G. W. POSS.

OIL BURNER.

APPLICATION FILED JULY 23, 1917.

1,304,092. Patented May 20, 1919.

Fig. 1.

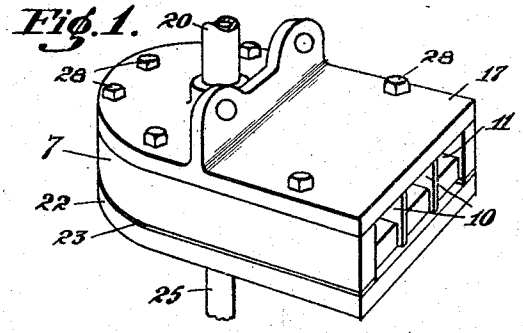


Fig. 2.

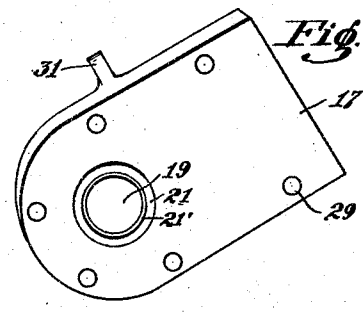


Fig. 4.

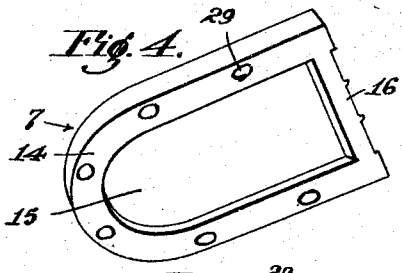


Fig. 3.

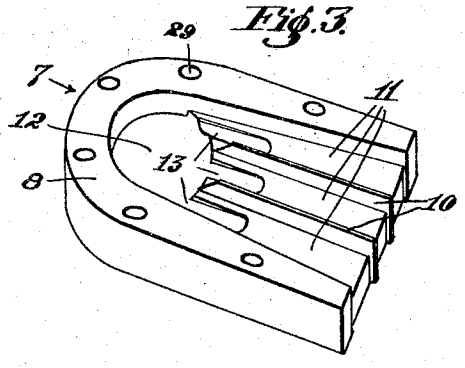


Fig. 5.

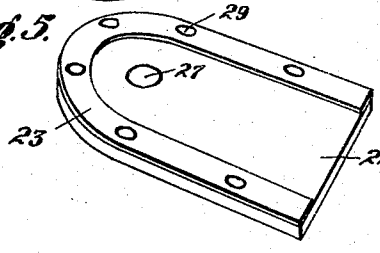
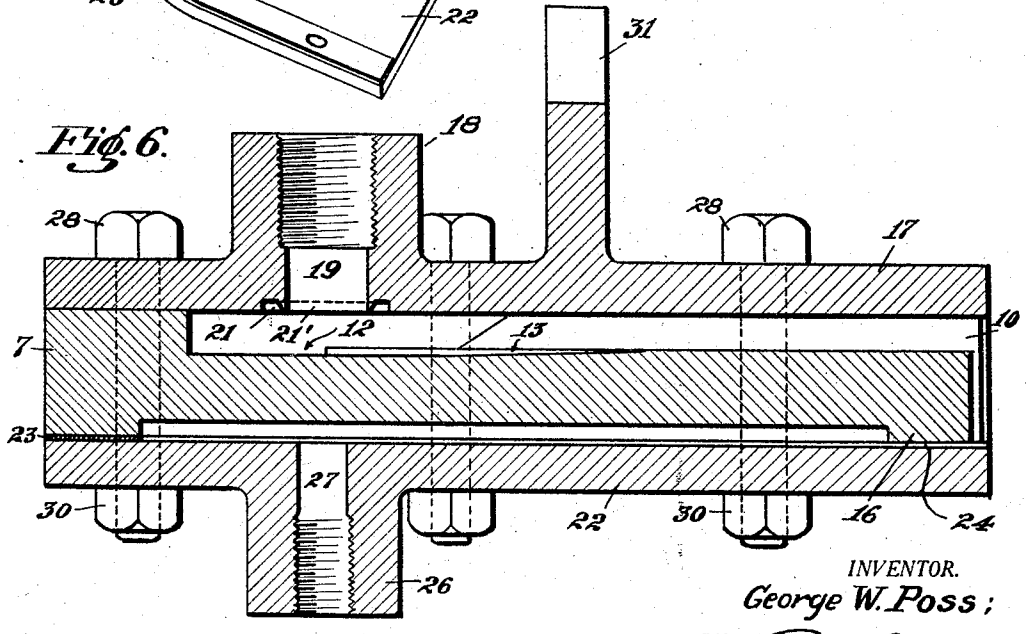


Fig. 6.



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OIL-BURNER.

1,304,092. Specification of Letters Patent. Patented May 20, 1919.

Application filed July 23, 1917. Serial No. 182,377.

To all whom it may concern:

Be it known that I, GEORGE W. POSS, a citizen of the United States of America, and resident of the city of Cairo, Monarchy of Egypt, have invented a new and useful Oil-Burner, of which the following is a specification.

This invention relates to an oil burner, and particularly pertains to the type of oil burners in which heavy oils are atomized and mixed with steam.

It is the object of this invention to provide an oil burner in which the oil and steam are intimately intermixed at the point of discharge from the burner and wherein the oil is heated to render it more volatile and subject to atomization within the burner by the action of the steam without coming in direct contact with the latter.

Another object is to provide an oil burner in which the oil may be delivered to the burner by gravity flow and ejected therefrom into a combustion chamber by steam under pressure in such manner as to form a broad spreading readily combustible mixture of oil and steam.

A further object is to provide a construction in the burner whereby a uniform delivery of the oil and steam is effected, and by which clogging of the burner is obviated.

Another object is to provide a burner composed of few parts which may be readily assembled and separated and in which the oil and steam chambers within the burner are easily accessible.

Other objects will appear hereinafter.

In carrying out my invention I form the burner with an intermediate portion or block having depressions on its upper and lower faces forming oil and steam distributing chambers respectively, which are covered by top and bottom plates through which the oil and steam are delivered to the chambers; the oil and steam being separately discharged from their chambers and intermixed at one end of the burner as will appear hereinafter.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of the burner.

Fig. 2 is a view in perspective of the top plate of the burner as seen from the underside.

Fig. 3 is a view in perspective of the intermediate block of the burner showing its upper face.

Fig. 4 is a perspective view of the block showing its under face.

Fig. 5 is a perspective view of the bottom plate with the spacing gasket thereon.

Fig. 6 is a view of the burner in longitudinal section and elevation.

More specifically 7 indicates the burner block which is provided with a flared U-shaped depression on its upper face formed by a U-shaped flange 8 the inner side walls of which are outwardly divergent; the depression opening at one end of the block. A pair of spaced diverging fins 10 extend longitudinally of the depression from a point adjacent the inner end thereof to the edge of the block, dividing the depression into a series of outwardly expanding longitudinal channels 11. A shallow recess 12 is formed at the inner end of the depression from which distributing grooves 13 lead along the bottom of the channels 11. The underside of the block is formed with a marginal flange 14 to provide a recess 15; the portion of the flange extending across the end of the block constituting a depending ledge 16.

The block 7 is covered by a top plate 17 formed with an internally threaded boss 18 having an opening 19 arranged above the recess 12. An oil feed pipe 20 connects with the boss 18 and leads from any suitable source of supply through which oil is delivered by gravity flow to the distributing chamber in a downward direction. As a means for preventing oil discharged from the opening 19 from spreading over the underside of the top plate an annular channel 21 is formed in the top plate concentric with the opening 19 to form a lip 21′ on the margin of the latter.

A bottom plate 22 covers the underside of

the block and the recess 15 to form a steam chamber; a U-shaped spacing gasket 23 being interposed between the bottom plate and the flange 14 to form a tight joint. This gasket in not extending across the ledge 16 forms a narrow horizontally elongated discharge slot 24. A steam supply pipe 25 connects with an internally threaded boss 26 on the bottom plate having an opening 27 leading upwardly to the steam chamber beneath the opening 19 so that steam entering the steam chamber will strike the underside of the block at a point opposite that at which the oil drops thereon.

A series of bolts 28 pass through openings 29 in the top plate block and bottom plate on which nuts 30 are screwed to bind the parts together, and formed on the top plate is a flange 31 by which the burner is attached to a suitable support.

In the operation of the invention oil is delivered by gravity flow to the chamber formed by the space between the block and top plates, the oil dropping directly into the recess and being distributed therefrom into the channels 11 by means of the grooves 13.

The oil is thus evenly distributed as it flows along and spreads over the bottom of the channels and is uniformly discharged over the end of the block from whence it passes downwardly in a thin curtain or film in front of the slot. The bottom 22 projects beyond the end of the block to form a ledge which serves to prevent oil from dripping from the burner nozzle and insures all oil delivered in front of the slot being acted on by steam emitted from the slot.

Steam is admitted under pressure to the steam chamber beneath the block and heats the floor of the oil chamber so as to warm the oil and render it more volatile and susceptible to atomization, the steam passing through the restricted slot beneath the ledge with considerable force so as to strike the curtain of oil delivered from the oil chamber and impel the oil horizontally in a thoroughly atomized and highly combustible spray.

The formation of the oil chamber permits a free and unrestricted flow of oil therethrough and insures the burner against clogging.

It will be seen that the parts of the burner are few and simple in construction so that it may be constructed at small cost, and that the parts may be readily assembled or taken apart.

When it is desired to gain access to the oil and steam chambers, the top and bottom plates are removed, which fully exposes the spaces formed in the burner block.

I claim:

1. An oil burner comprising a burner block having a depression on its upper face opening at one end thereof, a removable cover extending over the depression to form an oil receiving chamber, distributing fins in said chamber for directing oil over an edge of the open end of the depression, a steam chamber on the under side of said block having a discharge opening extending beneath the open end of the depression, a steam pipe arranged to deliver steam upwardly into the steam chamber against the underside of the block, and an oil pipe arranged to deliver oil downwardly upon the block opposite the point of steam discharge.

2. An oil burner comprising a burner block having a depression on its upper face opening at one end thereof, fins forming channels in the depression, a recess at the inner ends of the fins, distributing grooves leading from said recess into the channels, a bottom plate covering a recess on the underside of the block forming a steam chamber having a discharge opening extending below the end opening of the depression, and a top plate covering the depression forming an oil receiving chamber.

3. An oil burner comprising a burner block having a depression on its upper face opening at one end thereof and a recess on its under face, a U-shaped spacing gasket partly surrounding the recess, a bottom plate, seating on said gasket forming a steam chamber having a discharge opening extending between the ends of said gasket, said opening arranged below the open end of the depression, said bottom plate extending beyond said opening to form a ledge, a cover plate extending over the depression forming an oil receiving chamber and means in said chamber for distributing oil delivered thereto and directing it outwardly over the outer end of the block above the steam discharge opening and ledge.

4. An oil burner comprising a burner block having a U-shaped flange on its upper face forming a depression open at one end of the block, a recess at the inner end of said depression, a series of fins extending longitudinally of the depression between the recess and the end of the block forming channels, grooves in the bottom of the depression leading from the recess along the channels, a top plate covering the depression having an oil inlet opening above the recess, an annular lip on the margin of said inlet, and a steam chamber on the underside of the block opening to the end thereof beneath the open end of the depression through an elongated slot.

5. In an oil burner having an oil receiving chamber communicating with a discharge opening, distributing channels leading to the discharge opening, a recess formed in the bottom wall of the chamber at the inner

ends of said channels, grooves leading from the recess to said channels, and an oil inlet opening downwardly in said chamber above the recess.

6. In an oil burner having an oil receiving chamber communicating with a discharge opening, distributing channels in said chamber leading to the discharge opening, a recess at the inner ends of said channels, grooves leading from the recess into the channels, a downwardly opening oil inlet above said recess, and a lip surrounding the mouth of the oil inlet to prevent oil spreading on the top wall of the chamber.

GEORGE W. POSS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."