Nov. 4, 1947. A. CAMPOS 2,430,102

LIGHTER CONSTRUCTION

Filed Dec. 22, 1944 2 Sheets-Sheet 1

Fig. 1.

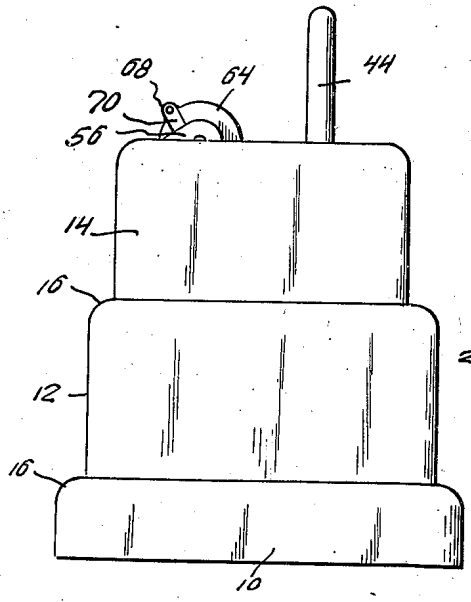


Fig. 2.

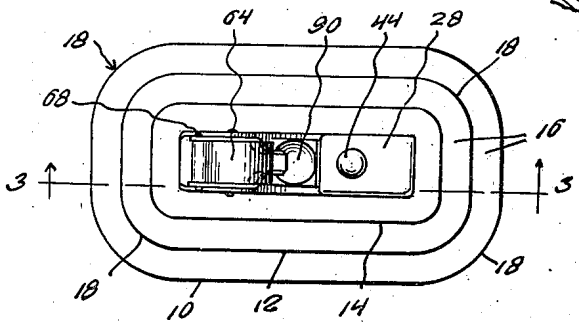


Fig. 7.

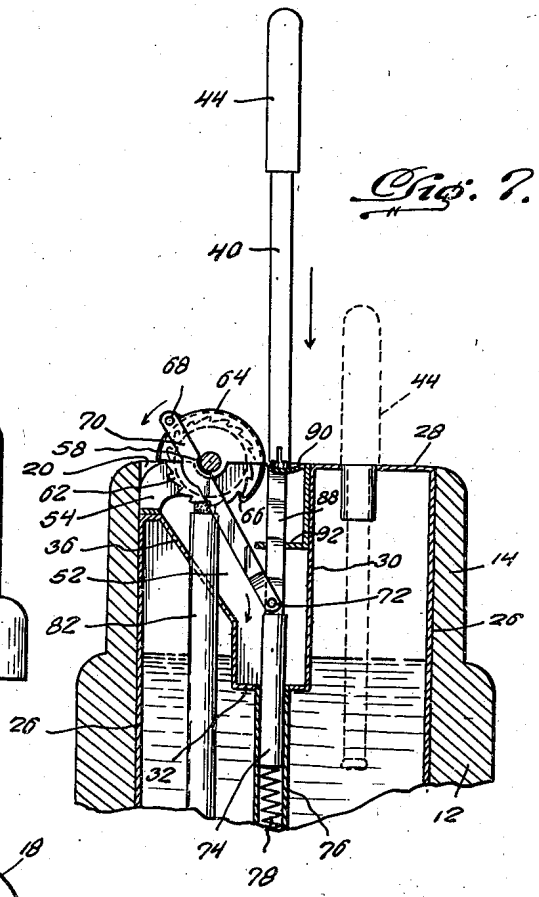
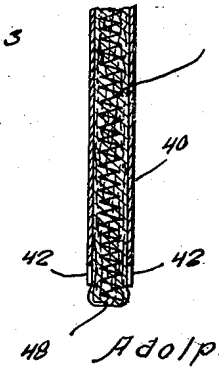


Fig. 8.



Inventor

Adolph Campos,

By McMorrow & Berman

Attorneys.

Nov. 4, 1947. A. CAMPOS 2,430,102

LIGHTER CONSTRUCTION

Filed Dec. 22, 1944 2 Sheets-Sheet 2

Fig. 3.

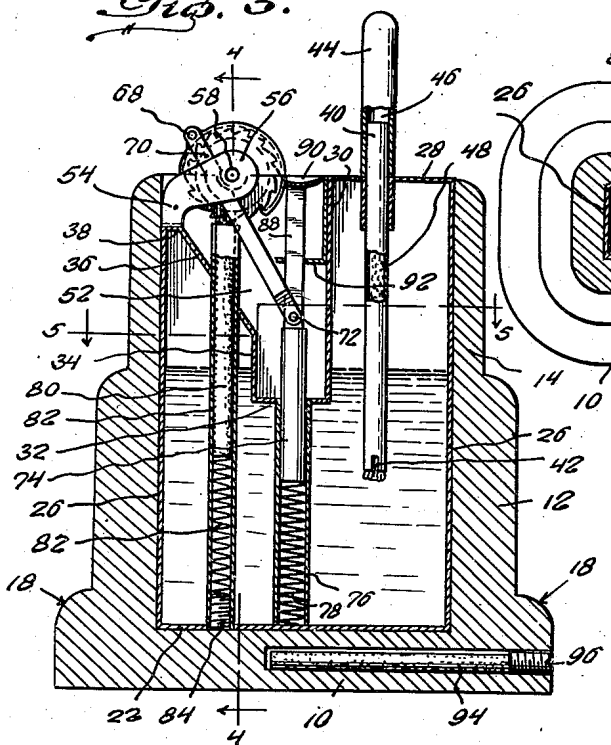


Fig. 5.

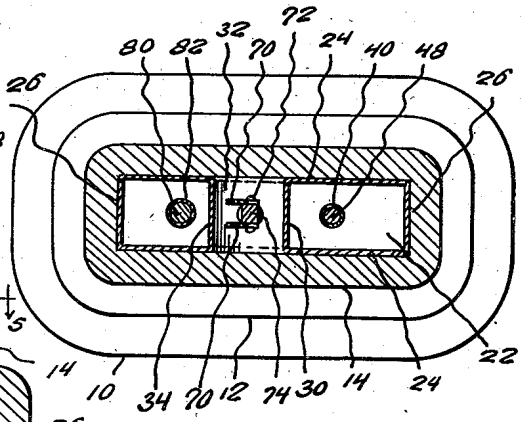


Fig. 6.

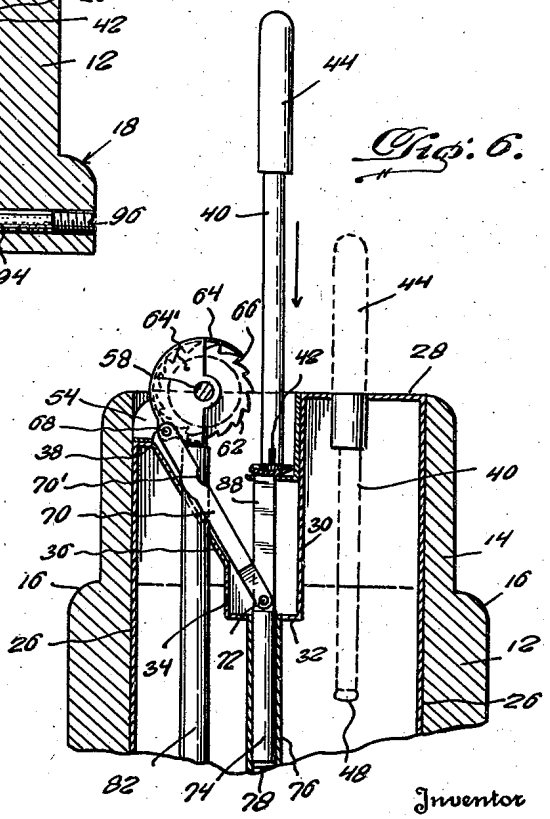
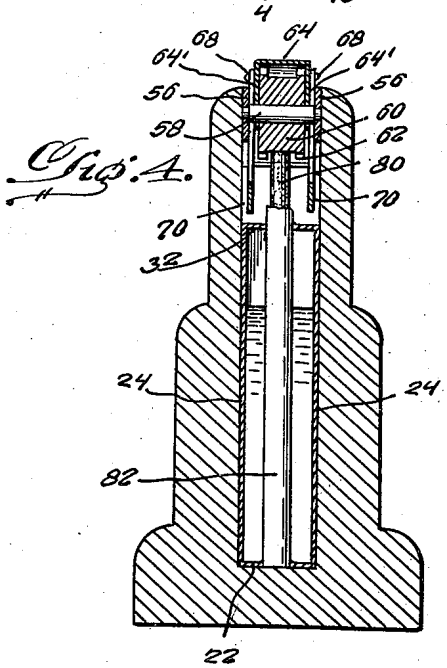


Fig. 4.



Inventor
Adolph Campos,

By McMorrow & Berman
Attorneys

Patented Nov. 4, 1947

2,430,102

UNITED STATES PATENT OFFICE

2,430,102

LIGHTER CONSTRUCTION

Adolph Campos, Clifton, N. J.

Application December 22, 1944, Serial No. 569,388

3 Claims. (Cl. 67—4.1)

1

This invention appertains to improvements in the construction of cigar and cigarette lighters generally, and more especially to desk or stand types thereof; having for one of its several objects to provide one that embodies certain refinements, artistic and mechanical, which makes for attractiveness in design, simplicity in construction, inexpensiveness in manufacture, and efficiency in operation.

Another object of the invention has to do with the provision of a lighter construction as above characterized, and one that is made up of a holder or stand, preferably formed of a molded plastic or like material, and a lighter structure, of metal, fitted into the holder or stand, and including a wick carrying torch normally supported in a position to have the wick dipping into a liquid fuel, contained within a reservoir of comparatively large capacity, and an igniter mechanism, of the file-wheel and flint type, to light the wick following the removal of the torch from the reservoir, the torch being used in the manner of a match for the application of its flame to a cigar, cigarette, or pipe.

A further object of the invention lies in the provision of the aforesaid lighter device, wherein the liquid fuel reservoir is provided with a filling opening that is normally closed by the removable torch, so that the wick is immersed in the liquid fuel, whenever the torch is not in active use, and the igniter mechanism is conditioned by the torch to operate automatically to light the wick, following the removal of the torch from the filling opening of the reservoir.

With these and other objects and advantages in view, the invention resides in the certain new and useful combination, construction, and arrangement of parts, as will be hereinafter more fully described, set forth in the appended claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a side elevation of the improved lighter, in accordance with the invention;

Figure 2 is a top plan view;

Figure 3 is a vertical, longitudinal section, taken through the line 3—3 on Figure 2, looking in the direction of the arrows;

Figure 4 is a vertical, transverse section, taken through the line 4—4 on Figure 3, looking in the direction of the arrows;

Figure 5 is a horizontal section, taken through the line 5—5 on Figure 3, looking in the direction of the arrows;

Figure 6 is an enlarged, fragmentary, vertical, longitudinal section, showing the torch removed from its position as in Figure 3 and emplaced in position to condition the igniter mechanism for subsequent automatic operation to light the wick;

Figure 7 is a view similar to that of Figure 6, but showing the relative positions of the torch and the operative parts of the igniter mechanism, following the actuation of the torch to condition the latter as aforesaid; and

2

Figure 8 is an enlarged, fragmentary, sectional detail of the wick tube of the torch, showing the wick and a coiled spring reinforcement therefor positioned therein.

Referring in detail to the drawings, wherein like characters of reference denote corresponding parts in the several views, the lighter device, as it is exemplified therein, is generally comprised in a holder or stand having a top opening and a lighter unit fitted within the holder, with the wick torch and the igniter mechanism positioned for accessibility at the top end of the holder.

The holder is preferably formed of a molded plastic or like material and shaped to substantially rectangular form in plan and a stepped formation in side and end elevation, providing a base portion 10, an intermediate portion 12, and an upper portion 14, each having their corners rounded off, as at 16, and their top side and end edges likewise rounded off, as at 18, an opening 20 being provided in the top side of the upper section 14 for the fitting of the lighter unit inwardly of the opening. The attractiveness in the design of the holder may be augmented by making it of materials of a selected color, or colors, either solid or variegated, e. g., the base 10 of one color, the intermediate portion 12 of another, and the upper portion 14 of still another.

The lighter device is comprised in a substantially rectangular metal casing, having a flat bottom wall 22, side walls 24, and end walls 26; the cross-sectional area of the casing being such that it snugly fits the interior of the holder, from which it can, however, be removed for maintenance and repair. One of the end walls 26, together with connected portions of the side walls 24, extends to the top of the holder and connects with a horizontal top wall portion 28, which encloses slightly less than one-half of the cross-sectional area of the casing. The inner end of this wall 28 connects with a vertical wall portion 30, which depends into the casing for substantially one-half of the depth thereof and has its lower end connected with a horizontal wall portion 32 that, in turn, connects with the lower end of a relatively short vertical wall portion 34, the latter having its upper end in connection with the lower end of an upwardly sloping wall portion 36, the upper end of which, in turn, is connected, by a relatively narrow horizontal wall portion 38, with the upper end of the opposite casing end wall 26, which terminates below the top end of the holder. A filling opening is provided in the top wall portion 28, of the casing, and is normally closed by a removable wick holder or torch, presently to be described.

The torch is comprised in a wick tube 40, that

has one end telescoped into a hollow handle 44, which is also of tubular formation and closed at its free end. The handle 44 is formed toward its connected end for snug fitting engagement with the filling opening in the top wall portion 28 of the casing, thereby preventing loss of the liquid fuel by evaporation, during non-use of the lighter. The closed end of the handle 44, beyond the connected end of the wick tube 40, is preferably weighted in suitable manner, as by having a poured lead filler or the like 46 housed within the same. Also, the handle 44 may be secured to the wick tube 40, either by a friction fit or by screw threaded connection therewith, as desired. A wick 48 is threaded inwardly of the open end of the tube 40, which is preferably slotted, as at 42, to expose the igniting end of the wick therethrough, the latter end of the wick being permitted to project slightly from the end of the tube 40 for igniting purposes. The wick 48 is preferably reinforced, i. e., stiffened, by means of an enclosing coil of fine wire 50, to facilitate the insertion and adjustment of the wick and to otherwise support it in a manner to prevent of its being forced entirely into the tube.

The igniter mechanism is partially housed within the depression or recess 52, provided by the irregular formation of the top wall of the lighter casing, and is comprised in a file-wheel 60 mounted for rotation on a shaft 58 that is journalled at its ends in the spaced arms 56 of a bracket 54, which is secured in proper position on the horizontal wall portion 38 of the casing. The rasp surface of the file-wheel 60 is located between oppositely disposed sets of ratchet teeth 62, formed integrally with the wheel body for the engagement therewith of an actuating member or pawl 64. This member 64 is of arcuate form with a length sufficient to encircle substantially one-half of the circumference of the file-wheel 60 and a width slightly greater than the length of the latter, to have angularly bent side portions 64' engaged with the shaft 58, between the ends of the file-wheel 60 and the bracket arms 56. The inwardly directed end of the actuating member 64 is angularly bent and relatively narrow flange 66 which spans the teeth sets 62 for operative engagement therewith. When normally disposed, the member 64 constitutes a protective hood for the file-wheel by enclosing substantially all of that portion of the latter which projects from the open end of the lighter holder.

Motion is to be imparted to the file-wheel 60 through the teeth sets 62 by a pulling motion imparted to the actuating member 64 at its outer end which has pivot connections, as at 68, with the upper ends of a pair of arms 70 that extend downwardly within the depression or recess 52 for pivoted connection, as at 72, with a spring-biased vertically-disposed reciprocatory plunger 74, mounted in the upper end of a guide tube 76, the latter extending vertically within the interior of the casing from a point of securement on the bottom wall 22 and opening through the horizontal wall portion 32, forming the bottom wall of the depression or recess. Housed within the guide tube 76, below the plunger 74, is a coiled spring 78 which functions to sustain the plunger in its normally elevated position within the upper end of the guide tube, and to return it to that position whenever it is depressed. The arms 70 are pivoted to the actuating member 64 at points thereon off dead center with respect to the shaft 58, so that, with a downward movement of the plunger 74 in the guide tube 76, the member will be moved outwardly and downwardly about the shaft and concurrently with a like directional rotation imparted to the file-wheel 60 through the pull of the flange 66 engaged with the teeth 62. Positioned beneath the rasp surface of the file-wheel 60, is a flint 80, which is carried in the upper end of a feed tube 82, that rises vertically through the casing from a point of securement on the bottom wall 22 and opens through the sloping wall portion 36; a coiled spring 86 being housed within the feed tube 82, beneath the flint, to urge it into contact with the rasp surface of the file-wheel and, by the expansion action thereof, maintain it in such contact throughout its useful life. The lower end of the feed tube 82 opens through the bottom wall 22 and is normally closed by a screw 84, upon the removal of which, following the withdrawal of the lighter from the holder, access may be had to the interior of the tube for the removal and replacement of the coiled spring 86 and the flint 80. Extending from the top end of the plunger 74, is a member 88, which projects upwardly through an angled guide bracket 92, secured on the vertical wall portion 30, and carries a slightly dished pushed plate 90 on the upper end thereof, normally supporting it at the level of the top wall portion 28, in the space between the inner end of the latter and the opposed part of the igniter mechanism. Extra flints 80' are to be conveniently housed within a compartment 94 opening through an end of the base portion 10 of the holder for the lighter, the open end of the compartment being closed by a removable closure, such as the screw 96.

To condition the lighter for use, it will first be removed from the holder for the removal of the screw 84 and the coiled spring 86 from the lower end of the feed tube 82 and the insertion of a flint 80 inwardly thereof. By inverting the lighter, the flint 80 will slide in the feed tube 82 and into contact with the rasp surface of the file-wheel 60, after which, the coiled spring 86 will be replaced and tensioned against the opposed end of the flint, when the screw 84 is engaged in the tube end and tightened in place. With the lighter returned to upright position and, if desired, replaced within the holder, the torch will be withdrawn from its engagement with the filling opening in the top wall portion 28, for the introduction therethrough of a quantity of the liquid fuel to fill the casing to a desired level, following which, the torch will be reseated in the filling opening for the saturation of the wick 48 with the liquid fuel.

With the lighter thus conditioned, it is to be operated by first removing the torch from the filling opening and then engaging the wick end thereof with the pusher plate 90, when, with a downward pressure on the handle 44, the latter is depressed inwardly of the recess 52, forcing the plunger 74 downwardly within the guide tube 76 and placing the coiled spring 78 under compression. The downward movement of the plunger 74 is translated into rotary motion at the file-wheel 60, through the arms 70 and the protecting hood 64, the swinging movement of the latter on the shaft 58 being transmitted to the file-wheel 60 by the engagement of the flange 66 with the teeth 62. With the rotation of the file-wheel 60, the abrasive effect of its rasp surface on the flint 80 causes sparks to be projected against the exposed end of the wick 48 to ignite the same. Due to the pressure of the torch

against the pusher plate 90, the wick end is spread laterally about the end of the wick tube 40, with portions of the same projecting outwardly of the slots 42, so that a sufficient portion thereof is fully exposed to the sparks emitted from the flint. Upon the flaming of the wick end, the torch is withdrawn from its engagement with the pusher plate 90 for subsequent use in lighting a cigar, cigarette, or pipe, as the case may be. With the relief of pressure on the pusher plate 90, the coiled spring 78 immediately acts to return the parts to their original positions, exerting its expansion force on the lower end of the plunger 74 to that end.

Having thus fully described my invention, it is to be understood that changes in design of either the holder or the lighter, or both, as well as in minor details of construction and arrangement of parts, may be resorted to, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. A lighter construction comprising a closed casing constituting a reservoir for liquid fuel and having a filling opening in its top wall, said casing being provided with a multi-sided portion extending downwardly from its top thereof into the space constituting the fuel reservoir at one side of said filling opening and being in non-communication with said space, a wick-type torch removably seated in said filling opening with the wick thereof dipping into the liquid fuel, a file wheel provided with a rasp surface mounted for rotation in said multi-sided portion and supported thereon, ratchet teeth on said wheel adjacent said rasp surface, a feed tube extending vertically through said casing for supporting a flint relative to said file wheel, resilient means within said feed tube to urge said flint into contact with the rasp surface of said file wheel, and a flint igniter mechanism including a swingably-mounted actuating member of arcuate form and of a length sufficient to encircle substantially one-half of the circumference of said file wheel and having on an end thereof a flange in operative engagement with the ratchet teeth for imparting rotary motion to the file wheel to abrade said flint to produce sparks, a vertically-disposed reciprocatory plunger, a pair of arms having their upper ends pivoted to said actuating member and having their lower ends pivoted to said plunger, and a pusher plate carried by said plunger, said igniter mechanism being operable by a pushing force exerted against said pusher plate by said torch after its removal from said filling opening.

2. A lighter construction comprising a closed casing constituting a reservoir for liquid fuel and having a filling opening in its top wall, said casing being provided with a multi-sided portion extending downwardly from its top thereof into the space constituting the fuel reservoir at one side of said filling opening and being in non-communication with said space, a wick-type torch removably seated in said filling opening with the wick thereof dipping into the liquid fuel, a shaft in said multi-sided portion and supported thereon, a file wheel provided with a rasp surface rotatably mounted on said shaft, ratchet teeth on said wheel adjacent said rasp surface, a feed tube extending vertically through said casing for supporting a flint relative to said file wheel, resilient means within said feed tube to urge said flint into contact with the rasp surface of said file wheel, and a flint igniter mechanism including an actuating member of arcuate form and of a length sufficient to encircle substantially one-half of the circumference of said file wheel mounted on said shaft for swinging movement, said actuating member having on an end thereof a flange in operative engagement with the ratchet teeth for imparting rotary motion to the file wheel to abrade said flint to produce sparks, a vertically-disposed guide tube, a spring-biased plunger mounted in said tube, a pair of downwardly-extending arms having their upper ends pivoted to said actuating member and having their lower ends pivoted to said plunger, a member projecting upwardly from the upper end of said plunger and carried thereby, and a pusher plate on said last-named member, said igniter mechanism being operable by a pushing pressure exerted against said pusher plate by said torch after its removal from said filling opening.

3. A lighter construction comprising a closed casing constituting a reservoir for liquid fuel and having a filling opening in its top wall, said casing being provided with a multi-sided portion extending downwardly from its top thereof into the space constituting the fuel reservoir at one side of said filling opening and being in non-communication with said space, a wick-type torch removably seated in said filling opening with the wick thereof dipping into the liquid fuel, a file wheel provided with a rasp surface mounted for rotation in said multi-sided portion and supported thereon, oppositely-disposed sets of ratchet teeth on said wheel adjacent said rasp surface, a feed tube extending vertically through said casing for supporting a flint relative to said file wheel, a coil spring within said feed tube to urge said flint into contact with the rasp surface, and a flint igniter mechanism including a swingably-mounted actuating member of arcuate form and of a length sufficient to encircle substantially one-half of the circumference of said file wheel and having on an end thereof a flange in operative engagement with the sets of ratchet teeth for imparting rotary motion to the file wheel to abrade said flint to produce sparks, a spring-biased vertically-disposed reciprocatory plunger, a pair of arms having their upper ends pivoted to said actuating member and having their lower ends pivoted to said plunger, and a pusher plate carried by said plunger, said igniter mechanism being operable by a pushing pressure exerted against said pusher plate by said torch after its removal from said filling opening.

ADOLPH CAMPOS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,019,433	Lazerholm	Oct. 29, 1935
2,084,196	Galter	June 15, 1937
2,113,975	Aronson	Apr. 12, 1938
2,118,692	Aronson	May 24, 1938
2,137,521	Aronson	Nov. 22, 1938