

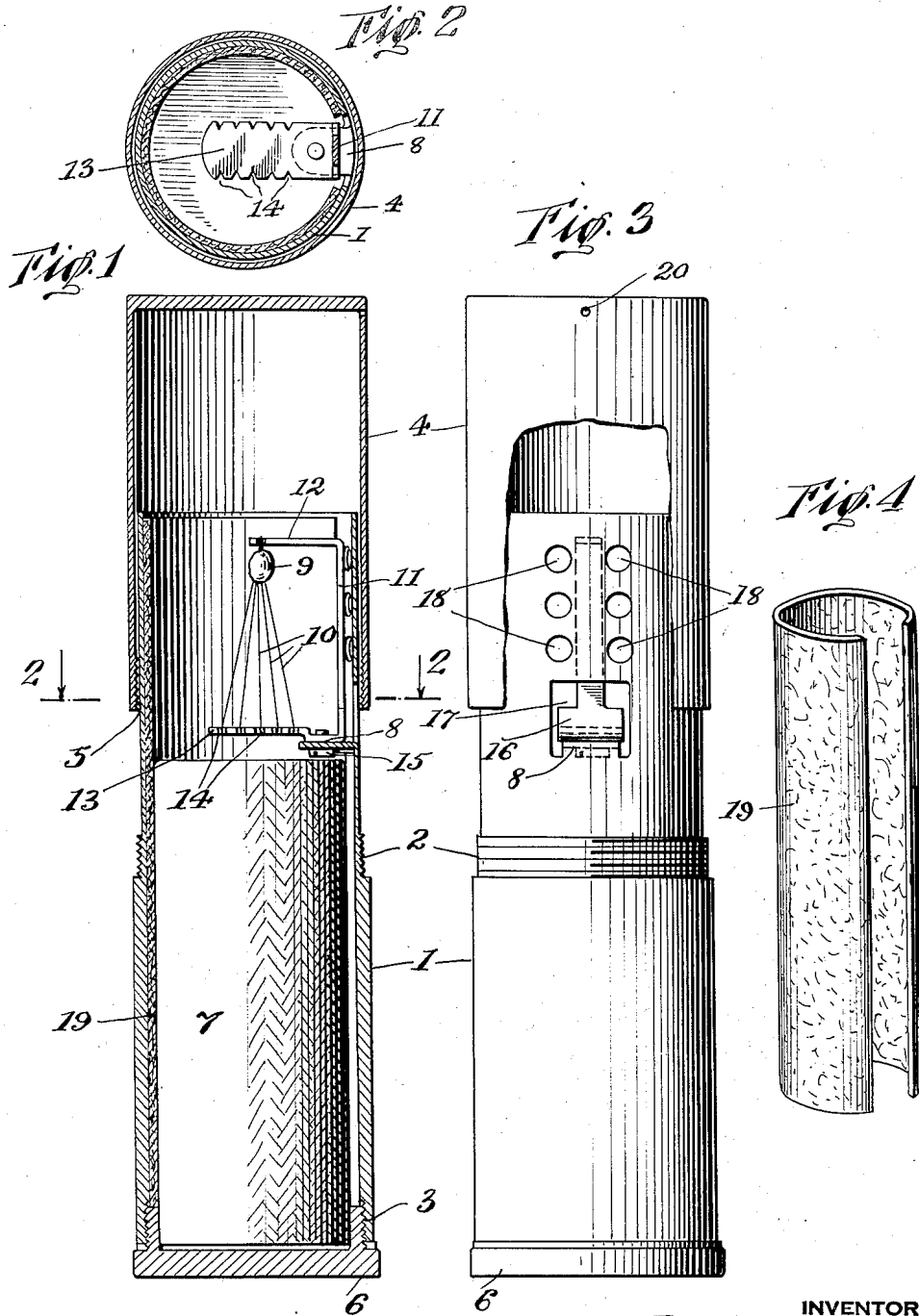
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LIGHTER

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LIGHTER

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This invention relates to lighters employing a catalyst as the igniting medium and wherein absorbent material carries a vaporizable fuel for the production of a flame.

5 One of the objects of my invention is to provide a casing adapted to contain in one part thereof a quantity of absorbent material which is to be saturated with alcohol or other vaporizable fuel, said casing in another part thereof having its wall apertured and provided with a ledge or mount which is adapted to support and be engaged by a catalyst carrying frame.

10 Another object of my invention is to provide a catalyzing unit comprising a holding frame in the form of an angled member upon which fine platinum strands are strung, said strands carrying a pellet of spongy platinum, and said member having a flange adapted for attachment to the mount provided in the casing wall.

15 A still further feature of my invention comprises the provision of wicking that extends from the absorbent material along the inner surface of the casing into the part thereof that contains the catalyst, said wicking, which may be of absorbent sheet material, that is given a tubular form, has its side edges spaced apart to expose the aperture in the wall for the admission of air to the casing interior.

20 The casing is provided with suitable removable caps or covers at its opposite ends.

25 Other features and advantages of my invention will hereinafter appear.

In the drawing:—

30 Figure 1 is a sectional elevation of my improved lighter, with the upper cover partly removed.

Fig. 2 is a section on the line 2—2 of Fig. 1.

35 Fig. 3 is an elevation of the lighter, with the top cover partly removed as in Fig. 1, the cover being cut away to expose the air admission apertures in the casing, and

Fig. 4 is a perspective view of the wicking.

40 In said figures let 1 indicate the casing which is here shown in the form of a tube and is provided with an external thread 2 at a point intermediate its length, said tube also having an internal thread 3 at its lower end.

45 A cap 4 that is adapted to fit over the upper end of tube 1, is threaded internally at 5 for engagement with the thread 2 in closing the casing.

50 Also the lower end of tube 1 is to be stoppered with a screw cap 6 that engages the thread 3.

Absorbent material 7, which may be wool, cotton, felt or the like, either loose or as a pre-formed cylinder, is to be placed in the lower por-

tion of tube 1, and may be charged with methyl alcohol or other suitable vaporizable fuel. Said absorbent material is held within the tube by means of the cap 6. Also, a tongue 8 that is cut out from the wall of the tube and bent inwardly may serve as a check to prevent the absorbent material from riding into the upper portion of the tube.

60 The catalyzer, in the form of a pellet 9 of spongy platinum or the like, strung upon fine platinum strands 10, is carried by a frame or bracket composed of a vertical arm or web 11 having the upper and lower horizontal flanges or fingers 12, 13, in suitably spaced relation. The finger 12 is engaged by the strands 10, and the finger or flange 13, which is of suitable width, is provided with serrations 14 at its opposite edges to receive individual strands 10, whereby said strands, being wrapped about flange 13, may thereby be spaced one from another at opposite sides of said flange, said strands all converging to their common point of connection on finger 12. It will be noted that the pellet 9, where incandescence initiates, is located in an upper position upon strands 10, near the finger 12.

75 The catalyst is to be located axially above the absorbent material 7, and for convenience and economy of production it is supported by the tongue 8, for which purpose the flange 13 has a threaded orifice, and a screw 15 is entered through a hole in tongue 8 and screwed into said orifice, thereby detachably connecting the catalyst frame to said tongue.

80 It will be noted that the shank 16 of web 13 is of greater width than the remainder of said web, this being for the purpose of affording a firm seating of the frame upon tongue 8; also that the clearance 17 left in the tube wall in cutting out the tongue 8 has greater width than said tongue, this clearance extending below said tongue at both sides thereof.

85 Also it will be observed that series of apertures 18 are provided in the tube wall above the clearance 17, said apertures being provided respectively, at opposite sides of the position occupied by the web 11, so that said apertures may not be obstructed by said web.

90 The function of clearance 17 and apertures 18 is to admit air to the casing interior in the vicinity of the catalyst to assist in flame propagation.

95 The fuel is carried to the upper, or catalyst occupying portion of the tube by means of wicking in the form of sheet absorbent material, such

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as blotting paper or the like, which is formed into a tube-like shape with its side edges spaced apart. This wicking, which is fully shown in Fig. 4, and is indicated at 19, may be of sufficient length to extend throughout the length of tube 1, within which it is fitted, lying between the absorbent material 7 and the tube and continuing upwardly therefrom to partially surround the catalyst, so that vapor from the fuel entrained by said wicking may co-act with the catalyst, for the creation of incandescence and the production of a flame.

The clearance between the side edges of the wicking sheet is intended for the exposure of the clearance 17 and apertures 18 in the tube, so that air may be free to enter the tube at the side thereof provided with such clearance and apertures.

In Figs. 1 and 3 the cover 4 is shown partway withdrawn from the tube, partly uncovering clearance 17 to admit some air to the tube interior for co-action with the vapor therein, and as the cap withdrawal continues further quotas of air are admitted through the further opening of clearance 17 and the successive opening of apertures 18, so that the mixture of air and fuel vapor reaches an efficient state which permits the production of a flame as soon as the cap 4 has been completely removed.

The gradual admission of the full supply of air for combustion, introduced through the side wall of the casing portion which contains the catalyst has been found by me a satisfactory manner of engendering sure and speedy flame production, also in maintaining the flame.

The reason for providing the succession of small orifices 18 above the main air inlet 17 is to enable additional supplies of air to enter the casing whilst preventing the issuance of the flame from the casing side. If a sufficiently long aperture were provided in place of the openings 17 and 18 to supply an adequate quantity of air for combustion then the effect would be that the flame would shoot out at the side. This is not desired.

A vent 20 is provided in the upper portion of cap 4 for the escape of vapor which might otherwise coalesce upon the catalyst while the lighter is closed.

Variations within the spirit and scope of my invention are equally comprehended by the foregoing description.

I claim:—

1. A lighter comprising a casing, absorbent material which may be charged with vaporizable fuel contained in the lower portion of said casing, a catalyst located in the upper portion of said casing, the wall of said casing at said upper portion having a main air admission aperture and a succession of smaller apertures above said main aperture, wicking of sheet material extending from said absorbent material to about the upper end of said casing and lying against the inner surface of its wall, said wicking having a clearance to expose said apertures, and a cap that fits slidably over said casing to close it and cover said apertures, said cap in its withdrawal gradually admitting air to the casing as the apertures are sequentially uncovered.

2. A lighter comprising a casing, absorbent material to be charged with vaporizable fuel contained within the lower portion of said casing, a tongue cut from the wall of said casing, in its upper portion, leaving an aperture through said wall to admit the air supply, said tongue being bent inwardly above said absorbent material, a catalyst, a carrying frame therefor, said frame being supported by said tongue and positioning said catalyst above said absorbent material, wicking extending from said absorbent material into the upper portion of the casing, and a removable cap to close said casing and wall aperture.

3. A lighter comprising a casing, absorbent material to be charged with vaporizable fuel contained within the lower portion of said casing, a tongue cut from the wall of said casing, in its upper portion, leaving an aperture in said wall, said tongue being bent inwardly above said absorbent material, a catalyzing unit composed of an angled frame having a vertical web, and upper and lower horizontal flanges, that are spaced apart, extended from said web, fine platinum strands strung between said flanges and a pellet of spongy platinum carried by said strands, means of mutual engagement between said lower flange and said tongue, the web of said frame lying adjacent the casing wall, non-coveringly over said aperture, tubular wicking of sheet material extending from said absorbent material into the upper portion of said casing, the side edges of said wicking being spaced apart to expose said aperture, and a removable cap to close said casing and aperture.

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