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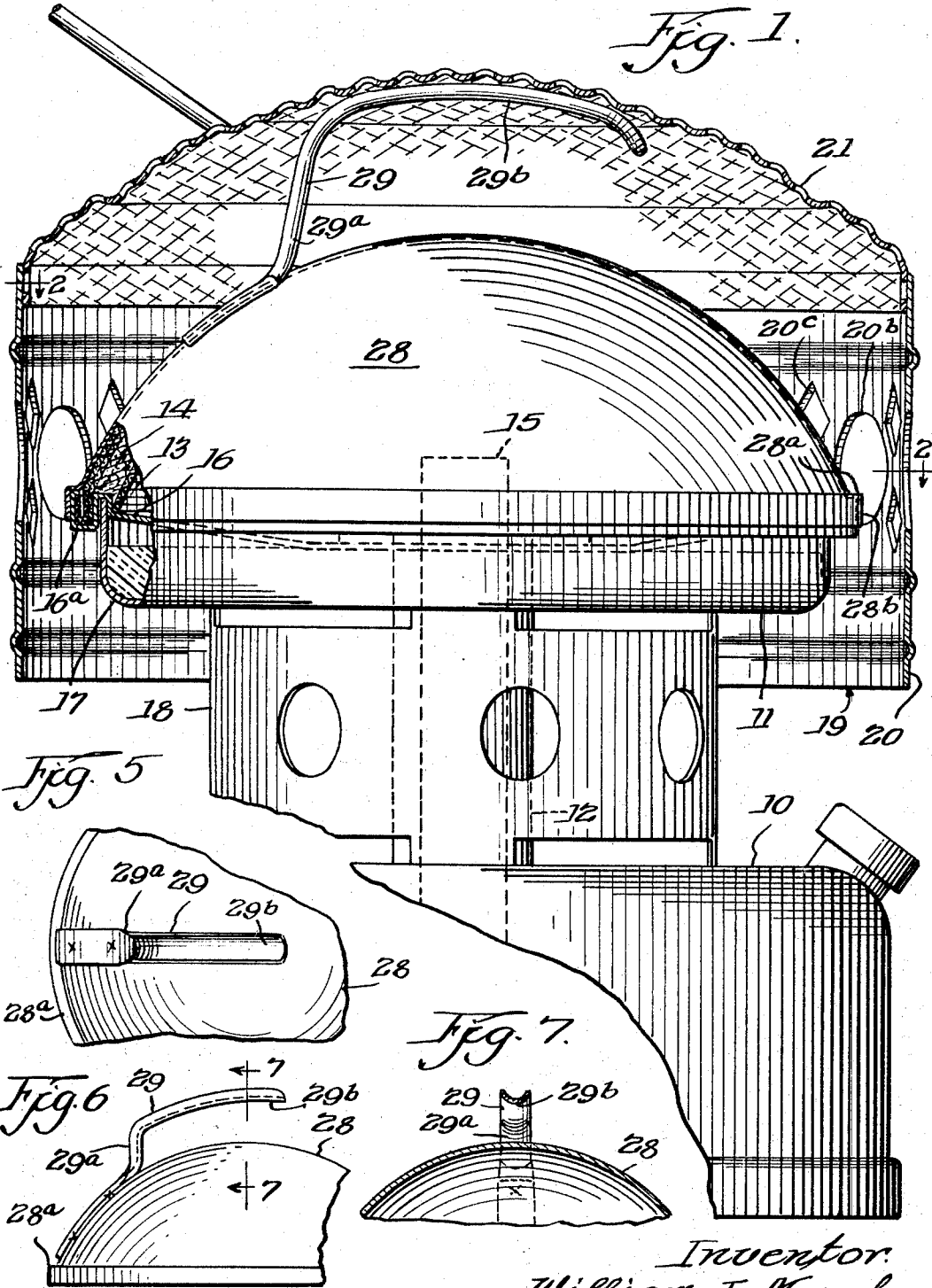
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3,382,027

SNUFFER AND HANDLE ASSEMBLY FOR A CATALYTIC HEATER

Filed April 4, 1966

2 Sheets-Sheet 1



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Fig. 2.

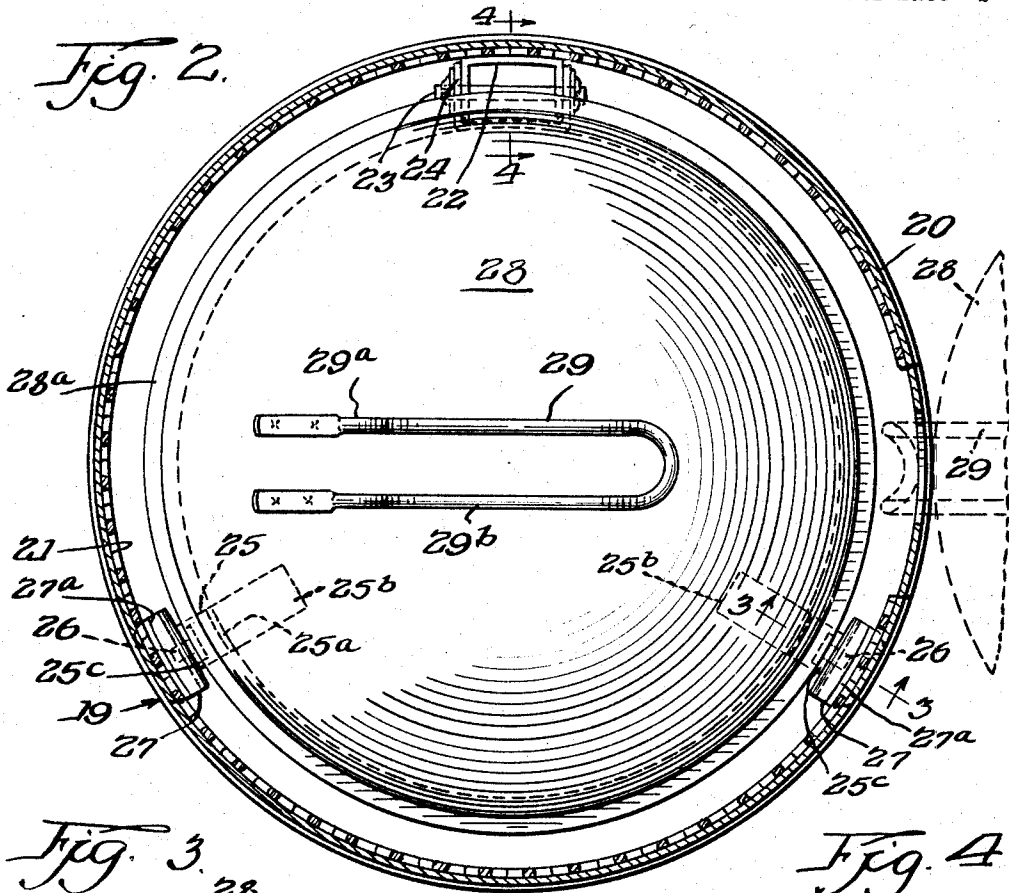


Fig. 3.

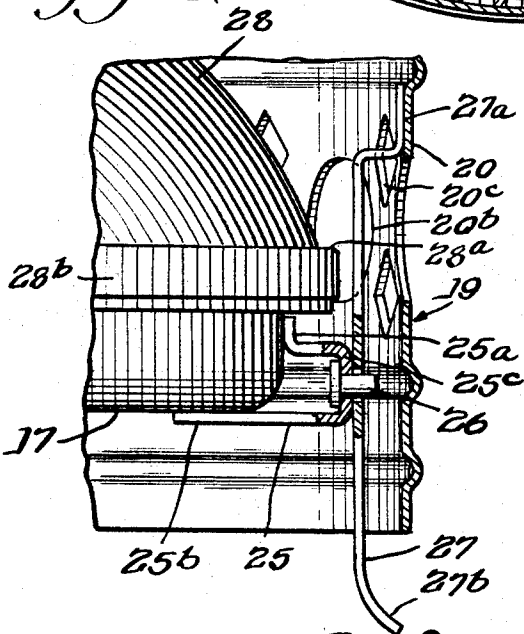
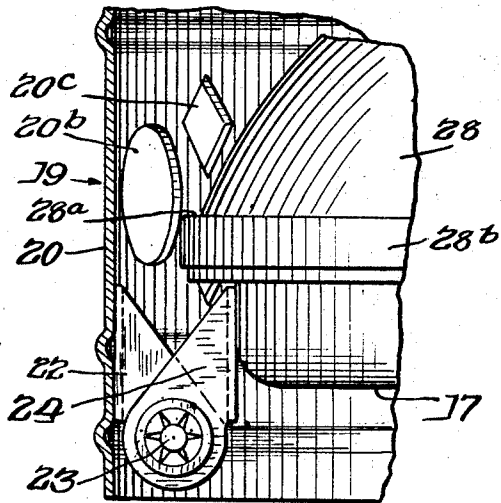


Fig. 4.



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3,382,027  
**SNUFFER AND HANDLE ASSEMBLY FOR  
 A CATALYTIC HEATER**

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 9 Claims. (Cl. 431-147)

This invention relates to a snuffer and handle assembly for a catalytic heater. The invention is useful with catalytic heaters of the kind described in copending application Ser. No. 450,710, filed Apr. 26, 1965, now Patent No. 3,343,586.

Portable catalytic heaters operating on refillable liquid fuel charges have been manufactured and sold commercially in the United States and foreign countries for a number of years. The catalytic combustion elements in these heaters are commonly substantially hemispherical in shape and are joined to the remainder of the heater by crimping the edges of the supporting base housing around the periphery of the combustion element. It is often desirable to halt the combustion process before the fuel charge is exhausted. If a snuffer cover is used to accomplish this, it is desirable that the snuffer be carried with the catalytic heater in a compact, rattle-free manner. In addition, it is frequently desired to restart the catalytic heater immediately after extinguishing the combustion process. Thus, some means must be provided for removing the snuffer cover while the snuffer is still hot.

It is, therefore, an object of this invention to provide a means for extinguishing the combustion process of a catalytic heater.

Another object of this invention is to provide a compact snuffer for a catalytic heater which may be carried with the heater in a rattle-free manner.

Still another object of this invention is to provide a snuffer which may be removed from the combustion head of the catalytic heater immediately after extinguishing combustion.

Other objects and advantages of this invention may be seen from the details set forth in this specification.

The invention is shown in an illustrative embodiment in the accompanying drawings, in which

FIG. 1 is an elevational view, partly in section, of a catalytic heater with a snuffer cover constructed in accordance with the present invention;

FIG. 2 is a sectional view taken along the line 2-2 of FIG. 1;

FIG. 3 is a sectional view taken along the line 3-3 of FIG. 2;

FIG. 4 is a sectional view taken along the sight line 4-4 of FIG. 2;

FIG. 5 is a reduced fragmentary top view of the snuffer cover showing an alternate form of the snuffer cover handle;

FIG. 6 is a side view of the cover and handle of FIG. 5; and

FIG. 7 is a sectional view taken along the line 7-7 of FIG. 6.

Referring now to FIG. 1, there is shown a catalytic heater of the kind having a base housing designated generally by the number 10, and a tubular connector designated generally by the number 12. Connector 12 extends between the combustion head 11 and the base housing 10. The combustion head 11 provides an enclosed fuel vapor collection space 13, and a porous catalytic combustion element designated generally by the number 14. Element 14 is in vapor transfer relation with collection space 13. The base housing 10 provides a reservoir for a liquid fuel.

A suitable fuel transfer means, such as a capillary action wick, extends through the connector 12 for trans-

ferring fuel from the reservoir to the collection space 13 within the head 11. The fuel transfer means is designated generally by the number 15.

The combustion head 11 is mounted on the upper end portion of the connector tube 12. In the illustration given, the bottom wall of collection space 13 is formed by a generally horizontally-extending plate 16, through which the upper end of the fuel transfer means 15 extends.

It is desirable to connect the lower portion of the catalytic element 14 to the periphery of the plate 16 in heat transfer relation therewith. This may be done by crimping the outer portion 16a of the plate 16 around the catalytic element 14 to mechanically unite these members and to connect them for conductive heat transfer.

There may also be provided below the plate 16 an insulation pan 17 which is supported by a collar 18, which in turn is supported by the base housing 10.

A protective canopy 19 encloses the combustion head 11 and is mounted thereon. The canopy 19 includes a cylindrical canopy shell 20 which forms the side wall of the canopy, and a dome-shaped canopy screen 21, which may be formed of expanded metal, wire screen, or other suitable material. The lower edge portion of the screen 21 is received within the top of the shell 20 and is united thereto by spot welding. To provide for and control the emission of air to the catalytic element 14, shell 20 is provided with openings, such as the openings 20b and 20c, which may be arranged in an artistic pattern. In the particular embodiment illustrated, the openings 20b are circular and the openings 20c are diamond-shaped.

Canopy 19 is hingedly mounted on head 11. In the illustration given and particularly in FIG. 4, a hinge strap 22 is connected to the inside of shell 20 by spot welding and is pivotally connected at 23 to a hinge butt 24 which is connected by spot welding to the outside of pan 17. One or more latch means may be provided in opposing or circumferentially offset relation to the hinge means. In the illustration given, the strike bracket 25 has an upwardly-extending leg 25a spot-welded to the outside of pan 17 and a lower leg portion 25b spot-welded to the bottom of pan 17. A pin 26 is weldably connected to the vertically-extending outer portion 25c of the strike. Pin 26 extends through an opening in the intermediate portion of spring latch 27 for releasable engagement therewith. Latch 27 provides an outwardly offset upper portion 27a which is connected to the inside of shell 20 by spot welding. The latch also provides downwardly-extending tab portion 27b for use in engaging and disengaging the latch 27 with the pin 26. It will be understood that more than one of the strikes 25 and latches 27 may be provided. In practice, it has been found that a desirable construction includes two of the strike and latch members, offset approximately 120° from the location of the hinge member.

For use in extinguishing the heater, the snuffer cover 28, which is in the form of an imperforate, hemispherical member, is received over element 14, as illustrated in FIG. 1. In the particular construction shown, the lower portion of snuffer 28 provides an outwardly-extending flange 28a and a downwardly-extending flange 28b. The flange 28a seats on a shelf provided by the upper end portion of the crimped plate periphery 16a, and the flange 28b extends downwardly along the vertically-extending side of plate portion 16a.

Attached to the snuffer 28 is a handle 29. The handle 29 has an upwardly-extending portion 29a and an arcuately-shaped portion 29b. The handle 29 extends far enough upwardly so that the top 21 of the protective canopy 19 bears down on the handle 29 when the canopy is latched shut. The shape of the handle 29 gives the handle some resiliency, and the arcuately formed portion 29b may be

pressed downwardly when it is contacted by the top 21 of the canopy 19. When the canopy 19 is closed and the latches 27 are engaged, the snuffer cover 28 is pressed tightly onto the catalytic element 14. The pressure of the snuffer cover 28 on the catalytic element 14 inhibits movement of the snuffer cover 28, thereby eliminating annoying rattles when the catalytic heater is transported.

Another embodiment of the handle 29 is shown in FIGS. 5-7. The handle shown in those figures is of a solid construction rather than the rod-like construction shown in FIG. 2. It has been found that the particular handle shown in FIGS. 5-7 is slightly cheaper to manufacture. However, both forms of handles have a flexing action which permits the handle to yield downwardly slightly when the canopy is closed and also to conform to the inside of the canopy top. The flexing action of the handle provides a snugger fit of the snuffer cover over the element 14, eliminating rattle.

In addition, because the handle 29 is attached to the snuffer cover 28 only at one end of the handle, there is less heat transfer from the snuffer cover to the handle, and the handle accordingly remains cooler. The single-point contact structure also permits greater flexibility of the handle, and allows restoring of a permanently downwardly deformed handle to its original undeformed position.

By joining the handle 29 to the snuffer cover 28 at a point offset from the point of contact of the handle 29 with the top 21, greater flexing of the handle is permitted when the top 21 bears down against the handle.

When it is desired to start the heater, the latches 27 may be disengaged and the canopy 19 swung upwardly and outwardly. The snuffer cover 28 may be easily removed by grasping the handle 29. After the heater has been started, the canopy 19 can be swung over the combustion head and relatched, thereby protecting the combustion head 14 against accidental contact while in operation, and at the same time controlling and directing the air supply to the combustion head.

If it is desired to restart the heater immediately after extinguishing the heater, the handle 29 permits removal of the snuffer cover 28 even though the snuffer cover 28 may be quite hot.

By making the circular openings 20c of the canopy shell 20 slightly larger than the width of the handle 29 of the snuffer cover 28, the snuffer cover may be conveniently hung from the canopy shell when the heater is in operation as shown in phantom in FIG. 2. The cover is merely removed from the element 14 and the arcuately-shaped portion 29b of the handle 29 is received by the opening 20b and allowed to slide downwardly until the upwardly-extending portion 29a of the handle is supported. Thus, the snuffer cover may be kept conveniently out of the way of the operator and the risk of misplac-

ing the cover or accidentally stepping on it is eliminated.

While, in the foregoing specification, a detailed embodiment of the invention has been set forth, it is to be understood that many of the details herein described may be varied considerably without departing from the scope of the invention.

I claim:

1. In a catalytic heater, a substantially hemispherical combustion head, a protective canopy enclosing said combustion head and hingedly mounted thereon, said canopy having a cylindrical side wall and a top, and a removable cover fitting over said combustion head, said cover having a handle which bears against the top of said canopy when said canopy is in a closed position.

2. The catalytic heater of claim 1 in which said top is constructed of wire screen.

3. The catalytic heater of claim 1 in which said handle is adapted to bend in a downward direction when contacted by said top.

4. The catalytic heater of claim 1 in which said handle is an arcuately formed member attached at one end thereof to said cover.

5. The catalytic heater of claim 1 in which said handle is a flexible, arcuately formed member attached at one end thereof to said cover at a point offset from the top of said canopy.

6. The catalytic heater of claim 1 in which said protective canopy has at least one opening to receive said handle.

7. In a catalytic heater, a substantially hemispherical combustion head, a protective canopy enclosing said combustion head and hingedly mounted thereon, said canopy having a cylindrical side wall and a wire screen top, a cover removably fitted over said combustion head, and an arcuately formed handle attached at one end thereof to said cover which bears against the top of said canopy when said canopy is closed so that said cover is substantially immovable.

8. The structure of claim 6 in which said handle is relatively flexible and is attached at one end thereof to said cover at a point offset from the top of said canopy.

9. The catalytic heater of claim 7 in which said protective canopy has at least one opening to receive said handle.

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FREDERICK KETTERER, *Primary Examiner.*