P. LISIENIECKI.

OIL BURNING HEATER.

APPLICATION FILED MAR. 26, 1909.

**965,721.**

**Patented July 26, 1910.**

2 SHEETS—SHEET 1.

Fig. 1

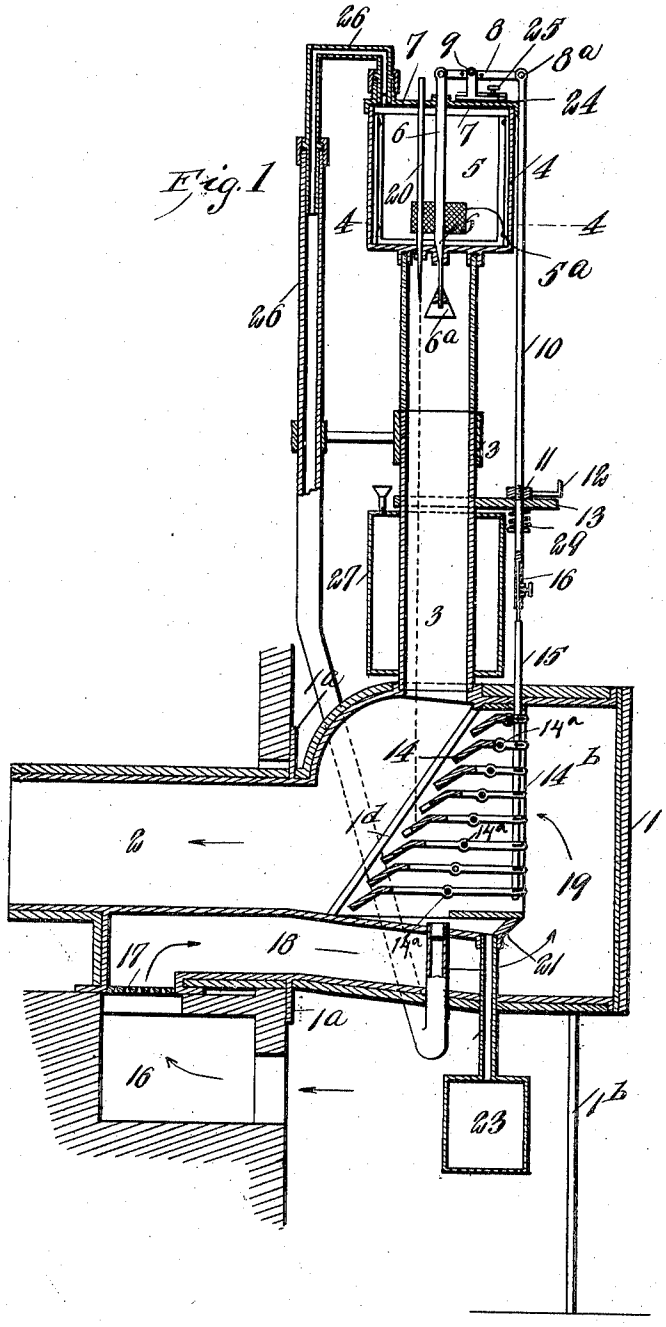
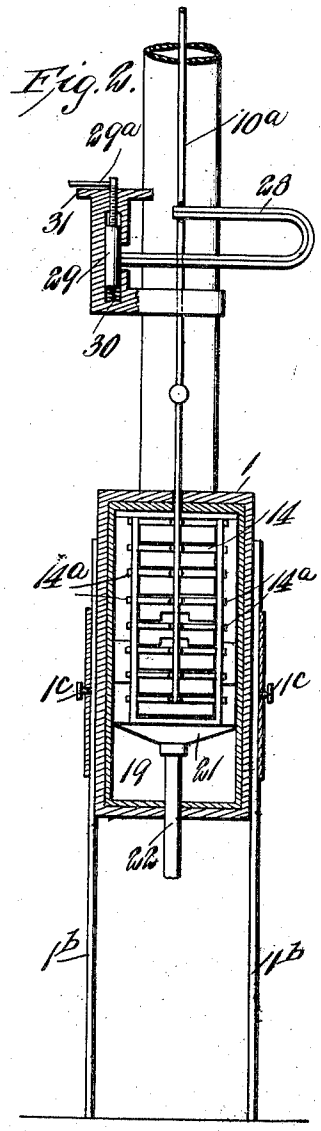



Fig. 2.




WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

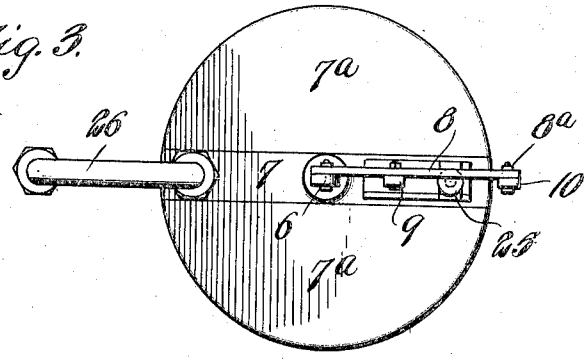



Fig. 5.

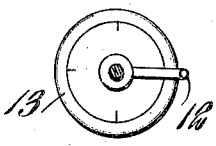



Fig. 4.

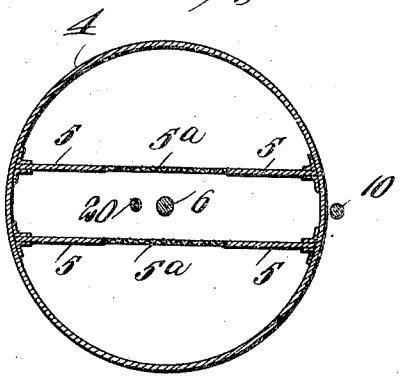



Fig. 6.

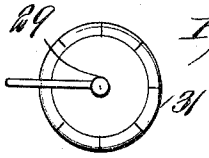



Fig. 7.

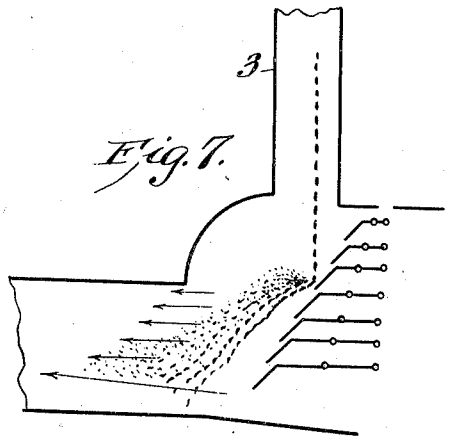
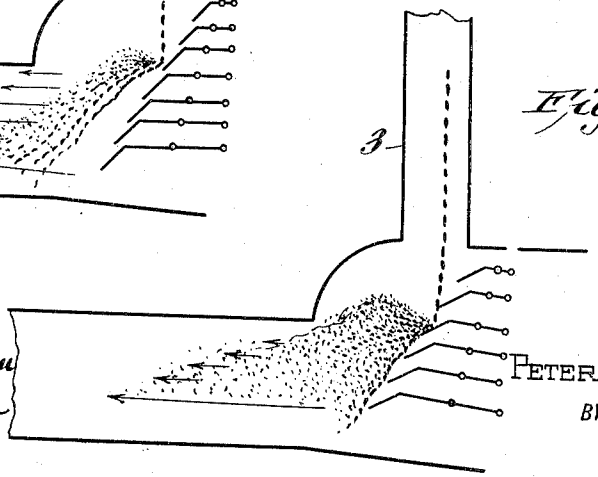



Fig. 8.

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# UNITED STATES PATENT OFFICE.

PETER LISIENIECKI, OF DROHOBYCZ, AUSTRIA-HUNGARY.

## OIL-BURNING HEATER.

965,721. Specification of Letters Patent. Patented July 26, 1910.

Application filed March 26, 1909. Serial No. 485,887.

*To all whom it may concern:*

Be it known that I, PETER LISIENIECKI, a subject of the Emperor of Austria-Hungary, and residing at Drohobycz, Galicia, Austria-Hungary, have invented an Improvement in Oil-Burning Heaters, of which the following is a specification.

My invention is an improvement in the class of heaters or stoves adapted for burning crude oil or any other liquid combustible which is of a suitable character.

The invention is embodied in the construction, arrangement, and combination of parts hereinafter described and claimed, the same being illustrated in the accompanying drawing in which—

Figure 1 is a sectional side elevation of my heater. Fig. 2 is a vertical cross section showing an automatic thermostatic regulator which may be used in place of the hand regulator shown in Fig. 1. Fig. 3 is a plan view of the upper portion of the apparatus. Fig. 4 is an enlarged transverse section on the line 4—4 of Fig. 1. Figs. 5 and 6 are plan views of the indicators for the manual and automatic regulators hereinafter described. Figs. 7 and 8 are diagrammatic views illustrating the operation of the apparatus.

I will first describe the apparatus in which the regulation of combustion is effected manually. The heater proper 1 has an enlarged outer chamber and a reduced inner chamber or passage 2 arranged horizontally and suitably connected with a flue. A vertical pipe 3 extends upward from the body 1 of the heater and upon it is supported an oil-holder proper 4. The latter has transverse, vertical, parallel portions 5, which are spaced apart and provided with openings near the bottom which are covered by a wire gauze $5^a$ (Fig. 4), constituting a filter for the oil; and 6 is a needle valve, whose stem extends upward through the central portion 7 of the top of the oil-holder 4, and is there connected with a lever 8 that is fulcrumed adjustably on a short post 9. The outer end of the lever is jointed at $8^a$ to a vertical rod 10 which is screw-threaded at 11, where a hand-nut 12 is applied, the same resting upon a disk 13 which is in turn supported on the tube 3. As shown in Fig. 5, the disk 13 may be marked with a scale to indicate the adjustment and the consequent size of the opening of the valve 6. A spiral spring $12^a$ is applied to the rod 10 below the disk 13, and tends to draw the latter downward and thereby open the valves. By adjusting this nut 12, it is obvious that the rod 10 may be raised or lowered, and thereby, through the medium of the lever 8, the needle valve 6 will be correspondingly adjusted, so as to allow a greater or less flow of liquid from the holder 4.

Let it be supposed that the holder is filled with crude oil, and the needle valve 6 raised more or less, the oil will flow down over a cone $6^a$ which is fixed on the lower end of the needle valve in the upper portion of the tube 3. Oil drips from the base of this cone and falls upon a series of plates 14, which, in view of their function, may be termed dampers. The same are bent at an obtuse angle and pivoted at $14^a$, so as to lie, generally speaking, in horizontal planes. Their right-hand ends are pivoted to the lower portion or section of a rod 15, by which they may be adjusted, and said rod is in turn connected, by an adjustable joint 16, with the aforesaid rod 10 that governs the position of the needle valve 6. It is obvious that the connection between the shanks or stems of the dampers must be such as to permit vibration of the dampers when the rod is moved vertically. For this purpose, the opening in the shanks of the damper may be elongated, or formed as a slot, as shown in Fig. 1. The dampers 14 are made successively longer from the top downward and their obtuse-angle free ends thus overlap each other in the manner of shingles on a roof. The oil dripping upon the upper series of dampers is spattered or broken up mechanically, and air supplied from the rear mingles with the heated and gasified oil, which being ignited, is consumed, the products of combustion passing out through the passage 2. The air to be supplied is heated in its passage, since it first enters a chamber 16, passes through a grated opening 17, thence through a passage 18 lying below the combustion chamber proper, and then upward into a chamber 19 in rear of the dampers 14. Figs. 7 and 8 serve to illustrate, diagrammatically, and somewhat crudely, the effect produced by the dropping of oil on the downwardly inclined ends of the dampers 14, when the same are nearly closed and when opened to a considerable extent. In Fig. 7, they are

shown nearly closed, and hence the degree of combustion and the force of the air currents are reduced correspondingly; but in Fig. 8 they are opened more widely and the flow of air to support combustion is correspondingly greater. In any case, the mechanical connection between the needle valve 6 and the dampers 14, is such that, when one is opened widely, the others are also; and vice versa. Thus the supply of air to support combustion is always proportionate to the amount of oil delivered upon the dampers.

Alongside the needle valve 6, I arrange a supplemental hand-operated needle valve 20 which is so adjusted as to allow a small, but constant, drip of oil upon the central dampers whose free ends are provided with slots or openings as shown. The oil thus delivered serves to support a pilot flame or light, so that if the supply of oil by the needle valve 6 be entirely cut off, ignition will again occur when the needle valve is reopened.

The combustion chamber, at a point 21 directly below the dampers 14, is depressed, as shown, and a tube 22 is attached at that point and serves to conduct into a receiver 23 any oil which may fail of combustion in the chamber.

The upper portion or section of the tube 3 is made of glass, or else provided with a glazed inspection opening, so that it may be ascertained, at any time, what amount of oil is discharging from the cone $6^a$.

The fulcrum post 9 of lever 8 may be adjusted right or left on the top 7 of the oil-holder, and may be clamped in any adjustment by a screw 25. As previously intimated, 7 indicates the middle portion of the oil-holder, or that portion which covers the space between the two parallel partitions. Separate removable covers $7^a$ (see Fig. 3) which are semi-circular in form, are applied to cover the side portions or compartments of the oil-holder.

A pipe 26, made in sections, connects the upper portion of the oil-holder with the combustion chamber 2, and serves to conduct from the former to the latter any gas or oil vapor which may be formed in the holder.

The lower portion of the oil-drip tube 3 is surrounded by a water-holder 27. The water cools the pipe to a certain degree and thus hinders the vaporization or gasification of the oil therein, while warm water is at the same time provided for domestic or other use. The dampers are arranged in what may be termed a housing $14^b$, the same being adapted to fit the interior of the combustion chamber and the forward edge being inclined and abutting ribs $1^d$ formed on the sides of the chamber. The housing, with the dampers attached, may be easily adjusted in place or removed.

The body 1 of the heater is provided at $1^d$ with a vertical flange which is in contact with the wall of the flue and assists in closing the opening therein. The outer portion of the heater 1 is supported by legs $1^b$ which may be secured in any required adjustment by clamp-screws $1^c$, as shown in Fig. 2.

In Fig. 2, I show an automatic thermostatic regulator which may be used in place of the hand regulator shown in Fig. 1. Thus, a bowed or U-shape spring 28 is arranged in horizontal position, one end being connected with the rod $10^a$, and the other with a tube which is adjusted by a screw and bears upon a spiral spring 30 and is arranged for vertical adjustment in a bracket 31. By rotating this screw, it is obvious that the longer arm of the spring 28 may be adjusted higher or lower and its tension thereby increased. The spring 28 is made of different metals such as are ordinarily employed for producing a thermostatic action for example of steel and copper. The top of the bracket 3, is circular or disk-like as shown in Fig. 6 and is graduated and bears different numerals for indicating different adjustments of the screw 29, the latter having an index or pointer which sweeps over the graduated disk.

It will be apparent that the spring 28 will expand or contract more or less according to the temperature of the air surrounding it, or the heat radiating from the heater, and that thereby the rod $10^a$ will be adjusted higher or lower, with the corresponding effect of opening or closing the needle valve 6 and the dampers 14 more or less.

What I claim is:

1. The combination of an oil-holder, a heater body located below, and a tube connecting the same, a needle valve applied to the oil-holder, a series of dampers arranged in the body of the heater, and pivoted so that their free ends may be adjusted nearer or farther apart, and a rod connecting their rear ends with the valve, and means for adjusting the rod higher or lower so that the valve and dampers in the heater may be opened simultaneously more or less, substantially as described.

2. The combination of a heater body and an oil-holder having a valve for regulating discharge of oil therefrom and provided at its lower end with a cone from which the oil drips, dampers arranged in the heater and in position to receive the drip, and means for connecting them with the said valve so that both are adjusted simultaneously, substantially as described.

3. The combination of a heater proper having a combustion chamber, and an oil-holder provided with a valve governing discharge of oil therefrom, and means for regulating access of air to said combustion chamber, such means being connected with

the aforesaid valve so that both are adjusted simultaneously, substantially as described.

4. The combination with an oil-holder and a valve for regulating the discharge therefrom, of a supplemental valve for regulating drip to support an igniting flame, a chambered heater body arranged below and provided with dampers pivoted therein and arranged to overlap, whereby they may be opened or closed more or less to govern the admission of air to the chamber of the heater, and one of them provided at its free end with a slot which permits free passage of air at all times, substantially as described.

5. The combination with a heater body, an oil-holder, and a vertical tube connecting the two, of a needle valve arranged in the holder, a lever connected therewith and having a laterally adjustable fulcrum; dampers arranged in the heater for governing the passage of air to the same, and a rod connecting such dampers with the aforesaid lever.

6. The combination of a heater proper and plates arranged therein for receiving oil drip, an oil-holder arranged above and provided with a valve for regulating discharge of oil, a rod operatively connecting such valve and plates whereby both may be adjusted simultaneously, said rod having a threaded portion, a nut applied thereto, a spring encircling the rod and tending to open the valve, and a fixed bar 13 interposed between the nut and spring, substantially as described.

PETER LISIENIECKI.

Witnesses:
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AUGUST FUGGER.