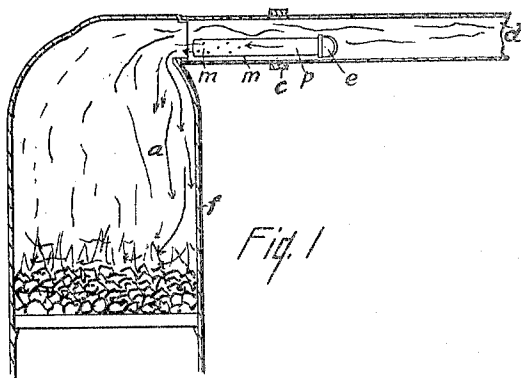
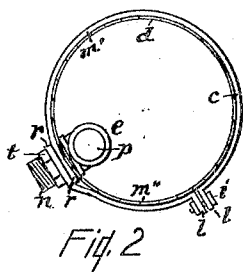
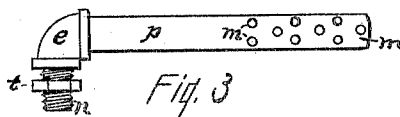
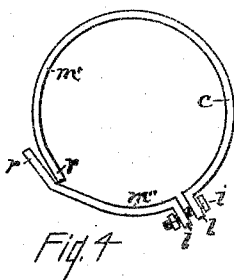
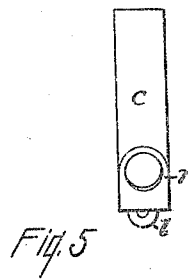


F. T. OAKES.
HEATING APPARATUS.
APPLICATION FILED JAN. 7, 1918.

1,291,091.

Patented Jan. 14, 1919.



INVENTOR
Frederick T. Oakes.
BY *H. Anderson*
ATTORNEY

UNITED STATES PATENT OFFICE.

FREDERICK T. OAKES, OF BROOKLYN, NEW YORK.

HEATING APPARATUS.

1,291,091.

Specification of Letters Patent.

Patented Jan. 14, 1919.

Application filed January 7, 1918. Serial No. 210,742.

To all whom it may concern:

Be it known that I, FREDERICK T. OAKES, a citizen of the United States, residing in the borough of Brooklyn, in the city of Greater New York, county of Kings, State of New York, have invented new and useful Improvements in Heating Apparatus, of which the following is a specification.

This invention relates to the burning of fuel in stoves, heaters and furnaces, and has the economizing of fuel as its object; and the object is attained by the means set forth in this specification and the accompanying drawings.

Figure 1 is a vertical longitudinal section of a furnace or heater and its smoke pipe. Fig. 2 is a transverse section of a pipe with the invention attached thereto. Fig. 3 is a plan of the principal element in the invention. Fig. 4 is a plan of a collar used to support the part shown in Fig. 3. Fig. 5 is a front vertical elevation of the collar shown in Figs. 2 and 4.

The invention consists of a device for placement in the smoke pipe that will admit air to the surface of the fire to insure combustion of the gases that rise from, and as they rise from the fuel. It is an undisputed fact that a large percentage of the gas liberated from fuel escapes up the chimney for the need of sufficient oxygen for its consumption. As a means of providing the essential oxygen I insert in the smoke pipe a device that comprises a pipe *p*, Fig. 1, in the smoke pipe *d* of a fuel burner, as a heater *f*. As shown in Fig. 3 the pipe is attached to an elbow *e*, and a nipple *n* is inserted in the other outlet of the elbow. The outer end of the pipe *p* is closed and a portion of the end of the pipe is perforated as at *m*, Figs. 1 and 3.

This pipe *p* is placed within the stove pipe as in Fig. 1, the nipple *n* passing through a hole in the pipe *d*. A stiff collar *c*, shown in all the figures, is employed to help support the pipe *p*. The collar consists of two parts *m'' m'*, Figs. 2 and 3, flanged as at *l, l'*, the flanges unitable by a bolt *i*. The free ends of the collar *r r* are provided with holes to pass over the nipple. When the pipe *p* and the nipple are in place in the smoke pipe, the collar is placed as in Fig. 2. A lock nut *t* is used on the nipple to draw the parts tightly

in place. When the nut *t* is drawn tight the elbow and pipe *p* are firmly held in place, and tightening the bolt *i* draws the collar *c* close to the smoke pipe *d* and stiffens the smoke pipe at that point, and insures against the dropping of the pipe *p* at its perforated end.

In operation, the unit to which the device is attached is made tight around the base so that the draft can be entirely under control by means of the draft regulators. When fresh fuel is put upon a fire the practice is to give the fire a free draft under the fire, with the result that the gases liberated from the fresh fuel by the heated fuel beneath it, pass out from the unit and up the chimney unconsumed, because a sufficient quantity of oxygen does not escape through the fire to help in the gas consumption. Being provided with this device, the under draft is to be checked after fresh firing, when air will flow in through the pipe *p*, be distributed through the perforations in said pipe, and being heavier than the ascending heated gases, the air will settle to the bottom of the smoke pipe, descend into the combustion chamber as per the arrow pointed lines *a*, and be distributed over the surface of the fire igniting the gas being distilled from the fuel. The plain lines indicate the flow of the unconsumable gases to the chimney.

The pipe *p*, elbow *e*, and nipple *n* may, obviously, be an integral angular pipe.

Having described my invention, what I claim and desire to secure by Letters Patent, is—

The combination with the smoke pipe of a heating apparatus, of the smoke pipe, an angular pipe within the smoke pipe, the long inner end of said angular pipe closed, the side of said pipe perforated, the short end of the perforated pipe extended through the side of the smoke pipe, a two piece collar each piece hooking over the extended end of the angular pipe, flanges on the collar, a bolt through the flanges, and a nut on the extended pipe to bind all the parts to the smoke pipe.

FREDERICK T. OAKES.

Witnesses:

H. S. SECHRIST,
C. A. PEARSALL.