

No. 774,307.

PATENTED NOV. 8, 1904.

I. E. BUTLER.

AIR AND GAS MIXER FOR CARBURETERS.

APPLICATION FILED JAN. 21, 1903.

NO MODEL.

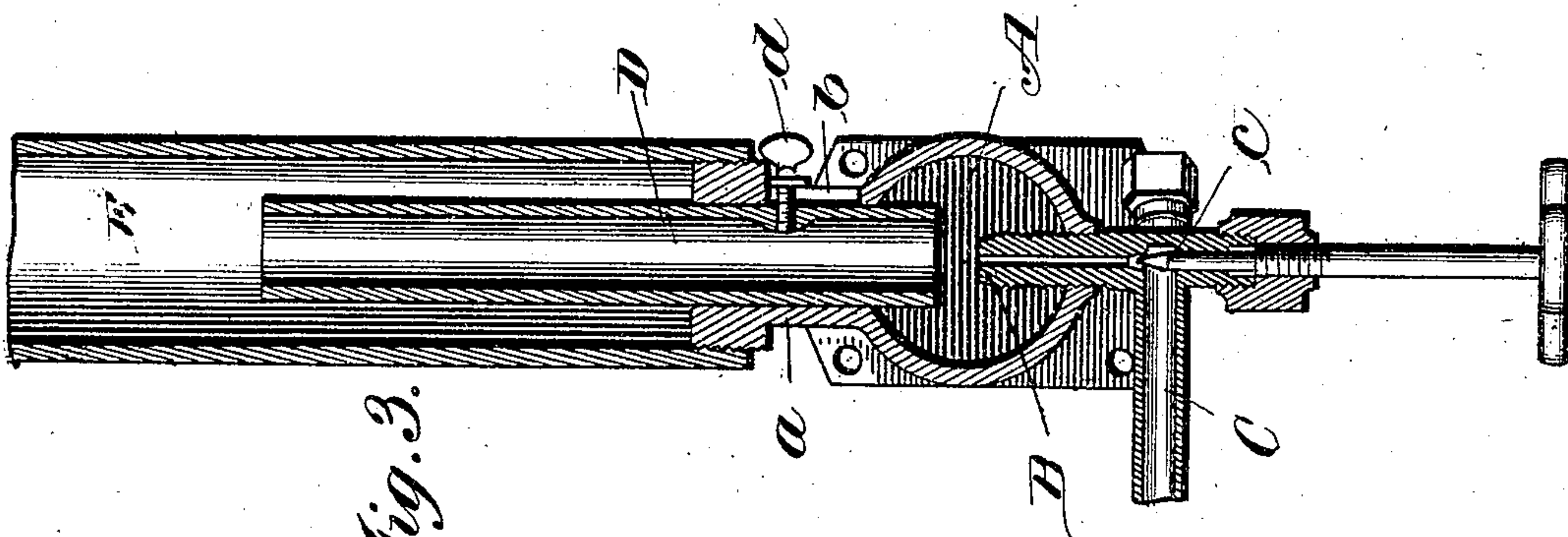
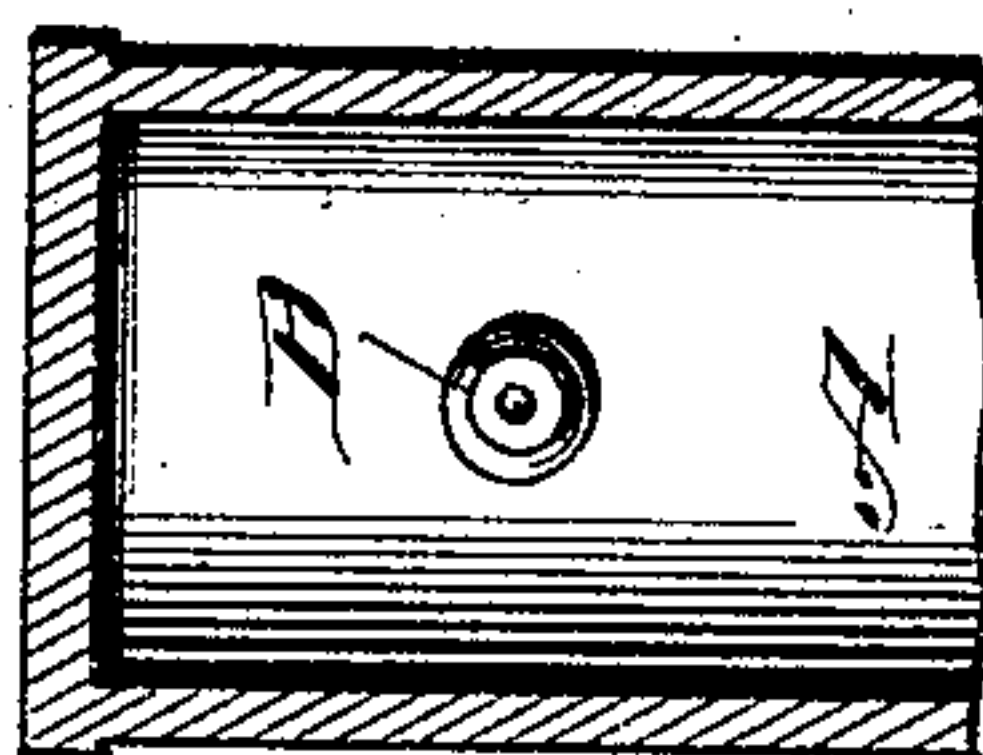


Fig. 3.

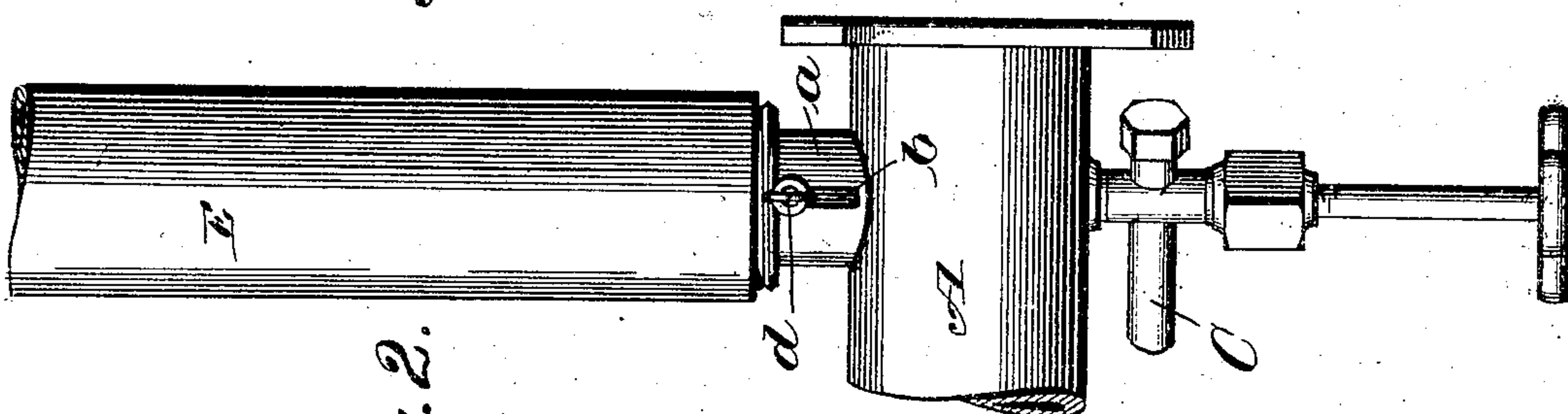
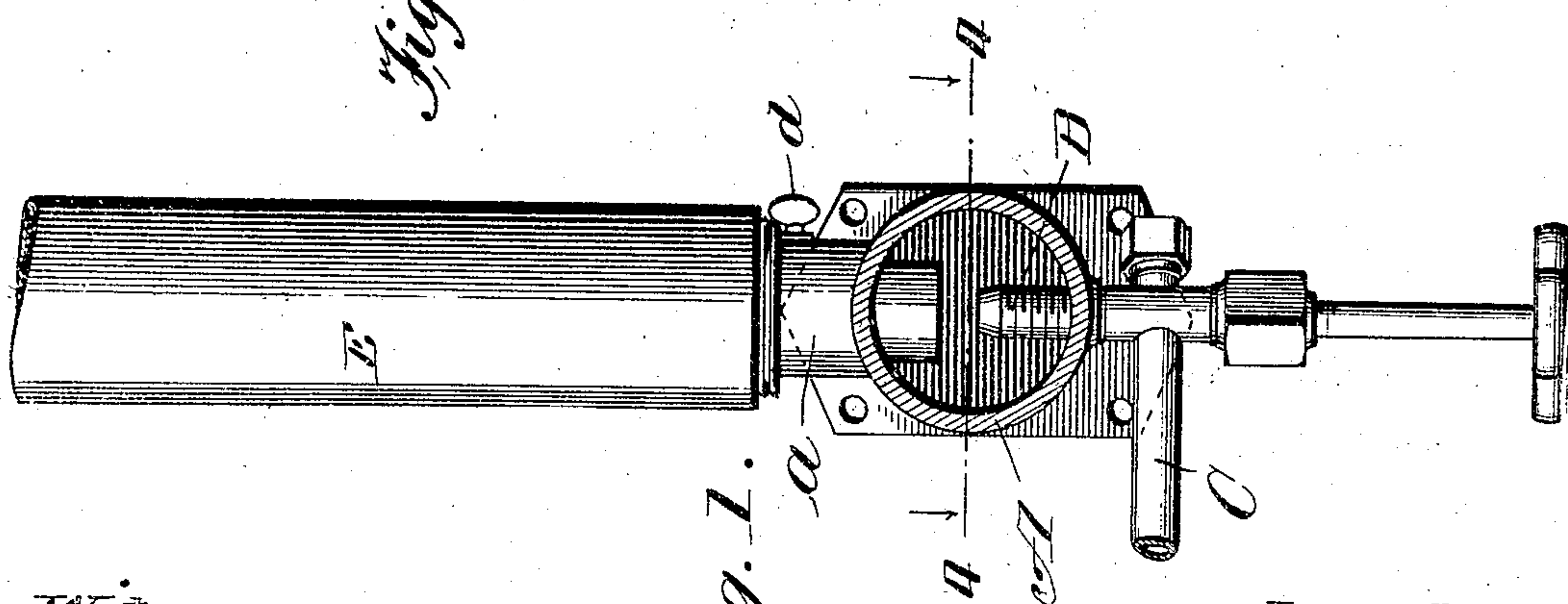


Fig. 2.



7.

Witnesses:

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UNITED STATES PATENT OFFICE.

IRA E. BUTLER, OF CHICAGO, ILLINOIS.

AIR AND GAS MIXER FOR CARBURETERS.

SPECIFICATION forming part of Letters Patent No. 774,307, dated November 8, 1904.

Application filed January 21, 1903. Serial No. 139,945. (No model.)

To all whom it may concern:

Be it known that I, IRA E. BUTLER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Air and Gas Mixers for Carbureters, of which the following is a full, clear, and exact description.

My invention relates to devices that mix air with the gas or oil vapors generated by carbureters; and its object is to enable such a perfect mixture of these elements by regulating the flow thereof that perfect combustion and superior illumination and heating power is obtained therefrom. This I accomplish by the means hereinafter fully described, and as particularly pointed out in the claims.

In the drawings, Figure 1 is a front view of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical central section. Fig. 4 is a horizontal section taken on dotted line 4 4, Fig. 1, looking in the direction indicated by the arrows.

The subject-matter of this application is particularly applicable to the carbureter for which application for Letters Patent of the United States was filed January 21, 1903, Serial No. 139,944, although it will be understood it can be used in connection with carbureters other than that described in said application.

Referring to the drawings, A represents an air-chamber, which is preferably of a cylindrical shape and arranged in a horizontal position. The air enters this chamber A preferably at one end, and at the other end is provided with a gas-inspirator comprising a screw-threaded injector B, which is tapped vertically through the floor of said chamber. This injector preferably arises from and is made in one piece with the horizontal discharge branch C of the vaporizing devices of a carbureter, and the opening or orifice connecting the bore of said injector with said branch is controlled and the flow of gas there-through regulated by a needle-valve *c*, the spindle of which has a suitable thumb-wheel on its lower end and is tapped up through the lower portion of the wall of the branch C in alinement with the bore of said injector.

The chamber A, at a point diametrically opposite the injector B, is provided with a short stub *a*, the diameter of the inner circumference of which is greater than that of said injector, and has inserted therethrough a mixing-tube D, in the same axial line as said injector. The diameter of this tube is such as to fit snugly within the stub *a*, and its length is such that its lower end extends into chamber A and terminates in the vicinity of the tip of the injector. This tube D has a limited longitudinal adjustability, which is regulated by means of the shouldered thumb-screw *d*, which is tapped radially into the portion thereof confined within the stub *a*. This thumb-screw extends out through a longitudinally-elongated slot *b* in stub *a*, and by tightening this screw the mixing-tube is held, according as desired, in any adjusted position within the limits of the slot *b*. The mixing-tube extends up beyond the upper end of the stub into the gas-main E of the system in connection with which my improvements are to be used and discharges into the same the carbureted air to be utilized by said system.

The operation of my invention will be readily understood. The pressure of the jet of gas discharged from the injector into the lower end of the mixing-tube draws into said tube a current of air from the air-chamber A and mixes with the same. The relative proportion of gas and air mixed within the tube D is controlled by properly manipulating the needle-valve *c* and vertically adjusting the mixing-tube, which latter when adjusted to its lowest position surrounds the tip of the injector and only permits a minimum quantity of air to enter the same, and when adjusted to the limit of its upper position permits a maximum amount of air to be drawn into it.

What I claim as new, and desire to secure by Letters Patent, is—

1. An air and gas mixer for carbureters comprising an air-chamber having a stub projecting laterally therefrom, which is provided with a longitudinally-elongated slot in its side wall, a valve-controlled injector striking through the wall of said air-chamber diametrically opposite said stub, a longitudinally-adjustable mixing-tube fitting snugly in said

stub, and a thumb-screw tapped into said mixing-tube and extending out through the slot in said stub, as and for the purpose set forth.

2. An air and gas mixer for carbureters
5 comprising an air-chamber having a stub projecting therefrom which is provided with a longitudinally-elongated slot, a gas-main connected to and extending from the outer end of said stub, a valve-controlled injector striking
10 through the walls of said air-chamber diametrically opposite said stub, a longitudinally-

adjustable mixing-tube fitting snugly in said stub, and a thumb-screw tapped into said mixing-tube and extending out through the slot in said stub, as and for the purpose set forth. 15

In testimony whereof I have hereunto set my hand this 10th day of November, 1902.

IRA E. BUTLER.

Witnesses:

E. W. HART,

E. K. LUNDY.