

H. FELDMANN.
 SAFETY LAMP.
 APPLICATION FILED SEPT. 13, 1909.

960,869.

Patented June 7, 1910.

Fig. 1

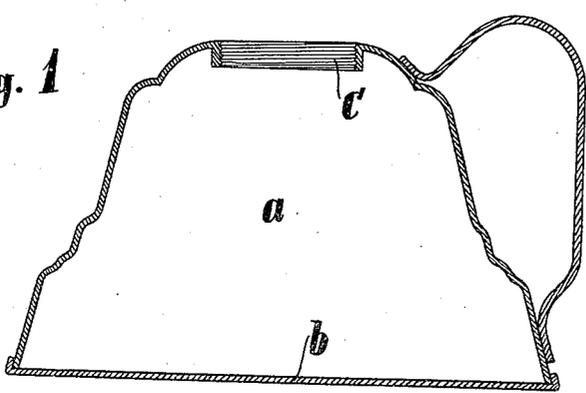


Fig. 2

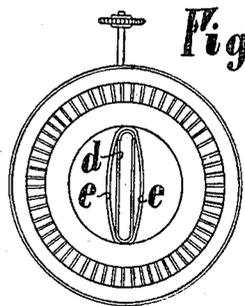


Fig. 3

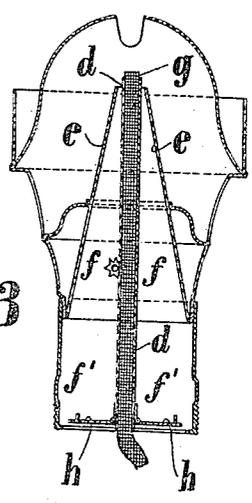


Fig. 4

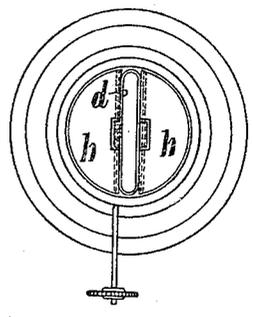


Fig. 5

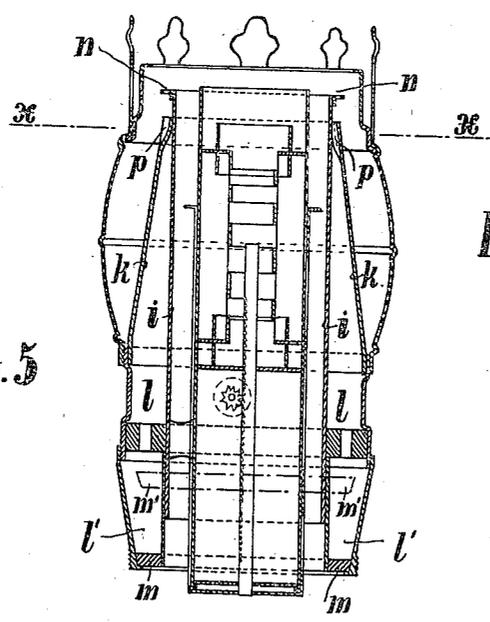
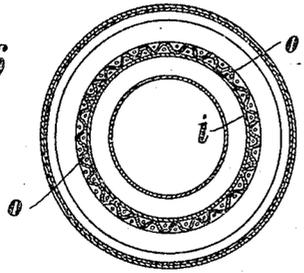


Fig. 6



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UNITED STATES PATENT OFFICE.

HIRSCH FELDMANN, OF TAGANROG, RUSSIA.

SAFETY-LAMP.

960,869.

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To all whom it may concern:

Be it known that I, HIRSCH FELDMANN, a subject of the Russian Emperor; and residing at Taganrog, South Russia, have invented certain new and useful Improvements in Safety-Lamps, of which the following is a specification.

The subject-matter of my invention is an improved safety lamp for petroleum and other liquid combustibles, and a primary object is to provide a lamp of the type described such that when it is overthrown, or the combustible shaken, all danger of fire is at once automatically suppressed.

Various constructional forms of my new lamp are represented by way of example and diagrammatically in the accompanying drawing wherein:

Figure 1 is a vertical section through the reservoir, whereas Figs. 2, 3 and 4 are top plan view, vertical section, and bottom plan view, respectively, showing a flat burner appertaining to said reservoir, and Figs. 5 and 6 are vertical section, and horizontal section in the plane X—X in Fig. 5, respectively, showing a round burner according to my invention.

Referring to the drawing, the reservoir *a* is formed in such manner that its largest cross-section is near its bottom *b*, whereas the burner is screwed to its narrowest portion *c*. The consequence of this is that when the lamp is overthrown the burner is located lower than the reservoir, so that the contents of the reservoir tend to run to the burner. This can also be obtained, for example, by providing the reservoir at its bottom end with an outwardly projecting rim.

When in use the reservoir *a* is partially filled with petroleum or other liquid combustible and contains in addition a special fire-extinguishing liquid which is heavier than the combustible and accordingly settles on the bottom of the reservoir when the lamp is used ordinarily. If the lamp is overthrown so that the burner of the lamp is located low down, the fire-extinguishing liquid displaces the combustible, flows to the burner, and extinguishes the flame or prevents the supply of the combustible to the flame. The shape of the reservoir must always be such that when the lamp is overthrown the fire-extinguishing liquid can flow rapidly in consequence of its own weight to the burner. The same arrangement can be

employed both for flat burners and for round burners of optional kind.

A special peculiarity of my improved flat burner according to Figs. 2 to 4 is that there are formed by one or more walls *e* arranged around or laterally of the wick tube *d* special upwardly constricted chambers *f* through which the fire-extinguishing liquid is conducted with certainty, when the lamp is overthrown, to the flame burning at the end of the wick *g*. In the normal position of the lamp the lower parts *f'* of these chambers *f* are closed by clack valves *h* (Fig. 3) which open automatically as soon as the lamp falls over.

The round burner according to my invention represented in Figs. 5 and 6 may be placed on a suitable reservoir according to my invention such as is described above with reference to Fig. 1. The upwardly constricted chamber *l* formed by the outer wick tube *i* and the casing *k* surrounding the latter is normally closed from below at *l'* by an annular member *m* preferably composed of lead. If the lamp falls over the burner will lie lower than the reservoir. The ring *m* will then fall say into the position *m'* represented in dotted lines and the fire-extinguishing composition can enter into the chambers *l'*, *l* and arrive at *n* at the flame in order to extinguish the same. Now in order to enable the fire-extinguishing liquid to advance uniformly to the wick, the casing *k* is formed at its top end at *p* in cross-section in such manner that small channels *o* are formed, as clearly shown in Fig. 6. In this manner the fire-extinguishing liquid or composition is prevented from advancing only to the bottom portion of the burning wick, as would be the case if only one single annular chamber were provided as outlet. The remainder of the arrangement of the reservoir and the burner which is used is of secondary importance for the employment of my invention or is of well-known nature and therefore not described particularly.

The fire-extinguishing liquid employed is composed preferably of solutions of soda lye, potash lye, and other lyes or of a mixture of the same with silicates in weak solution, such as silicate water-glass for example. The fire-extinguishing liquid has a cooling action on the lamp and thereby prevents danger of explosion, especially when

the same is mixed by shaking with the petroleum when the reservoir is heated.

I claim:

1. In a safety lamp of the character described, in combination, a reservoir, a burner comprising a casing detachably attached to the top end of the reservoir, a wick tube in said casing, a wall in said casing forming with the wick tube upwardly constricted chambers in said casing, and an upwardly-opening valve at the bottom of each chamber; the bottom of said reservoir being of larger diameter than the top end.

2. In a safety lamp of the character described, in combination, a reservoir, a burner comprising a casing detachably attached to the top end of the reservoir, a wick tube in said casing, a wall in said casing forming with said wick tube an upwardly constricted chamber, and an upwardly-movable member normally closing the bottom of said chamber; the bottom of said reservoir being of larger diameter than the top end.

3. In a safety lamp of the character described, in combination, a reservoir, a burner comprising a casing detachably attached to

the top end of the reservoir, a wick tube in said casing, a wall in said casing forming with said wick tube an upwardly constricted chamber, the top end of said wall being formed corrugated and contacting with said wick tube and thereby forming a plurality of outlets at the top of said chamber, and an upwardly-movable member normally closing the bottom of said chamber; the bottom of said reservoir being of larger diameter than the top end.

4. In a safety lamp of the character described, a burner comprising in combination a casing, a circular wick tube therein, a wall in said casing forming with the wick tube an upwardly-constricted channel, and an upwardly-movable annular member normally closing the bottom of said channel, for the purpose specified.

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

HIRSCH FELDMANN.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.