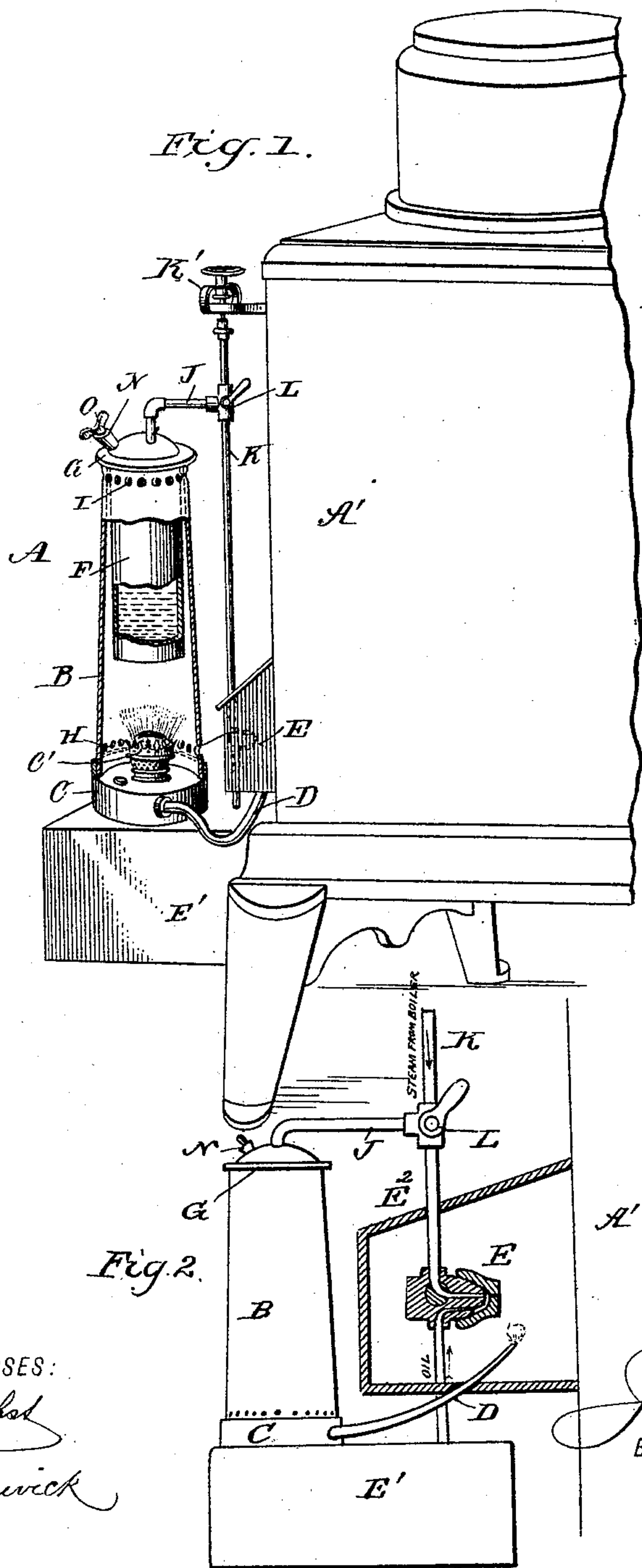


(No Model.)

J. W. COONE.
HYDROCARBON BURNER ATTACHMENT.

No. 452,664.

Patented May 19, 1891.



WITNESSES:

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JOHN W. COONE, OF THOMPSON, PENNSYLVANIA.

HYDROCARBON-BURNER ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 452,664, dated May 19, 1891.

Application filed June 26, 1890. Serial No. 356,838. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. COONE, of Thompson, in the county of Susquehanna and State of Pennsylvania, have invented a new and Improved Hydrocarbon-Burner Attachment, of which the following is a full, clear, and exact description.

The invention relates especially to an attachment for the "Shipman automatic steam-engine," which is provided with a hydrocarbon-burner for generating steam. The injector or atomizer discharges atomized steam and oil into the fire-box and is operated by steam from a pipe leading down from the boiler, and a hand-operated compressed-air pump is provided to supply the boiler with compressed air for operating the atomizer or injector through the said steam-pipe until steam generates in said boiler, whereupon the pump is no longer operated, and the atomizer or injector is then operated by steam therefrom.

The object of my invention is to dispense with this compressed-air pump and at the same time provide an equally effective and less expensive substitute, which will operate the atomizer or injector until the engine-boiler contains steam sufficient to operate the said atomizer or injector.

The invention consists, therefore, in a small boiler having a suitable heater and provided with a steam-pipe having connection with a pipe leading from a steam-engine boiler to the atomizer or injector of a hydrocarbon-burner used in heating said engine-boiler.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a broken view, in side elevation, of the boiler, atomizer, or injector, steam-pipe therefor, oil-tank, and torch of a "Shipman automatic steam-engine. Rochester model. Stationary," with my attachment applied in lieu of the compressed-air pump; and Fig. 2 is an enlarged detail view showing the atomizer or injector and the fire-box of the Shipman engine in section.

In the drawings, the boiler A', hydrocarbon and steam injector or atomizer E, oil-tank E', and steam-pipe K are parts of the well-known Shipman engine, and A represents my attachment therefor. C is the torch of said engine, provided with a tube D, entering fire-box E² and having a wick, whereby flame may be supplied to the mixed oil and steam discharged into the fire-box or hydrocarbon-burner. I have changed the construction of this torch C by adding a burner C', and a casing B extends upward from said lamp or torch. If desired, a heater separate from the torch may be used for said small boiler.

In the casing B is held a small boiler F, provided on its upper end with a flange G, resting on top of the casing B, the said boiler extending within a short distance of the burner of the lamp C and forming a space between it and the casing B. In the lower end of the casing B are arranged a series of openings H to admit fresh air necessary for the combustion when burning the lamp C, the upper end of the said casing being provided with similar openings I for the escape of smoke and gases arising from the burning of the lamp C.

The top of the small boiler F is connected by a pipe or tube J with a steam-pipe K, leading from the steam-boiler to the hydrocarbon-burner attached to the said steam-boiler.

The steam-pipe K, where it connects with the boiler A', is provided with the diaphragm steam-regulator K' to regulate the amount of steam passing to the atomizer, just as in the Shipman engine, and as this diaphragm and as the atomizer E are both parts of the said engine a detailed description is deemed unnecessary. A three-way valve L is arranged at the junction of the pipes J and K, so that the said pipe J can be cut off whenever desired. In the top of the small boiler F is also arranged an inlet-pipe N, adapted to be closed by a plug O, seated therein by its own weight. The small boiler F may also be provided with the usual water and steam gage, if desired.

The operation is as follows: When the hydrocarbon-burner is to be started, the valve L is turned, so as to disconnect the upper part of the pipe K from the steam-compartment of the boiler and to connect the pipe J

with the lower part of the pipe K. The small boiler F, having previously been filled with water through the inlet N, is now heated by lighting the lamp C, so that the heat of the latter heats the small boiler F and generates the steam therein. The steam generated in the small boiler F passes through the pipe J into the pipe K and mixes in the usual manner with the oil-supply of the hydrocarbon-burner by means of the atomizer or injector, so that the atomized oil and steam can be ignited by the torch, and thereby generate steam in the main boiler. When sufficient steam has been generated in the main boiler, the lamp C is extinguished and the valve L is turned to disconnect the pipe J from the pipe K, so that steam from the main boiler can now pass through the pipe K to operate the atomizer or injector of the hydrocarbon-burner in the usual manner.

It will be seen that this attachment can be readily applied to all hydrocarbon-burners now in use which are connected with the boiler to be heated by a steam-pipe, and merely serves to furnish a small quantity of steam to start a hydrocarbon-burner until sufficient steam is generated in the main boiler to work the hydrocarbon-burner with.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a main steam-boiler provided with a steam-pipe leading to its hydrocarbon atomizer or injector for operating the same, of an auxiliary smaller boiler having a pipe connected to said first-named pipe, a three-way valve at the juncture of the two pipes to direct steam from either boiler to the said atomizer or injector, and means for heating the smaller boiler, substantially as set forth.

2. The combination, with the steam-boiler A, having an atomizer or injector at E, a steam-pipe K, leading from the boiler to said atomizer or injector to operate the same, of a combined lamp and torch, a smaller auxiliary boiler supported over said lamp, a pipe J, leading from said smaller boiler to the pipe K, and the three-way cock L at the juncture of said pipes to direct steam from either boiler to the atomizer or injector, substantially as set forth.

JOHN W. COONE.

Witnesses:

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C. M. LEWIS.