

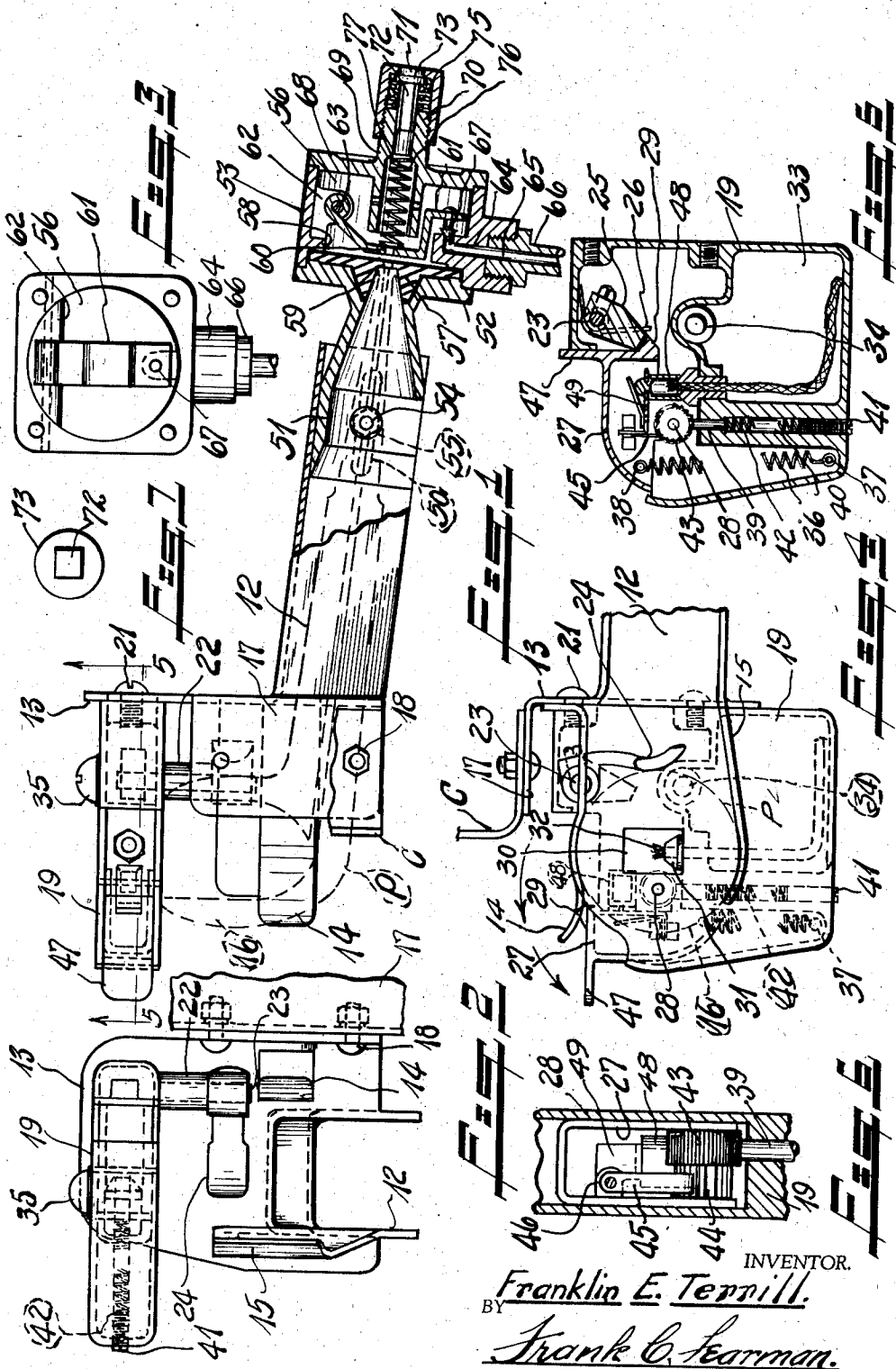
Aug. 18, 1942.

F. E. TERRILL

2,293,225

PIPE LIGHTER

Filed Dec. 16, 1940



UNITED STATES PATENT OFFICE

2,293,225

PIPE LIGHTER

Franklin E. Terrill, Bay City, Mich.

Application December 16, 1940, Serial No. 370,270

13 Claims. (Cl. 131-170)

This invention relates to pipe lighters and more particularly to a pipe lighter which can be mounted in automotive vehicles and other places where suction means can be supplied.

One of the prime objects of the invention is to design a simple and practical suction actuated pipe lighter for use in automobiles, and which requires but one hand to place the pipe in the holder, leaving the other hand free for steering.

Another object is to design a simple, substantial, and economical pipe lighter having a vacuum chamber connected to a suction means, and provide means for adjusting the vacuum pressure in the chamber so that the lighter flame can be drawn down sufficiently to ignite the tobacco when the pipe is only partially filled, or ignite a so-called "heel" in the pipe.

A further object is to provide a pipe lighting mechanism which is operable from the suction pipe of an internal combustion engine, or from a vacuum pump or similar device.

A still further object is to provide a pipe holder and lighter including a vacuum chamber having a suction line connected thereto, which line is automatically opened and/or closed by the insertion and removal of the pipe from the holder.

A further object still is to provide a pipe lighter composed of relatively few parts, all of simple, yet substantial, construction, and which can be readily manufactured and assembled.

A continuing object is to design a pipe lighter provided with an adjustable stem socket which can be adjusted to accommodate pipe stems of various lengths, and which is also adjustable as to bowl height, together with resilient means, automatically adjustable, for sealing the end of the pipe stem and its connection to the vacuum chamber.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawing, and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportion, arrangement of parts, and minor details of construction, without departing from the spirit, or sacrificing any of the advantages of the invention.

In the drawing:

Fig. 1 is a part sectional, top plan view of my pipe lighter, the broken lines illustrating a pipe mounted therein and in position to be lighted.

Fig. 2 is a front end elevational view thereof.

Fig. 3 is a rear end elevational view of the suction chamber with the end plate removed.

Fig. 4 is a fragmentary side view showing the position of the various parts when the pipe bowl, indicated in broken lines, is in position in the holder and the lighter ignited, the arrows indicating the direction of travel of the cap when igniting the lighter.

Fig. 5 is a sectional side view similar to Fig. 4 and taken on the line 5-5 of Fig. 1, the parts being in normal position and prior to the insertion of a pipe.

Fig. 6 is an enlarged detail showing the ratcheting assembly.

Fig. 7 is an end elevational view of the adjusting plug.

Referring now to the drawing in which I have illustrated one embodiment of my invention. The numeral 12 indicates a preferably trough-shaped holder, the one side being open as shown to receive and accommodate a pipe P, indicated in broken lines in Figs. 1 and 4 of the drawing. A vertically disposed end plate 13 forms a part of the holder and includes a resilient clip 14 and a companion clip 15 is formed integral with the holder 12, these clips yieldingly engage the bowl portion 16 of the pipe, and a bracket section 17 is also provided on said panel to facilitate securing the holder to the cowl C of an automobile (not shown) by means of bolts 18, or the holder can be secured to any other desired support.

A housing 19 is secured to the plate 13 by means of screws 21 and the igniting mechanism proper is mounted therein, a sleeve 22 being cast integral with said housing, and a shaft 23 is journaled therein, a pipe engaging arm 24 being mounted on the one end of said shaft, said arm engaging and being actuated by the pipe as it is placed in the holder.

A locking latch 25 (Fig. 5) is provided on the opposite end of the shaft 23, and a spring 26 is mounted thereon, one end bearing against the wall of the housing 19, the opposite end being anchored to the latch for swinging it back to original position and engaging the cap section 27 of the holder as it is swung to closed position when the pipe is removed from the holder.

The housing 19 includes the movable cap section 27, shaped as clearly shown in Fig. 5, and revoluble on the pin 28 which is journaled in the side walls of said housing, a jaw section 29 being formed integral with said cap and normally engages the latch 25 to hold it in closed

position until tripped by the pipe engaging arm 24 as the pipe is inserted in the holder.

An opening 30 is provided in the front wall of the housing 19 in alignment with the bowl opening in the pipe, and a wick nozzle 31 is mounted in said housing adjacent said opening, the free end of the wick 32 projecting through said nozzle with the main body leading into a fuel chamber 33. An opening 34 communicates with the chamber 33 to facilitate the filling thereof, and is closed by means of a screw cap 35 as usual.

The cap section 27 is spring actuated, one end of a spring 36 being anchored in the housing 19 at the point 37, the opposite end being secured to the cap section 27 at the point 38, so that when the pipe is inserted, the arm 24 will be swung, rotating the shaft 23 to swing the latch 25 to disengage the jaw 29, and permitting the cap to swing accordingly.

A flint 39 forms a part of the igniting mechanism and is mounted in a suitable opening 40 provided in the housing 19, an adjusting screw 41 being threaded in the one end of the opening, and a spring 42 is interposed between said screw and the flint, so that said flint will be spring pressed.

A toothed wheel 43 and a ratchet wheel 44 (Fig. 6) are rotatably mounted as a unit on the pin 28 at a point directly adjacent the free end of the wick 32, and a resilient dog 45 is anchored to projecting lugs 46 provided in the housing, the free end of the dog engaging the toothed ratchet wheel 44 so that as the cap section is swung, the wheel 43 will be rotated with the ratchet wheel, and due to its engagement with the flint, will ignite the wick accordingly. A lip 47 is cast integral with the cap section 27 to facilitate forcing it back to original position when the pipe has been lighted, the dog 45 riding over the ratchet wheel teeth as the cap is swung back, so that there will be no movement of the wheel 43 when the cap is closed.

A cylindrical shell 48 (Fig. 5) is mounted on an arm 49 which is in turn secured to the movable cap 27, and this shell fits over the nozzle 31 to smother the flame when the cap is swung to closed position, the arm 49 being resilient to provide a close fit.

Slotted openings 50 (Fig. 1) are provided in the trough-shaped section of the holder 12, and a tapered stem socket 51 is slidably mounted therein and is provided with a flange 52 for attachment to the casing 53, bolts 54 being mounted in said stem socket and extending through said slots, and nuts 55 are provided for securing the stem socket in adjusted position.

The casing 53 can be formed of any desired material; it can be cast, stamped, or formed of plastics; and includes a vacuum chamber 56 in which a needle valve and other suction control mechanism is mounted, a resilient diaphragm 57 (preferably formed of soft rubber) being interposed between the flange 52 and the rib 58 provided in said casing and is provided with a port 59 therein. A centrally disposed opening 60 is provided in the valve lever 61, and lugs 62 are provided in the casing 53, the lever 61 being pivotally connected thereto by means of the pin 63.

A boss 64 is cast integral with the casing 53, and a cored passage 65 leads therethrough and opens into the vacuum chamber 56, the lower end of the boss being internally threaded to accommodate a fitting 66, one end of which is connected

to a vehicle engine (not shown), or other suitable suction means, the opposite end communicating with the cored passage 65 which opens into the vacuum chamber 56.

The pressure line can be controlled in any approved manner, and in the present instance I provide a needle valve 67 which is mounted on the lower end of the lever 61, this valve controlling the suction line 65 as will be hereinafter described.

The back plate 68 of the casing 53 has a cored tubular section 69 cast integral therewith, the outer end of said tubular section being threaded as shown to accommodate the cap 70 which is provided with an opening 71 in the end wall thereof. A plug 72 is mounted in the section 69 and is formed with a head 73 which forms a closure for the opening 71, and a spring 75 is interposed between the end of the section and the end of the cap for forcing the head of the plug against the end wall of the cap to close the opening 71 until the vacuum in the chamber overcomes the spring 75, thus admitting air to the chamber 56 and regulating the pressure accordingly, the shank of the plug 72 being preferably square to permit the passage of air to the vacuum chamber.

The tubular section 69 also extends inwardly as shown and a spring 76 is provided therein, one end bearing against the lever 61 to force the needle valve to close the port in the pressure line, the opposite end butting against the shoulder 77 provided in the section 69, thus tending to seat the needle valve and close the suction line when the device is not in use.

In practice the driver places his pipe P in the holder 12, moving it longitudinally so that the mouthpiece enters the stem socket 51, automatically forcing the resilient diaphragm 57 against the lever 61 and swinging the needle valve 67 away from its seat, thus establishing communication with the suction line 65, simultaneously the bowl of the pipe is forced between the clips 14 and 15 to swing the arm 24 and rotate the latch 25, thus releasing the jaw 29, and the spring 36 swings the cap to position as indicated in Fig. 4 of the drawing.

Movement of the cap 27 swings the shell 48 away from the wick, and the dog 45 which is in engagement with the ratchet wheel, rotates the wheel 43 which engages the flint 39, thus igniting the wick 32, and suction from the line 65 creates a vacuum in the chamber 56 to draw the flame laterally into the bowl of the pipe until such time as the tobacco is thoroughly ignited; the pipe is then withdrawn and the smoker places a finger against the lip 47, and swings the cap 27 back to original position; the shell 48 swinging over the end of the wick to smother the flame and form a seal against excess evaporation of fuel, and the latch 25 engages the jaw 29 to secure the cap in locked position.

As the pipe stem is withdrawn from the socket 51, the diaphragm 57 is retracted, and the lever 61 is forced inwardly by the spring 76 so that the needle valve 67 closes the suction line, cutting off communication with the suction means.

To compensate for pipes having bowls of different height, I provide a slotted opening (not shown) for the screw 21 which permits the housing to be adjusted to suit.

It will, of course, be obvious that other valve or stopper means may be substituted for the needle valve, and that the holder proper can be made so that the pipe may be inserted vertically

without departing from the scope of the invention.

From the foregoing description, it will be obvious that I have perfected a very simple, practical, and inexpensive pipe lighter for use in connection with automotive vehicles and the like, and which requires but one hand to place the pipe in position for lighting.

What I claim is:

1. A pipe lighter embodying a holder adapted to accommodate a pipe and including an ignition means actuated by the insertion of the pipe bowl in said holder, a vacuum chamber forming a part of said holder and including yieldable means adapted to receive and form a seal for the end of the pipe stem, and an automatically controlled suction line communicating with the chamber and connected to a suction means.

2. A pipe lighter embodying a holder adapted to accommodate a pipe and including an ignition means actuated by the insertion of the pipe bowl in said holder, a vacuum chamber forming a part of said holder and including resilient means adapted to receive and form a seal for the end of the pipe stem, a suction line communicating with the chamber and connected to a suction means, and a valve controlling said suction line and adapted to be actuated by the insertion of the pipe in the holder.

3. A pipe holder and lighter comprising a holder including an ignition mechanism automatically actuated by the insertion of the pipe in the holder, a vacuum chamber forming a part of the holder and including a resilient diaphragm adapted to accommodate and seal the mouth-piece of a pipe, a suction line connected to said chamber, and a valve in said chamber and normally forming a closure for said suction line, said valve being also forced to open position by the insertion of the pipe in the holder.

4. A pipe lighter embodying a holder adapted to accommodate a pipe, and including an ignition means automatically actuated by the insertion of the pipe bowl in said holder; means forming a seal for the end of the pipe stem and including a vacuum chamber, a suction line communicating with said chamber and connected to a suction mechanism, and means for adjusting the vacuum pressure in said chamber.

5. A pipe lighter comprising a holder, a wick, ignition means in the holder and adapted to be automatically actuated by the insertion of a pipe to ignite said wick, a vacuum chamber on one end of the holder, resilient means associated therewith and having a centrally disposed port in alignment with the opening in the pipe stem, a suction line communicating with said chamber, a valve mounted therein and controlling said suction line, said valve being automatically swung to open position when the pipe is inserted in the holder.

6. A pipe lighter comprising a holder, a wick, an ignition means mounted therein and adapted to be automatically actuated to ignite said wick when the pipe is inserted in the holder, a longitudinally adjustable cone-shaped stem receiver mounted on the one end of the holder and including a vacuum chamber, a flexible member in said chamber and provided with a centrally disposed opening therein, said member forming a seal for the end of the pipe stem, a suction line connected to said chamber, a valve mounted therein and normally forming a closure for the suction line, said valve being automatically

swung to open position when the stem is inserted in the holder to establish communication with the pipe.

7. A pipe lighter of the class described and comprising a holder including a housing, a wick, an ignition means mounted in said housing and adapted to be actuated by the insertion of the pipe in the holder to ignite said wick, a vacuum chamber mounted on one end of the holder and adjustable longitudinally thereon, a flexible stem receiving diaphragm in said chamber and provided with an opening therein, a suction line connected to said chamber, a valve mounted therein and controlling said suction line, said valve being moved to open position to establish communication with the bowl of the pipe when the pipe is inserted in the holder, and adjustable means for regulating the vacuum in said chamber.

8. A pipe holder and lighter of the class described comprising a holder including a housing having a fuel chamber, a wick, a flint adjacent said wick, rotatable means adjacent the exposed end of the wick and adapted to be automatically actuated by the insertion of a pipe to ignite said wick, a longitudinally adjustable stem holder including a vacuum chamber forming a part of said holder, resilient means associated therewith and forming a seal for the mouth-piece of the pipe, a vacuum line communicating with said chamber, and a normally closed valve controlling said line and adapted to be actuated by the insertion of the pipe in the holder.

9. A pipe holder and lighter of the character described comprising a holder including a housing having a fuel chamber, a wick extending thereinto with one end exposed, a flint adjacent the exposed end of the wick, a cap pivotally mounted in said housing and adapted to be actuated by the insertion of the pipe in the holder, and means carried by said housing and engageable with said flint for igniting the wick when the cap is actuated, stem receiving means on the opposite end of the holder and including a resilient member adapted to form a seal for the end of the pipe stem, a vacuum chamber associated therewith, a suction means communicating with said chamber, said suction means being automatically placed in communication with the pipe when said pipe stem is inserted in the holder.

10. A pipe holder and lighter of the class described comprising a holder including a housing having a normally locked, spring actuated, movable cap section pivotally mounted therein; a fuel chamber in the housing, a wick extending thereinto with its one end exposed, a flint mounted in the housing adjacent the free end of the wick, means mounted on said housing and engageable with said flint for igniting said wick when the movable section is actuated, a leg mounted on the housing and adapted to release said cap when a pipe is inserted in the holder, a longitudinally adjustable vacuum chamber mounted on one end of the holder, a suction line connected thereto, and means for automatically opening said suction line when the pipe is inserted in the holder.

11. A pipe holder and lighter embodying a holder adapted to accommodate a pipe and including a housing having a cap rotatably journaled therein and adapted to be actuated by the insertion of the pipe in the holder, a wick in said housing, a flint adjacent thereto, means

mounted on said housing and engageable with said flint for igniting said wick when the pipe is inserted in the holder, and a vacuum chamber on the one end of the holder, a suction line connected thereto, and means automatically actuated by the insertion of the pipe in the holder for controlling said suction line.

12. A pipe holder and lighter embodying a holder having a housing mounted on one end thereof, a fuel chamber in said housing, a wick leading from said chamber, a flint adjustably mounted in the housing adjacent said wick, a rotatable cap journaled in said housing, a wheel engageable with said flint for igniting said wick when the cap is rotated, a shell mounted on said cap and normally forming a cover for the exposed end of the wick, a suction means on the opposite end of the holder and adjustable longitudinally thereon as a unit, said means comprising a cone-shaped member to be adapted to accommodate the end of the pipe stem, a vacuum chamber, a resilient member mounted

therein and forming a seal for the end of a pipe stem; a suction line connected to said chamber, a spring pressed needle valve controlling said suction line, and adapted to be swung to open position when the pipe is inserted, and means for adjusting the pressure in said chamber.

13. A pipe holder and lighter of the character described comprising a holder including a housing, an ignitable wick in the housing, a flint, a rotatable cap section journaled in the housing, means on the housing for engaging said flint when said section is actuated, a depending leg on said housing and adapted to be actuated when the pipe is inserted in the holder for igniting said wick, a vacuum chamber adjustably mounted on the one end of the holder and connected to a suction means, a resilient member in the vacuum chamber and forming a seal for the pipe stem, said pipe automatically opening said suction line when the stem is placed in position in the holder.

FRANKLIN E. TERRILL.