(No Model.)

B. ROBERTS.
OIL BURNER.

No. 491,226. Patented Feb. 7, 1893.

Fig. 1.

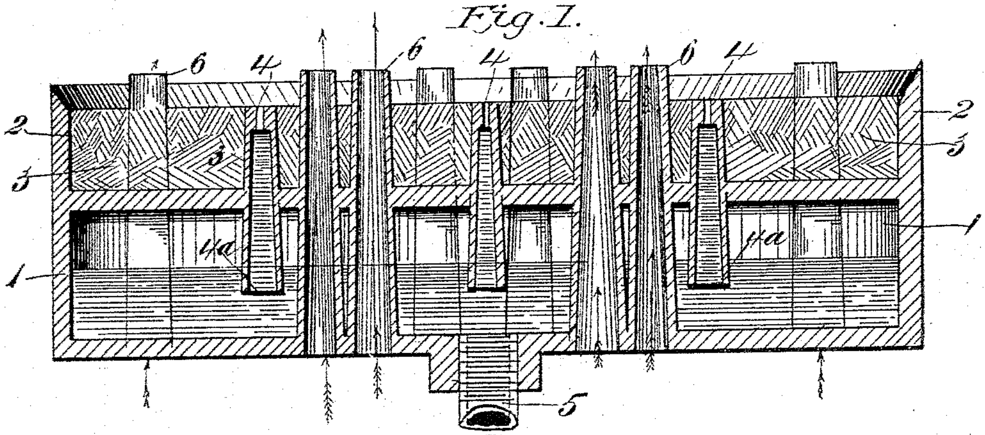


Fig. 2.

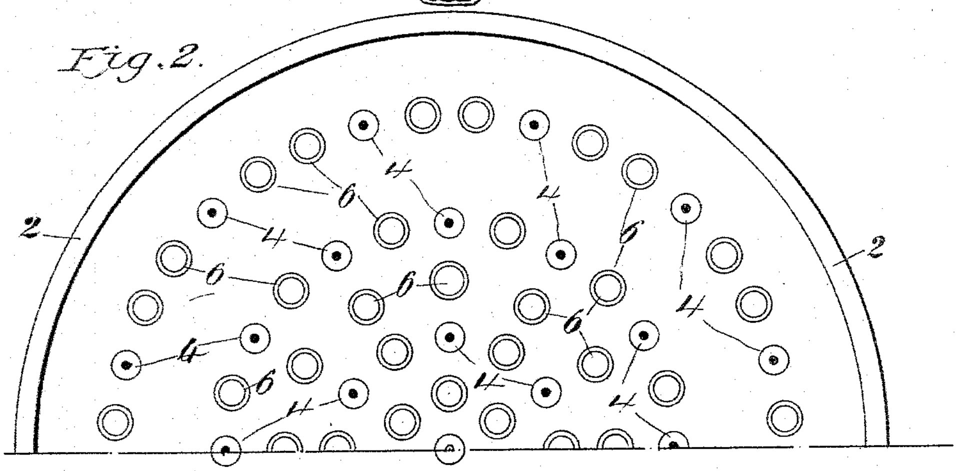


Fig. 3.

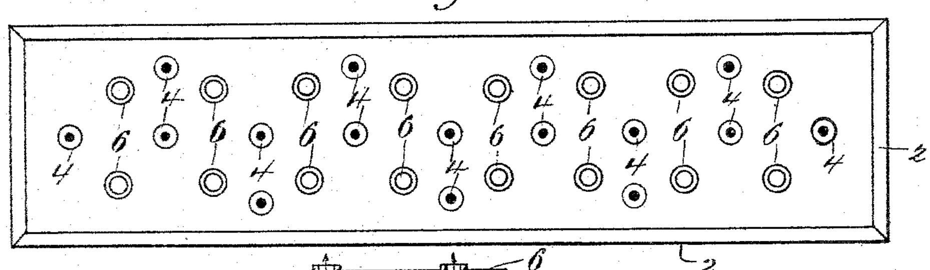
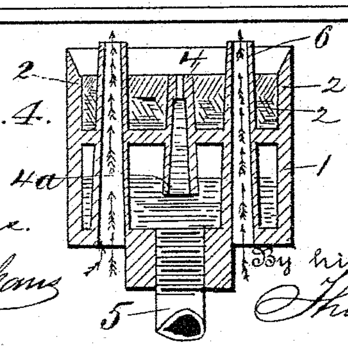


Fig. 4.



Witnesses
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Benjamin Roberts
By his Attorney
Thompson R. Bell

UNITED STATES PATENT OFFICE.

BENJAMIN ROBERTS, OF INDIANAPOLIS, INDIANA.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 491,226, dated February 7, 1893.

Application filed June 6, 1892. Serial No. 435,723. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN ROBERTS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Oil-Burners, of which the following is a specification.

My invention relates to an improved oil burner for stoves, furnaces and open grates, and is particularly adapted for the consumption of petroleum oil and consists in novel means employed for consuming the oil in its liquid state immediately after it is discharged from the oil exit to the furnace of the burner and in such a manner as to avoid previous evaporation as in other attachments or devices employed for that purpose.

The object of my invention is to provide a means whereby the oil will be fed directly to and distributed evenly over the surface of the burner and the absorbing material placed thereon, while in combustion, also to provide means whereby the unconsumed gases in the flame will be thoroughly blended with a sufficient quantity of atmospheric air to produce perfect combustion.

In the accompanying drawings illustrating my invention, similar numbers of reference designate like parts throughout the several views.

Figure 1. is a sectional elevation of the burner taken through the line A, B, see Fig. 2. and which I use in round stoves, Fig. 2. is a half plan of the same, Fig. 3. is a plan view of an oblong burner embodying my invention, and, Fig. 4. is a transverse sectional elevation of the same.

The burner consists essentially of an oil chamber 1. which may be either oblong square, round, or oval in form, and has the upwardly projecting flange 2. formed on the edge of the top surface thereof to form a pan or oil receptacle wherein the oil to be consumed is discharged. In this oil receiving pan I place an incombustible absorbing materal 3. as asbestus fiber, sand or other suitable absorbing material, and pack it with its top surface level with the tip or nipples of the oil exit nozzles 4. that is slightly lower than the top beveled edge of the flange 2. The oil nozzles 4. are formed integral on the top wall of the burner and have their induction openings or ends 4^a. projecting downwardly into the oil chamber, slightly below the center thereof, thus, as the oil is fed into the chamber through its oil-feed pipe 5. the lower end of the nozzles 4. will be immersed to an amount of depth proportional to the amount of the tension of the confined air in the upper portion of the oil-chamber and above the surface of the oil, produced by the pressure or rate of flow of the liquid fuel flowing into the chamber 1. through its feed pipe 5. thereby forming a non-conducting medium or jacket by which the heat from the flame of the burner is intercepted and the vaporization of the oil is consequently avoided.

Around each of the oil nozzles 4. are grouped a series of air ducts 6. which extend through the bottom of the burner through the oil chamber thereof and projecting slightly above the level of the outer edge of the flange 2. for the purpose of preventing waste oil from dripping through them when it reaches the level of the top edge of said flange 2.

I prefer to fit the burner into a stove or furnace with its outer edges or periphery in contact with the walls thereof so that the atmosphere passing through the grate of the stove beneath the burner will have no communication with the flame from the burner except through the air ducts, pipes or tubes, 6. thereby providing an effective means (through a number of minute jets of air) of thoroughly mixing the partially ignited oil with the oxygen of the air to produce and support a more perfect combustion.

It is clear that in consequence of the lower ends of the nozzles 4. being beneath the surface of the oil confined in the chamber of the burner the oil when fed or slightly forced therein will compress the air confined in said chamber, the tension of which will force the oil up through said nozzles to the surface of the burner where it is consumed. It is also clear, that, the oil, owing to the regular and equal distribution or the oil nozzles 4 over the surface of the burner will be equally distributed over the surface of the absorbing material, and a flame of uniform intensity will be thereby produced and continuously maintained.

Having thus fully described the nature of my invention what I claim as novel and use-

ful and desire to cover by Letters Patent of the United States therefor is:—

1. In an oil burner the combination with the oil chamber thereof, of an ejecting oil nozzle formed on said chamber with its top ejecting end above the top surface of said chamber, and its induction end projecting into the interior of said chamber slightly beneath the surface of the liquid contained therein, and an absorbing material on the top surface of the chamber and surrounding the tips of said nozzles, substantially as set forth.

2. In an oil burner, the combination with the oil chamber thereof, of the oil nozzles formed on the top wall of said chamber with their top ejecting ends or tips projecting above the surface of said chamber and its eduction ends projecting into the interior of said chamber and slightly beneath the surface of the liquid contained therein, an absorbing material covering the top surface of said chamber and surrounding said top ends of the tips of said ejecting nozzles, said absorbing material having its top surface on a level with the tips of said nozzles, and suitable air ducts or tubes extending from the under surface of, through the interior, and above the top surface of, said chamber and said absorbing material, substantially as set forth.

3. In an oil burner the combination with the oil chamber thereof, an upwardly projecting flange extending along or around the edge thereof, of an oil nozzle projecting downwardly in said chamber and beneath the surface of the oil contained therein and having its tip beneath the level of said flange, and an absorbing material surrounding said nozzles on the surface of said burner, substantially as and for the purpose set forth.

4. In an oil burner, the combination with the oil chamber thereof, and an upwardly projecting flange extending along or around the top edge of said chamber, of an oil nozzle projecting downwardly in said chamber and beneath the surface of the oil contained therein, and having its tip or top ejecting end beneath the level of said flange, an absorbing material surrounding said nozzles on the surface of said burner, and suitable air ducts or pipes extending from the under surface of, through the interior and above the top surface of said chamber and absorbing material, substantially as and for the purpose set forth.

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

BENJAMIN ROBERTS.

Witnesses:
THOMPSON R. BELL,
C. F. R. WAYNERHAUS.