April 8, 1930. A. VESPERMAN 1,753,488

EGG TESTING DEVICE

Filed March 1, 1929

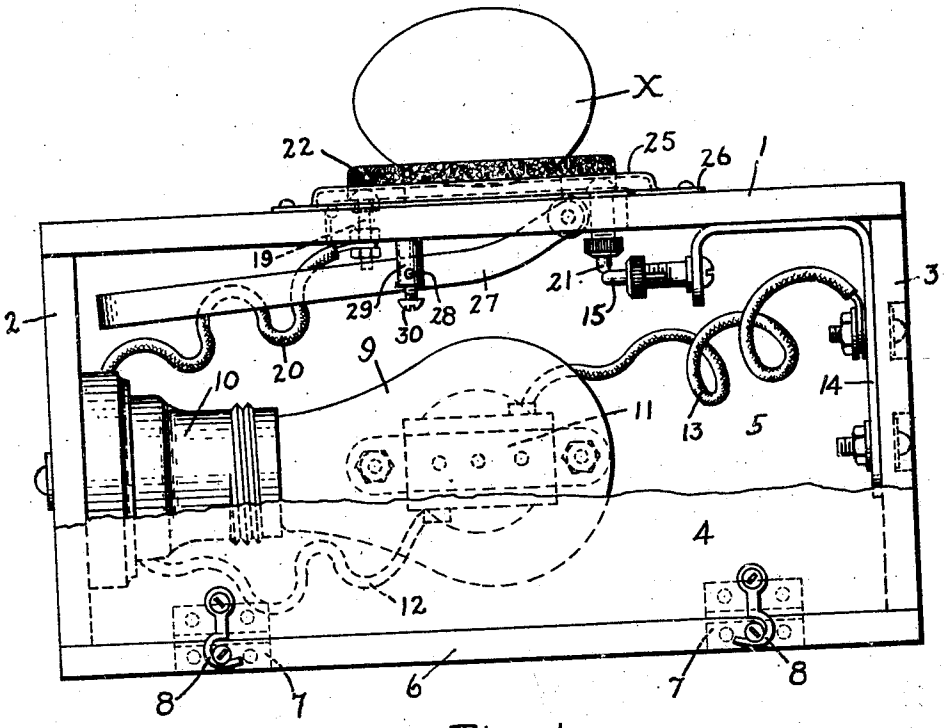


Fig. 1.

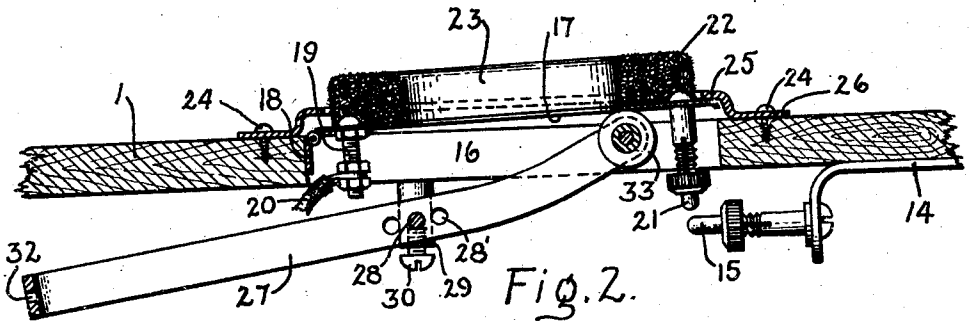


Fig. 2.

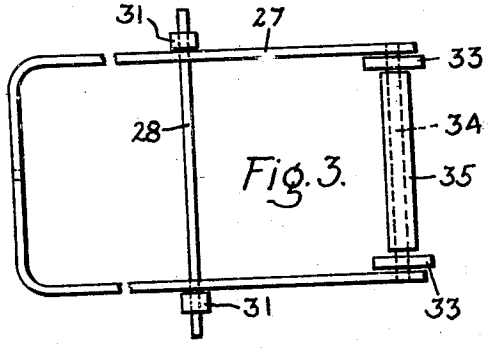


Fig. 3.

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UNITED STATES PATENT OFFICE

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EGG-TESTING DEVICE

Application filed March 1, 1929. Serial No. 343,595.

My invention relates to egg testing or candling devices of the general type in which an electric lamp is used as an illuminant, with means adapted to be actuated by the placing of an egg in, and its removal from, the testing position, for respectively closing and opening the supply circuit of the electric lamp.

The principal object of the invention is to provide an improved device of the above mentioned character, which is of simple and rugged construction, comprising a relatively small number of parts of such nature and arrangement that when once properly adjusted, the device will be unlikely to get out of order or require replacement of parts, but will retain its ability to operate in a positive and efficient manner over indefinite periods of time without attention, other than the renewal of the lamp as required from time to time.

Devices of the general type to which the present invention relates usually include a member adapted to effect the engagement of electric contacts in the lamp circuit when an egg is placed in the position to be tested; such member being normally biased by some sort of spring means to a position in which the contacts are separated. As is apparent, springs sufficiently light or delicate to be used in such a device, where only small forces are involved, especially springs of the flat or leaf variety, will very soon lose their resiliency, so that they must frequently be replaced. In the device of the present invention, the use of springs is avoided, and means provided which will remain positive in action indefinitely for causing the contact controlling member to be biased normally to open-contact position.

A further advantage of the invention resides in the fact that the means provided may be arranged, if desired, to permit of adjustment whereby the minimum weight required to effect the closing of the lamp circuit contacts may be varied. This will sometimes be a desirable feature in such a device, since it is not uncommon that in the cases of purchasers of large quantities of eggs, such as markets, restaurants and hotels, a minimum weight, as well as uniformity of color, of eggs to be supplied, is specified.

With these and other objects in view, the invention comprises certain novel features of construction and arrangement of parts as set forth in the following description in connection with the accompanying drawings, and more particularly pointed out in the appended claims.

Referring to the drawings, Fig. 1 is a front elevation of the device comprising the invention, with a portion of the front wall of the casing broken away to show the mechanism which in this figure is shown in closed-contact position; Fig. 2 is a detail sectional view, on a somewhat larger scale showing a portion of the top wall of the casing with the mechanism in open-circuit position; and Fig. 3 is a detail fragmentary view of an element of the invention.

As illustrated in the drawings, the invention comprises a casing or box, which may be of wood, having a top wall 1; the end walls 2 and 3; front and back walls 4 and 5; and the bottom wall 6, which as shown is secured to the back wall 5 by hinges 7, shown in dotted lines, and normally secured in closed position by any suitable means such as hooks 8.

Within the casing an incandescent lamp 9 is mounted in a socket 10 secured to the end wall 2; the lamp being supplied with current from an outside source such as an ordinary house lighting circuit, through the medium of a connection device 11 of any suitable design, mounted in the back wall of the casing, as indicated in dotted lines in Fig. 1. The terminals of the connection device 11, are connected by conductors 12 and 13 respectively to one terminal of the lamp socket 10, and to a conductor member or bus-bar 14 secured to the end wall 3 of the casing. The bus-bar 14, as shown, comprises a bracket for supporting an electric contact member 15, hereinafter referred to as the "stationary contact."

In the top wall 1 of the casing, an opening or window 16 is provided for the passage of light rays from the lamp 9 illuminating an egg X to be tested. Above the opening 16 and slightly overlapping its edges, an apertured sheet-metal plate 17 is arranged for limited movement in a substantially vertical direction as for example by being pivoted to

the top wall 1 by means of a hinge 18, one member of which may be secured at one end of the opening 16 as shown in Fig. 2.

Attached to the metal plate 17, preferably adjacent the hinged end, as illustrated, is a stud 19 which projects downwardly through the opening or window 16, and in turn is electrically connected to one terminal of the lamp socket 10 by means of a conductor 20, while at its other end there is secured to the hinged plate 17, a contact member 21 also projecting downwardly through the opening 16, and suitably located on the plate so that it is adapted to engage the stationary contact 15, previously referred to. Further, there is attached to the upper surface of the plate, a pad 22 of suitable material such as felt, the center of which is cut away to form an opening 23 corresponding to the opening in the plate 17; the opening 23 is preferably oval in shape and of suitable size to permit an egg to be seated therein, as illustrated in Fig. 1, and to permit a substantial portion of the surface of the egg to be exposed to the light from the lamp 9. The pad 22 is of such size and so located on plate 17 that the edges of the plate project beyond the pad as plainly shown in Fig. 2.

Surrounding the opening or window 16, and fastened to the top surface of the casing 1 by means of screws 24, is a sheet-metal frame member comprising respectively inner and outer flange portions 25 and 26, the inner flange portion 25 being displaced from, but parallel with the plane of the outer flange portion 26; the arrangement being such that the inner flange 25 of the frame member projects over but is spaced from the outer edges of the hinged plate 17, whereby the upward movement of the plate 17 on its hinge 18 is limited by the flange 25 of the frame member, and its downward movement on its hinge is limited by the upper surface of the casing 1 at the edge of the opening 16 which it slightly over-hangs.

In carrying out the invention, means are provided for normally biasing the hinged metal plate 17 toward its upper limit of movement, that is toward the inner flange of the frame member 25—26. Such biasing means comprising a lever 27, preferably of substantially U-shape having a width over the outer edges of its parallel legs, somewhat less than the width from front to back of the window 16, as viewed in Figs. 1 and 2. This U-shaped lever 27, is fulcrumed on a horizontally disposed rod or shaft 28 whose ends are supported in holes in the posts or pedestals 29 projecting from the under surface of the top member 1 of the casing, adjacent the front and rear edges of the window 16; the ends of the shaft being firmly held in the posts by set screws 30.

Since, as described, the distance between the two posts 29 is somewhat greater than the width of the U-shaped lever, a washer or spacer 31 (Fig. 3) is desirably placed on the shaft between each leg of the lever 27 and the adjacent post 29, in order to center the lever on the shaft with reference to the window 16.

The fulcrum point of the lever 27, or the point at which it is pivoted on the shaft 28, is displaced from its center of gravity toward the extremities of its two legs, so that the lever is sufficiently out of balance to cause its short arm to engage and move the hinged plate 17 normally to its upper limit of movement, in which position the contacts 21 and 15 are separated, but at the same time permit of its being over-balanced by the weight of an egg when the latter is placed in testing position in the opening 23, and thereby cause the contact 21 to engage the contact 15 and close the circuit of the lamp 9.

If desired, in order to permit of adjustment whereby the minimum weight an egg must have to operate the device may be varied, the fulcrum point of the lever may be made adjustable by providing two or more additional sets of holes 28′ for the shaft 28, oppositely disposed in the two legs of the U-shaped lever 27, or the turning moment of the lever may be varied by inserting suitable weights in the hole 32 provided in the base of the U-shaped lever.

When a U-shaped lever is used, as in the case illustrated, the shorter arm (that is, the end of each leg) is preferably bent upward, as shown, from the plane of the longer arm; this arrangement, as will be apparent, permits of the use of a casing of less depth than would be required to provide space above the lamp socket 10 for the lever, if both arms of the latter were in the same plane. It is also apparent that without departing from the scope of my invention, a lever comprising a flat strip of metal of suitable weight, as distinguished from a lever of U-shape, might be pivoted at one end of the shaft 28. In such a case, a straight lever could be used in a box of the same proportions of that illustrated in the drawings.

While the device will operate satisfactorily if the extremities of the U-shaped lever 27 directly engage the hinged plate 17, it is preferable, in order to avoid wear on the plate, which is of thin sheet metal, to provide a roller contact such as illustrated, comprising rollers 33 rotatably mounted on a stationary shaft 34 connecting the ends of the U-shaped lever; the two rollers being held in suitably spaced relation by means of a length of tubing 35 slipped over the shaft 34, as shown in Fig. 3.

From the foregoing description in connection with the accompanying drawings, it is believed that the purpose and operation of the invention will be readily understood without further explanation.

It will be evident that certain modifications in form and arrangement of the various elements may be made without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. An egg testing device comprising in combination, a box provided with an opening in its upper wall, an electric lamp in said box, a circuit for said lamp, a stationary contact comprising one terminal of the lamp circuit mounted adjacent said opening in said box, an apertured metal plate comprising a seat for an egg to be tested, said plate being mounted for limited substantially vertical movement relative to the opening in said box, said metal plate being electrically connected in the circuit of said lamp and adapted to co-operate with said stationary contact in closing and opening said circuit, and means comprising an over-balanced pivoted lever arranged in such a manner as to engage said apertured plate and normally bias the latter to its upper limit of movement to separate said contacts.

2. An egg testing device comprising in combination, a box provided with an opening in its upper wall, an electric lamp mounted in said box, a circuit for said lamp, a stationary contact comprising one terminal of said lamp circuit mounted adjacent said opening in said box, an apertured plate comprising a seat for an egg to be tested, said plate being mounted in said opening for limited substantially vertical movement and adapted to be depressed by an egg placed thereon, a contact member carried by said plate electrically connected in said lamp circuit and adapted to co-operate with said stationary contact in closing said circuit when said plate is depressed, and means comprising an over-balanced pivoted lever arranged in such manner as to engage said apertured plate and normally bias the latter to its upper limit of movement to separate said contacts.

3. An egg testing device comprising in combination, a box provided with an opening in its upper wall, an electric lamp mounted in said box, a circuit for said lamp, a stationary contact comprising one terminal of said lamp circuit mounted adjacent said opening in said box, an apertured sheet metal plate comprising a seat for an egg to be tested pivotally mounted in said opening for limited movement in a substantially vertical direction and adapted to be depressed by an egg placed thereon, said plate being connected in said lamp circuit, a contact member carried by said plate adapted to engage said stationary contact when said plate is depressed, and means for normally biasing said plate to its upper limit of movement to separate said contacts, said means comprising a U-shaped lever having its two legs pivotally mounted in such manner that their extremities constitute the short arm of the lever and engage the under surface of said plate.

4. An egg testing device comprising in combination, a box provided with an opening in its upper wall, an electric lamp mounted in said box, a circuit for said lamp, a stationary contact member comprising one terminal of said lamp circuit mounted adjacent the opening in said box, a pivotally mounted sheet metal plate covering said opening and provided with a padded aperture forming a seat for an egg to be tested, means for limiting the upward movement of said plate, a contact member carried by said plate electrically connected in said lamp circuit and adapted to co-operate with said stationary contact member in closing and opening said circuit, and means for normally biasing said plate to its upper limit of movement to separate said contacts, said means comprising a U-shaped lever having its two legs pivotally mounted on an horizontal axis in such manner that their extremities constitute the short arm of said lever and engage the under surface of said plate.

5. An egg testing device comprising in combination, a box provided with an opening in its upper wall, an electric lamp mounted in said box, a circuit for said lamp, a stationary contact member comprising one terminal of said circuit mounted adjacent said opening in said box, a sheet metal plate pivotally mounted to cover said opening and provided with a padded aperture forming a seat for an egg to be tested, means for limiting the upward movement of said pivoted plate, said plate being electrically connected in the circuit of said lamp and provided with a contact adapted to co-operate with said stationary contact in closing said lamp circuit when an egg is placed in the aperture in said plate, means for normally biasing said plate to its upper limit of movement comprising an over-balanced pivoted lever the short arm of which engages the under surface of said plate, and means for varying the turning movement of said lever.

In witness whereof, I have hereunto set my hand this 28th day of February, 1929.

AUGUST VESPERMAN.