

No. 751,092.

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D. H. MOSTELLER.
LIQUID FUEL BURNER.
APPLICATION FILED MAY 29, 1903.

NO MODEL.

WITNESSES:

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DOSIER H. MOSTELLER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF
ONE-HALF TO JACOB HOEGES, OF SAN FRANCISCO, CALIFORNIA.

LIQUID-FUEL BURNER.

SPECIFICATION forming part of Letters Patent No. 751,092, dated February 2, 1904.

Application filed May 29, 1903. Serial No. 159,302. (No model.)

To all whom it may concern:

Be it known that I, DOSIER H. MOSTELLER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Liquid-Fuel Burners, of which the following is a specification.

My invention relates to improvements in oil-burners, being of especial value for use with furnaces for heating hotels or apartment-houses or for cooking-ranges for restaurants or the like, and is an improvement upon that disclosed in United States patent granted to me January 20, 1903, No. 718,859.

One object of my invention has been to provide a construction in which the elbow, and indeed all the parts subject to destruction by heat, can be renewed in a moment and without seriously interrupting the heating or cooking. Furthermore, I have found that when oil is used containing asphaltum or other heavy ingredients a portion of these residual products crystallizes and carbonizes on the sloping plate below the elbow. On my former device this could not be cleaned without extinguishing the fire, and then it was difficult on account of the heat.

A further object of my invention therefore has been to provide a construction by which the auxiliary heating device for heating the elbow can be removed while the fire is burning and also one in which a crooked poker can be inserted to clean the entire rear side of the elbow without reducing the fire.

In the invention disclosed in said patent there was provided an outer box surrounding the elbow. I have found that this outer box to a certain extent smothers or reduces the effect of the draft and also creates a narrow space in which soot or carbon gathers, which obstructs and in time entirely cuts off the lower draft, causing an impairment of the efficiency of the burner. In my present invention I avoid this disadvantage.

The main objects of my invention, therefore, are to provide increased efficiency in the burner, to enable it to be more easily cleaned, and the parts which are subject to burning to

be readily renewed without materially reducing the heat.

In the accompanying drawings, Figure 1 is a longitudinal section of my improved burner. Fig. 2 is a perspective view of the elbow-support. Fig. 3 is a perspective view of the elbow. Fig. 4 is another perspective view of the same from a different point of view. Fig. 5 is a perspective view of the air-conduit and of the drip-pan, shown detached and slightly apart from each other. Fig. 6 is a perspective view of the box for supporting the burner, and Fig. 7 is a rear view of the entire burner.

Referring to the drawings, 1 represents an oil-supply pipe controlled by a suitable cock 2 and a needle-valve 3. Connected with said pipe is a discharge-pipe 4, having a nozzle 5. The oil is to be discharged under pressure, preferably water-pressure, and issues in a solid needle-like stream, as shown at 6, impinging against the rear thickened sloping wall 7 of an elbow or vaporizer 8. The effect of the impact of the oil against said wall is to spread the same, and said elbow being heated by means to be presently described the oil is vaporized and burned, the air for its combustion being admitted through the air-pipe 9, surrounding the discharge-tube. The rear end of said air-pipe rests on a lug 10, cast upon the upper side of a box 11, and the front end of the pipe rests upon a lug 12, extending forwardly and then upwardly from the front wall of the elbow-support 13. Said elbow-support has its front wall placed in contact with the end of the box 11, and in the upper portion of said front wall is cut a recess 14 to receive the neck 15 of the elbow, said elbow being enlarged in front of said neck to form a shoulder 16, which shoulder abuts against the front wall of the support and prevents accidental rearward displacement of the elbow. The front end of the elbow is then carried forward at the top to rest upon the end of the air-pipe 9. Wings 17 are also provided at the sides of the elbow, resting upon the upper edges of the side walls 18 of the support. Said elbow is provided slightly below the point of impact of the stream of oil with a slot 19, the

function of which is partly to admit air for combustion and partly to permit a portion of the oil discharged upon the elbow to drip and fall through into a heating-pan 20. Said pan rests upon the extended floor of the support 13 and is formed at its front side with a high wall 21, which is connected by bolts 22 to a similar wall 23, cast upon the end of the air-conduit 24. Said air-conduit is made larger at the inlet than at the outlet end, as shown, to conform to the increase of velocity of the air as it approaches the heating-pan. The heating-pan is passed through an opening 25 in the front wall of the support and is readily slid into and out of position by means of the air-conduit, to which it is attached, as already stated. Said air-conduit has a foot 26, which rests upon the bottom of the box 11 and raises the entrance end of the conduit. Should, however, the fire be extinguished for any reason while the oil was flowing, so that the oil continued to be discharged into the elbow for a considerable period of time without being burned, the oil therefore dripping into the heating-pan, the entrance end of the air-conduit is sufficiently low to cause the oil falling into the dripping-pan to flow rearwardly through said air-conduit rather than over the walls of the conduit. Serious accidents have occurred by reason of the oil being left to flow all night for the purpose of heating, it being supposed that combustion was taking place, whereas in reality the fire had accidentally become extinguished, the result being that the oil would flood the furnace, and then on a careless attendant lighting the fire in the morning the oil in the furnace would be ignited with explosive violence. With the present construction this cannot occur, for the oil will flow backward to the front of the furnace, where it will be immediately noticed by the attendant on proceeding to light the fire and where its ignition in any case would not be so dangerous.

The box and elbow-support are cemented into fire-clay, as shown at 30, since these parts not being subject to great heat do not require to be renewed. However, should the elbow-support itself be destroyed by the fire the elbow would still rest upon the walls of the fire-clay, as shown in Fig. 7. The other parts are readily removable. To replace the drip-pan, all that is necessary is to withdraw it by means of the air-chamber through the box and substitute a new drip-pan, which is the work of a second. The elbow can in like manner be quickly removed and replaced by a new one without materially reducing the heat by merely lifting the elbow out with a pair of tongs and replacing it with a new elbow. It is thus seen that I have provided a liquid-fuel burner in which the parts subject to deterioration by heat are removable and replaceable with the least possible time and trouble. It will also be observed that the construc-

tion is such that the rear side of the elbow can readily be cut out for the purpose of cleaning or removing deposits, also that there is a free current for the products of combustion around the elbow, so that the fire thereunder is not in any way checked.

I claim—

1. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of the vaporizer having an oil-drip aperture, and a stationary support for the vaporizer, the vaporizer being provided with means engaging said stationary support to prevent longitudinal movement of the vaporizer, substantially as described.

2. A liquid-fuel burner comprising a nozzle for throwing a solid stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of the vaporizer having an oil-drip aperture, a support for the vaporizer, the vaporizer having wings resting upon the top of the walls of the support, and a drip-pan within the support, substantially as described.

3. A liquid-fuel burner comprising a nozzle for throwing a solid stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of the vaporizer having an oil-drip aperture, a support for the vaporizer, the vaporizer having wings resting upon the top of the walls of the support, said support being recessed in its front wall to receive the vaporizer and having a forwardly and upwardly extending lug, and the vaporizer having a neck engaged by said lug, and a drip-pan within the support, substantially as described.

4. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a fixed support for said vaporizer, and a longitudinally-slidable heating-pan below the vaporizer, substantially as described.

5. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a fixed support for said vaporizer, a longitudinally-slidable heating-pan below the vaporizer, and an air-conduit connected to said pan and sliding therewith, substantially as described.

6. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, said vaporizer having an aperture in the lower portion of its wall, a support for the vaporizer open or cut away at the back, and a drip-pan within the support slidable in a direction parallel with the nozzle, substantially as described.

7. A liquid-fuel burner comprising a nozzle adapted to throw a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, a box, an air-pipe surrounding the nozzle, support for the vaporizer and means carried by said support and box for guiding and maintaining the air-pipe and vaporizer in position thereon, substantially as described.

8. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, a support for the vaporizer, a box, an air-pipe resting on said box and surrounding the nozzle, a heating-pan within the support, and an air-conduit connected with the heating-pan and slidable longitudinally in the box, substantially as described.

9. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a heating-pan to catch the oil dripping from said aperture, a fixed support for said vaporizer and heating-pan, constructed to permit the heating-pan to be removed by sliding rearwardly and the vaporizer to be raised vertically from its support, substantially as described.

10. A liquid-burner comprising a nozzle for

throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a heating-pan beneath said aperture to heat the vaporizer, and a support for the vaporizer, said support and vaporizer having coengaging means preventing movement of the vaporizer relatively to the support in any direction except upward, but preventing free upward movement of the vaporizer from its support, substantially as described.

11. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a heating-pan for catching the oil, and suitable supporting means for said vaporizer and heating-pan, said means and heating-pan having coengaging parts which prevent movement of the latter in any direction except longitudinally rearward, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DOSIER H. MOSTELLER.

Witnesses:

FRANCIS M. WRIGHT,
BESSIE GORFINKEL.