June 30, 1936. I. FLORMAN 2,046,066

CIGARETTE LIGHTER

Filed Dec. 7, 1933

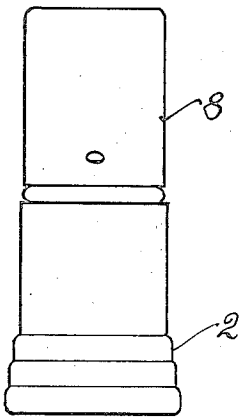


Fig. 1

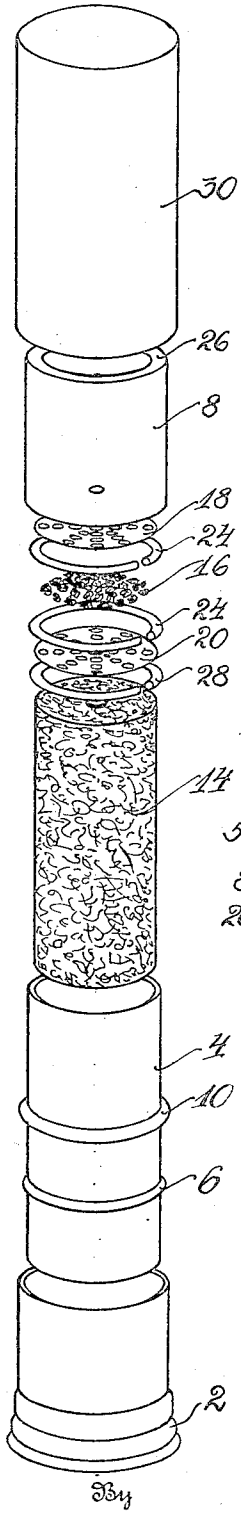


Fig. 2

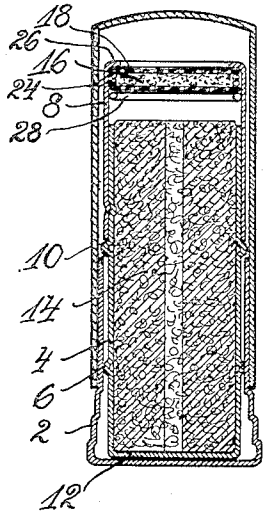


Fig. 3

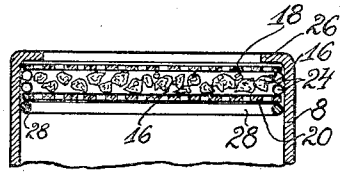


Fig. 4

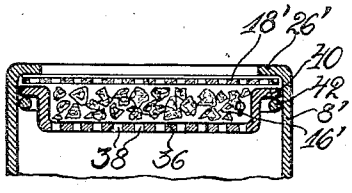


Fig. 5

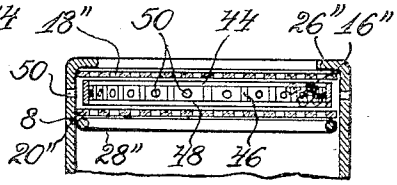


Fig. 6

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CIGARETTE LIGHTER

Irving Florman, New York, N. Y.

Application December 7, 1933, Serial No. 701,389

1 Claim. (Cl. 67—7)

My invention relates to cigarette lighters and particularly to those of the catalytic type. The invention is particularly applicable to lighters in which a mass of catalytic material supplies of itself the heat for igniting a cigarette.

Lighters of this type are known in which the catalyst in the form of a block is arranged in the path of vapors escaping from a body of easily vaporizable fluid. These lighters have several disadvantages. Because of the highly compressed nature of the block, it is either necessary to form a large number of perforations therein; as otherwise only a small portion of the catalytic material is contacted by the vaporized fuel. Further, such blocks are relatively fragile, and often break since the cigarette comes into direct contact therewith.

The primary object of my invention is to provide an arrangement in which the catalytic material is held in a very strong and solid position, and yet is provided in the form of broken portions or lumps so that the vaporized fluid can pass through the mass and contact with all parts thereof.

A further object is to arrange this material in such a manner that it is thoroughly insulated from the casing of the lighter.

Another object of the invention is to arrange the device in such a fashion that the lighter is filled with fuel by separating the catalytic mass and the fuel chamber. For this purpose the catalytic mass is mounted in a holder which slides over the end of the fuel chamber and the lower end of the fuel chamber is closed. By this arrangement there is no danger of flooding and poisoning the catalyst with liquid fuel when the lighter is filled.

Still another object of my invention is to provide a cover for the casing which is spaced from the upper portion thereof, which carries the catalytic mass, and thereby is insulated to prevent the conduction of heat to the hands of the user.

Further objects and advantages of my invention will appear more fully from the following description when taken in conjunction with the accompanying drawing which forms a part thereof.

In the drawing:

Fig. 1 shows my lighter in side elevation in the position of use with the cover removed.

Fig. 2 is an exploded view in perspective of the lighter parts.

Fig. 3 is a vertical section through the lighter in closed position.

Fig. 4 is an enlarged cross section through the catalytic portion.

Fig. 5 is a view similar to Fig. 4 of a second form of the invention.

Fig. 6 is a similar view of a further modification.

Referring to the drawing, the lighter has a hollow base **2**, the upper portion of which is cylindrical while the lower portion tapers outwardly. Slidable within this base is the fuel chamber or cylinder **4**, this chamber fitting into the base and being limited in its inward movement by a shoulder **10**. A second shoulder **6** is small enough to pass into and fit tightly within the base **2**, so that the cylinder is held firmly in the base. The catalyst is mounted in a holder **8** which is slidable on the upper or open end of the fuel chamber **4**, but limited in its inward movement by shoulder **10**. The lower end of the fuel chamber is closed as at **12**, and the chamber is filled with a suitable absorbent material such as cotton at **14**.

The catalytic mass consists of lumps of catalytic material, such as platinum black admixed with clay, fuller's earth or the like, shown at **16**. This material is arranged between upper and lower perforated discs of mica **18** and **20**. Obviously, the lumps must be of such size that they will not pass through the perforations in the discs. The discs **18** and **20** are spaced by two rings of spring metal **24** which fit tightly within the holder **8** and tend to spring outwardly against the wall of the holder. The discs are further held in place by an inwardly turned flange **26** around the upper end of the holder and a third spring metal ring **28** below the lower disc **20**.

The lighter is closed by a cover **30** whose inside diameter is slightly larger than the outside diameter of the holder **8**. This cover is substantially as long as the fuel chamber **4** and its lower end fits slidably on the top portion of the base **2**. The cover is thus held rigidly with respect to the holder **8** leaving a slight space **32** therebetween.

The holder **8** may be provided with an inwardly depressed portion **34** to cause it to grip the fuel cylinder more securely.

The operation of lighters of this type is well known and it is not believed that any description thereof will be necessary. Because of the broken nature of the catalytic material, the vaporized fuel contacts very thoroughly with the catalyst. This insures efficient operation. The catalytic material is held in place by the mica which will not conduct the heat and thus prevents the loss of heat to the body of the lighter. The catalyst therefore reaches the required degree of heat

more quickly and the use of the lighter requires practically no delay to wait for the catalyst to heat up. Furthermore, this mica is a strong and useful construction and is a much more satisfactory arrangement than the use of thin wires as has been proposed heretofore.

The cover **30** is in substantially insulated relation to the body of the lighter and therefore any heat which may by chance reach the body is not transmitted to the cover. It is only at the bottom of the fuel chamber that there is any conduction of heat and this will be relatively slight.

As it is necessary to remove the holder **8** in order to fill the lighter, the catalytic material is removed when the lighter is to be filled. There is therefore no danger of flooding the catalytic mass with fuel and thereby poisoning the same when the lighter is filled. This disadvantage has been a rather serious one in lighters filled from the bottom. It will be obvious that the same result might be accomplished even if the bottom of the fuel cylinder were open, as the holder **8** will separate from the cylinder **4** more easily than the base **2**. Therefore, if the base and holder are pulled apart, the catalyst will be separated from the fuel chamber. The essence of this part of my invention, then, is that the easiest mode of access to the fuel chamber is by removal of the catalyst.

It is obvious that my invention can be embodied in other modifications. In the form shown in Fig. 5, the holder **8'** is provided with an upper disc of mica **18'**. The catalyst **16'** is held in place by a cup **36** of metal provided with perforations **38**. This cup is provided around its upper edge with a flange **40** and is held in place by a spring metal ring **42** which engages this flange and grips tightly the inner surface of the holder.

In Fig. 6, the holder **8''** is provided around its upper edge with a flange **26''** which supports the upper mica disc **18''**. The lower disc **20''** of mica is spaced from the upper disc by a spacing element consisting of a pair of rings **44** held in spaced relation by spaced posts **46** leaving therebetween elongated openings **48**. The lower disc is held in position by a ring **28''**. The wall of the holder between the rings **44** is provided with perforations **50** to admit air into contact with the catalytic mass.

While I have described herein some embodiments of my invention, I wish it to be understood that I do not intend to limit myself thereby except within the scope of the appended claim.

I claim:

In a lighter, a base, a member having a fuel chamber therein telescoping with said base, said member being closed at its lower end, frictional means to hold said member and base together, a holder having a plurality of perforations in the walls thereof, said holder telescoping with the other end of said member, friction means to hold said holder and member together, said first means holding more tightly than said second means, catalytic material supported in said holder and having at least a portion thereof below said perforations.

IRVING FLORMAN.