

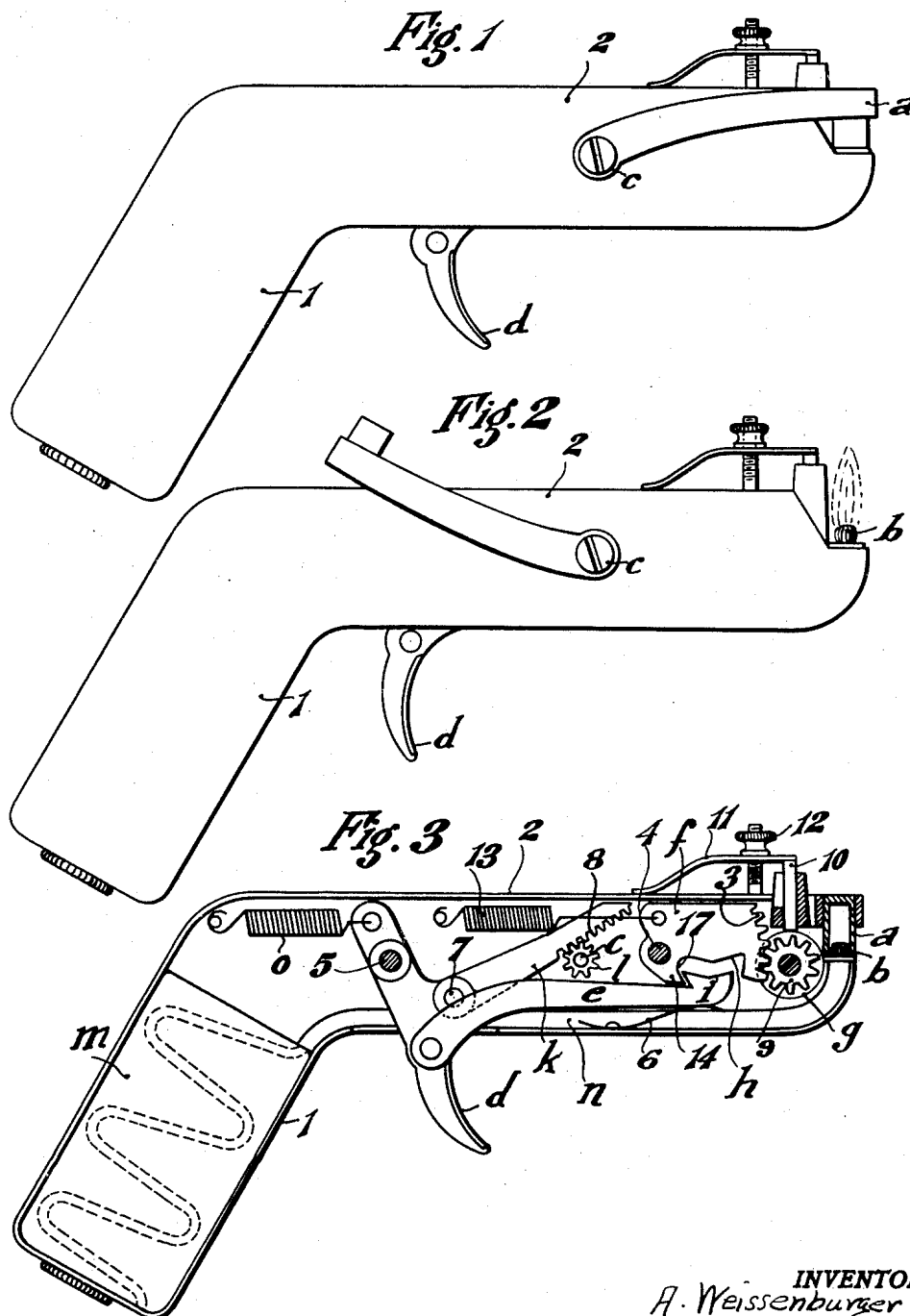
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PYROPHORIC LIGHTER

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PYROPHORIC LIGHTER

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This invention relates to pyrophoric lighters and more particularly to portable lighters of this class which are especially suitable for domestic purposes, for instance to light the gas of gas ranges, stoves, furnaces and the like.

It is an object of the invention to provide a pyrophoric lighter of pistol shape in which the fuel reservoir is housed in the handle section of the pistol while the wick is ignited at the end of the relatively long barrel section, in order to have the flame at a certain distance from the fuel reservoir to prevent any danger of explosion.

Another object is the provision of a simple, easily operable ignition mechanism in which actuation of the trigger of the pistol shaped lighter body will automatically ignite the wick.

A form of construction of a pyrophoric lighter is illustrated in the accompanying drawing in which,

Figure 1 is a view of the lighter in position of rest.

Figure 2 shows the lighter with the wick ignited.

Figure 3 is a view of the lighter with a side wall removed to show the mechanism in the interior thereof.

The represented lighter has the shape of a pistol with a handle section 1 and a relatively long barrel section 2. The handle section 1 contains the fuel reservoir *m*. From the reservoir a wick tube *n* containing the wick *b* leads to the end of the barrel section. Normally the end of the wick is covered by means of a cover member *a* rotatably mounted on the lighter body at *c*. The provision of the fuel reservoir *m* in the handle section of the pistol and of the end of the wick at the end of the barrel section has the advantage that the reservoir is relatively far away from the flame when the lighter is ignited, thereby preventing any danger of explosion which could arise in cases where the fuel reservoir is situated too near the flame so as to become heated by the flame.

The mechanism for igniting the wick *b* and for moving the cover *a* comprises a hook *e* which engages a segment *f* provided with

a gear 3 and rotatably mounted at 4. The hook *e* is pivotably mounted on the trigger *d* which is adapted to swing about the pivot 5. This hook *e* is normally held in engagement with the recess 17 of the segment *f* by means of a spring 6. To the trigger *d* is also hinged at 7 an arm *k* provided with a rack 8. This rack is in mesh with a pinion *l* keyed to the pin *o*, to which is connected the cover *a*. *g* is the friction wheel which is adapted to rotate together with a pinion 9 meshing with the gear 3 of the segment *f*. A flint stone 10 is applied against the friction wheel *g* by means of a spring 11; the pressure exerted on the flint stone can be adjusted by means of a screw nut 12.

In order to ignite the wick, the trigger *d* is pulled back so that the rack 8 of the arm *k* actuates the pinion *l* and the cover *a* is swung in open position as shown in Figure 2. Simultaneously with the opening of the cover, the hook *e* acts upon the segment *f* and turns this segment in clockwise direction about the pivot 4 against the action of the spring 13 which is put under tension. The hook *e* is provided with a cam surface *i* which is adapted to cooperate with a cam surface *h* of the segment *f*. When the trigger *d* is near the end of its backward stroke the cam surface *h* comes into contact with the cam surface *i* and after a predetermined amount of rolling of one of these surfaces along the other the hook *e* is depressed against the action of the spring 6 and falls out of engagement with the recess 17 of the segment *f*. The segment *f* then being released, is suddenly pulled back in counterclockwise direction by the spring 13 and the gear 3 meshing with the pinion 9 produces a quick movement of rotation of the friction wheel *g* whereby sparks are thrown from the flint stone 10 to the wick *b* and ignite this latter.

The cover *a* is held open as long as the trigger is held in its backward position. When the trigger is released, it is returned in its normal position by means of a spring *o*. The cover *a* is brought back in its closing position and extinguishes the flame of the wick, while the hook *e* sliding forwards, will be depressed by the projection 14 of the segment

/ until it has passed this projection, whereupon the spring 6 will urge it again in engagement with the recess 17. After this the lighter is again ready for use.

I claim:

1. In a pyrophoric lighter, a pistol-shaped lighter body, a fuel reservoir housed in the handle portion of said lighter body, a wick containing tube leading from the reservoir to the free end of the barrel portion of said pistol-shaped lighter body, a rotatable cap normally covering the free end of the wick projecting from the end of said tube, a friction wheel mounted near the free end of said barrel section, a pinion adapted for rotation with said friction wheel, a rotatable toothed segment meshing with said pinion and provided with a recess, a trigger member pivotally mounted on the lighter body, a hook pivoted on the trigger member and engaging said recess in the segment, a spring acting on said segment, cooperating means on said hook and on said segment whereby upon actuation of said trigger member and displacement of said hook the segment is first rotated and then released from engagement with the hook, and means operatively connecting the trigger member with said cap, whereby the cap will be rotated upon actuation of the trigger member.

2. In a pyrophoric lighter, a pistol-shaped lighter body, a fuel reservoir housed in the handle portion of said lighter body, a wick containing tube leading from the reservoir to the free end of the barrel portion of said pistol-shaped lighter body, a rotatable cap normally covering the free end of the wick projecting from the end of said tube, a friction wheel mounted near the free end of said barrel section, a pinion adapted for rotation with said friction wheel, a rotatable toothed segment meshing with said pinion and provided with a recess, a trigger member pivotally mounted on the lighter body, a hook pivoted on the trigger member and engaging said recess in the segment, a spring acting on said segment, cooperating means on said hook and on said segment whereby upon actuation of said trigger member and displacement of said hook, the segment is first rotated and then released from engagement with the hook, a second pinion operatively connected with said cap, and an arm pivoted on the trigger member and provided with a rack in mesh with said second mentioned pinion, whereby said cap will be rotated upon actuation of the trigger member.

3. In a pyrophoric lighter having the shape of a pistol, an operating trigger for actuating the spark producing means, a friction wheel, a pinion operatively connected to the friction wheel, a rotatable toothed segment meshing with said pinion and provided with a projection, a hook pivoted on the operating trigger and adapted to engage with said projection on

the toothed segment, a spring acting on said segment, and cooperating cam surfaces on said hook and on said segment.

In testimony whereof I affix my signature.

ADOLF WEISSENBURGER.

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