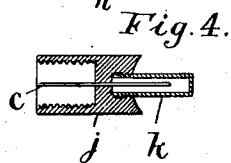
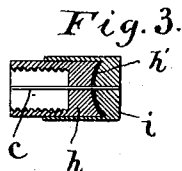
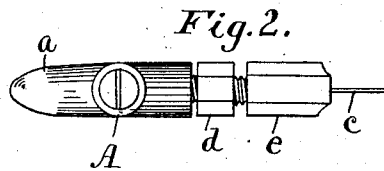
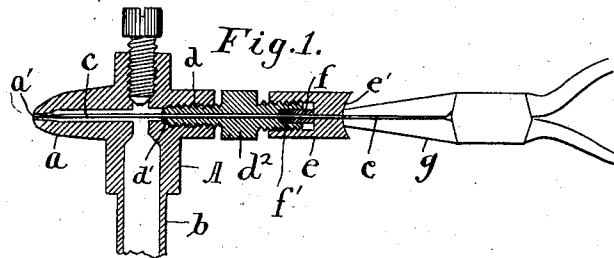


F. L. ORDWAY.
NEEDLE VALVE.
APPLICATION FILED FEB. 14, 1910.

997,506.

Patented July 11, 1911.



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UNITED STATES PATENT OFFICE.

FRED LEON ORDWAY, OF PORTLAND, MAINE.

NEEDLE-VALVE.

997,506.

Specification of Letters Patent.

Patented July 11, 1911.

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To all whom it may concern:

Be it known that I, FRED LEON ORDWAY, a citizen of the United States of America, and a resident of Portland, in the county of Cumberland, State of Maine, have invented certain new and useful Improvements in Needle-Valves, of which the following is a specification.

My invention relates to needle valves such as are used on vapor burners and it relates particularly to needle valves adapted to be used on the pilot flame of a gasoline automobile burner such as are used in steam automobiles and in other like situations. These pilot burners commonly have a vapor discharge opening in which the vapor supply is regulated by a needle of smaller diameter than the opening forming an annular space for the discharge of the vapor. Any deposit of carbon on the needle itself or in the opening cuts down the area of the opening materially and it thus becomes difficult to keep the opening of the right size to produce a blue flame in the pilot.

The object of my invention is to throttle the vapor discharge opening by a needle which extends through the rear end of the valve casing and which is capable of being accurately adjusted by means outside of the casing.

I illustrate my invention by the accompanying drawing in which—

Figure 1 is a central vertical section taken longitudinally through a vapor burner provided with my throttling needle, Fig. 2 is a plan of the same, Fig. 3 is a longitudinal section showing a modified form of means for holding the needle, and Fig. 4 is a like section showing a protecting housing for the exposed portion of the needle.

In the drawing referring to Figs. 1 and 2, A represents a casing such as is generally used for such burners, the casing having a vapor nozzle *a* provided with a vapor discharge opening *a'* through which the vapor passes to the pilot or other burner and *b* represents the inlet pipe.

For the purpose of throttling the vapor at the discharge outlet, I employ a needle *c*, the point of which lies normally in the opening *a'*. The construction of the device is such that the needle extends through the rear portion of the casing to a point outside of the casing where it can be directly manipulated by a pair of pliers or other gripping device, a cam surface being preferably

supplied to act as a bearing for the end of the pliers in withdrawing the needle as hereinafter shown.

In the construction which I prefer to use, the needle is extended rearward through a screw plug which gives access to the interior of the burner. As herein shown a screw plug *d* has a valve seat *d'* in the interior of the burner with a hexagonal portion *d''* to receive a wrench. The rear end of the plug is screw threaded and contains a gland recess in which is a gland *f* and a suitable packing ring *f'*. The gland is held in place by a screw cap *e* which fits on the rear end of the screw plug *d* and the needle *c* passes centrally through the plug, the gland and the screw cap emerging at the rear end of the latter and extending a considerable distance in the rear so that it can be readily grasped by a gripping tool as the pliers *g*. For the purpose of providing a bearing for the nose of the pliers to gradually withdraw the needle, I form a cam surface *e'* on the rear end of the cap *e*, the surface being so formed that when the pliers are turned with the needle as an axis while grasping the needle, the latter will be gradually drawn back. The cam surface is concave and generally cylindrical, that is, it has its most depressed portion substantially straight in one direction, the surface each side of the straight portion inclining rearwardly. Thus the nose of the pliers, being held against the surface and turned or twisted will be forced to the rear. As here shown, the needle is grasped by the pliers as shown in Fig. 1, the ends of the pliers resting against the concave cylindrical surface *e'*. Upon being turned with the needle as an axis, the needle is withdrawn from its original position. When the needle, is to be forced inwardly the rear end is seized by the pliers and forced directly in, the cam surface *e'* serving as a stop to limit the inward motion. It will thus be seen that the needle may be moved in or out and accurately regulated by the use of a pair of pliers the point of the needle throttling the discharge opening and thus accurately regulating the vapor supply and the flame. Instead of using a pair of pliers or other detachable clamping device, I may employ a fixed handle secured to the needle cooperating with the cam surface to adjust the needle. In Fig. 3 is shown such an arrangement in which *h* is a housing cor-

responding to the part *e* in Fig. 1 except it is cylindrical in shape with a cap shaped handle *i* secured to the rear end of the needle and having a flange fitting over the part *h* and a cam surface coöperating with the cam surface *h'* on the part *h*. The handle *i* may be grasped by a pair of pliers and turned to control the needle or it may be manipulated by hand. The needle in this form of device is protected and at the same time a handle is formed for operating it.

In Fig. 4 is shown a housing by which the exposed portion of the needle is protected. In this figure *j* is the cam cap and *k* is a tubular housing engaging a screw threaded recess formed in the end of the cam cap *j*.

My needle valve may be applied to the pilot burner as stated or to the main vapor supply or to any needle valve through which vapor is delivered. The small size of the gland which fits the needle proper renders it easy to keep tight as it decreases the area subjected to pressure.

It is evident that the needle may be held in the casing otherwise than by the means here shown and that it may be directly manipulated without the use of a cam surface.

The device is cheaply made, easily regu-

lated and easily made tight and the needle may be readily and quickly replaced.

I claim:—

1. In a needle valve, the combination of a valve casing having a discharge opening, and a needle for throttling said opening and extending through the rear portion of said casing to the outside thereof, said valve having a concave cylindrical cam surface adjacent to the point where the needle emerges from the casing and so formed as to act as a bearing for a detachable gripping tool.

2. In a needle valve, the combination of a valve casing having a vapor discharge opening therein, a screw plug in the rear portion of said casing having a gland recess, a gland in said gland recess, a screw cap on the rear end of said plug adapted to hold said gland in place, and a needle for throttling said vapor discharge opening, said needle extending through said plug, gland and cap, said cap having a cam surface adjacent to the point where the needle emerges to act as a bearing for a gripping device.

In witness whereof I have hereunto set my hand this 3d day of February, 1910.

FRED LEON ORDWAY.

Witnesses:

S. W. BATES,

ELEANOR W. DENNIS.