W. SUTTON.

OIL BURNER.

APPLICATION FILED AUG. 18, 1908.

940,949. Patented Nov. 23, 1909.

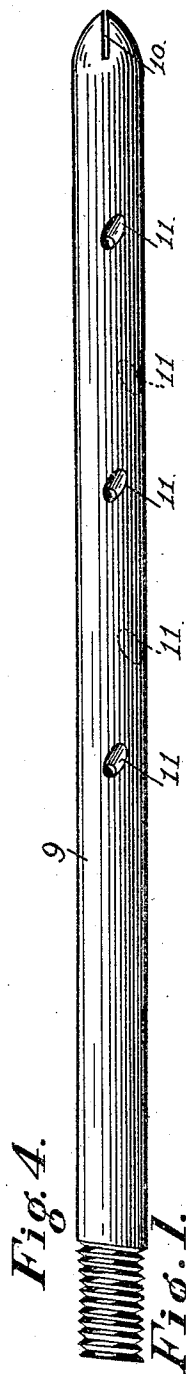
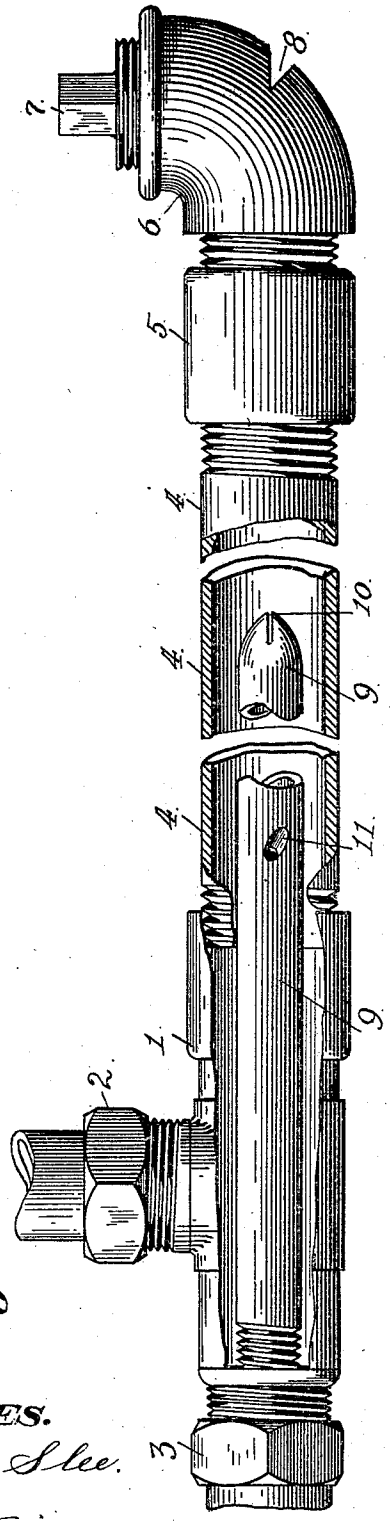


Fig. 4.

Fig. 1.



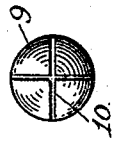


Fig. 3.

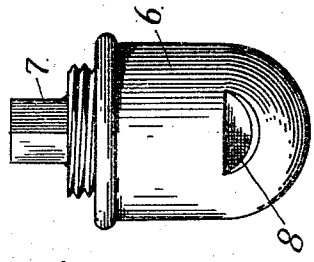


Fig. 2.

WITNESSES.

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WALTER SUTTON, OF SACRAMENTO, CALIFORNIA.

OIL-BURNER.

940,949. Specification of Letters Patent. Patented Nov. 23, 1909.

Application filed August 18, 1908. Serial No. 449,119.

To all whom it may concern:

Be it known that I, WALTER SUTTON, a citizen of the United States, residing at Sacramento, in the county of Sacramento and State of California, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification.

My invention relates to that class of oil-burners in which the liquid hydro-carbon is subjected to the vaporizing action of air or steam or both, and the mixture thus formed ignited at a suitable tip.

The objects of my invention are, first, to provide for a thorough mixing of the oil with the air or steam before being discharged from the burner tip; second, to effect this mixing in such a manner as to promote the passage of the mixture through the burner under less steam or air pressure; and third, to provide a tip of a shape to cause thorough combustion, to be self cleaning, and to direct the flame to the best advantage.

To these ends, my invention consists in the novel oil-burner, which I shall now fully describe by reference to the accompanying drawings, in which:—

Figure 1 is a side view, partly in section, of my oil-burner. Fig. 2 is a front view of the discharge tip. Fig. 3 is a view of the end of the steam or air pipe. Fig. 4 is a side elevation of inner pipe, showing the arrangement, shape and position of the holes.

1 is a head-coupling, to which is fitted the connection 2 for the oil and the connection 3 for the steam or air. Into the end of the head-coupling 1 is screwed the body pipe 4 of the burner and into the other end of this pipe is screwed a coupling 5, to which is fitted the tip 6, having a top plug 7. In the face of the tip 6 is made the discharge or burner-slot 8, which, as seen, has a straight upper wall, and a lower wall, inclined relatively to the upper wall, the space between the walls being unobstructed, as clearly shown in Fig. 2.

Screwed into the steam or air connection 3 is the pipe 9, which extends into the body pipe 4, and has its extremity provided with cross slot 10. This pipe 9 has, throughout its length, a number of holes 11, which have three peculiarities; namely, the series of holes are arranged in an approximately helical course around the pipe; each hole is made through the pipe wall on a slant, opening outwardly with a forward slope, and each hole is laterally and forwardly inclined relative to the longitudinal axis of the pipe. These features result in discharging the steam or air into the body pipe from all around the steam or air pipe, in a forward direction, and in a general helical course, thereby creating a forward whirling action of the mixture of oil and air or steam, and resulting in a thorough and perfect commingling of the elements of the mixture to be delivered to the tip; which mixture is further augmented and carried forward by the steam or air issuing from the slitted extremity of the inner pipe. The whirling mixture thus delivered to the tip, gives perfect atomizing of the oil; reduces the necessary steam or air pressure; results in complete and thorough combustion; assists, in connection with the flaring shape of the discharge slot 8 in keeping the latter clean and clear, reduces the smoke and soot to a minimum; and the flame itself, on account of the downwardly sloping wall of the discharge slot is directed in such manner as not to burn out boilers, if used under them.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An oil-burner comprising an outer pipe, an inner pipe spaced from the outer pipe and terminating short of the discharge end of the outer pipe, said inner pipe having an opening in its extremity and provided at intervals in its length with holes laterally and forwardly inclined relatively to the longitudinal axis of the pipe, an oil supply connection to the outer pipe, a steam or air connection to the inner pipe, and a discharge tip fitted to the end of the outer pipe.

2. An oil-burner comprising an outer pipe, an inner pipe spaced from the outer pipe and terminating short of the discharge end of the outer pipe, said inner pipe having an opening in its extremity and provided at intervals in its length with holes laterally and forwardly inclined relatively to the longitudinal axis of the pipe, an oil-supply connection to the outer pipe, a steam or air connection to the inner pipe, and a discharge tip fitted to the end of the outer pipe, the discharge tip having a slot with a straight upper wall and a lower wall inclined relatively to the upper wall the space between the walls being unobstructed.

3. An oil-burner comprising an outer and inner pipe, said inner pipe having an opening in its extremity, and provided, at intervals in its length, with holes laterally and forwardly inclined relative to the longitudinal axis of the pipe; an oil-supply connection to the outer pipe; a steam or air connection to the inner pipe; and a discharge tip fitted to the end of the outer pipe, said tip having a burner slot with a straight upper wall and a lower wall inclined relative to the upper wall.

4. An oil burner comprising an outer and an inner pipe, the inner pipe having a slitted forward terminal, and a plurality of holes each spaced from one another longitudinally of the inner pipe and disposed to provide a helical course about the same and each of said holes sloping laterally and forwardly, and a discharge tip fitted to the outer pipe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER SUTTON.

Witnesses:

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