

No. 714,103.

Patented Nov. 18, 1902.

S. ELLIOTT.
BURNER.

(Application filed Dec. 29, 1899.)

(No Model.)

Fig. 1.

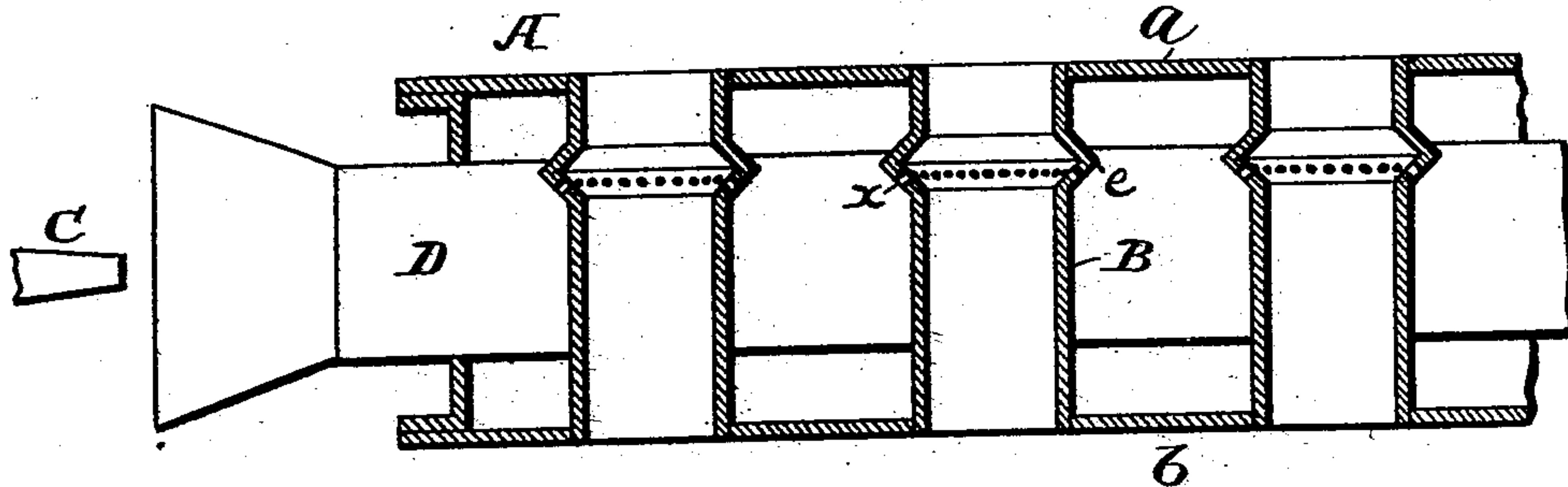


Fig. 2.

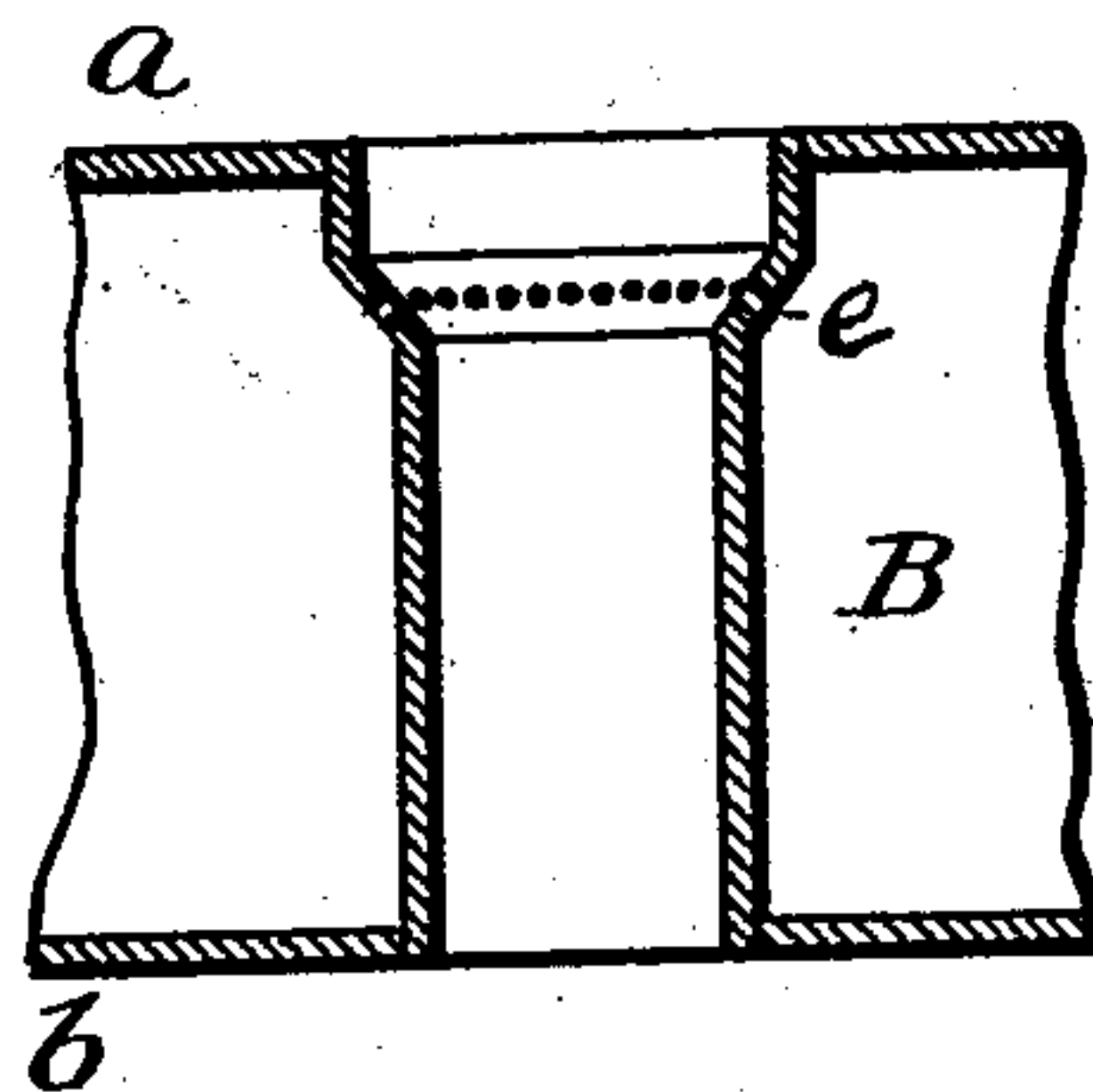
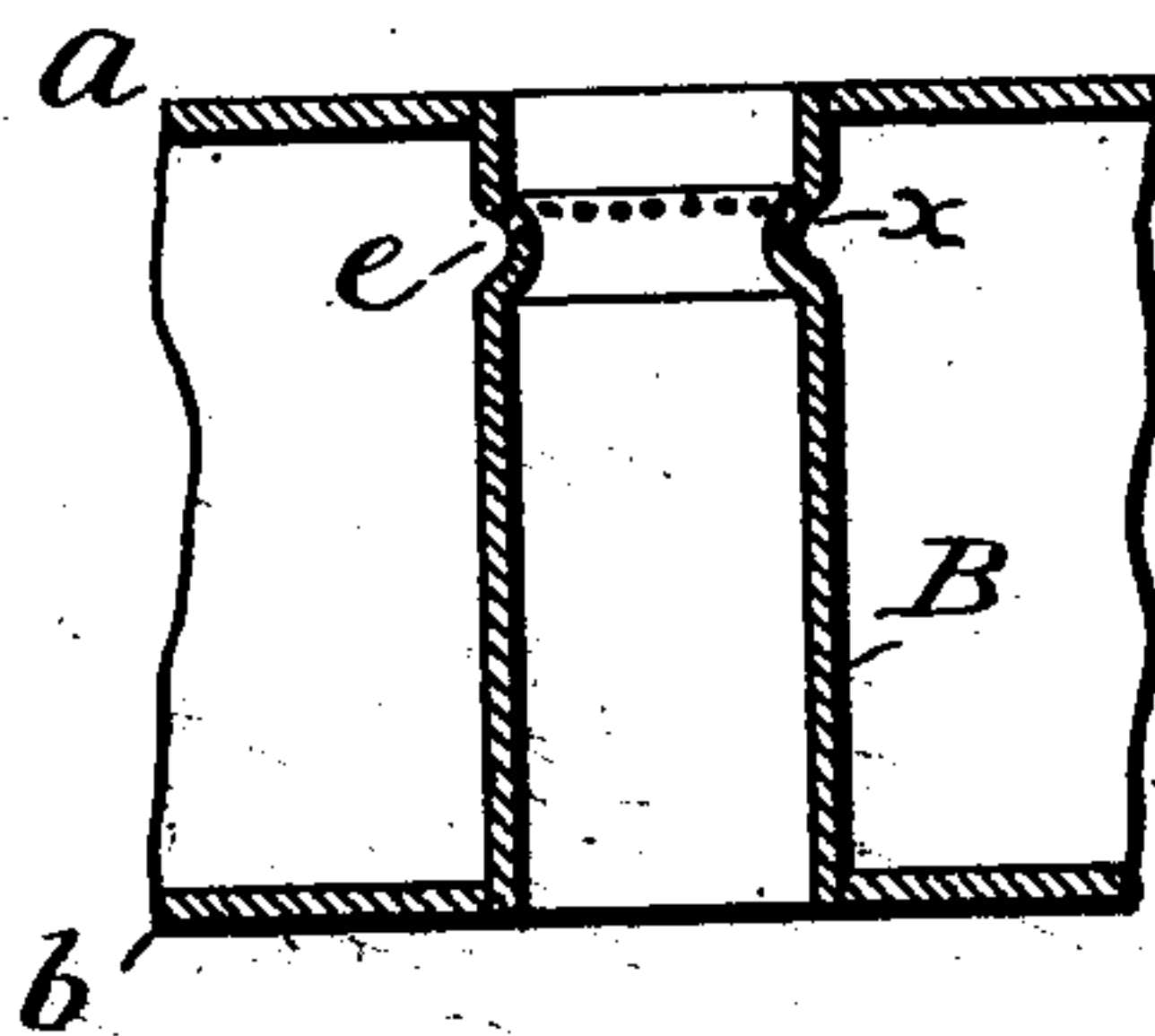


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

STERLING ELLIOTT, OF BOSTON, MASSACHUSETTS.

BURNER.

SPECIFICATION forming part of Letters Patent No. 714,103, dated November 18, 1902.

Application filed December 29, 1899. Serial No. 741,996. (No model.)

To all whom it may concern:

Be it known that I, STERLING ELLIOTT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Burners, of which the following is a specification.

My invention relates to that class of burners in which is burned a mixture of air and vapor; and my invention consists in constructing the parts so as to secure a better combustion, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of a burner embodying my improvements. Figs. 2 and 3 are sectional views through the burner-casing and one of the air-tubes, showing different arrangements of burner-openings.

The burner-casing A as usually constructed is provided with a flat top *a*, flat bottom *b*, a series of vertical channels in tubes B, passing through the top and bottom to permit the air to pass upward to the combustion-chamber above the burner, and with a mixing-tube D, which passes through the side of the casing, has a flaring outer end opposite a nozzle *c*, and is open at the inner end.

The burner-openings instead of being in the top plate, as usual, or instead of extending horizontally through the tubes near the center, as has been proposed, are made in shoulders formed by annular bends in tubes, the bends being near the tops of the tubes, so that the openings *x* are in the tubes near the upper ends and inclined inward. By making the openings in the tubes themselves they are less liable to become clogged than when in the upper plate. By arranging them near the upper ends the smoking of the tubes and obstruction of the flow of air which result when the combustion takes place in the tubes are prevented, and by inclining the openings in-

ward the vapor is forced into the air-currents in such manner as to secure thorough admixture and prevent the air alone from flowing upward through the air-tubes. By arranging the openings near the upper ends I mean in such position that the flame cannot impinge on and smoke the tubes and so that it will be projected above the upper plate. If this was not the case, the flame would lap the sides of the tubes and, further, the air would reach only the inner parts of the flame. When the flame is above the upper plate, the air reaches it from all sides and is drawn in against the flame by the injecting action resulting from the upward currents through the air-tubes and from the impinging action of the gases from the inclined openings.

Without limiting myself to the precise construction shown, I claim as my invention—

1. The combination of the casing adapted to receive a mixture of air and vapor, and tubes extending through the top and bottom of the casing and provided with annular perforated shoulders near the top of the casing, substantially as set forth.

2. The combination of the casing adapted to receive a mixture of air and vapor, and channels extending to the top and bottom of the casing and provided with perforated shoulders, substantially as described.

3. The combination of the casing adapted to receive a mixture of air and vapor, and tubes extending through the top and bottom of the casing and provided with annular perforated shoulders, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STERLING ELLIOTT.

Witnesses:

GEORGE F. REED,
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