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A. L. H. TISSOT-DUPONT

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CIGARETTE LIGHTER

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Fig. 1

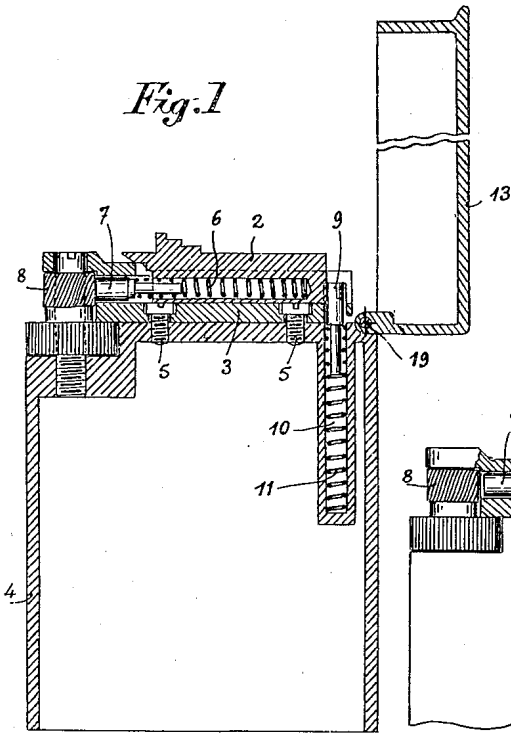


Fig. 2

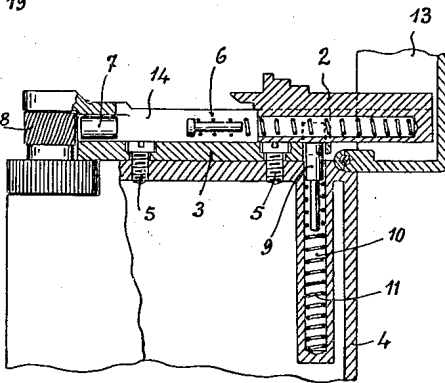


Fig. 5

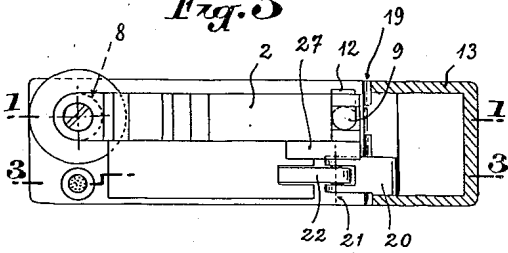


Fig. 4

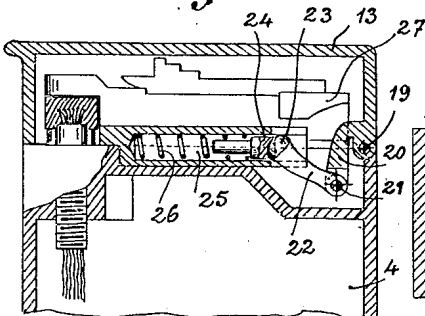
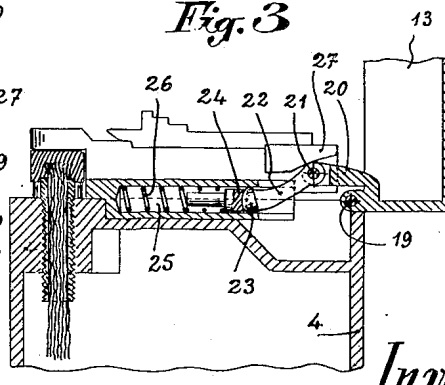


Fig. 3



Inventor

ANDRE L. H. TISSOT-DUPONT

By: Hasettine, Lake & Co.

AGENTS

# UNITED STATES PATENT OFFICE

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## CIGARETTE LIGHTER

André Louis Henri Tissot-Dupont,  
Annecy, France

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7 Claims. (Cl. 67—7.1)

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My invention has for its object a cigarette lighter operating with liquid fuel of the type including a sliding cover adapted to conceal during normal operation the flint or the like piece of pyrophoric material. According to my invention, the spring urging said flint or pyrophoric part against the friction wheel, is locked in position by an auxiliary stop normally engaging the rear of the movable cover inside which the spring is fitted. This allows the inspection or renewal of the flint to be operated by shifting the stop aside against the action of a further spring arranged preferably in a tube, alongside of the longitudinal lighter wall. Thus the first mentioned spring is allowed to expand and to drive back the movable cover so as to release the flint or the like part that may be removed if desired.

My invention has for its object in association with the arrangement disclosed a spring operated system for urging the cover or lid into either its closed or open position through a connecting link controlled by a spring arranged horizontally inside a guideway the axis of which passes through the hinge of the cover whereby said cover may be operated in particular for the removal of the flint without any transversal movement of the spring being required, said spring assuming merely an axial deformation.

The different control means referred to are carried by a common plate that may be screwed on to the body of the lighter.

The invention will be readily understood by referring to the accompanying drawing illustrating an embodiment of the invention in which:

Figure 1 shows a vertical section on the line 1—1 of Figure 5;

Figure 2 shows the same section after removal of the cover;

Figure 3 shows a vertical section on the line 3—3 of Figure 5;

Figure 4 shows the same with the cover of the cigarette lighter closed;

Figure 5 shows a plan view.

According to the invention, in the position shown by Figure 1, the cover 2 sliding in the part 3 fixed to the body of the cigarette lighter 4 by the screws 5 keeps the spring 6 compressed which spring presses the pyrophoric material 7 against the roller 8. An abutment 9 forced out of its recess 10 by a spring 11 holds the cover 2 in this position. In order to change or replace the material 7 it is sufficient to depress the lateral projection 12 of the abutment 9 as shown in Fig. 5 so as to constrain such abutment to recede into its recess. The cover 2, released under the action

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of the spring 6, is thrust against the open lid 13 of the cigarette lighter 4 (Figure 2). The pyrophoric material 7 is easily accessible for the purpose of replacement or inspection through the aperture 14. In order to close the aperture 14, it is sufficient to move the cover in the direction of the roller until the abutment 9 again locks it.

Another feature of the cigarette lighter according to the invention is the means serving to keep the hinged lid 13, hinged at 19, in either extreme position which it can occupy.

For this purpose a crank lever 20 is hinged at 21 to a connecting member 22 the head 23 of which is supported in a cup forming a knuckle joint provided at the extremity of a member 24 which slides longitudinally in a cylindrical recess 25 and compresses the spring 26 housed in said recess.

Figures 3 and 4 show the two extreme open and closed positions in which the lid 13 is held under the control of the spring 26 through the intervention of the member 24, of the connecting member 22 and the crank lever 20.

In order to shift the said lid from one position to the other, it is moved by hand until the hinge 21 of the connecting member and of the crank lever 20 has passed over the line joining the centre of the cup of the member 24 to axis of the hinge 19; the thrust of the spring 26 then completes the movement.

In the opening movement of the lid 13, the crank lever 20 is stopped by the abutment 27, the purpose of which is to relieve the said hinge which thus does not quite reach the end of its stroke.

As shown in the accompanying drawing, all the members, viz: cover 2, springs 6 and 26, are carried by the same part of plate 3 fixed to the body of the cigarette lighter 4 by the screws 5 which permit simple dismantling, thus facilitating cleaning and replacement of parts.

What I claim is:

1. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversely of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel and a collapsible part holding the guideway in one extreme position for which the spring enclosed inside same urges the pyrophoric part against the friction wheel, a lid hingedly secured to the casing round an axis perpendicular to the axis of the guideway, a second guideway lying

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parallel with the first guideway, a spring carried inside same and the axis of which passes permanently through the lid hinge, a projection on the cover and a link pivotally connected therewith and the free end of which is submitted to the action of said spring, the system including the link and lid being adapted to assume two operative positions corresponding to the closed and open lid.

2. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversally of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel and a collapsible part holding the guideway in one extreme position for which the spring enclosed inside same urges the pyrophoric part against the friction wheel, a lid hingedly secured to the casing round an axis perpendicular to the axes of the guideway and of the friction wheel, a second guideway lying parallel with the first guideway, a spring carried inside same and the axis of which passes permanently through the lid hinge, a projection on the cover and a link pivotally connected therewith and the free end of which is submitted to the action of the spring, the system including the link and lid being adapted to assume two operative positions corresponding to the closed and open lid, and a plate rigid with the casing slidably carrying the first guideway and to which the second guideway is rigidly secured.

3. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversally of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel, a movable stop adapted to positively engage the rear end of the guideway in the position for which the spring enclosed inside same urges the pyrophoric part against the friction wheel, a spring acting on the movable stop in a direction at an angle with the line of action of the first spring and adapted to urge said stop into its operative position, a lid hingedly secured to the casing round an axis perpendicular to the axis of the guideway, a second guideway lying in parallel with the first guideway, a spring carried inside same and the axis of which passes permanently through the lid hinge, a projection on the cover and a link pivotally connected therewith and the free end of which is submitted to the action of said spring, the system including the link and lid being adapted to assume two operative positions corresponding to the closed and open lid.

4. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversally of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel, a movable stop adapted to positively engage the rear end of the guideway in the position for which the spring enclosed inside same urges the pyrophoric part against the friction wheel, a spring acting on the movable stop in a direction

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at an angle with the line of action of the first spring and adapted to urge said stop into its operative position, a lid hingedly secured to the casing round an axis perpendicular to the axis of the guideway, a second guideway lying in parallel with the first guideway, a spring carried inside same and the axis of which passes permanently through the lid hinge, a projection on the cover and a link pivotally connected therewith the free end of which is submitted to the action of said spring, the system including the link and lid being adapted to assume two operative positions corresponding to the closed and open lid and a common member secured to the casing body and forming two compartments slidably carrying the two slideways respectively.

5. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversally of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel, a movable stop adapted to positively engage the rear end of the guideway in the position for which the spring enclosed inside same urges the pyrophoric part against the friction wheel, a spring acting on the movable stop in a direction at an angle with the line of action of the first spring and adapted to urge said stop into its operative position and a chamber inside the casing arranged perpendicularly to the direction of movement of the guideway and enclosing last mentioned spring, a lid hingedly secured to the casing round an axis perpendicular to the axis of the guideway, a second guideway lying in parallel with the first guideway, a spring carried inside same and the axis of which passes permanently through the lid hinge, a projection on the cover and a link pivotally connected therewith and the free end of which is submitted to the action of said spring, the system including the link and lid being adapted to assume two operative positions corresponding to the closed and open lid.

6. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversally of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel, a stop adapted to slide across the outer end of the guideway, a second guideway for said stop perpendicular to the first guideway, a spring in the second guideway adapted to urge said stop into its operative position for which it locks the first guideway and spring therein in a position for which the spring urges the pyrophoric part against the friction wheel.

7. In a cigarette lighter, the combination of a casing, a pyrophoric member, a friction wheel cooperating therewith, a slidable guideway adapted to slide over the casing in a direction passing axially of the pyrophoric member and transversally of the axis of the friction wheel, a spring enclosed in said guideway and adapted to urge the pyrophoric part against the friction wheel, a stop adapted to slide across the outer end of the guideway, a second guideway for said stop perpendicular to the first guideway, a spring in the second guideway adapted to urge said stop into its operative position for which it locks the

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first guideway and spring therein in a position for which the spring urges the pyrophoric part against the friction wheel and a lateral projection on said movable stop adapted to be urged by hand and in antagonism with the spring out of the position corresponding to operativeness of the movable stop.

ANDRÉ LOUIS HENRI TISSOT-DUPONT.

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