

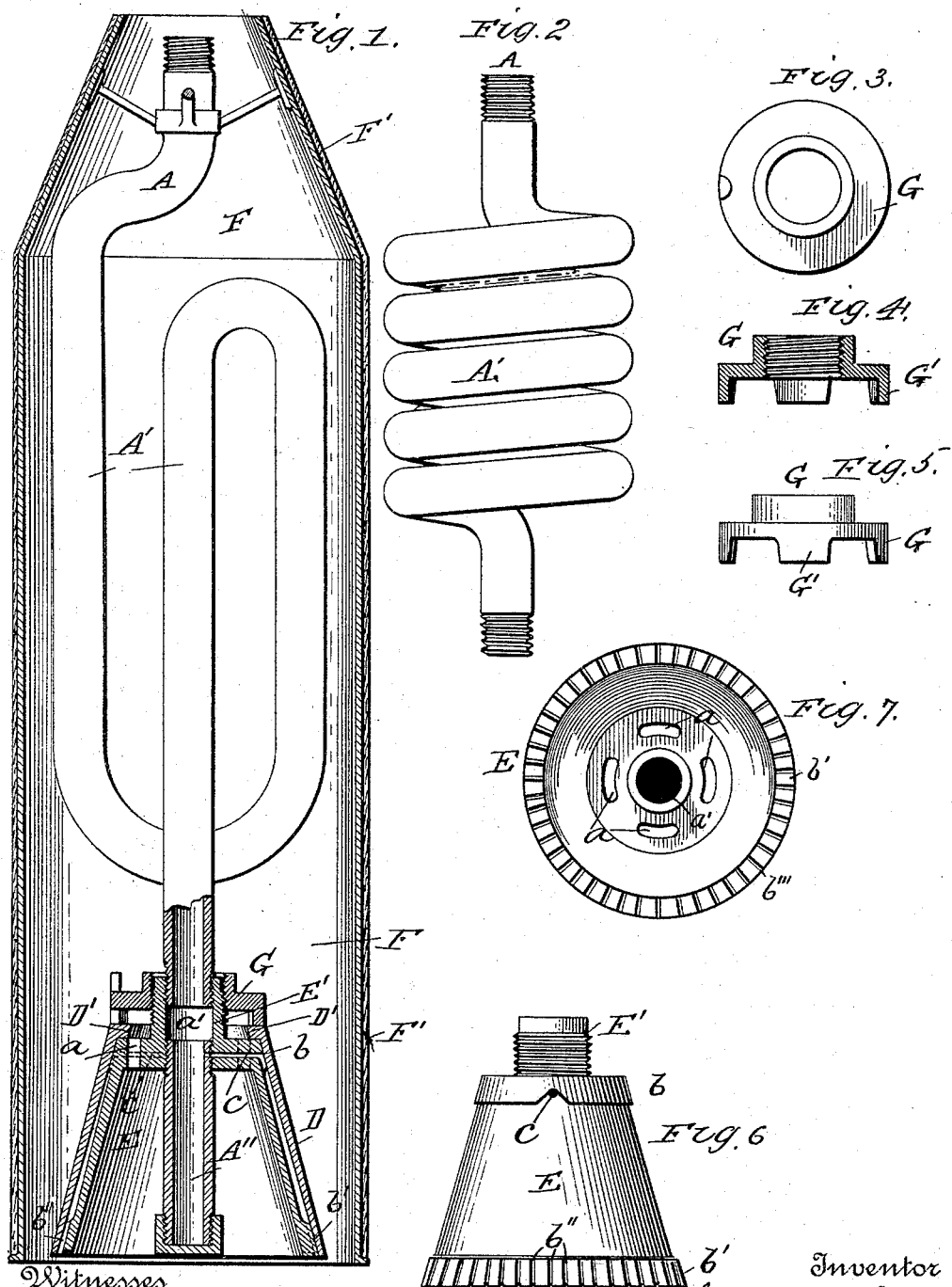
(No Model.)

G. W. ZEIGLER.

BURNER FOR LIGHTING OR HEATING WITH NATURAL OR ARTIFICIAL GAS.

No. 492,179.

Patented Feb. 21, 1893.



Witnesses

Charles H. Muzzey
W. Henry Muzzey

Inventor

George W. Zeigler
By Alexander Davis
his Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. ZEIGLER, OF ANDERSON, INDIANA.

BURNER FOR LIGHTING OR HEATING WITH NATURAL OR ARTIFICIAL GAS.

SPECIFICATION forming part of Letters Patent No. 492,179, dated February 21, 1893.

Application filed February 29, 1892. Serial No. 423,437. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. ZEIGLER, a citizen of the United States, residing at Anderson, Madison county, Indiana, have invented certain new and useful Improvements in Burners for Lighting and Heating Purposes; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention.

This invention relates to burners for converting oils into gas and burning the gas and also for super-heating and burning natural and artificial gas and obtaining therefrom the maximum degree of heat and light, as will more fully hereinafter appear.

The invention consists in certain novel features of construction and combinations of parts that will be fully hereinafter described and pointed out in the claims.

Figure 1 represents a vertical section of the burner, Fig. 2 a side view of a modified form of a supply-pipe, Figs. 3, 4 and 5 detail views of a clamping nut or cap, and Figs. 6 and 7, respectively, a side and a bottom view of the inner cone of the burner.

Referring to the drawings, which show one form of my burner, the letter A designates the pipe which supplies or conducts the gas or hydrocarbon oils to the burner proper which is secured removably on its lower end. When the burner is used for lighting purposes it is attached to the lower end of the pipe, as shown in the drawings, but when it is used in a stove for heating purposes it should be inverted, as is evident. Above the burner the supply-pipe is bent upon itself one or two times to form a super-heating coil A', as shown in Fig. 1, or it may be formed into a plain spiral coil as shown in Fig. 2, as may be desired.

Screwed on the lower threaded end of the pipe A is the upwardly-extending neck or tube E' of the cone E, which is truncated and provided with air openings *a* in its upper end and a central interiorly threaded passage *a'* extending up through the neck E.

Screwed into the lower end of the passage *a'* is a short pipe A'' which is an extension of the supply-pipe A, the lower end of this pipe A'' being closed to prevent the escape of gas. This extension may or may not be employed, it being only desirable to the extent that it

assists in heating the gas before being supplied to the burner.

Formed around the upper and lower edges of the cone E are annular flanges, lettered, respectively, *b b'*, the latter being provided with numerous vertical slits or passages *b''* for the issuance of the gas. An outer cone D is fitted down over the inner cone, its interior surface fitting closely against the flanges *b b'*, and its inwardly-extending shoulder D', at its upper end, resting on the upper end of the inner cone, this flange D' terminating short of the air openings *a* in order not to cover the same. The lower edge of the outer cone terminates even or approximately even with the lower edge of the inner cone. Lateral gas-passages *c* connect the interior of the supply pipe to the annular space formed by flanges *b b'* between the two cones, these passages being formed radially in the top of the inner cone and as many of them as is desired being employed.

The operation of this burner will be evident from the foregoing description. The gas in passing down through the coiled supply-pipe is highly heated before entrance into the burner, where it is further heated before being burned. In order to concentrate the ascending heat-currents upon the coil I inclose the same in an open-ended funnel or drum F, the lower open end of which embraces the burner and collects the hot air and gases and guides the same upward around the coil, as is obvious. The gas passes down through the pipe A, through passages *a* and into the annular spaces between the cones, from whence it issues in numerous small jets, through the passages *b''* formed in flange *b'*, the gas in its passage through the burner being highly superheated so as to produce a perfect combustion and the maximum degree of heat and light. When oil is used instead of gas the same is vaporized in the coil and passages before reaching the burner, as is evident. To securely but removably clamp the outer cone down tightly upon the upper end of the inner cone and form a gas-tight joint there-with I screw a clamping-nut G down upon the cone, this nut being screwed upon the neck E' of the inner cone and provided with lugs G' on its underside to bear against the cone D. By a few turns of this nut the two

cones may be separated for cleaning &c. While the burner is in operation, air and flames continually pass up through the inner cone, the hot air and gases passing up through passages *a* and out through the passages formed by the lugs on the nut *G*, whereby the air and gases are highly heated before striking the supply-coil. The flames of the numerous small jets blend and form practically a single continuous circular flame, a portion of which (when the burner is used in the position shown) turns up inside of the burner and a portion up on the outside thereof. The use of numerous small jets economizes in the use of the gas and intensifies the light and heat, each passage forming a small burner from which the gas issues at the desired pressure. It will be observed that the interior of the outer cone bears tightly against the flanges and forms a gas-tight joint therewith, the flanges being beveled correspondingly with the interior of the outer cone, thereby forming a close chamber for the generation and commingling of the gases.

The globe and other usual parts may be attached to the burner in any ordinary or approved manner and, if desired, the concentrating casing *F* may be covered with asbestos *F'* for hall or street lamps as shown in Fig. 1. Other minor changes may be made without departing from the invention.

Having thus fully described my invention, what I claim is—

1. The combination in a burner, of a truncated cone *E* having formed on it, at its upper and lower edges, exterior annular flanges *b b'*, the latter flange being provided with a series of vertical grooves, a supply-pipe connected to said cone and communicating by lateral passages with the annular chamber between the flanges, an outer truncated cone *D* fitted down over the inner cone and having its interior surface bearing closely against the flanges on the inner cone, so as to make a tight joint therewith and form a chamber between the two cones and the flanges, and means for tightly clamping the outer cone

down on the inner cone, substantially as described.

2. The combination of an inner truncated cone provided with exterior flanges, beveled correspondingly with the interior surface of the outer cone, the lower one of these flanges being provided with numerous vertical slits or grooves a supply pipe, connected by passages to the chamber between the cones, an outer truncated cone fitted down over the inner cone and having its beveled interior surface bearing on the flanges on the inner cone and forming a gas-tight joint therewith, the outer cone being provided with an inwardly-extending shoulder bearing on the top of the inner cone, and means for clamping the two cones tightly together, one within the other substantially as described.

3. The combination of a supply pipe, an inner truncated cone provided with a neck *E'* projecting from its upper end into which the supply pipe is secured, said cone being also provided with exterior flanges *B. B'*, and lateral gas passages *c* in its top these passages leading to the space between the cones, an open ended outer cone fitted down over the flanges of the inner cone, and provided with an inwardly-extending flange *D'* bearing on the upper end of the inner cone and a nut threaded and screwed on the neck of the inner cone and bearing on the top of the outer cone, substantially as described.

4. The combination of a supply pipe, a hollow truncated cone screwed thereto and provided with openings *a* in its top, an outer cone fitted down over the inner cone and a nut *G* screwed down on the cones and provided with lugs *G'* on its under side to permit the passage of air under the nut, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. ZEIGLER.

Witnesses:

M. M. DUNLAP,
JOHN E. WILEY.