May 10, 1927. 1,627,923

L. A. NEVIÈRE

AUTOMATIC FIRE PRODUCING DEVICE

Filed June 22, 1923

Fig. 1

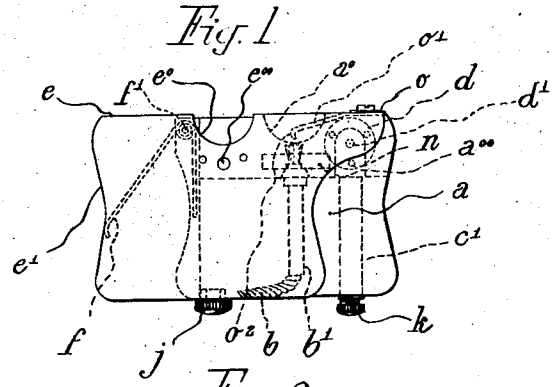


Fig. 2

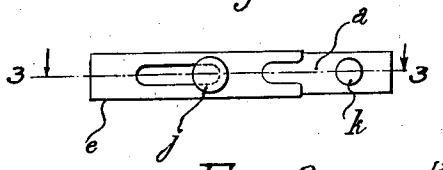


Fig. 3.

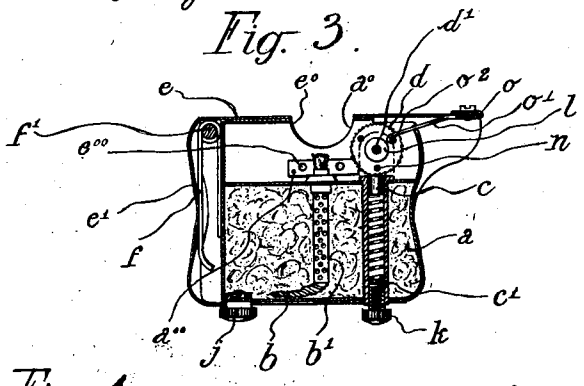


Fig. 4.

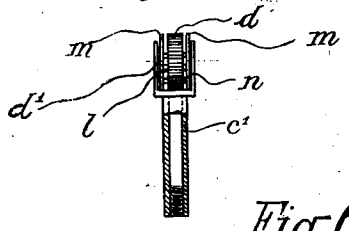


Fig. 5.

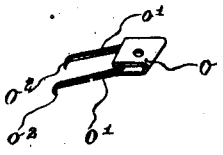
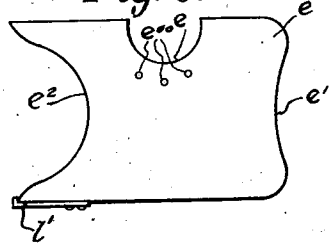


Fig. 6.



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Patented May 10, 1927. 1,627,923

UNITED STATES PATENT OFFICE.

LOUIS AUGUSTE NEVIÈRE, OF CHATEAU DE MÈRE, NEAR ARTAIMES, FRANCE.

AUTOMATIC FIRE-PRODUCING DEVICE.

Application filed June 22, 1923, Serial No. 647,010, and in Belgium July 5, 1922.

This invention relates to automatic ignition and it refers more particularly, although not exclusively to automatic lighters.

The principal object of this invention is to make such apparatus more convenient to use and more efficient. Another object is to so construct the apparatus so that the parts can be readily assembled and separated.

A device constructed according to the invention has hollow members, an inflammable body, such for instance as a wick soaked in petrol and a kindling element, such for instance as a striker co-operating with a flint composed of a cerium iron alloy intended to produce sparks for igniting the wick or the like. The essential feature of the invention consists in so constructing and arranging the hollow members that they can slide relatively to one another. When the hollow bodies or members are slid in a determined direction with respect to each other, ignition of the wick is produced, and a number of openings are then so located with respect to each other that the flame is exposed.

The invention also includes, in addition to the principal constructional feature just mentioned, certain other features which are preferably used at the same time and which will be more fully explained hereafter.

In order that the invention may be more clearly understood, it will now be described with reference to the accompanying drawings, but it is to be understood that the specification and drawings are given merely by way of example.

Fig. 1 shows a side elevation of a device embodying my invention.

Fig. 2 is a bottom plan view of the device shown in Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 2, certain parts thereof being shown in elevation.

Fig. 4 is an elevation showing the ignition device.

Fig. 5 is a perspective view of one of the members of the ignition device.

Fig. 6 shows a different form of cover member.

The drawings illustrate the application of the invention to an automatic pocket lighter of the class comprising a reservoir a for petrol, with a wick b dipping into the same, and an ignition member c which may be made of a cerium iron alloy. The device has a striker d for producing sparks by friction against the said stone.

The device comprises a reservoir a shaped like a flat box. The reservoir a has a top wall and the side walls of the said reservoir a extend above the top wall and are connected by a supplemental top wall. The projecting portions of the side walls of the reservoir have openings a^0 adjacent the top of the wick b, and the supplemental top wall of the reservoir is also open adjacent the openings a^0. This box-like member just described is adapted to be introduced into and slide within a cover e of corresponding shape having a top wall which is provided with an opening e^0 of shape similar to the opening a^0. The filling of the reservoir is effected by unscrewing a plug or stopper j which is connected to the wall of the reservoir opposite to that from which the wick b projects. The wick fits within a small tube b^1 pierced with lateral holes. The cerium iron member c is located within the tube c^1 which has an opening in the same wall and is closed at the end by a threaded plug k. The wall of the cover corresponding to the wall of the reservoir provided with the plugs j and k is furnished with slots which permit the said plugs to pass during the operation of the parts of the apparatus. The plugs are adapted to contact with the ends of the slots and to serve as stops for limiting the positions of the parts a and e in the operative and inoperative positions of the device. The ignition means for the wick comprise a striker d mounted on spindle d^1, which also carries rollers l having flanges m. The entire device is adapted to rotate on the spindle d^1. n are pairs of pins of any suitable number arranged opposite one another and located on the outsides of the rollers and arranged concentrically with respect to the axis. A device shown detached at Fig. 5, is also provided comprising a portion o by means of which the device can be attached to the inner surface of the cover outside the striker. This device has another portion consisting of two resilient branches o^1 terminating in hooks o^2. The arrangement is such that when the reservoir a is pushed for a certain distance into the cover e, at the desired moment for igniting the wick b, one

of the pairs of pins n engage the hooks o^2 so that on continuing the motion the device with the striker turns through an angle sufficient for the production of sparks through the contact of the ignition device c with the striker, thus causing ignition of the wick in the position shown in Fig. 3. On the other hand when the device returns to the inoperative position, the pins n of the next pair are at the same height as the first pins when they were engaged by the hooks o^2, whilst the rollers l force the hooks to slide over their peripheries, so that on returning to the inoperative position, the said hooks pass above the pins of the next pair and come back to their position of rest ready to engage the new pins at the next operation. The threaded end of plug k engages a spring which forces the pyrophoric member c against the striker d.

With the foregoing constructions an automatic ignition device is provided which fulfils all the practical requirements.

As previously stated, the invention is not limited in any way to the particular methods of application or to the constructional details which have been described above. On the contrary, all modifications are included, amongst which the following may be mentioned:—

In order to facilitate the combustion of the fluid with which the wick is saturated, openings a^{00} and e^{00} may be provided in the reservoir section and the cover section of the device and these openings become aligned when the device is pushed into the position shown in Fig. 3.

In some instances the member which is intended to slide relatively to the cover e, instead of being made in a single piece, as has been set forth in the earlier portion of the descripton, may be formed of the reservoir proper and by a sort of box into which the reservoir can slide, and which can itself slide in the cover.

As shown in Fig. 6, the cover is provided with a concave front portion e^2 so that the user can place his thumb against the corresponding portion of the reservoir member a while the remainder of the hand of the user can hold the rear portion e^1 of the cover. This makes the use of the device very convenient.

A blade spring f tends to keep the parts in the relative position shown in Fig. 1, and this spring is mounted upon a pin f^1 which is suitably connected to the cover e.

In some instances the casing, that is the cover e of the device may serve as the outer portion or holder for various articles, for instance scissors, nail files, tooth picks, etc., all of which articles can if so desired be hinged to the said cover and be adapted to turn into recesses in the latter. They would be brought into the position for use in the same manner as the blade of a knife, the body of the device serving as a handle for the said article.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a lighter, the combination of a reservoir member having an enclosed portion adapted to contain an inflammable liquid and also having a projecting portion beyond said enclosed portion, a cover member slidably mounted on said reservoir, a wick located in said enclosed portion and having its end projecting into said projecting portion, ignition means mounted on said reservoir adjacent said projecting end, said ignition means being adapted to be actuated when said cover member and reservoir member are moved relatively to each other in one direction, spring means adapted to actuate said cover member and reservoir member in the opposite direction, one of said members having a perforation and the other of said members having a longitudinal opening, said perforation and opening being adapted to register during the movement of said members against the force of said spring so as to insure a continuous and substantially uniform air supply to said wick.

2. A lighter comprising a reservoir adapted to contain an inflammable liquid, a wick located in said reservoir and projecting therefrom, a cover movably connected to said reservoir, spring means adapted to urge said cover to a predetermined position with respect to said reservoir, a pyrophoric member mounted on said reservior adjacent to said wick, an ignition device revolubly mounted on a spindle connected to said reservoir and contacting with said pyrophoric device, said ignition device having lateral pins thereon, and movable hook means adapted to engage said pins when the cover is moved relatively to said reservoir in one direction, so that said ignition device will be actuated, and turnable means located adjacent said spindle and adapted to prevent the engagement of the hook means with said pins on the reverse movement of said cover.

3. A lighter comprising a reservoir adapted to contain an inflammable liquid, a wick located in said reservoir and projecting therefrom, a cover movably connected to said reservoir, spring means adapted to urge said cover to a predetermined position with respect to said reservoir, a pyrophoric member mounted on said reservoir adjacent to said wick, an ignition device revolubly mounted on a spindle connected to said reservoir and contacting with said pyrophoric device, roller means mounted on said spindle, said ignition device having lateral pins thereon, and movable hook means adapted to engage said pins when the

cover is moved relatively to said cover in one direction, so that said ignition device will be actuated, said hook means being adapted to ride on said roller means when the cover is moved in the opposite direction so that the ignition device will then be permitted to remain stationary.

4. A lighter comprising a reservoir adapted to contain an inflammable liquid, a wick located in said reservoir and projecting therefrom, a cover movably connected to said reservoir, spring means adapted to urge said cover to a predetermined position with respect to said reservoir, a pyophoric member mounted on said reservoir adjacent to said wick, an ignition device revolubly mounted on a spindle connected to said reservoir and contacting with said pyrophoric device, roller means mounted on said spindle, said ignition device having lateral pins thereon, and movable hook means adapted to engage said pins when the cover is moved relatively to said cover in one direction, so that said ignition device will be actuated, said hook means being adapted to ride on said roller means when the cover is moved in the opposite direction so that the ignition device will be permitted to remain stationary and circular flanges on the sides of said roller means and acting as guiding means for said hook means.

5. A device according to claim 1 in which the front of the cover member is provided with an arcuate depression.

In testimony whereof I hereunto affix my signature.

LOUIS AUGUSTE NEVIÈRE.