

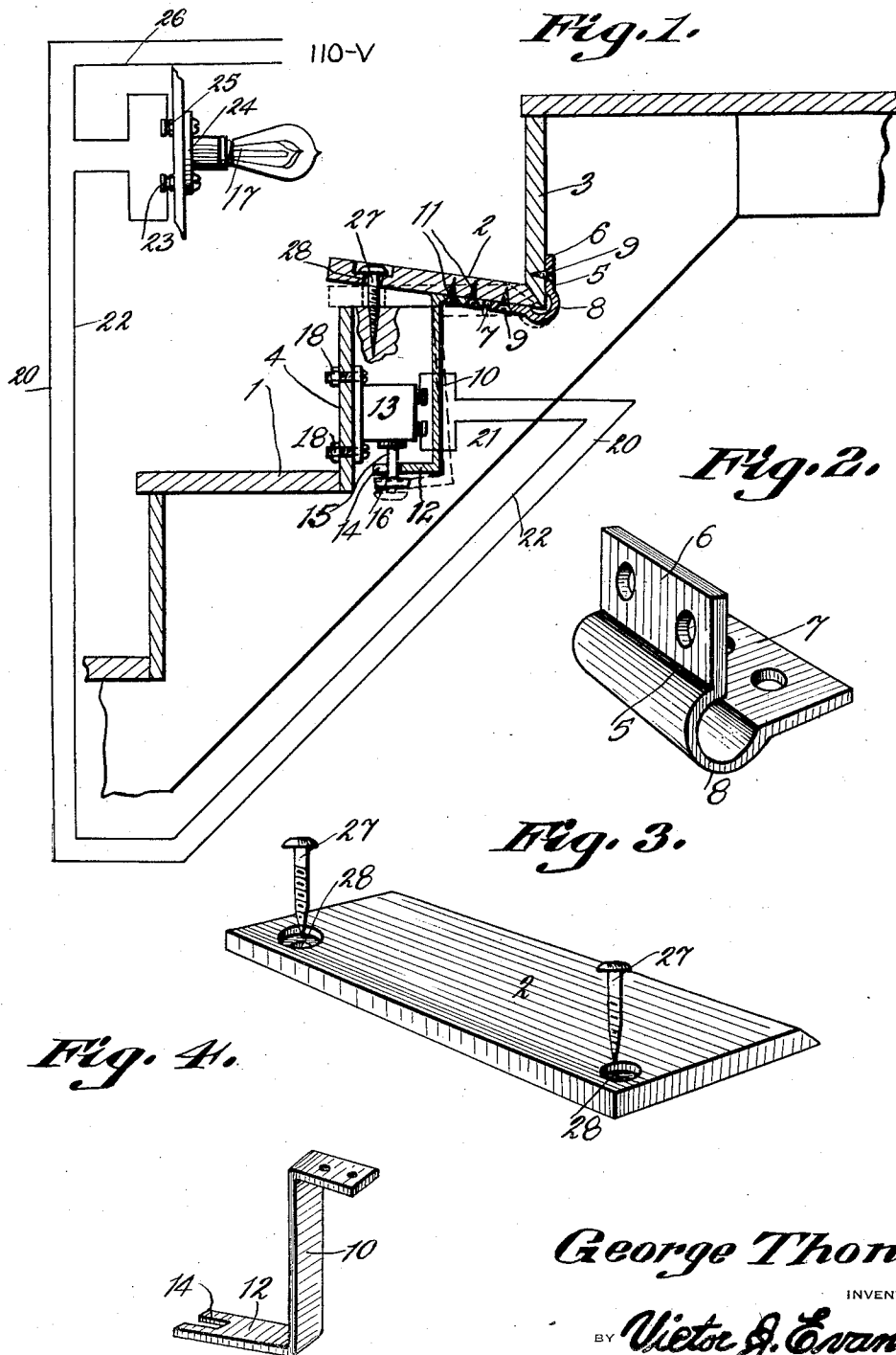
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TREAD SWITCH

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TREAD SWITCH

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A great many persons upon leaving the cellar subsequent to firing up the furnace or performing other chores leave the light burning, and at the end of the month the electric light bill is very exorbitant. However this does not occur so often with the person who usually attends to the furnace or performs other chores in the cellar but more or less with those who enter the cellar for some pretense or other or when asked to fix the furnace in the absence of the usual attendant.

Therefore the present invention relates to an automatic cellar light, the purpose of which is to stop all extra costs brought about in the above manner, and at the same time insure extinguishing the light automatically.

Still another purpose is to provide an apparatus of this kind, which as the person enters the cellar by descending the stairs the electric light will automatically illuminate, by depressing one of the treads of the steps and upon egress from the cellar by ascending the steps, the light will automatically extinguish, the latter result being obtained by also depressing one of the treads of the steps.

A further purpose is to provide in an automatic cellar light, in order to obtain the above result, a switch similar to the pull chain type of bulb receiving socket, which when pulled will light the bulb, and when pulled again will extinguish the bulb. In fact every time the pull chain is actuated the switch operates to either extinguish or light the bulb.

It is to be understood that the particulars herein given are in no way limitative, and that while still keeping within the scope of the invention, any desired modification of details and proportions may be made in the construction of the appliance according to circumstances.

The invention comprises further features and combination of parts to be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1— is a vertical sectional view through a section of cellar steps, showing one of the treads hingedly mounted and under spring tension and carrying an actuator for operating the switch for lighting or extinguishing the cellar bulb.

Figure 2— is a detailed perspective view of the spring tension hinge which operatively connects a tread and an adjacent rise of the steps.

Figure 3— is a detailed perspective view of one of the treads of the steps, illustrating its construction and design.

Figure 4— is a detailed perspective view of the actuator carried by the moving tread of the steps.

Referring to the drawings, 1 identifies a series of cellar steps and 2 is one of the treads and 3 and 4 are the rise pieces of the steps. The adjacent edge portions of the rise piece 3 and the tread 2 being beveled to limit the tread in its upward movement.

The tread 2 of the steps is hingedly connected to the rise 3 by means of the hinge 5, a detail of which is shown in Figure 2.

This hinge comprises the two hinge plates 6 and 7, which are joined integrally by a spring roll or curved portion 8. This hinge has its plates 6 and 7 fastened by screws 9 to the tread 2 and the rise 3. The hinge may be constructed of any suitable metal, preferably of a spring character, the roll 8 being of such spring character as to hold the tread 2 partly raised, which is sufficient to permit an actuator 10 carried by the tread to operate a switch.

The actuator 10 is L-shaped and one of its arms is secured by screws 11 to the under surface of the tread 2, while its other arm 12 is positioned properly to actuate a switch device 13. This other arm 12 has an opening 14.

The switch 13 may be any suitable construction, preferably of a type similar to the pull chain bulb receiving socket now extensively known, wherein the chain can be pulled to either light a bulb or extinguish the same. However in the present case instead of the pull chain the switch has a projecting rod 15 with a head 16. The rod 15 passes through the opening 14 of the arm 12 of the actuator 10, so that when the tread member 2 of the steps is depressed the arm 12 of the actuator will engage with the head 16 and pull the rod 15 downwardly, closing the switch, thereby lighting the cellar bulb or light 17.

The switch 13 is bolted at 18 to the rise 4 and one of the binding posts 19 of the switch has a wire or lead 20 connected to it and in turn adapted to connect with any source of
 5 current supply, the current passing over the wire 20 being preferably 110 volt. Connected to the other binding post 21 of the switch is a wire or lead 22, which connects with a binding post 23 of the lamp socket 24,
 10 which carries the bulb 17. The lamp socket 24 has connected to its other binding post 25 a lead or conductor 26, which connects with the other side of the 110 volt, receiving current from any suitable source of supply.

15 Obviously when a person enters the cellar the tread 2 (which is limited in its upward movement by the headed screws 27 engaged through the openings 28) is depressed causing the lower arm 12 of the actuator 10 to
 20 engage with the head 16 of the rod 15 of the switch, which rod in turn actuates the switch and closes the circuit lighting the lamp 17. The person upon leaving the cellar again depresses the tread 2 of the steps and causes
 25 the actuator 10 to again pull upon the rod 15 by the arm 12 engaging with the head 16 and the rod, thereby opening the circuit and extinguishing the light. However upon leaving the cellar the person should step a trifle
 30 higher when reaching the tread 2, otherwise it is possible to trip on the tread causing the person to fall or possibly disarranging the construction of the device. The headed screws 27 are engaged into the sides of the
 35 steps.

The switch proper not shown in detail is contained in the switch casing 13, which is provided with binding screws on the exterior. It will be noted that the actuator 10
 40 moves slightly rearwardly as it actuates the switch rod 15. Furthermore the heads of the screws 27 are countersunk in the tread so as not to project above the surface of the tread. In actual practice the tread has at
 45 the most a movement of approximately one-quarter of an inch at the free edge of the tread, possibly less, in fact only enough movement to permit the actuator 10 to pull down the rod 15.

50 The invention having been set forth, what is claimed is:

1. In an automatic cellar light, a set of steps having a movable tread, the rear portion of which and the lower edge of an adjacent rise having abutting bevels to limit
 55 the tread in its forward movement, a single piece spring hinge connecting said tread and said rise, thereby tensioning the tread, a switch having a pull member, and an angular bracket depending from the tread and operatively connecting with the pull member to
 60 actuate the switch when the tread is depressed.

2. In an automatic cellar light the combination with a tread member of a set of

steps, said tread being hinged and spring tensioned through the medium of a single member, of a switch having a pull member, and a depending Z shaped angular element carried by the tread and having in its lower
 70 lateral extremity a slot open at one end and adapted to straddle the pull member of the switch, whereby upon depressing the tread the switch operates to light the lamp.

In testimony whereof he affixes his signature.
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GEORGE THON.

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