

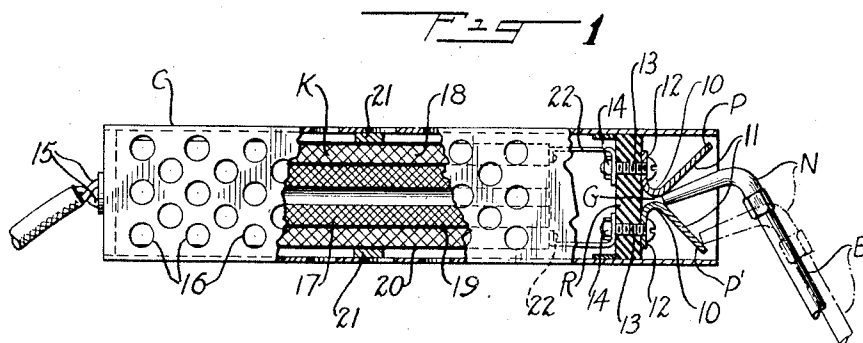
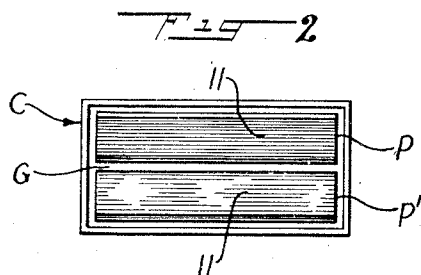
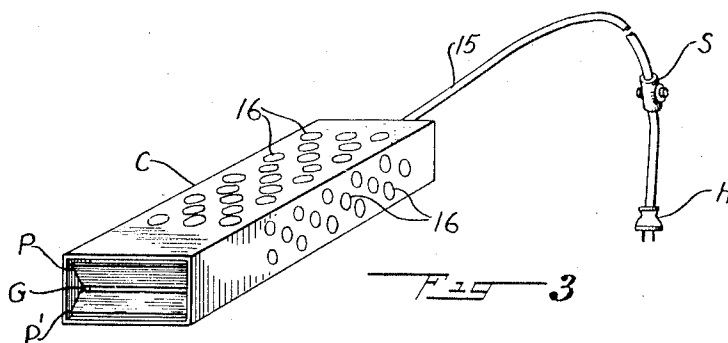
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ELECTRIC BLOWPIPE LIGHTER

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## UNITED STATES PATENT OFFICE

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## ELECTRIC BLOWPIPE LIGHTER

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5 Claims. (Cl. 175—91)

This invention relates to electric lighters for gas-consuming appliances, and more particularly to an electric lighter for blowpipes. The invention is especially useful in connection with portable blowpipe lighters, to which application, however, the invention is not limited.

In the operation of blowpipes and the like, it is sometimes undesirable or inadvisable to employ a pilot flame or hand operated means for lighting the blowpipe. In the past, where electric igniting means has been employed, it has usually been necessary to include the blowpipe itself in the igniting circuit, with the corresponding inconvenience of the electric cables attached to the blowpipe. Alternatively, it has been necessary to provide separate stationary igniting apparatus in a fixed location, which may restrict the locality in which the blowpipe may be used. Furthermore, such separate igniting apparatus has generally required manipulative skill of some sort on the part of the operator in order to produce the desired igniting spark at the proper point on the blowpipe tip. In a few instances, it has been proposed to employ separate portable igniting apparatus, but such constructions have generally depended for their action upon movable parts, which have made the apparatus too delicate for the rough usage to which it is necessarily subjected in practice. Finally, in most igniting devices, the terminals have been unprotected, and therefore, subject to inadvertent short circuiting and danger to the device.

One object of the invention, therefore, is to provide a blowpipe lighter, which may easily be constructed in portable form and entirely separate from the blowpipe. Another object is to provide such a construction in a form which will not require any special skill on the part of the blowpipe operator in order to ignite the blowpipe. A further object is to provide such an apparatus in a convenient and rugged form which will not easily become damaged in ordinary service because of unprotected terminals or movable parts. Other objects will appear upon further consideration of the present specification.

One form of the invention is shown, by way of illustration, in the accompanying drawing in which:

Fig. 1 shows, in longitudinal elevation and partly in section, a blowpipe lighter constructed in accordance with the invention;

Fig. 2 is an end elevation of the lighter illustrated in Fig. 1, as viewed from the right; and

Fig. 3 is a perspective view of the blowpipe lighter including its connections.

Generally speaking, the improved electric lighter comprises a pair of metal terminal plates P, P' which are connected to a suitable electric current supply circuit and are so spaced apart that the gas delivery nozzle N of a blowpipe B or the like may first be bridged across the gap between the plates and then withdrawn from contact therewith to produce a spark to light the gas issuing from the nozzle N. Portions of these plates preferably are so inclined toward one another that they will provide a trough-like structure having at its bottom a longitudinal gap, so that the blowpipe nozzle may be guided into position to bridge said gap.

As shown, the terminal plates P, P' may each consist of a rectangular plate of an angle bar formed from copper bent longitudinally as at 10, to provide an inclined wall 11 and a foot 12. The plates or angle bars are positioned with their walls 11, 11 in opposed relation and their bends or apexes 10, 10 spaced apart a short distance to form a trough-like structure having the longitudinal gap G at its bottom. The plates are secured, in this position, to the top face of a rectangular block R of insulating material, as by metal screws 13, 13 which pass through the block R and the feet 12, 12 and are rigidly secured in place by nuts 14, 14.

To prevent accidental short circuiting of the plates P, P', they are preferably mounted within and close to the open end of, but spaced from a casing C, as by securing the block or base R to and inside of the casing far enough back from the open end of the casing so that the trough-like terminal structure will be located entirely within the casing but will be accessible through said open end for the insertion of the blowpipe nozzle N into position to bridge the gap G.

A suitable electric current converter K, such as an induction coil or a transformer, is also mounted within the casing C and has its low tension terminals connected to the plates P, P' through the screws 13, 13. Electric current of suitable amperage and voltage may be supplied to the converter K by conductors 15, 15 connected through a switch S to an attachment plug H that is adapted to be plugged into a wall socket or the like. The casing C may be of metal or of insulating material and is preferably provided with perforations 16 to ventilate and thus cool the converter K and also to permit the escape of any gas which may flow into the casing from the nozzle N.

As illustrated in the present embodiment the electric current converter K comprises a primary

coil 17 and a secondary coil 18 inductively associated and disposed within the casing C. The primary and secondary coils are, of course, carefully insulated from each other, as by insulation 19. The secondary coil, here illustrated as the outer coil, is insulated from the casing by insulation 20. Spacer members 21 are shown as holding the coils firmly in place at a slight distance from the casing C in order to afford free circulation of air between the coils and the casing.

As has already been indicated current is supplied to the primary coil through the conductors 15, 15. The secondary coil is connected by brackets 22, 22 with the block or base R by means of the nuts 14. The brackets 22, 22 are preferably of copper, brass or other metal and are in electrical contact with the screws 13, 13 and hence in electrical contact with the plates P, P'.

From the foregoing description it will be evident that when the plug H is attached into an electric feed socket and the switch S is closed, the primary coil 17 of the converter K will be energized and will inductively influence the secondary coil 18. Accordingly, when a metal part is inserted in the trough formed by the terminal plates P, P' and pushed toward the bottom thereof until it touches both angles it will short circuit the terminals of the secondary electric circuit, thus causing a spark. A second spark will be caused as the metal part is removed. Thus a blowpipe N so inserted will produce a spark at its tip; and if a combustible gas mixture issues from the tip, it will be ignited by this spark.

In order to prevent dirt from falling into the open ended trough and clogging the same and also to prevent metal objects and particles from entering between the terminals and short circuiting them, it is preferred to maintain the lighter either in a horizontal position or in a position with the terminals inclined downwardly.

Clearly the apparatus which has been described may be moved about the shop to any convenient position, takes up little room, and is perfectly safe so far as inadvertent contact with its terminals is concerned. The conductors 15, 15 may be attached to a single source of current and may be of sufficient length to permit any desired movement of the lighter. It may prove more convenient, however, to employ a shorter cable and provide a number of sockets about the shop at locations adjacent points at which a blowpipe may be used. In any case, the detachable plug H may be used to connect the conductors 15, 15 with the source of current.

The amount of current used in the device will be exceedingly small, except during the short period of time when the secondary coil is short circuited by the blowpipe tip. However, since a small amount of current is necessarily consumed in the primary coil, even when the secondary circuit is open, it is preferred to connect the switch S in the circuit and to maintain this switch in open position except when a welding operation is being carried on.

Apparatus, constructed in accordance with the invention, is clearly portable, simple, and rugged. No special skill is required on the part of the blowpipe operator in order to ignite the blowpipe, since it is merely necessary for the operator to insert a blowpipe tip into the open end of the casing and press it inward as far as it will go. The apparatus is not easily damaged or unintentionally short circuited, and there is practically no danger from unprotected terminals.

The embodiment, which is here described and illustrated in the accompanying drawing, is presented merely to indicate how the invention may be applied. Other forms, differing in detail but not in principle from that here disclosed, will readily suggest themselves to those skilled in the art.

I claim:

1. An electric igniter for blowpipes or the like comprising a casing open at one end and having perforations extending through the wall thereof; a support of insulating material secured within said casing adjacent the open end thereof; a pair of metal angle bars wholly within said casing and adjacent said open end, said angle bars having apexes juxtaposed to provide a continuous narrow gap of uniform width throughout its length, one leg of each angle bar being secured to such insulating support and constituting an electric circuit terminal, the other legs of said angle bars diverging toward the open end of the casing to provide a trough within said casing adapted to guide a blowpipe tip into position to bridge said gap at any point lengthwise thereof; and an electric current converter within said casing behind said support and electrically connected to the circuit terminals; the perforations in said casing constituting ventilating means for said casing, to dissipate heat developed by said current converter and to permit the escape of gas discharged into the casing when said tip is inserted into said trough to ignite the gas discharging from said tip.

2. An electric lighter for blowpipes as claimed in claim 1, in which said support of insulating material comprises a block closing the space along the inner side of said gap to provide a chamber to temporarily retain gas to be ignited.

3. An electric lighter for blowpipes as claimed in claim 1, in which the apexes of said angle bars are rounded to provide continuous smooth surfaces along said gap at both sides thereof.

4. An electric igniter for blowpipes or the like comprising a casing open at one end and having perforations extending through the wall thereof; a block of insulating material secured within and spaced from the open end of said casing; a pair of spaced outwardly flaring oppositely disposed circuit terminals secured to said insulating block and disposed wholly within said casing, thereby providing a continuous narrow gap of uniform width; the outer extremities of said terminals being separated a distance substantially greater than the cross-sectional dimension of a blowpipe tip, and the flared portions thereof forming a trough to guide the tip into position to bridge said gap at any point lengthwise thereof; and an electric current converter within said casing behind said block and electrically connected to said terminals; the perforations in said casing constituting ventilating means for said casing, to dissipate heat developed by said current converter and to permit the escape of gas discharged into the casing when said tip is inserted into said trough to ignite the gas discharging therefrom.

5. An electric device for igniting gas discharged under pressure from a blowpipe or the like, comprising a casing open at one end and having perforations extending through the wall thereof; a support of insulating material secured within and spaced from the open end of said casing; spaced oppositely faced angle bars disposed wholly within said casing and mounted on said insulating support and provided with out-

wardly flaring flanges forming a trough-like  
guiding means having an entrance of substan-  
tially greater width than the cross-sectional di-  
mension of a blowpipe tip for guiding the same  
5 toward a narrow constant width gap between  
said angle bars; said angle bars having rounded  
apexes which cooperate with said support to  
provide a chamber for temporarily retaining gas  
to be ignited; means for impressing a low poten-

tial relatively high current across the gap formed  
by said angle bars comprising a primary coil  
within said casing connected to a power source,  
and a secondary coil within said casing connected  
to said angle bars, whereby an intense arc is  
drawn between the angle bars and the blowpipe  
tip when same is withdrawn from gap-bridging  
engagement with said angle bars. 5

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