Feb. 28, 1928. 1,660,401

R. STRAUSS

LIGHTER

Filed Nov. 4, 1926

Fig. 1

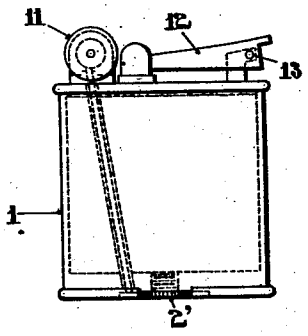



Fig. 3

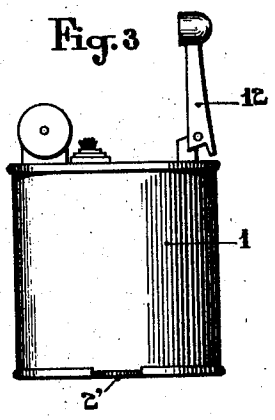



Fig. 2

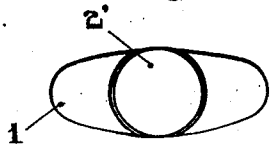



Fig. 4

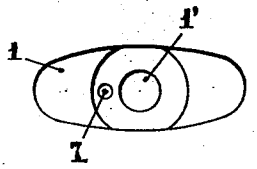



Fig. 5

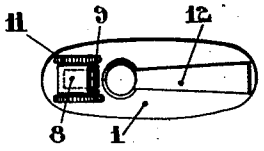



Fig. 8

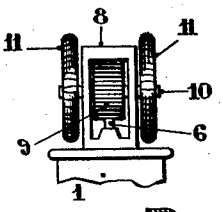



Fig. 7

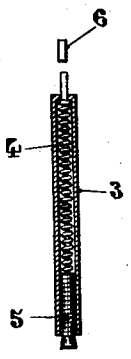
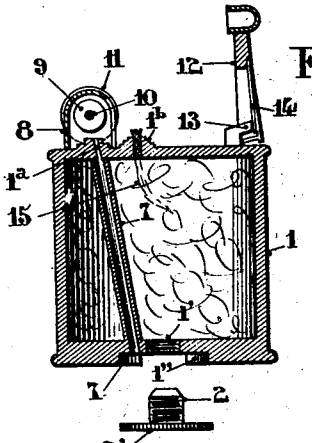



Fig. 6




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# UNITED STATES PATENT OFFICE.

RAPHAËL STRAUSS, OF PARIS, FRANCE, ASSIGNOR TO ETABLISSEMENTS STRAUSS, ALLARD, MEYER, OF PARIS, FRANCE, A FRENCH CORPORATION.

## LIGHTER.

Application filed November 4, 1926, Serial No. 146,223, and in France May 10, 1926.

The present invention relates to a lighter of the type of petrol lighters with a friction stone preferably of ferrocerium.

The invention will now be described with reference to the accompanying drawings in which:

Figure 1 illustrates the lighter in elevation, a cap being lowered over the wick.

Figure 2 is an underside plan.

Figure 3 is an elevation similar to Figure 1 but with the cap in the raised position.

Figure 4 is an underside plan, the screw plug being removed from the bottom of the vessel.

Figure 5 is a plan view corresponding to Figure 1.

Figure 6 is a sectional view with the cap in the raised position and the screw plug over the vessel shown separately.

Figure 7 shows to an enlarged scale a section of the tube supporting the stone of ferrocerium.

Figure 8 illustrates to an enlarged scale the friction member for co-operation with the stone of ferrocerium. This is seen from the side of the opening in which the friction member is opposite the wick.

The apparatus is constructed so as to enable it to be easily handled, assembled readily and having the members protected in such a manner that they are not exposed to deterioration and are always ready for use.

The body of the apparatus consists of a petrol vessel 1, of suitable shape such as shown in the drawing by way of example so as to enable the apparatus to be easily placed in the pocket, but this shape of the vessel may be modified, for example it may be in the form of a prism.

The bottom of the vessel is provided with a screw threaded hole 1′ adapted to receive a screw plug 2 which is provided with a head 2′ formed as a projecting disc adapted, when the plug is screwed into the hole, to be seated within a recess 1″ in the bottom of the vessel. In the bottom of the recess adjacent the hole 1′ there ends a tube 7 passing completely through the vessel 1 and ending in the upper wall of the vessel underneath the friction device described hereinafter. At this point the upper wall of the vessel is provided with a small orifice $1^a$ of the size of the stone of ferrocerium and at the side of this opening with an orifice $1^b$ through which passes the end of the wick 15 which is contained in the vessel 1.

The stone of ferrocerium 6 fitted in the orifice $1^a$ is pushed outwardly by a spring 4 located in a tube 3 and held in position by a screw plug 5 screwed into the end of the tube 3.

By means of this arrangement, when the screw-stopper 2—2′ is removed, it is possible to fill the reservoir and also, if necessary, to remove the tube 3 in order to inspect or replace the flint 6.

The friction wheel 9 is mounted within a casing 8 which has only one opening opposite the wick 15; the friction wheel being thus protected, the dust resulting from using the apparatus cannot spread over the latter which remains always clean.

The friction member 9 is secured to a spindle 10 provided with two milled discs 11 located outside the casing 8. This arrangement enables the person using the apparatus to operate the friction member easily and without soiling his fingers.

An arm 12 pivoted at 13 and acted upon by a spring 14 carries a cap which is adapted to cover the end of the wick.

In the construction of the apparatus shown in Figures 1 to 8 the tube 7 adapted to receive the stone terminates in the enlarged portion 1″ of the opening 1′, 1″, and the tube 3 carrying the stone of ferrocerium is introduced from this side.

By means of this device no petrol, however small in quantity, can enter the device in which the stone is mounted while in use.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A lighter comprising a vessel adapted to contain petrol, and having an aperture at the top and a screw threaded aperture at the bottom and a recess surrounding the aperture at the bottom, a tube extending from the top to the bottom of said vessel and opening at the top of said vessel adjacent the first mentioned aperture and at the bottom in said recess, a second tube fitted into the first mentioned tube, a friction stone fitted in the upper end of the second tube, a screw plug fitting into the lower end of the second tube, a spring between the stone and the screw plug, a screw plug having an enlarged head adapted to be screwed into the screw threaded aperture of the vessel while its

head is adapted to fit into the recess so as to close the end of the first tube and hold the second tube in said first tube, a wick passing through the aperture in the top of the vessel, and a rotatable friction element mounted on the vessel and co-operating with the stone.

2. A lighter comprising a vessel adapted to contain petrol and having an aperture at the top and a screw threaded aperture at the bottom and a recess surrounding the aperture at the bottom, a tube extending from the top to the bottom of said vessel and opening at the top of said vessel adjacent the first mentioned aperture and at the bottom in said recess, a second tube fitted into the first mentioned tube, a friction stone of ferrocerium fitted in the upper end of the second tube, a screw plug fitting into the lower end of the second tube, a spring between the stone and the screw plug, a screw plug having an enlarged head adapted to be screwed into the screw threaded aperture of the vessel while its head is adapted to fit into the recess so as to close the end of the first tube and hold the second tube in said first tube, a wick passing through the aperture in the top of the vessel, and a rotatable friction element mounted on the vessel and co-operating with the stone and means for enclosing the friction wheel on the side thereof remote from the wick.

3. A lighter comprising a vessel adapted to contain petrol, and having an aperture at the top and a screw threaded aperture at the bottom and a recess surrounding the aperture at the bottom, a tube extending from the top to the bottom of said vessel and opening at the top of said vessel adjacent the first mentioned aperture and at the bottom in said recess, a second tube fitted into the first mentioned tube, a friction stone fitted in the upper end of the second tube, a screw plug fitting into the lower end of the second tube, a spring between the stone and the screw plug, a screw plug having an enlarged head adapted to be screwed into the screw threaded aperture of the vessel while its head is adapted to fit into the recess so as to close the end of the first tube and hold the second tube in said first tube, a wick passing through the aperture in the top of the vessel, and a rotatable friction element mounted on the vessel and co-operating with the stone, a casing surrounding said rotatable friction element, said casing being open on the side thereof adjacent the wick, a spindle mounted in said casing and having the said rotatable friction element secured thereto, and a pair of milled discs secured to said spindle outside said casing.

4. A lighter comprising a vessel adapted to contain petrol, and having an aperture at the top and a screw threaded aperture at the bottom and a recess surrounding the aperture at the bottom, a tube extending from the top to the bottom of said vessel and opening at the top of said vessel adjacent the first mentioned aperture and at the bottom in said recess, a second tube fitted into the first mentioned tube, a friction stone fitted in the upper end of the second tube, a screw plug fitting into the lower end of the second tube, a spring between the stone and the screw plug, a screw plug having an enlarged head adapted to be screwed into the screw threaded aperture of the vessel while its head is adapted to fit into the recess so as to close the end of the first tube and hold the second tube in said first tube, a wick passing through the aperture in the top of the vessel, and a rotatable friction element mounted on the vessel and co-operating with the stone, and a cover hinged to said vessel.

5. A lighter comprising a vessel adapted to contain petrol, and having an aperture at the top and a screw threaded aperture at the bottom and a recess surrounding the aperture at the bottom, a tube extending from the top to the bottom of said vessel and opening at the top of said vessel adjacent the first mentioned aperture and at the bottom in said recess, a second tube fitted into the first mentioned tube, a friction stone fitted in the upper end of the second tube, a screw plug fitting into the lower end of the second tube, a spring between the stone and the screw plug, a screw plug having an enlarged head adapted to be screwed into the screw threaded aperture of the vessel while its head is adapted to fit into the recess so as to close the end of the first tube and hold the second tube in said first tube, a wick passing through the aperture in the top of the vessel, and a rotatable friction element mounted on the vessel and co-operating with the stone, a spring actuated lever mounted on said vessel, and a cap carried by said lever and adapted to fit over said wick in the closed position.

RAPHAËL STRAUSS.