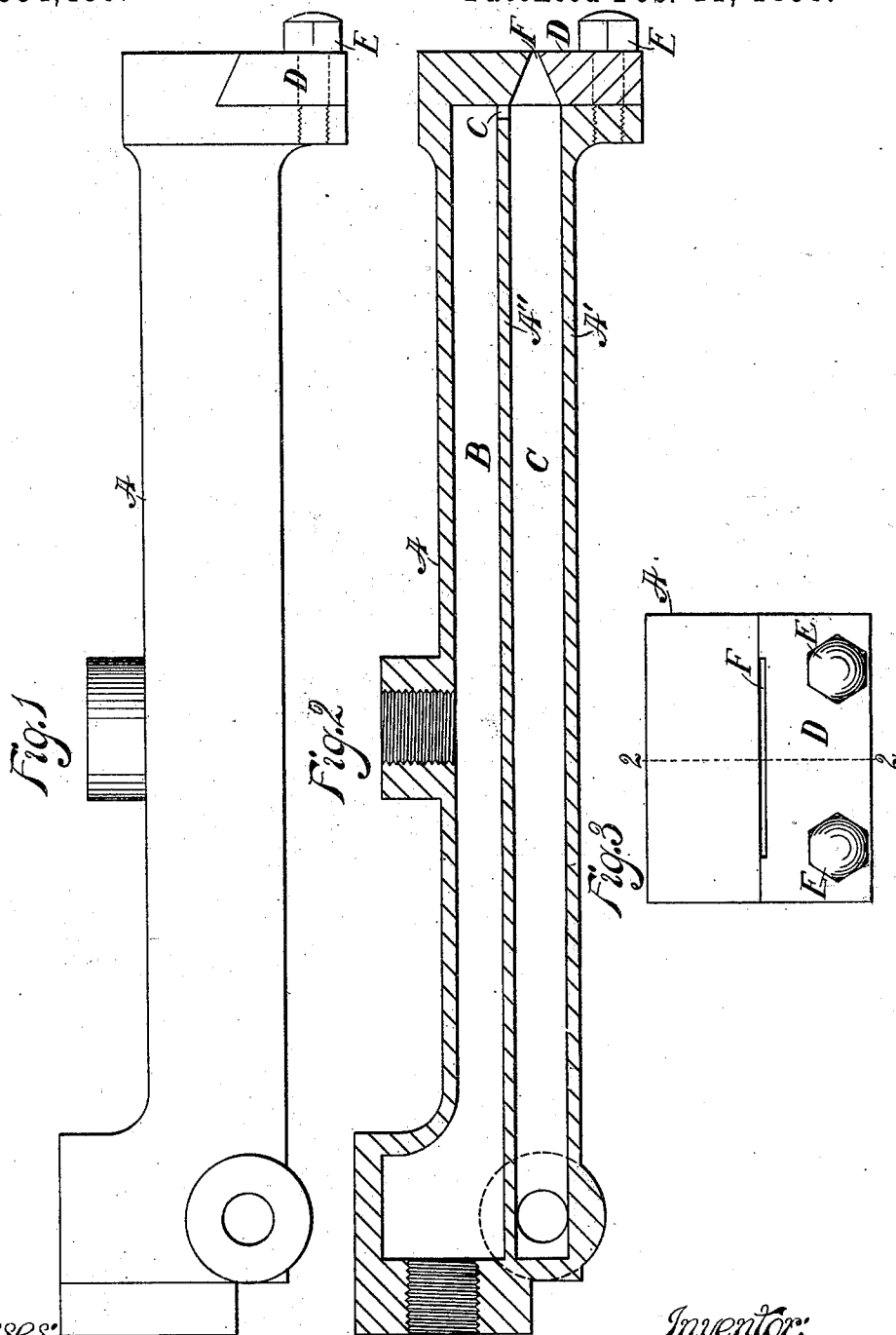


(No Model.)

W. BOOTH.
OIL BURNER FOR LOCOMOTIVES.

No. 554,436.

Patented Feb. 11, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM BOOTH, OF LOS ANGELES, CALIFORNIA.

OIL-BURNER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 554,436, dated February 11, 1896.

Application filed October 22, 1895. Serial No. 566,462. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BOOTH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Oil-Burners for Locomotives, of which the following is a specification.

My invention relates particularly to an improvement upon an apparatus for burning petroleum in furnaces, fully described in Letters Patent issued to me February 5, 1895, No. 533,521.

In my former patented apparatus I employ an integral cast-metal casing having provided therein two longitudinal passages or chambers, the outer end of such casing being provided with a cap which extends entirely across the end face of the casing and forms a continuation of the chambers, the oil-chamber extending through the cap to allow the passage therethrough of the oil, and the steam-chamber terminating in a slit for the passage of steam, all so arranged that the oil will drip or flow upon the sheet of steam issuing from the steam-slit and thus be atomized and driven into the fire-box in a manner suitable to insure perfect combustion. I have found in practice that with this construction the intense heat to which the end of the burner is subjected almost invariably causes the central portion of the cap, or that portion which forms the division between the oil and steam chambers, to spring or warp, thus causing the joint to open and allow the oil to pass downward into the steam-chamber and become mingled with the steam and discharged from the burner through the steam-slit. This is objectionable in that the steam-slit is only designed to allow sufficient steam to pass therethrough to atomize the oil, and is not large enough to allow a sufficient quantity of mingled oil and steam to pass therethrough to produce the amount of heat which the burner is designed to produce.

In my former patented device I found in practice that if one side of the oil-passage became clogged by reason of carbonization of the oil so much oil would be fed to the other side of the burner that the steam could not atomize it all, and consequently the oil would drip into the fire-box and cause imperfect combustion and waste of oil.

The object of my present invention is to so construct and arrange the burner that the oil will be fed to the burner in such a manner as to avoid all waste.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation of my improved burner. Fig. 2 is a longitudinal mid-section of my improved burner. Fig. 3 is a front elevation of the same.

In the drawings, A represents the burner, which is rectangular in shape and is ordinarily made of cast metal. This burner is provided with two longitudinal passages B and C, as described in my former patent, excepting that the outer end of the oil-chamber B is closed.

By my improved construction instead of arranging the chamber B to open through the end of the burner I form a slit or slot *c* in the partition of the burner, and arrange this slit or oil-discharge opening downward into the steam-chamber C a short distance at the rear of the steam-discharge slit F, so that the oil which enters the oil-chamber will escape through the oil-slit into the steam-chamber and will become mingled with the steam and discharged through the slit F thoroughly atomized and mingled with the steam. By arranging the oil-discharge immediately at the rear of the steam-slit the oil is more readily carried out of the slit than is possible when the oil-discharge opens into the steam-chamber at any considerable distance from the steam-discharge slit.

The lower wall A' of the burner terminates at a distance from the extreme end of the burner, and I complete the steam-chamber by means of a cap or bar D, which is secured to the burner by means of set-screws E, the cap being so arranged as to form in combination with the lower face of the partition A'' of the burner a steam-slot F through which the steam and atomized oil discharges. By this means all liability of waste of oil is avoided and I produce a burner which can be easily cast, is highly efficient in operation, and can be depended upon to produce the amount of heat which it is designed to produce.

By my present invention if one side of the oil-chamber should become clogged by carbonization of the oil, if the oil flowing into the other side of the steam-chamber is more

than the steam of that side can atomize, it will drip down into the steam-chamber and its only escape therefrom is through the steam-slit. The steam issuing from the slit effectively atomizes all of the oil which escapes from the chamber, and the result is there is no imperfect combustion and no waste of oil. By my present invention it also becomes immaterial whether the steam-chamber or oil-chamber is uppermost, the oil feeding and atomizing equally well in either position.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A burner consisting of a casing having a partition arranged to divide the interior of the casing into two parallel longitudinal passages or chambers, one chamber having a slit communicating with the other chamber, the wall of the other chamber terminating at a distance from the end of the burner, and a

removable cap or bar arranged to be secured to the burner to complete the other chamber and form a slit for the passage of the mingled oil and steam.

2. A burner consisting of a casing having a partition arranged to divide the interior of the casing into two parallel longitudinal passages or chambers, one chamber being closed at its end and having an oil-discharge opening into the other chamber immediately at the rear of the steam-slit, the wall of the other chamber terminating at a distance from the end of the burner, and a removable cap or bar arranged to be secured to the burner to complete the other chamber and form a slit for the passage of the mingled oil and steam.

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Witnesses:

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