Dec. 20, 1955 J. W. HOBING 2,727,375

ROUND FILE HOODED GAS LIGHTER

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Fig. 1

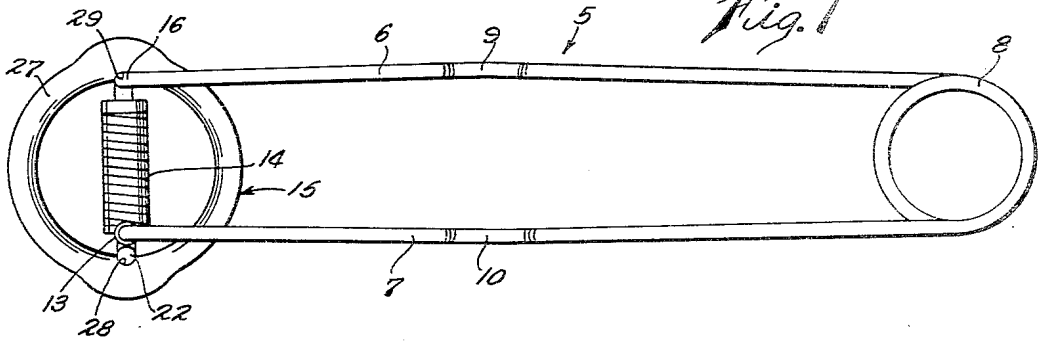


Fig. 2

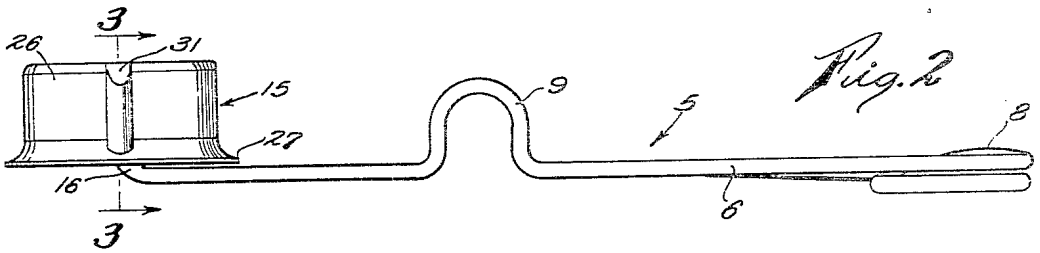


Fig. 4

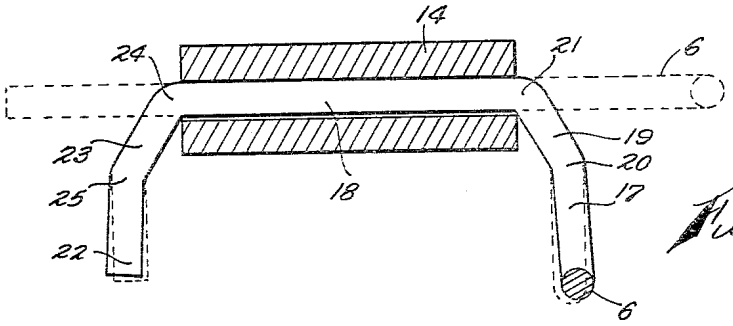
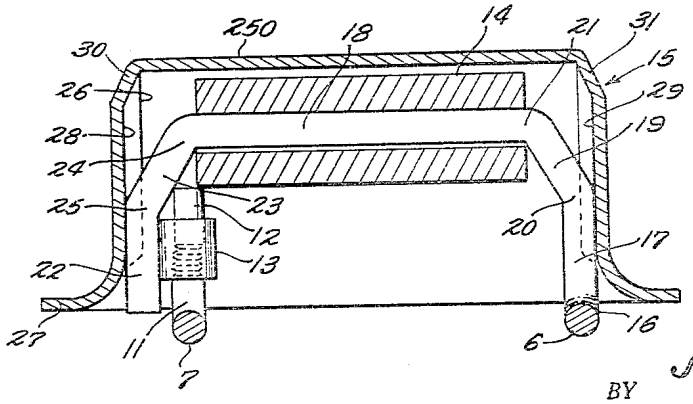


Fig. 3



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ROUND FILE HOODED GAS LIGHTER

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2 Claims. (Cl. 67—6.1)

My invention relates to improvements in gas lighters and specifically to a novel lighter construction for mounting a cup-shaped hood on the lighter and for mounting a tubular abrasive element on the lighter and within the said hood.

In accordance with my invention I have provided a gas lighter construction which freely mounts a rotatable, tubular abrasive element of standard length against axial displacement within and spaced away from a relatively large cup-shaped hood having parts which cooperate with the gas lighter construction for securing the hood on the lighter and maintaining the abrasive element in operative position thereon.

Another object of the invention is to provide in a device of the character described a wire handle construction for mounting a relatively short tubular file within a cup-shaped hood of large diameter to secure improved ignition of gases with the lighter, due to the fact that the increased capacity of the hood for a particular standard file will trap and retain a relatively larger volume of the gases introduced thereinto which upon ignition with sparks generated by frictional engagement of a pyrophoric element with the said abrasive element will positively light a gas torch, or the like.

Another object of the invention is to provide in a hooded gas lighter having the foregoing characteristics a means for materially increasing the exterior upper face of the hood whilst maintaining the usual diameter for the hood opening, so that larger and hence more effective advertising matter may be stamped in the exterior upper face.

A further specific object of the invention is to provide a gas lighter having the foregoing characteristics which is made from a single length of resilient and flexible wire stock formed at one end with a laterally extending portion upon which a tubular file is freely mounted for rotatable movement, said wire end being formed on each side of the file with downwardly inclined outwardly extending arms joined to the lateral portion by sharp, well defined and accurately positioned bends, the outer ends of said arms being joined to initially outwardly, divergent legs, which when forced into opposed parallel grooves in a cup-shaped hood, move the legs and arms inwardly thus locating the file on the transverse portion against endwise movement and locking the hood on the end partly by the tension set up in the wire stock.

A still further object of the invention resides in the extremely simple but effective hood and abrasive element mounting construction of the lighter which secures the foregoing objects and advantages.

With these and other objects not specifically referred to in view, the invention consists in certain novel parts and constructions which will be described in connection with the accompanying drawing, and in the combination of parts pointed out in the claims annexed hereto.

In the drawings:

Fig. 1 is a top plan view of a gas lighter made in accordance with my invention.

Fig. 2 is a side elevation of the gas lighter shown in Fig. 1.

Fig. 3 is an enlarged section taken on line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 with the hood removed, the dotted lines indicating the initial and final positions of the wire stock for the gas lighter.

Referring now to the structure illustrated, there is shown a holder 5 made from a single length of resilient wire and comprising two arms 6 and 7 joined together at one end for relative swinging movement by a double loop 8. The opposed arms are urged away from each other by the combined capacities of this end loop and the resiliency of the wire arms. Each arm has an upstanding U-shaped thumb engaging portion 9 and 10, respectively, for convenience of handling when pressing the arms together by both right and left hand operators.

The free end portion of arm 7 is turned upwardly at 11 (Fig. 3) and has suitably mounted on its terminal end a pyrophoric element 12. The mounting means may comprise an interiorly threaded sleeve 13 in which is secured the pyrophoric element and which also cooperates with exterior threads formed on the terminal end of said upstanding portion 11.

The end of the arm 6 is formed to support in cooperative, spaced positions a tubular abrasive element in the form of a round file 14 and a cup-shaped hood 15 such that gas retained in the hood will be ignited by the operation of the abrasive and pyrophoric elements. As best shown in Figs. 3 and 4 the end portion of the arm 6 is turned upwardly at 16 (Fig. 3) to form an upstanding portion 17 which is joined to a lateral file engaging portion 18 by a downwardly inclined outwardly extending straight portion 19; joining bends 20 and 21 between the said inclined portion 19 and the upstanding and lateral portions 17 and 18, respectively, being sharp, well defined and accurately positioned by reason of the manufacturing steps to be described hereinafter. The opposed end of the lateral portion 21 is joined to an upstanding terminal portion 22 by a downwardly inclined, outwardly extending straight portion 23; bends 24 and 25 joining said inclined portion 23 to the transverse and upstanding portions 18 and 22, respectively, being accurately located and sharply defined.

The gas retaining cap 15 is a sheet metal stamping having a flat, circular top wall 250 and an integral downturned side wall 26 formed at right angles to the top wall and terminating at its lower end in an outwardly extending continuous flange 27. Diametrically opposed upstanding and parallel grooves 28 and 29 are stamped in the side wall 26 of the cap and extend substantially the entire vertical distance of the side wall. The grooves 28 and 29 are closed at their upper ends by inclined top portions 30 and 31, respectively, whilst their lower ends open outwardly into the continuous flange to receive the terminal portion 22 and the upstanding portion 17, respectively, of the arm 6. The inside diameter of the said grooves is slightly smaller than the outside diameter of the upstanding and terminal portions of the wire arm in order that the portions may be axially forced into the grooves to provide a good drive fit between the parts.

In order that my gas lighter construction may be more readily understood and its features appreciated the method of manufacturing the lighter will be briefly described. With reference to Fig. 4 the dotted line showing of the end of the arm 6 indicates that said end is initially straight and is inserted through the arbor hole of the tubular file 14. By utilizing suitable wire forming dies, the opposite ends of the wire extending from the file are forced downwardly around the file ends to create the sharp bends 21 and 24 in the wire on each side of the file. Further movement of the dies next bends the portions 17 and 22

of the wire into outwardly diverging legs which extend from their inclined portions **19** and **23**, respectively, by well defined bends **20** and **25**, respectively. The divergent positions of the legs **17** and **22** are depicted in Fig. 4 by full lines, the dotted lines indicating the positions said legs assume when forced into the opposed grooves in the cap **15**. It will therefore be understood that when the divergent legs **17** and **22** are forced into the grooves **29** and **28**, respectively, the sharp bends **21** and **24** are flexed inwardly to closely approach the ends of the file **14** and hold it against axial movement on the transverse portion **18**. Also the compression of said legs creates an outward pressure of the legs against the cap groove which materially aids in securing the cap on the holder.

It will therefore be noted that by alternately pressing the arms together and releasing them the pyrophoric element **12** will traverse the file **14** and emit sparks for lighting gas retained in the cup-shaped deflector cap **15** to ignite an acetylene torch, or the like. Abrasive elements for these gas lighters are now produced in volume in standard sizes, the most popular being the tubular type depicted in the drawings, said file having an overall, standardized length dimension of one (1) inch. To increase the gas retaining volume of the cap for this standard size file and also provide a more spacious top wall on the cap I have provided the file and cap holder structure on the end portion of the lighter arm **6**. As best shown in Fig. 3 the adjacent inside corners for the sharp bends **21—24** are spaced just one (1) inch apart to afford end abutments on the arm which closely approach and freely hold the rotatable file **14** against axial movement on the file engaging portion **18**. The inclined portions **19** and **23** are then definitely formed to incline downwardly and outwardly from the mounted file and to thus space apart, at a greater distance than is usual, the terminal portion **22** and upstanding portion **17**, whereby the diametrical distance between said portions is increased and an enlarged cap having the characteristics of cap **15** may be fitted thereto. Thus it will be seen that there is provided a gas lighter construction on the end of the arm **6** which securely mounts a tubular abrasive element **14** of standardized length, such as one (1) inch, within a gas deflector cap which has an interior diameter of approximately one and one-half (1½) inches to secure a hood capacity, for a lighter mounting said abrasive element, which will trap and retain a large volume of the gases introduced therein for ignition by sparks generated by the pyrophoric and abrasive elements.

What is claimed is:

1. A gas lighter comprising a resilient and flexible holder made from a single piece of wire stock and having two opposed arms joined together at common ends for relative swinging movements, one of said arms having an upturned free end for mounting a pyrophoric element, the end portion of the other arm being turned upwardly to provide an upstanding portion in substantial lateral alignment with the pyrophoric element, a tubular abrading element in frictional contact with the pyrophoric element, a laterally extending portion formed on said arm coextensive with and extending axially through the abrading element, a downturned terminal portion formed on the arm parallel to the said upstanding portion, and an inclined arm portion on each side of the laterally extending portion and joining said portion to the upper end of the upstanding portion and to the terminal portion, the jointures being characterized by sharp, accurately located and well defined bend portions, a gas retaining hood having a flat top and a marginal downturned wall, and parallel upstanding grooves formed internally in opposed sides of the downturned wall for receiving under lateral compression the upstanding and terminal portions of the said arm.

2. A gas lighter comprising a resilient holder made from a single piece of wire stock and having two opposed arms joined together at common ends for relative swinging movement, one of said arms having an upturned free end for mounting a pyrophoric element, an intermediate transversely extending portion on the end of the other arm supporting a tubular file for free rotatable movement thereon and in a cooperative position with respect to the pyrophoric element, a downwardly inclined and divergent straight portion formed in the arm on each side of the transversely extending portion and each straight portion joined thereto by a sharp, accurately positioned and well defined bend, a downwardly extending terminal portion joined to one inclined portion by a sharp bend, an upstanding portion joined to the opposed inclined portion by a sharp bend, said upstanding portion being joined at its lower end to the arm by a curve portion, and a gas retaining hood surrounding the terminal and the upstanding portions and secured to the holder by the inner compression of the said terminal and upstanding portions, whereby the straight portions are moved together to hold the rotatable file against endwise movement on the transversely extending portion.

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