P. H. HAMILTON.

BURNER.

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1,379,301. **Patented May 24, 1921.**

Fig. 1

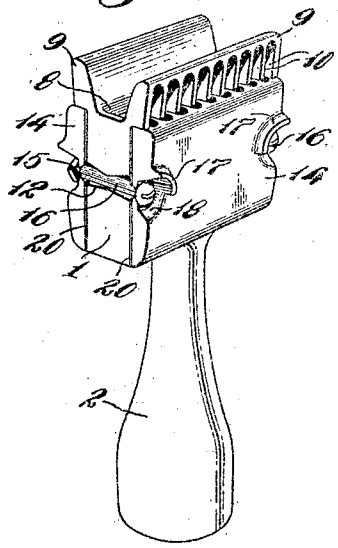
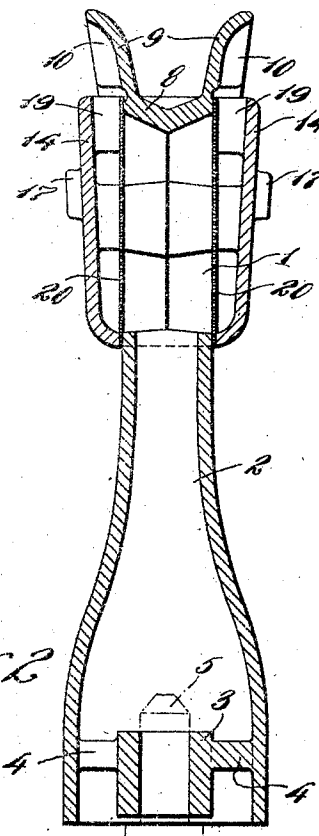


Fig. 2



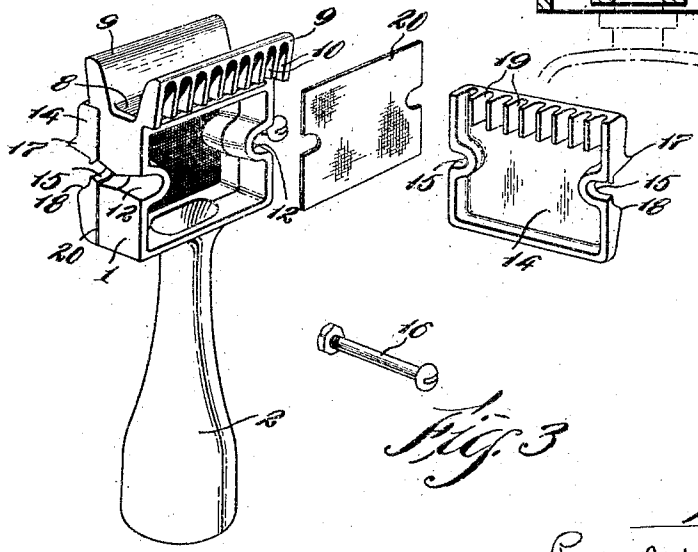


Fig. 3

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UNITED STATES PATENT OFFICE.

PAUL H. HAMILTON, OF CLEVELAND, OHIO.

BURNER.

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To all whom it may concern:

Be it known that I, PAUL H. HAMILTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The objects of this invention are the production of a very durable and efficient gas burner of comparatively simple construction; which involves few parts, several of these being interchangeable; which may be easily and quickly assembled, and which requires very little machine work, thus expediting manufacture; which may be easily disassembled for the purpose of cleaning or inspection; wherein a proper and uniform distribution of gas is assured; and wherein back-firing is avoided.

In its present preferred and most elaborate form, the burner consists simply of a central element incorporating a frame and a mixer which opens through one side of the frame, and a pair of opposed cheek plates that are held together and in proper relation to the central element by means common to both plates and which are entirely exterior of the burner so as to avoid openings through which gas might escape and yet which are within the general outline of the burner thus enhancing its appearance and avoiding such means catching on adjacent objects. The cheek plates are provided with gas emitting openings, and the central element with deflectors adjacent said openings and the openings are preferably produced by forming vanes along the edge portion of each cheek plate and which are situated between the plate proper and the adjacent edge of the central element, and the baffles are likewise provided with vanes which aline substantially with those of the cheek plates. According to my present design, the mixer opens into the frame through the bottom side thereof, and the top side of the frame is ridged longitudinally and centrally to properly distribute the gas to both sides of the burner. To prevent back-firing within the burner I clamp a suitable screen between each cheek plate and the adjacent side of the frame, the cheek plates being recessed on their inner sides to provide continuations of the inclosure of the frame. The cheek plates preferably include shields to protect the aforesaid fastening means from the heat of the flame.

The embodiment thus briefly described and through which the objects above enumerated are attained, is illustrated in the accompanying drawing which forms a part hereof and wherein Figure 1 is a perspective view of the burner; Fig. 2 a central transverse section therethrough; while Fig. 3 shows the burner in perspective with one of the cheek plates and screens removed.

The burner consists of a central element comprising a frame 1, which, in the present instance, is rectangular, and a mixer 2 that is shown as formed integral with the frame and as opening through the bottom side thereof. Situated centrally within the lower end of the mixer is a hollow cylindrical boss 3 that is attached to and spaced from the wall of the mixer by arms 4. The burner is intended to stand in a vertical position with the boss 3 engaged over a tip 5 of a supply conduit or manifold 6, the parts 5 and 6 being indicated in dot-and-dash lines in Fig. 2. The top side of the frame 1 is ridged centrally and longitudinally on its inner side as indicated at 8, so as to act as a deflector to distribute the gas evenly to both sides of the burner as it rises within the inclosure of the frame from the mixer. Baffles 9 extend along the edges of the upper side of the frame and project upwardly and outwardly from said edges to overhang the sides of the frame, and the outer surfaces of these baffles are provided with vanes 10. A transverse groove 12 is formed in each end wall of the frame by displacing the middle portion of said wall inward.

Identical and therefore interchangeable cheek plates 14 are designed for application to each side of the frame, and these plates are dished or recessed on their inner sides to form continuations of the inclosure of the frame. The ends of the plates are provided with notches 15 that are arranged to register with the grooves 12 of the frame, and fastening means 16, which may consist of stove bolts equipped with nuts, extend through the alining notches and grooves of the frame and cheek plates and serve to bind the parts firmly together. By this arrangement the fastening means are entirely with-

in the general outline of the burner, so to speak, and are protected from the heat of the flame, and the heads of the bolts, and the nuts applied to the bolts, are further shielded from the heat by ribs 17 that extend about the upper sides of the depressions 18 of the cheek plates in the bottoms whereof are formed the notches 15. Gas emitting openings are produced along the upper edges of the cheek plates by a series of inwardly projecting vanes 19 which aline with the vanes 10 of baffles 9 when the cheek plates are in place.

Suitable screens 20, having the general outline of the cheek plates, are adapted to be clamped between said plates and the frame, and these serve to prevent back-firing into the mixing chamber or inclosure of the frame should the flame be propagated through any cause to the interior of the cheek plates.

From this description it will be seen that my invention provides a very simple burner construction, yet one which is durable and thoroughly efficient and which possesses many points especially attractive from the standpoints of manufacture and use.

Having thus described my invention, what I claim is:—

A burner comprising a central element composed of a rectangular frame, the top side whereof is substantially V-shaped in cross section and from the opposed edges whereof rise diverging baffles, said element including a mixer which opens through the bottom side of the frame, the end walls of the frame having their middle portions inset to produce external transverse grooves, a recessed cheek plate applied to each side of the frame, the cheek plates having notches registering with the aforesaid grooves and having each a series of inwardly projecting vanes along its upper edge portion, the aforesaid baffles having vanes alining substantially with those of the cheek plates, and means extending through the aforesaid grooves and notches for holding the cheek plates together and in clamping relation to the frame, the cheek plates incorporating shields protecting the holding means from the heat of the flame.

In testimony whereof, I hereunto affix my signature.

PAUL H. HAMILTON.