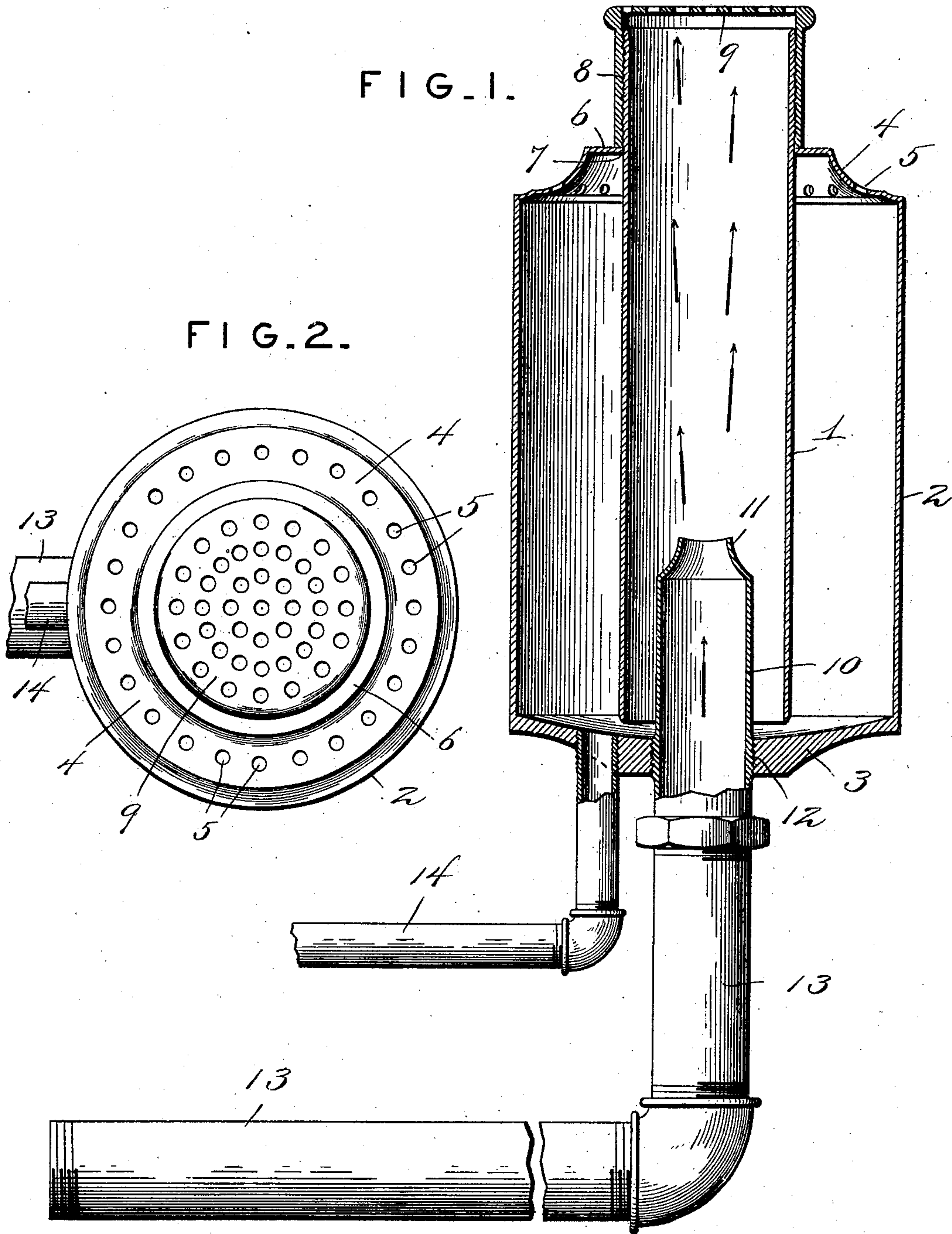


No. 712,235.

Patented Oct. 28, 1902.

H. R. ARTHUR.
FURNACE BLOWER.
(Application filed Dec. 13, 1901.)

(No Model.)



WITNESSES:

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HENRY R. ARTHUR, OF LONGMONT, COLORADO.

FURNACE-BLOWER.

SPECIFICATION forming part of Letters Patent No. 712,235, dated October 28, 1902.

Application filed December 13, 1901. Serial No. 85,790. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. ARTHUR, a citizen of the United States, residing at Longmont, in the county of Boulder and State of Colorado, have invented new and useful Improvements in Furnace-Blowers, of which the following is a specification.

This invention relates to a blower attachment for use in connection with furnaces; and the object of the same is to provide a simple and effective noiseless attachment for the purpose of establishing a draft and to maintain a certain steam-pressure by an economic use of fuel.

The improved device is of such simple construction and organization that it can be easily applied in operative position, and its components are also individually prepared or constructed from such materials as to render the entire device strong and durable. In certain localities or in certain positions of a stack or chimney obstruction to a regular draft is set up by the direction of the wind, and great difficulty is frequently encountered in maintaining a desired steam-pressure and in effectively firing a furnace by reason of the obstruction noted. The present improved device was therefore devised to meet this contingency.

In the drawings, Figure 1 is a transverse vertical section of the improved blower, showing the connections therefor partially broken away and mainly in elevation. Fig. 2 is a top plan view of the blower.

Similar numerals of reference are employed to indicate corresponding parts in the views.

The numeral 1 designates a shell preferably constructed of cast-iron and providing a condensing-chamber, the said shell or condensing-chamber being concentrically disposed in a cooling-chamber 2 of considerably greater diameter and also constructed of suitable metal, the bottom 3 of the chamber being practically closed and the top 4 formed with a plurality of perforations 5 for the entrance of air to the said cooling-chamber. The top 4 of the chamber 2 is centrally elevated to provide a horizontal table 6, having a central opening 7 therein, through which the upper extremity of the shell 1 extends a suitable distance, and is exteriorly screw-threaded to removably receive a cap 8, which

is run downwardly thereover and has its lower end normally resting on the table 6. The top 9 of the cap 8 is foraminous, the said cap being preferably constructed of malleable metal.

Extending upwardly through the center of the bottom 3 of the cooling-chamber and entering the lower portion of the condensing-chamber is a brass injector-nozzle 10, having an upper contracted outlet end 11, the said nozzle being formed with exterior screw-threads 12 near its lower extremity for engagement with corresponding threads formed in the wall of the opening through which it passes. The nozzle 10 is coupled at its lower extremity and exteriorly of the improved device to a steam-pipe 13, which may run from any suitable source of supply. Eccentrically engaging the bottom 3 is the upper end of an outlet or drip pipe 14, by means of which the deposit or accumulation of water of condensation in the cooling-chamber may be carried away from the blower, so that the said cooling-chamber will always be in condition to effectively perform its function.

In the operation of the device steam is conveyed through the pipe 13 to the nozzle 10 and passes upwardly through the condensing-chamber. By the time the steam passes through the cap 8 into the stack or chimney it is free of moisture, as the large cooling or air chamber 2 sets up a rapid condensation, and the water of condensation falls back through the condensing-chamber 1 into the cooling-chamber and passes off through the drip-pipe 14, the lower end of the condensing-chamber being elevated above the bottom 3 of the cooling-chamber to permit the water of condensation to freely escape from said condensing-chamber. In connecting the improved blower to the boiler it is advisable that the steam be taken from the highest point; but this is not actually necessary, when the device is used in connection with several boilers in a battery with poor draft the blower may be connected through the breeching and piped to stand in a perpendicular position. Furthermore, in applying the improved device a small hole may be cut in the iron stack or brickwork to run the drip-pipe to the outside away from the stack, and by this means the stack will be main-

tained in dry condition both interiorly and exteriorly. The only parts of the improved device that will have to be often replaced are the nozzle 10 and the cap 8, they being the only components that are liable to soon wear out, and the remaining elements will last for a considerable time. Moreover, the improved blower attachment does not require attention or adjustment after disposition in operative position, and in its use economy in the consumption of coal or other fuel and the use of water to maintain a desired steam-pressure results.

Having thus fully described the invention, what is claimed as new is—

1. In a device of the class set forth, the combination of a cooling-chamber having a perforate top, a condensing-chamber concentrically disposed in the cooling-chamber and projected upwardly through the top of the latter, the lower end of the condensing-chamber being above the bottom of said cooling-chamber, a foraminous cap fitted over the upper projecting extremity of the condensing-chamber, a steam-injecting nozzle extending upwardly from the bottom of the cooling-chamber into the condensing-chamber and having a steam-supply pipe connected there-

to, and a drip-pipe eccentrically attached to the bottom of said cooling-chamber.

2. A blower, comprising a cooling-chamber having a perforate top, a condensing-chamber concentrically mounted in said cooling-chamber and projected above the top of the latter, the upper projected extremity of the condensing-chamber having a foraminous covering, and means for injecting steam into the condensing-chamber and for relieving the cooling-chamber of the accumulation of water of condensation.

3. A blower of the class set forth, comprising a central condensing-chamber, a cooling-chamber of materially greater diameter than and surrounding the condensing-chamber, the latter projecting above the top of the cooling-chamber and having a foraminous covering, said cooling-chamber having a perforated top and means for supplying steam to the condensing-chamber and relieving the cooling-chamber of water of condensation.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY R. ARTHUR.

Witnesses:

F. H. STICKNEY,
DOY GRAY.