and the intermediate member, still later to bridge the main contact member and the other end member, and finally to cut off the current altogether.

2. In a lighting system, the combination of a clock having a dial and an hour hand, a bank of lamps connected at one side to one side of the line, a main contact member connected to the other side of the line, a shorter intermediate contact member opposite to the intermediate portion of the main contact member, a pair of like contact members opposite to the end portions of the intermediate contact member, a second pair of like contact members opposite the end portions of the main contact member, the contact members being mounted on the clock outside the periphery of the dial, a resistance coil with one end connected directly to the last mentioned pair of contact members, its intermediate portion connected directly to the first mentioned pair of contact members and its other end connected to the intermediate contact member and to the other side of the bank of lights, a brush carried by the hour hand and movable from end to end of the main contact member and at the same time movable successively into contact with one of the last mentioned pair of contact members, one of the first mentioned pair of contact members, the intermediate member, the other of the first mentioned pair of contact members, and the other of the last mentioned pair of contact members, whereby to turn the illumination on and off by gradual stages.

3. In a lighting system, the combination with a bank of electric lamps; of a clock having a rim and an hour hand; a frame in the form of a band surrounding the rim and adjustable circumferentially thereon; a block of insulating material secured to said frame; a plurality of arcuate contact members secured to said block; a resistance coil; and means carried by the hour hand and engageable with said contact members for establishing an electric circuit, first through said resistance coil and the bank of lamps, to produce a dim light, later directly through the lamps with the resistance cut out to produce a bright light, still later through the resistance with the direct circuit interrupted to produce a dim light and finally to cut off the circuit altogether.

4. In a lighting system, the combination with a clock having a movement and a rim; a band surrounding the rim and adjustable circumferentially thereof; a plurality of contact members carried by the band; a resistance coil; a rotatable arm operable by the clock movement; and means carried by the arm and engageable with the contact mem-

bers to establish an electric circuit first through the resistance coil and the bank of lamps to produce a dim light for a predetermined length of time, later through a portion only of the resistance coil and the bank
5 of lamps to produce a brighter light for the same length of time, still later through the bank of lamps with all of the resistance cut out to produce a maximum light for a longer length of time, and later to cut down the light
10 by successive stages in reverse order until the light is cut off altogether.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

PERCY LORN WILLIAMSON.

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