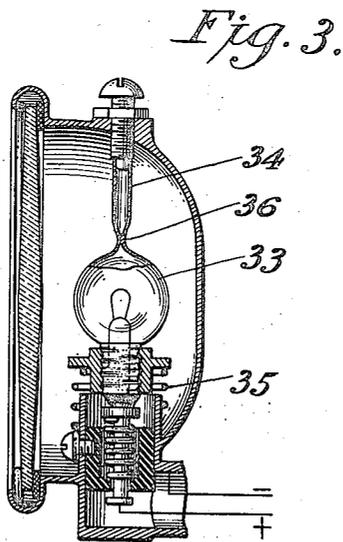
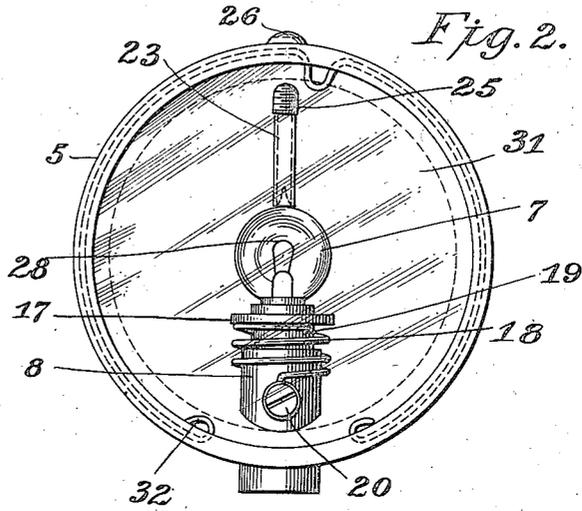
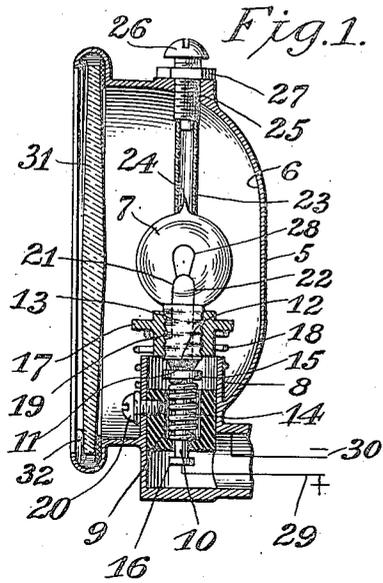


H. CSANYI.
 SAFETY LAMP.
 APPLICATION FILED DEC. 9, 1914.

1,154,615.

Patented Sept. 28, 1915.



Witnesses:
J. H. H. H. H.
J. D. A.

Inventor
Henry Csanyi

By *his* Attorneys
Meyers, Gushman & Rea

UNITED STATES PATENT OFFICE.

HENRY CSANYI, OF NEW YORK, N. Y., ASSIGNOR TO MAXIVOLT PRIMARY BATTERY CO., OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

SAFETY-LAMP.

1,154,615.

Specification of Letters Patent. Patented Sept. 28, 1915.

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To all whom it may concern:

Be it known that I, HENRY CSANYI, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Safety-Lamps, of which the following is a specification.

This invention relates to electric lamps and particularly to such lamps as embody an incandescent lamp bulb having an incandescent light emitting member therein.

Although the invention is applicable for many purposes, it is described in the following specification, by way of example, as applied to a lamp intended to be used, for example by a miner, where there would be danger from explosion of fire-damp if the lamp were broken and the light emitting member or filament were permitted to remain heated.

A principal object of the invention is to provide such a lamp with automatic means for opening the circuit through the incandescent bulb in case of an accident that might cause the breaking of the lamp in such a way as to expose the incandescent filament.

A further object of the invention is to provide simple means for accomplishing this effect without in any way detracting from the illuminating effect of the lamp, and without employing any parts which cast a shadow from the lamp.

A further object of the invention is to construct the lamp in such a way that the incandescent bulb can be very readily placed in position.

In lamps for this general purpose heretofore, springs have been employed for disconnecting the lamp from its socket to open the circuit through the filament, and arranged so that the spring is normally prevented from acting by means engaging with the bulb. In the lamps to which I refer the lamp circuit was usually formed through the neck of the lamp and through the socket which guided the neck of the lamp. Such construction as this presents some difficulties in placing the incandescent bulb in position, and in some cases has necessitated the use of a second spring permitting considerable movement and engaging the bulb oppositely to the first spring.

One of the objects of the present invention is to provide an improved arrange-

ment for holding the neck of the globe in position in a flexible manner and without the neck of the bulb being guided in a socket, and this greatly facilitates the removal or replacement of the incandescent bulb.

Further objects of the invention will appear more clearly hereinafter.

The invention consists in the features and combinations of features hereinafter described, all of which contribute to produce an efficient safety lamp.

A preferred embodiment of my invention will be particularly described in the following specification, while the broad scope of my invention will be pointed out in the appended claims.

In the drawings: Figure 1 is a vertical section through a lamp having the preferred embodiment of my invention. Fig. 2 is a front elevation of the lamp shown in Fig. 1. Fig. 3 is a vertical section through a lamp embodying my invention and showing a modified form or embodiment thereof.

Referring more particularly to the parts, I prefer to provide a case 5 which may be of sheet metal and of a common dished form so that the inner surface 6 of the back of the lamp forms a reflector for the rays coming from the incandescent bulb 7. I prefer to provide this case 5 at a suitable point with an integral sleeve 8 which is preferably disposed on the interior at one side of the case; and in this sleeve I prefer to provide an insulating bushing 9. In the bushing 9 I prefer to provide a yielding contact 10 which is preferably in the form of a pin passing slidably through the bushing, the upper end of the said pin having a head 11 which is adapted to touch the neck contact 12 preferably formed in the end of the neck 13 of the bulb 7.

The yielding effect in the contact 10 is preferably produced by means of a helical spring 14 which is disposed in a bore in the bushing, the upper end of the said spring thrusting against a shoulder 15 formed under the head of the pin, the lower end of said pin preferably having a collar 16 which engages the lower end of the bushing 9 to limit the upward movement of the contact. This arrangement permits of considerable movement of the contact 10.

The neck 13 of the incandescent bulb 7 is preferably metallic and is preferably con-

nected in any suitable manner, such as by
 means of threads, as indicated, with a col-
 lar or socket piece 17. This collar is not
 necessarily guided in the case in any way but
 5 may be a floating collar, that is, it is freely
 movable laterally, except that it is retained
 in position by means of a spring, preferably
 a coil spring 18, the lower end of which
 seats on the sleeve 8, the upper end of the
 10 spring engaging around the reduced body
 19 of the collar and thereby holding the col-
 lar in place. I prefer to form the lamp cir-
 cuit through this spring, for which reason
 I prefer to attach the lower end of the
 15 spring to the side of the sleeve 8 by means of
 a suitable fastening or screw 20, and to this
 end also, one of the leading-in wires 21 of
 the bulb is preferably connected to the neck
 13; the other leading-in wire 22 preferably
 20 leads down to and connects with the above
 mentioned neck contact 12 of the lamp.

Evidently the springs 14 and 18 tend to
 force the collar 17 inwardly toward the cen-
 tral part of the case and tend to break the
 25 lamp circuit through the contact pin 10. In
 order to normally prevent this, I prefer to
 provide a rigid—that is, unyielding—mem-
 ber 23 which may be of any form desired and
 placed between the bulb and a wall of the
 30 lamp on the side opposite the spring 18. I
 do not limit myself to the particular posi-
 tion indicated for the sleeve 8 on the case.

The member 23 is preferably of translu-
 cent frangible material and is hence con-
 35 veniently in the form of a glass tube one end
 of which may engage over the nib 24 of the
 bulb which is opposite the neck 13, and the
 other end of this member is arranged in any
 way such as will enable it to resist the thrust
 40 of the spring; that is, it resists the thrust
 of the spring by a reaction exerted from the
 wall of the lamp opposite the spring. It is
 obvious that when the lamp receives a blow
 the shock of such a blow will be imparted
 45 to the bulb through the part 23; in other
 words the shock is concentrated at one point
 on the bulb. So the bulb or the part 23 can
 be easily broken and they tend to break at
 a point opposite the springs. If the bulb is
 50 broken by a shock as suggested or if the
 member 23 is broken by such a shock evi-
 dently the bulb will become displaced and
 the circuit will become open at the contacts.

When using a part 23 of the form shown
 55 in Fig. 1, I prefer to provide a retaining de-
 vice 25 which may be of any desired form
 and may, if desired, include an adjusting
 screw 26 with the inner end of which the
 tubular member 23 engages. This adjust-
 60 ing screw 26 is preferably threaded in the
 wall of the case and may be provided with
 a check nut 27 for holding it fixed in any
 adjusted position desired. It is evident that
 although this part 23 is in the path of the
 65 reflected rays coming from the filament 28

it does not cast any shadow on account of
 its translucent quality.

Conductors or wires indicated diagram-
 matically by the lines 29 and 30 afford means
 for effecting a circuit through the filament, 70
 one of said conductors being connected with
 the insulated contact pin 10, while the other
 is connected to the wall of the case 5 so as to
 be brought into electric contact with the
 spring 18 which is a conductor of the cur- 75
 rent and which is grounded on the case at
 the fastening 20. The lens 31 constitutes
 the forward wall of the lamp and is held in
 place in any suitable manner, for instance
 by a light piece of bent wire 32. 80

The operation of positioning the bulb 7
 within the case is very simple and consists
 substantially in screwing the collar 17 onto
 the neck 13 and then seating the collar on
 the upper end of the spring 18. The spring 85
 18 is compressible by a force exerted on the
 collar 17 and as the collar moves toward the
 contact 10, the spring 14 of the contact will
 be compressed by the force exerted from the
 neck contact 12. The springs 18 and 14 can 90
 evidently be sufficiently compressed in this
 way to permit of the positioning of the mem-
 ber 23 which can then be put in place so as
 to engage over the nib 24 and over the end
 of the screw 26, whereupon, after the pres- 95
 sure on the collar is released, the spring 14
 and the spring 18 will force the bulb out-
 wardly and will exert a longitudinal thrust
 in the member 23 to hold the member 23 be- 100
 tween the bulb and the wall of the lamp.
 The screw 26 preferably has a reduced tip
 (see Fig. 1) to enter the end of the tubular
 member 23 and this tip centers the bulb on
 the screw in setting the bulb in position. 105
 The member 23 prevents a sufficient move-
 ment of the collar by the springs to break
 the circuit at the contact 12. In other words,
 the pin 10 follows up the neck contact 12
 in the outward movement and maintains the
 circuit closed after the member 23 has been 110
 positioned.

Obviously many changes may be made in
 the application of my invention. In prac-
 tice, the member 23 need not have the form
 illustrated, nor need it be secured in the 115
 manner shown. One of the many modified
 forms the invention may take is illustrated
 in Fig. 3, in which the bulb 33 is provided
 with an integral stem 34 for opposing the
 spring 35. This stem 34 is preferably a part 120
 of the tube from which the bulb 33 is blown,
 and the stem is afterward sealed off from
 the interior of the tube by pressing in the
 wall of the tube to form a solid neck 36.
 In other respects the lamp illustrated in Fig. 125
 3 is the same as illustrated in Fig. 1.

Obviously with a lamp embodying my in-
 vention, if the lens 31 becomes broken, as
 by accident, and the members 23 or 34, or
 the incandescent bulb displaced or broken, 130

the spring such as the spring 18 will immediately force the bulb away from the contact point at which the circuit is made through the lamp, and this will immediately extinguish the filament 28 and there will be no danger of causing an explosion if the lamp is in an atmosphere charged with an explosive gas.

It is understood that the embodiment of the invention described herein is only one of the many embodiments the invention may take, and I do not wish to be limited in the practice of the invention, nor in my claims, to the particular embodiment set forth.

What I claim is;—

1. In an electric lamp, in combination, a case including a lens, an incandescent lamp bulb within said case, a contact mounted in said case to close the circuit through said bulb, a spring tending to move said bulb to open the circuit at said contact, and a translucent member in the path of the rays from said bulb between a wall of the lamp and said bulb, and normally preventing said spring from opening the circuit at said contact.

2. In an electric lamp, in combination, a case including a lens, an incandescent lamp bulb within said case, a contact mounted in said case to close the circuit through said bulb, a spring tending to move said bulb to open the circuit at said contact, conducting the current of the lamp circuit, and a rigid member between a wall of the lamp and said bulb and normally preventing said spring from opening the circuit at said contact.

3. In an electric lamp, in combination, a case including a lens, an incandescent lamp bulb within said case, a contact mounted in said case to close the circuit through said bulb, a spring tending to move said bulb to open the circuit at said contact, conducting the current of the lamp circuit, and a translucent member in the path of the rays from said bulb between a wall of the lamp and said bulb and normally preventing said spring from opening the circuit at said contact.

4. In an electric lamp, in combination, a case including a lens, a lamp bulb in said case having a neck with a contact in the lamp circuit, a freely movable collar on said neck, a spring conducting the current of the lamp circuit, retaining said collar and tending to move the same to open the lamp circuit at said contact, and a rigid relatively weak and fragile part between said bulb and a wall of said case resisting said spring and maintaining the circuit through the lamp.

5. In an electric lamp, in combination, a case, an incandescent lamp bulb, a neck with a contact in the lamp circuit, a collar on said neck, a rigid unyielding part retained between a wall of said lamp and said bulb opposite said neck, a spring retaining said

collar and compressible by said collar to permit the positioning of said rigid part, and a yielding contact in the lamp circuit having a spring compressible by said neck contact when said rigid part is being positioned, and maintaining the circuit closed after said rigid part is positioned.

6. In an electric lamp, in combination, a case, an incandescent lamp bulb having a neck with a contact in the lamp circuit, a floating collar on said neck, a rigid unyielding part retained between a wall of said lamp and said bulb, a spring retaining said collar and compressible by said collar to permit the positioning of said rigid part, and a yielding contact in the lamp circuit having a spring compressible by said neck contact when said rigid part is being positioned, and maintaining the circuit closed after said rigid part is positioned.

7. In an electric lamp, in combination, a case, an incandescent lamp bulb having a neck with a contact in the lamp circuit, a collar on said neck, a rigid unyielding frangible part retained between a wall of said lamp and said bulb opposite said neck, a spring conducting the current of the lamp circuit retaining said collar and compressible by said collar to permit the positioning of said rigid part, and a yielding contact in the lamp circuit having a spring compressible by said neck contact when said rigid part is being positioned and maintaining the circuit closed after said rigid part is positioned.

8. In an electric lamp, in combination, a case, an incandescent lamp bulb within said case having a neck, a freely movable collar receiving said neck, an insulated contact carried by said case, said neck having an insulated contact adapted to engage with said first named insulated contact, a spring mounted in said case and tending to move said collar to break the lamp circuit at said contacts, and a frangible bar between said bulb and a wall of said lamp opposite said spring receiving the thrust of said spring longitudinally and preventing said spring from opening the circuit.

9. In an electric lamp, in combination, a case, an incandescent lamp bulb within said case having a neck, a collar receiving said neck and having a reduced body, an insulated contact carried by said case, said neck having an insulated contact adapted to engage with said first named insulated contact, a coil spring mounted in said case and engaging at one end around the body of said collar to retain the same, and tending to move said collar to break the lamp circuit at said contacts, and a frangible bar between said bulb and a wall of said lamp opposite said spring receiving the thrust of said spring longitudinally, and preventing said spring from opening the circuit.

10. In an electric lamp, in combination, a

case, an incandescent lamp bulb therein having a contact, an unyielding part extending from the said bulb to a wall of said case, a contact on the case engaging said first-named contact and a spring pressing said bulb so as to hold said unyielding part against the said wall of the case.

11. In an electric lamp, in combination, a case including a lens, an incandescent lamp bulb therein having a contact, a relatively weak and easily broken part constructed to break from a blow or jar which is insufficient to break said lens, disposed opposite said contact and extending from said bulb to a wall of said case, a contact in said case engaging said first contact to close the circuit through said bulb, and resilient means tending to move said bulb in a direction to press said part against said wall.

12. In an electric lamp, in combination, a case including a lens, an incandescent lamp therein having a contact and an easily broken part constructed to break from a blow or jar insufficient to break said lens, said part disposed opposite said contact, a contact in said case engaging said first contact to close the circuit through said bulb, and resilient means resisted by said easily broken part for separating the said contacts and thereby open the circuit when said easily broken part breaks.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY CSANYI.

Witnesses:

S. ANDREWS,
L. ELFMAN.