

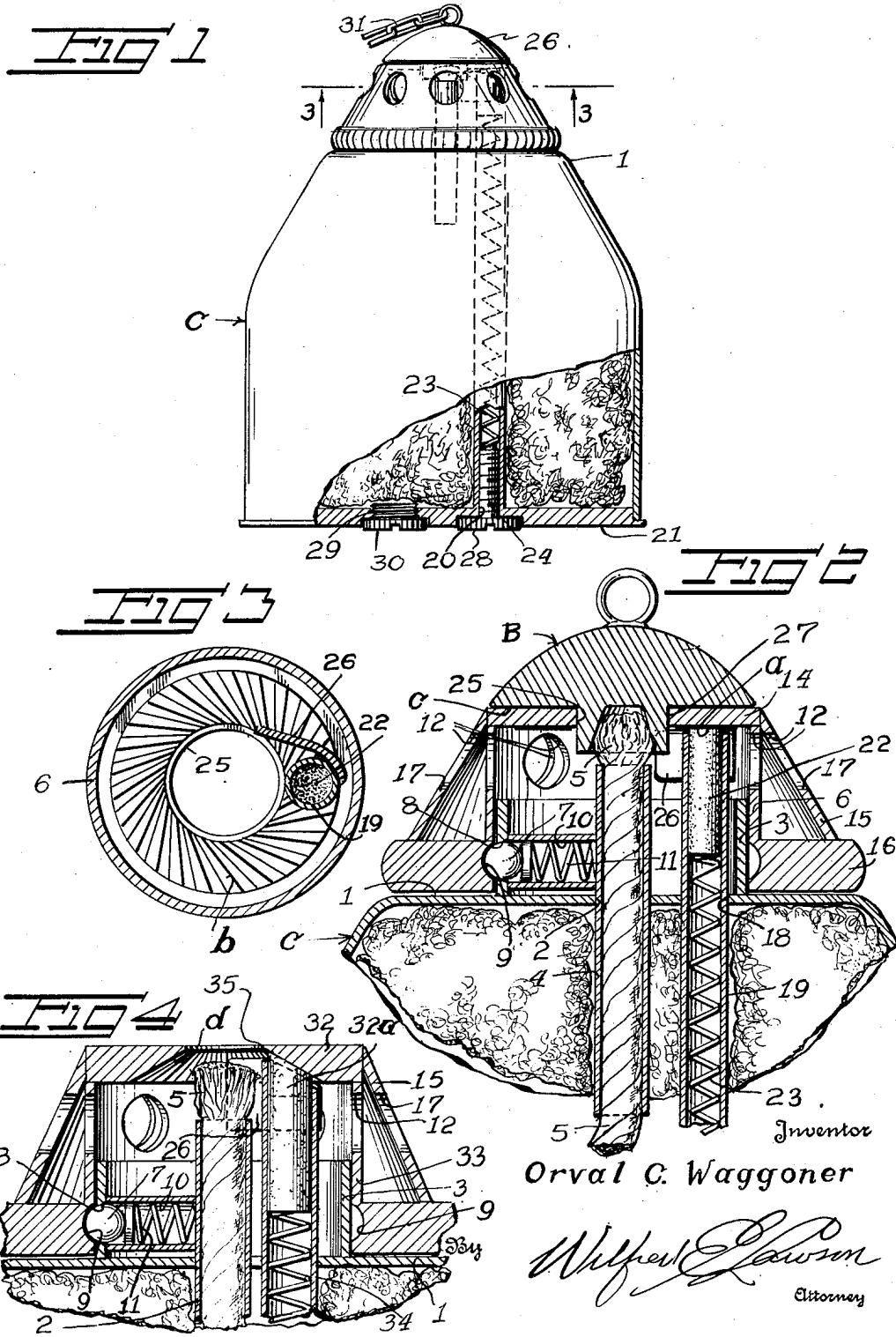
March 7, 1950

O. C. WAGGONER
IGNITING MECHANISM

2,499,547

Filed Dec. 11, 1946

2 Sheets-Sheet 1



Inventor
Orval C. Waggoner

Wilfred Lawson
Attorney

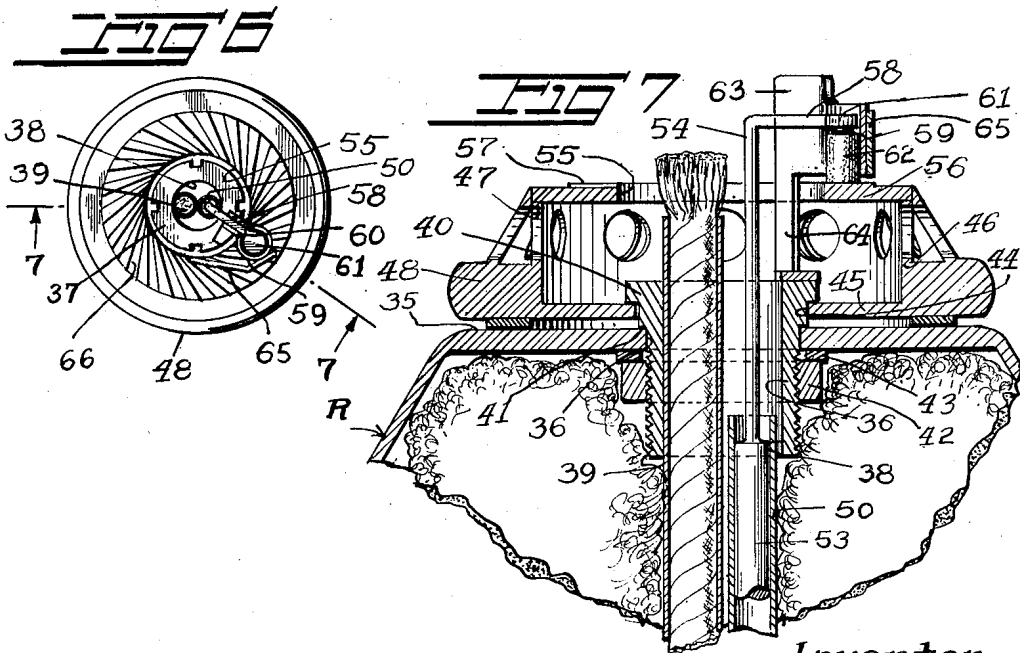
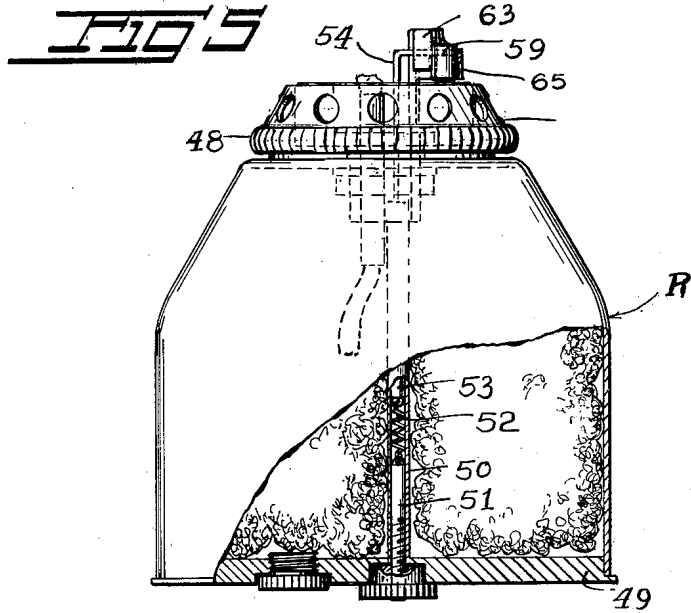
March 7, 1950

O. C. WAGGONER
IGNITING MECHANISM

2,499,547

Filed Dec. 11, 1946

2 Sheets-Sheet 2



Inventor
Orval G. Waggoner
By *Wilfred Carson*
Attorney

UNITED STATES PATENT OFFICE

2,499,547

IGNITING MECHANISM

Orval C. Waggoner, Mexico City, Mexico

Application December 11, 1946, Serial No. 715,375

8 Claims. (Cl. 67-7.1)

1

This invention relates to an igniting mechanism and has relation more particularly to a mechanism especially designed and adapted for use in connection with a cigarette lighter or the like and it is primarily an object of the invention to provide a mechanism of this kind wherein the striking element for coaction with the flint or sparking element moves in an arcuate path and in a plane substantially at right angles to the igniting extremity of the wick.

It is also an object of the invention to provide a mechanism of this kind for use in connection with an igniting device including a wick and which embodies a striking element mounted for movement in a path around the igniting extremity of the wick.

A still further object of the invention is to provide a mechanism of this kind including a striking member having an arcuate and relatively broad surface for contact with the flint or kindred sparking element for producing required sparks upon movement of said striking element.

Another object of the invention is to provide an igniting mechanism for a cigar lighter or the like comprising a member mounted for rotation around the igniting end portion of the wick and having means for coaction with a flint or the like for creating the required igniting sparks and wherein said rotatable means is so constructed as to assure the sparks being thrown inwardly toward the igniting extremity of the wick.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved igniting mechanism, whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in elevation with a portion broken away illustrating an igniting mechanism embodying the invention;

Figure 2 is an enlarged vertical sectional view taken through the upper portion of Figure 1;

Figure 3 is a sectional view taken substantially on the line 3-3 of Figure 1;

Figure 4 is a fragmentary vertical sectional view illustrating a mechanism constructed in accordance with another embodiment of the invention;

Figure 5 is a view partly in elevation and partly in section illustrating a mechanism constructed

2

in accordance with a still further embodiment of the invention;

Figure 6 is a view in top plan view of Figure 5; and

5 Figure 7 is an enlarged fragmentary sectional view taken substantially on the line 7-7 of Figure 6.

In the embodiment of the invention as illustrated in Figures 1-3, C denotes a container of desired dimensions and capacity and which, of course, is adapted to be filled with desired igniting fluid.

In the present embodiment of the invention, one end of this container C, which can be termed the top portion, is tapered whereby is produced a restricted upper or top wall 1. The central portion of this upper or top wall 1 is provided with an opening 2 and surrounding said opening 2 and spaced a desired distance therefrom is an outwardly directed continuous flange 3 preferably circular in form and concentric to the opening 2, although I do not wish to be understood as limiting myself in this respect.

Extending within the container C through the opening 2 is the tube 4 for the wick 5, said tube being soldered or otherwise fixedly secured to the outer or top wall 1. The outer end of this tube 4, as is particularly illustrated in Figure 2, terminates a desired distance outwardly or beyond the flange 3 but inwardly of the outer end of the sleeve 6 having slip connection from without with the flange 3 and surrounding the same. This sleeve 6 is adapted to have detachable engagement with the flange 3 through the medium of the spring pressed spherical bodies or balls 7 which extend through suitably positioned openings 8 in the flange 3 and are normally received within a continuous internal annular groove or channel 9 in the inner or base portion of the flange 3.

In the present embodiment of the invention, these spherical bodies or balls 7 are three in number, although I do not wish to limit myself to this particular arrangement as the number used will, of course, depend upon the requirements of practice plus the efficiency of the results.

Each of these balls 7 is adapted to have retraction within an inwardly and radially disposed tube 10 which as herein-disclosed, bridges the space between the flange 3 and the outer portion of the tube 4. Housed within this tube 10 inwardly of the body or ball 7 is an expansible member 11 herein disclosed as a coil spring possessing requisite tension.

3

The bodies or balls 7 are normally held within the internal groove or channel 9 to hold the applied sleeve 6 against accidental displacement, yet permitting said sleeve to freely rotate around the flange 3. However, upon requisite outward pull being imposed upon the sleeve 6, such sleeve can be readily removed and, of course, with equal facility upon requisite push, the sleeve 6 can be returned to applied or working position.

The wall of the flange 6 at points spaced circumferentially therealong is provided with the air induction openings 12 of required dimensions to permit the admission of air sufficient to support combustion of the flame ignited at the outer or extended end portion of the wick 5.

The outer end of the sleeve 6 is closed by a plate 14 disposed thereover and soldered or otherwise rigidly secured to the outer edge surface of the sleeve 6 and the periphery of this plate 6 is defined by a depending and outwardly flared surrounding skirt 15 which is soldered or otherwise rigidly secured to the peripheral portion of a knurled wheel 16 which surrounds the lower or inner portion of sleeve 6 and rotates therewith.

In the present embodiment of the invention, the wheel 16 and the sleeve 6 are shown as being integral, although, of course, they may be otherwise assembled without departing from the spirit or scope of the present invention.

The skirt 15 is disposed toward the wheel 16 on such an angle in cross section as to conform in a general way to the taper at the upper portion of the container C so that in the completed lighter, there results an article attractive to the eye and in a manner which may be termed as giving a "streamlined" effect.

The skirt 15 closely adjacent to the plate 14 is provided with the openings 17 in alignment or register with the openings 12 so that the desired ingress of air within the sleeve 6 is assured.

To one side of the opening 2, the top or upper wall f of the container C is provided with a second opening 18 through which passes the upper or outer end portion of a second tube 19 and which tube is soldered or otherwise secured to this wall f. This tube 19 extends entirely through the container C and registers with an opening 20 in the bottom wall 21 of the container. The lower or inserted end of this tube 19 is soldered or otherwise rigidly held to the bottom wall 21.

The upper or outer end of this tube 19 extends a slight distance outwardly beyond the adjacent outer end of the wick tube 4 but terminates preferably inwardly of the outer end of the sleeve 6 or more particularly the plate 14 thereof when the sleeve 6 is in applied or working position. This outer end portion of the tube 18 has freely and slidably inserted therein a conventional stick 22 of flint or other desired sparking medium and which stick 22 is constantly urged outwardly by an expansible member 23 within the tube 19 and bearing against the inner or inserted end of the stick 22. As illustrated in the accompanying drawings, this member or spring 23 bridges the space between the inner end of the applied stick 22 and the inserted end of a shank 24 threading within the lower or bottom end of the tube 19 through the openings 21. By rotatable adjustment of this shank 24 or its endwise adjustment into or out of the tube 19 the tension of the member or spring 23 may be regulated to assure the best results as pertains to the desired effective contact of the

4

outer extremity of the stick 22 with the striking surface a which, in the present embodiment of the invention, constitutes the inner or under face of the plate 14 whereby the plate 14 constitutes a striker element. This surface a in this embodiment of the invention is angular in form and defines a central opening 25 substantially directly above the outer or extended end of the tube 4, and into which the igniting or extended end portion of the wick 5 extends.

Upon rotation of the sleeve 6 by proper contact, of course, with the periphery of the wheel 16 the striking surface a will travel across the outer or extended end of the stick 22 in a manner to create the required sparks for igniting the wick 5. To assure the creation of these sparks this striking surface a has disposed thereacross the grooves or channels b which are so disposed as to assure the sparks as created at the outer extremity of the stick 22 being thrown toward the extended portion of the wick 5 and thus assure the desired ignition for the creation of the required flame.

While the disposition of these grooves b is substantially sufficient to assure the proper travel of the sparks, yet to further assure ignition, the shield or deflector 23 may be used and as illustrated in the accompanying drawings, this shield 23 is soldered or otherwise secured to the outer end portion of the tube 19 and disposed in a direction substantially tangential to the outer end of the tube 4. This shield 23 will extend from a point immediately adjacent to the under surface a of the plate or striking element 14 substantially flush with the top of the tube 4.

The central opening 25 of the plate 14 is preferably of a diameter in excess of that of the adjacent end of the tube 4 and when the lighter is not in use this opening 25 is adapted to be closed by a cap B having a peripheral surface conforming to the general design effect of the skirt 15 but having a flat under surface c having a close contact with the outer face of the plate or striker element 14.

The central portion of this flat under surface c of the cap B is herein disclosed as provided with an inwardly directed annular flange 27 which snugly and frictionally enters and passes through the opening 25 and which is so designed and proportioned as to provide a snuffer cup to receive the extended or burning end portion of the wick 5 to assure complete extinguishing of the flame when the cap B is in applied position.

The outer end portion of the shank 24 is provided with a knurled operating head 28 and, of course, the bottom wall 21 of the container is provided with a filling opening 29 which is normally closed by a plug 30, herein disclosed as a screw type.

It is also desirable to have the cap B held to the container C by a flexible member 31, herein disclosed as a chain to prevent loss of the cap.

It is now to be pointed out that it is of special advantage to have the sleeve 6 and the parts associated therewith conveniently removable so that the under or striking surface a of the striking element or plate 14 may be readily or effectively cleansed to maintain maximum efficiency.

In the embodiment of the invention as illustrated in Figure 4, the general construction of the mechanism is substantially the same as set forth in the first embodiment except that the striking element or plate 32 which is disposed over the outer end of the sleeve 33 is relatively thick and that the face or wall d of the central opening of

5

this plate or striking element 32 is disposed on an outward and downward bevel providing a relatively broad face with which the outer or extended extremity of the flint or flint stick 32a has requisite contact so that upon rotation of the sleeve 33 the required sparks will be created to effect the desired ignition of the flame.

In this second embodiment of the invention it is important that the outer end of the tube 34 for the spark stick 33 extend up within the central opening 35, but, of course, underlying and closely approaching the beveled surface *d* and for which reason the outer end of this tube 34 must be disposed on a bevel complementary to the bevel *d*. This is equally true of the outer or contacting end of the stick 32a.

A deflector or shield 26 may be carried by the outer portion of the tube 34 in substantially the same manner and for the same purpose as the shield or deflector 26 comprised in the first embodiment of the invention.

In the embodiment of the invention as illustrated in Figures 5-7 of the drawings, the outer or top flat wall 35 of the container or receptacle R at its central part is provided with a relatively large opening 36 through which is inserted from above a tubular cylindrical member 37 through the bore 38 of which is directed the wick tube 39 which terminates a desired distance above the outer end of the member 37. This tube 39 is soldered or otherwise fixedly secured to the wall of the bore 38.

The member 37 outwardly or beyond the plate 35 is transversely enlarged to provide a head 40 having its peripheral face stepped as at 41 the lowermost of which steps contacting from above with the plate 35 whereby the member 37 may be effectively held to the plate 35 by the nut 42 or the like threading upon the portion of the member 37 inwardly of the plate 35 and bearing against the inner surface of said plate 35. Interposed between the nut 42 and the plate 35 is a sealing gasket 43.

The member 37 is also inserted from above through an opening 44 in the central part of the plate or head 45 closing the lower end of a sleeve 46 which is of relatively large radius and which is provided through its wall with the air admitting openings 47. The lower portion of the sleeve 46 also carries the surrounding operating flange 48 having its periphery suitably knurled to facilitate the desired rotation of the sleeve 46 about the member 47 when it is desired to effect an ignition of a flame.

Extending from the bottom wall 49 of the receptacle or container R and extending up into the lower portion of the applied member 37 is a tube 50 into the lower end portion of which threads the adjusting shank 51 to the inserted end portion of which is affixed an extremity of a retractile member 52 herein disclosed as a coil spring. The opposite end portion of this member or spring 52 is operatively engaged with the inserted end portion of a slide 53 which is freely mounted in the upper portion of the tube 50. The upper or outer end of this slide 53 is continued by an extended elongated arm 54 of a length to pass out beyond the applied member 37 and out through a central opening 55 provided by the inwardly disposed striking element or flange 56 mounted upon and extending inwardly of the outer end of the sleeve 46. This element or flange 56 has an outer striking face 57 substantially at right angles to the axial center of the tube 50.

6

The extremity of the arm 54 beyond the element or flange 56 is provided with an outwardly and laterally disposed extension arm 58. This arm 58 extends within a tubular holder 59 positioned above the element or flange 56 through a properly positioned slot 60. The extremity of the arm 58 within the tubular holder 59 is enlarged to provide a head 61 for direct contact from above with the stick 62 of flint or other preferred sparking material so that under the action of the member or spring 52, the stick 62 will be constantly maintained in desired contact with the outer working surface 57 of the element or flange 56.

In the embodiment of the invention as illustrated in Figures 5, 6, and 7, it is not of special importance that the sleeve 46 be readily removed because by having the working face 57 of the striker element or flange 56 outwardly disposed, such surface can be readily and conveniently cleansed to assure a maximum efficiency of the mechanism.

The slot 60 in the present embodiment of the invention is provided by having the holder 59 constituting a split sleeve and the marginal portions of the split or slots 60 are continued by the wings 63 extending outwardly therefrom and in relatively close proximity and between which the arm 58 passes.

These wings or plates 63 therefore constitute guiding elements to assure the arm 58 being maintained in desired effective position at all times.

One of the wings or plates 63 at its outer portion is provided with an inwardly disposed arm 64 which extends down through the opening 53 and is suitably secured as by soldering to the outer end face of the member 37.

The holder or sleeve 59 also has soldered or otherwise secured thereto a deflector or guard plate 65 which extends inwardly on such angle to provide further means to assure the throwing of the sparks emanating from the stick 62 within the igniting element for the wick.

The sparking of the stick 62 is assured by having the outer surface 57 of the element or flange 56 provided with the suitably disposed grooves 66 extending transversely thereacross and which grooves 66 are also so directed as to assure the effective throwing of the sparks from the stick 2 toward the extended portion of the wick.

From the foregoing description it is thought to be obvious that an igniting mechanism constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. A device of the character stated comprising a body having a flat top, a circular member disposed over said top, means carried by and projecting upwardly from said flat top forming a fixed center around which the circular member rotates, a tube extending upwardly through said means, a wick extending through the tube and projecting from the upper end thereof, a flat annulus connected with and supported above said rotary member for rotation therewith concentric with the said means by which the rotary member is maintained in connection with said top, said annular member having upper and lower faces, a sparking element supported adjacent to one of said faces, means forming a part of the said one of the faces adjacent to which the sparking element is supported for contacting the sparking element to produce sparks therefrom, and means

for directing such sparks inwardly toward the wick.

2. A device of the character stated in claim 1 wherein the said annular member is connected with the circular member by an upstanding sleeve, the said wick having its upper end disposed within the circular area defined by the inside of the annular member, and said sleeve having apertures therethrough for supplying air to the wick.

3. A device of the character stated in claim 1 wherein the said means for directing sparks inwardly toward the end of the wick, comprises a shield disposed in close proximity to the surface of the annular member with which the sparking element contacts and having a face positioned to intercept sparks struck from the sparking element and deflect the same toward the wick.

4. A device of the character described comprising a body having a flat top, a flat circular member disposed over and in parallel relation with said top, the circular member having a central opening therethrough, means connected with said top and extending through said central opening and providing a centering means around which the circular member may be rotated, the periphery of the circular member being formed to facilitate its engagement by a finger to effect its rotation, an upstanding sleeve carried by the circular member and coaxial therewith, a flat body secured to the top of the sleeve and having a central opening concentric with the sleeve, said flat body, sleeve and circular member being rotatable as a unit, said flat body having one face formed to provide a striking means, a flint maintained in yielding contact with said striking means, a wick disposed adjacent to the opening of said flat body, and means for effecting movement of sparks from the flint toward the wick.

5. A device of the character stated in claim 4, with an outwardly flaring skirt connected with the top of said sleeve and joining the circular member adjacent to the periphery thereof, said skirt and sleeve having air admission aperture therethrough, and a dome like cover adapted to position upon the top of the flat body, said cover having an overall diameter substantially equal to the diameter of the flat body upon which it rests, and means carried by the cover for extension through the central opening of the flat body to enclose the wick.

6. A device of the character stated in claim 4, wherein the said means for centering the rotary member comprises an upstanding circular flange secured to the top of the first mentioned body and passing through the circular member, said circular member having a continuous inside annular channel, a radially directed guide forming a part of said upstanding flange and spring pressed means within said guide and urged outwardly therefrom for frictional engagement in said channel.

7. A device of the character stated in claim 4, wherein the said means for centering the rotary

member upon the said flat top of the first mentioned body comprises a cylindrical member extending through the center of the rotary member and passing through the first mentioned body, said cylindrical member having an encircling shoulder at its upper end engaging and maintaining the circular member against movement outwardly from the underlying top of the first mentioned body, and a securing nut threaded upon the cylindrical member from its lower end and engaging against the underside of the first mentioned body.

8. A device of the character stated, comprising a fuel container having a flat top, a wick tube projecting vertically through the center of said top, an annular member rising from said top concentrically of said wick tube, a flint tube extending vertically through said container at one side of said wick tube, a second annular member supported on said top for rotation about the first named annular member and having a circular series of apertures opening in a plane above the upper end of the latter, a wick in said wick tube and projecting from the upper end thereof, a flint seated in the upper end of said flint tube, an annular friction member mounted on the upper end of said second annular member for rotation therewith, said apertures being disposed substantially in line with the upper ends of said wick and flint tubes for the ingress of air about the projecting end of the wick, a removable hollow cover adapted to seat over said second annular member, and a cut out portion provided centrally on the upper side of the interior of said cover and adapted to enter the open center of said annular friction member and seat over the wick end to extinguish the flame when the cover is replaced in position and act as a snuffer element.

ORVAL C. WAGGONER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,052,783	Wolf	Feb. 11, 1913
1,612,595	Magee et al.	Dec. 28, 1926
1,718,038	Douglas	June 18, 1929
1,759,340	Aronson	May 20, 1930
1,793,063	Copeland	Feb. 17, 1931
2,176,150	Roll	Oct. 17, 1939
2,403,589	Dritz	July 9, 1946

FOREIGN PATENTS

Number	Country	Date
118,254	Australia	Mar. 8, 1944
322,338	Germany	Jan. 29, 1919
327,033	Germany	Oct. 8, 1920
383,832	Germany	Nov. 2, 1923
388,439	Germany	Jan. 19, 1924
493,420	Germany	Aug. 10, 1930