

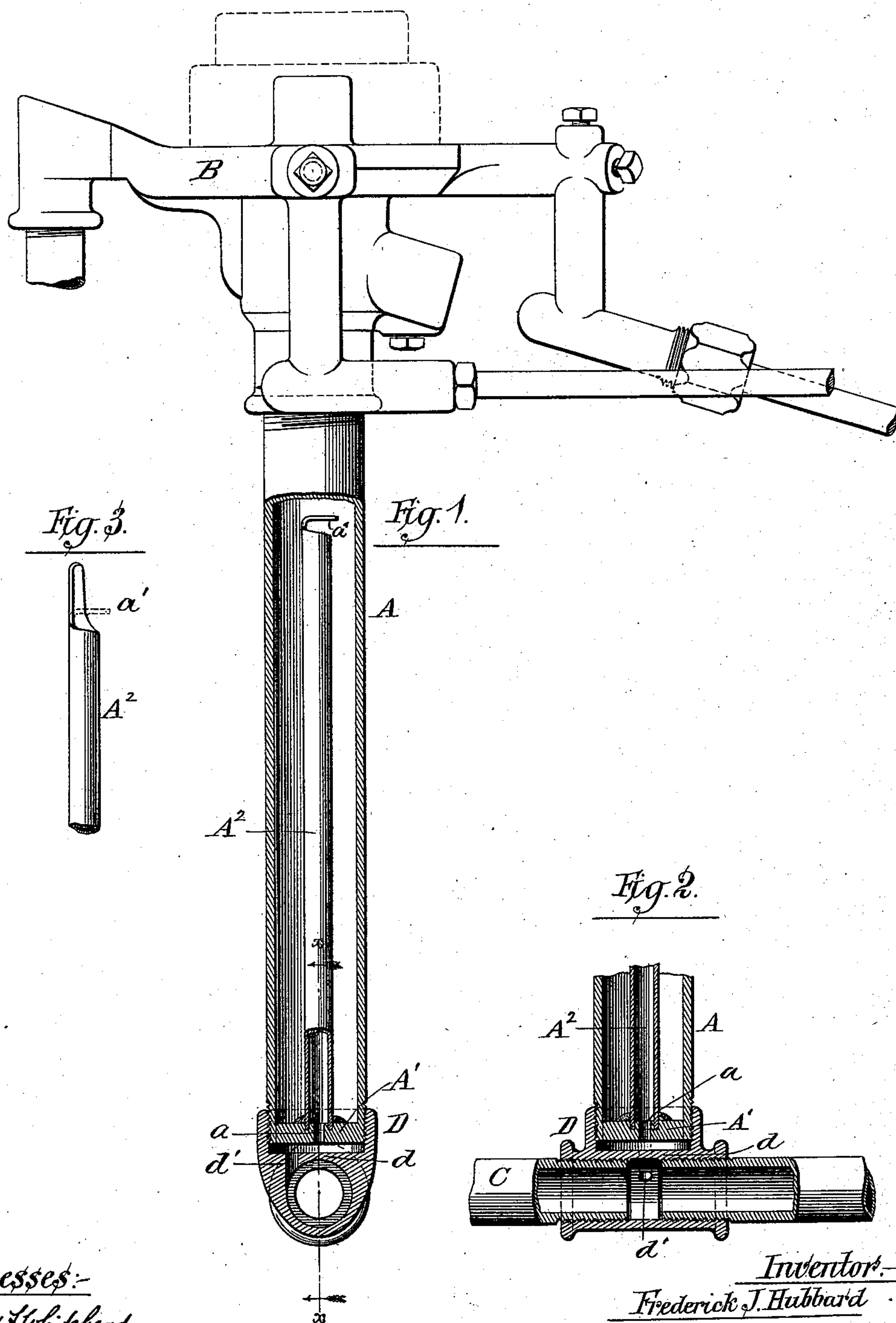
(No Model.)

F. J. HUBBARD.

DEVICE FOR REGULATING THE FLAMES OF VAPOR STOVES.

No. 377,560.

Patented Feb. 7, 1888.



Witnesses:-  
*Wm. H. L. Whitehead.*  
*Charles J. Loring.*

Inventor.-  
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by:- *Dayton & Poole*  
Attorneys:-



# UNITED STATES PATENT OFFICE.

FREDERICK J. HUBBARD, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ADAMS & WESTLAKE MANUFACTURING COMPANY, OF SAME PLACE.

## DEVICE FOR REGULATING THE FLAMES OF VAPOR-STOVES.

SPECIFICATION forming part of Letters Patent No. 377,560, dated February 7, 1888.

Application filed December 30, 1886. Serial No. 222,996. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK J. HUBBARD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Regulating the Flames of Vapor-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to hydrocarbon vapor generating and burning apparatus including what are known as "vapor-stoves."

It relates more particularly to the vertical feed pipe or passage by which the hydrocarbon liquid is led to the vapor-generator; and the object of the invention is to provide a construction whereby puffing of the flame or unequal emission of the vapor from the burner-orifices will be avoided or materially lessened.

To this end the invention consists in the matters hereinafter set forth, and pointed out in the claim.

In the drawings, Figure 1 illustrates my invention applied to the stand-pipe or vertical feed-pipe, which supplies hydrocarbon liquid from a horizontal liquid-pipe to the generating-burner of a vapor-stove. Fig. 2 is a fragmentary view in vertical section through the parts shown in Fig. 1, the section being taken in the line *x x* of said Fig. 1. Fig. 3 is a detail.

A represents a stand-pipe of a vapor-stove surmounted by a vapor-generating burner, B, and connected at its lower end with the horizontal main supply-pipe C, through which hydrocarbon liquid is led to the generating-chamber of the burner. The connection D (here shown for joining the stand-pipe with the main feed-pipe) is the usual T or L coupling provided with a diaphragm, *d*, having an orifice, *d'*, through it to admit the liquid to the stand-pipe.

In the use of the parts only so far described much difficulty is encountered in the operation of the burner, owing to the tendency of the latter to "puff" by the pulsating pressure

of the vapor within the burner and stand-pipe and its consequent uneven emission from the orifices of the burner. To correct this tendency, I provide a diaphragm, A', in the stand-pipe A and desirably near its lower end, which diaphragm has an aperture, *a*—say, about three thirty-seconds of an inch in diameter—to give the best results in a stove of ordinary domestic size.

A<sup>2</sup> is a relatively small tube resting on the diaphragm A' and surrounding the aperture *a* by a close joint, said tube rising, preferably, to near the top of the stand-pipe and having its upper end open. The upper and open end of the said tube A<sup>2</sup> may, however, be advantageously covered to prevent obstruction thereof, or of the orifice *a* by sand or dirt dropping from the interior of the superposed cast-metal burner B. Such a cover may also sometimes serve usefully as a deflector for the liquid admitted by the tube to the stand-pipe. In the present instance the cover or deflector *a'* is formed of the tube itself, one side of which is left longer than the other and bent into position to form a shield, as shown in Figs. 1 and 3.

By the use of the apertured diaphragm A', and relatively small tube A<sup>2</sup> within the larger stand-pipe A, I have found that the objectionable pulsating action of the burner is remedied and that the burner fed thereby emits an even and regular flame.

I claim as my invention—

The combination, with a main horizontal feed-pipe and coupling provided with an apertured diaphragm, *d*, of a stand-pipe inserted in said coupling and provided with a second apertured diaphragm, and an open-topped tube secured to the latter diaphragm around the aperture therein and rising within the stand-pipe to near the top thereof, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

FREDERICK J. HUBBARD.

Witnesses:

M. E. DAYTON,

CHARLES T. LORING.