

P. H. RYDER AND C. W. MOORE.  
OIL BURNER.

APPLICATION FILED FEB. 1, 1919.

1,398,397.

Patented Nov. 29, 1921.

Fig. 1.

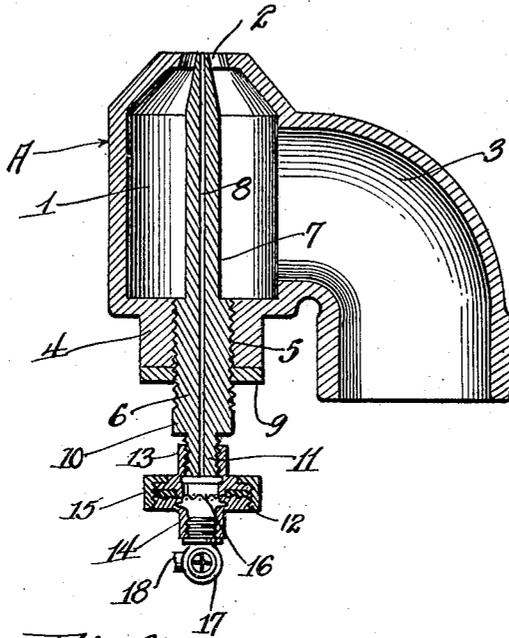


Fig. 2.

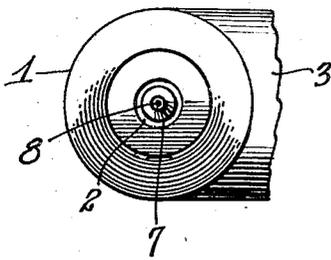
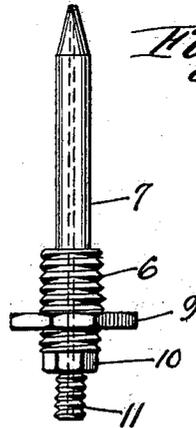


Fig. 3.



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# UNITED STATES PATENT OFFICE.

PARMLY H. RYDER AND CHARLES W. MOORE, OF BUCYRUS, OHIO.

## OIL-BURNER.

1,398,397.

Specification of Letters Patent. Patented Nov. 29, 1921.

Application filed February 1, 1919. Serial No. 274,472.

*To all whom it may concern:*

Be it known that we, PARMLY H. RYDER and CHARLES W. MOORE, citizens of the United States, residing at Bucyrus, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in an Oil-Burner, of which the following is a specification.

This invention relates to oil burners and more particularly to a burner adapted for using light oils such as kerosene, coal oil, or petroleum as fuel.

One of the primary objects of the invention is to provide a low pressure oil burner adapted to use as a fuel, an oil whose density is not increased to an extent that will prevent its flow through the feed nozzle at at temperature of 15° below zero Fahrenheit.

The invention further aims to provide an oil burner of this character which is simple in construction, inexpensive to manufacture, and which may be easily installed, and which is designed to be used with a gravity feed system.

A further object of the invention is to provide an oil burner which will so thoroughly atomize and mix the oil with the air that the oil will practically become a gas and can be ignited like a gas without any preheating of the burner or the oil.

The invention further aims to provide an oil burner especially adapted for use in crucible and reverberatory metal melting furnaces, cupola furnaces, annealing oven, core ovens, rivet furnaces, and similar furnaces where a blast of air is employed to produce the necessary degree of heat.

The invention further aims to provide an oil burner which will cause the oil to be thoroughly atomized so that the oil will be burned without causing any smoke or oil drops from the burner and which will thereby be rendered safe for heating dwellings, buildings and may be employed in hot air furnaces, hot water and steam heating systems and for all industrial purposes.

The above and additional objects are accomplished by such means as are illustrated in the preferred embodiment and in the accompanying drawings, wherein like characters denote like or corresponding parts throughout the several views, in which:—

Figure 1 is a section through the burner constructed in accordance with our invention.

Fig. 2 is a fragmentary top plan of the same, and

Fig. 3 is an elevation of the nozzle detached.

Referring to the drawings, in which is illustrated the preferred form of our invention, in which like numerals of reference indicate like or corresponding parts throughout the several views, the body A of the burner comprises the hollow air chamber 1, the upper end of which is tapered so that the air is directed toward the upper end wall, the latter being provided with a tapered passage 2 through which the air is ejected. The elbow 3, projecting from one side of the body and communicating with the air chamber forms the air inlet and is adapted to be connected to a suitable source of air supply such as a pressure tank or fan whereby the air will be forcibly supplied to the burner.

The lower end of the air chamber is provided with the neck 4 through which is extended screw threaded openings 5 to receive the screw threaded shank 6 of the nozzle 7. The nozzle extends centrally through the air chamber and has its terminal tapered as shown and is provided with a central longitudinal passage-way 8 through which the oil passes. By screw threaded mounting the shank 6 in the opening 5 it will be readily apparent that the open end of the nozzle may be adjusted with respect to its position in the passage 2 so that it may be thrust outwardly through the opening or withdrawn as desired so that the flame may be properly regulated as the air pressure changes or the volume of oil is increased or decreased. It should be understood, however, that under normal conditions the end of the nozzle 8 is flush with the end of the passage 2 as shown. A lock nut 9 is mounted on the shank 6 and is adapted to engage the end of the neck 4 to lock the nozzle in adjusted position.

The square or hexagonal end of the nozzle provides a head whereby a wrench may be applied to adjust the nozzle and projecting from this head is the nipple 11 to which is attached one end of a union 12 which comprises the complementary members 13 and 14 held together by the ring member 15 in a manner similar to the standard union. Interposed between the complementary members 13 and 14, however, is a screen panel 16 and this member 14 is connected to the valve 17 to which is joined the oil supply

pipe 18 which of course, may lead to a tank or other source of oil supply. Inasmuch as the burner is especially adapted for gravity feed systems, the oil tank should be disposed at a level higher than the burner so that the oil will feed by gravity through the nozzle and its volume may be governed by opening or closing the valve 17. The oil passes through the screen panel 16 and into the passage-way 8 and therefore any foreign substance is arrested by the screen so that clogging of the nozzle is prevented. When the oil reaches the end of the nozzle the blast of air passing through the passage 2 thoroughly atomizes the oil so that perfect combustion is assured. The tapered passage 2, through which the air is ejected, allows the air to discharge with a minimum friction and also tends to concentrate the blast of air toward a point slightly in advance of the end of the nozzle. Since the nozzle is adjustable toward and away from the passage 2, and since the passage directs the air toward the point of concentration slightly beyond the end of the body, it will be readily understood that the parts may be relatively adjusted, as the air pressure or the volume of oil changes so that a perfect mixture of oil and air will be provided to assure proper combustion and the greatest heat.

The foregoing description and accompanying drawings have reference to what

might be considered to be the preferred or approved form of our invention. We desire it to be understood that we may make such changes in the construction, combination and arrangement of parts, materials, dimensions, et cetera, as may prove expedient and fall within the scope of the appended claim.

Having thus fully described our invention what we claim as new and desire to secure by Letters Patent, is:—

An oil burner including a cylindrical chamber, one end of which is of a truncated cone shape, and the opposite end equipped with a screw threaded neck, a nozzle threaded in said neck, and provided with a reduced smooth body which extends concentrically through said chamber from one end to the other and terminating in the truncated end of said chamber, an air inlet elbow communicating with said chamber adjacent the outlet terminus of the nozzle, said air inlet supplying the air for atomizing the oil and the air necessary for combustion of the oil as the latter is dispensed through said nozzle.

In testimony whereof we affix our signatures in presence of two witnesses:

PARMLY H. RYDER.  
CHAS. W. MOORE.

Witnesses:

FRANK H. OBERLAUDER,  
J. M. PRICE.