

F. A. CURTIS.

BURNER.

APPLICATION FILED JULY 22, 1910.

995,773.

Patented June 20, 1911.

Fig. 1.

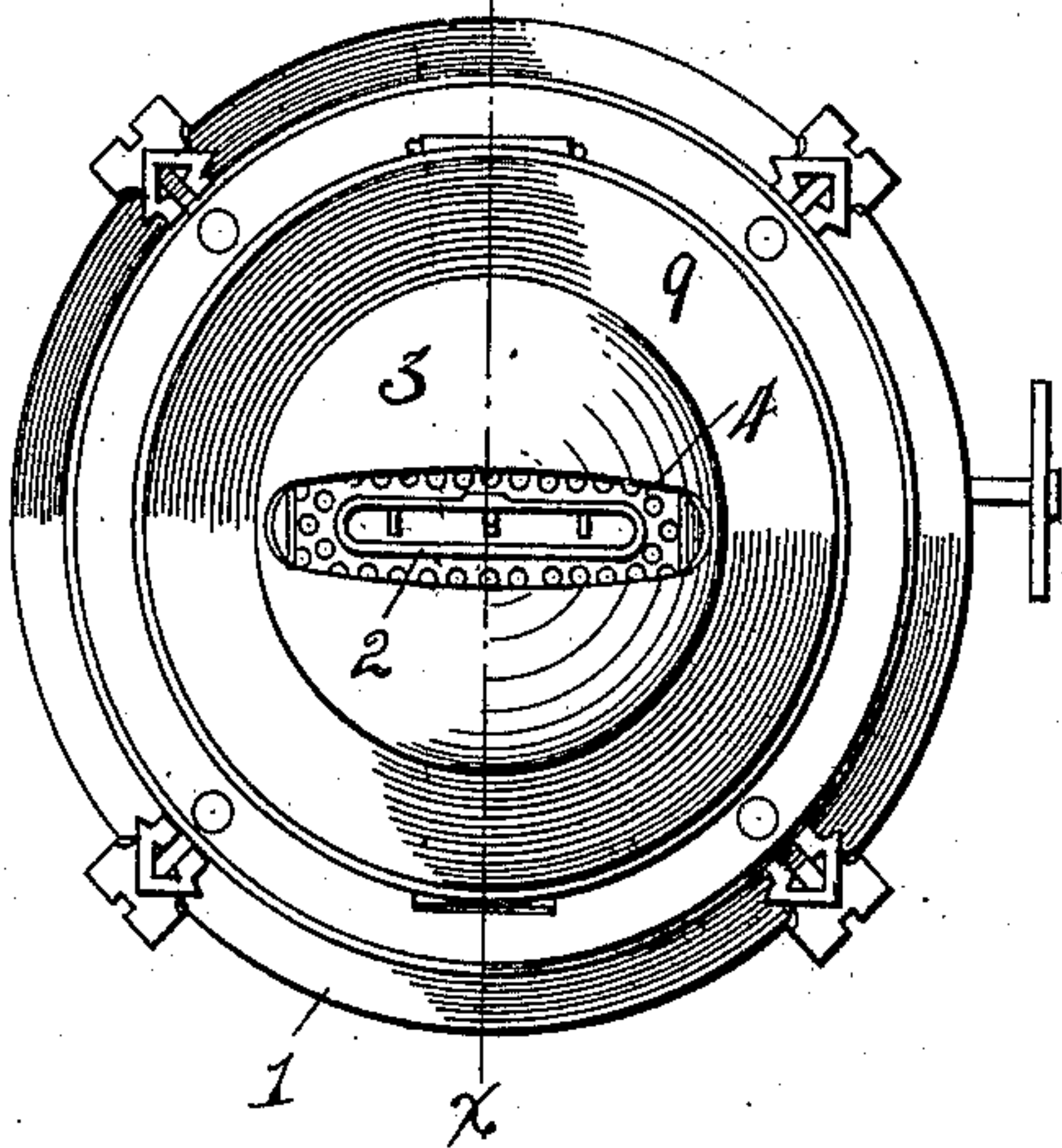


Fig. 3.

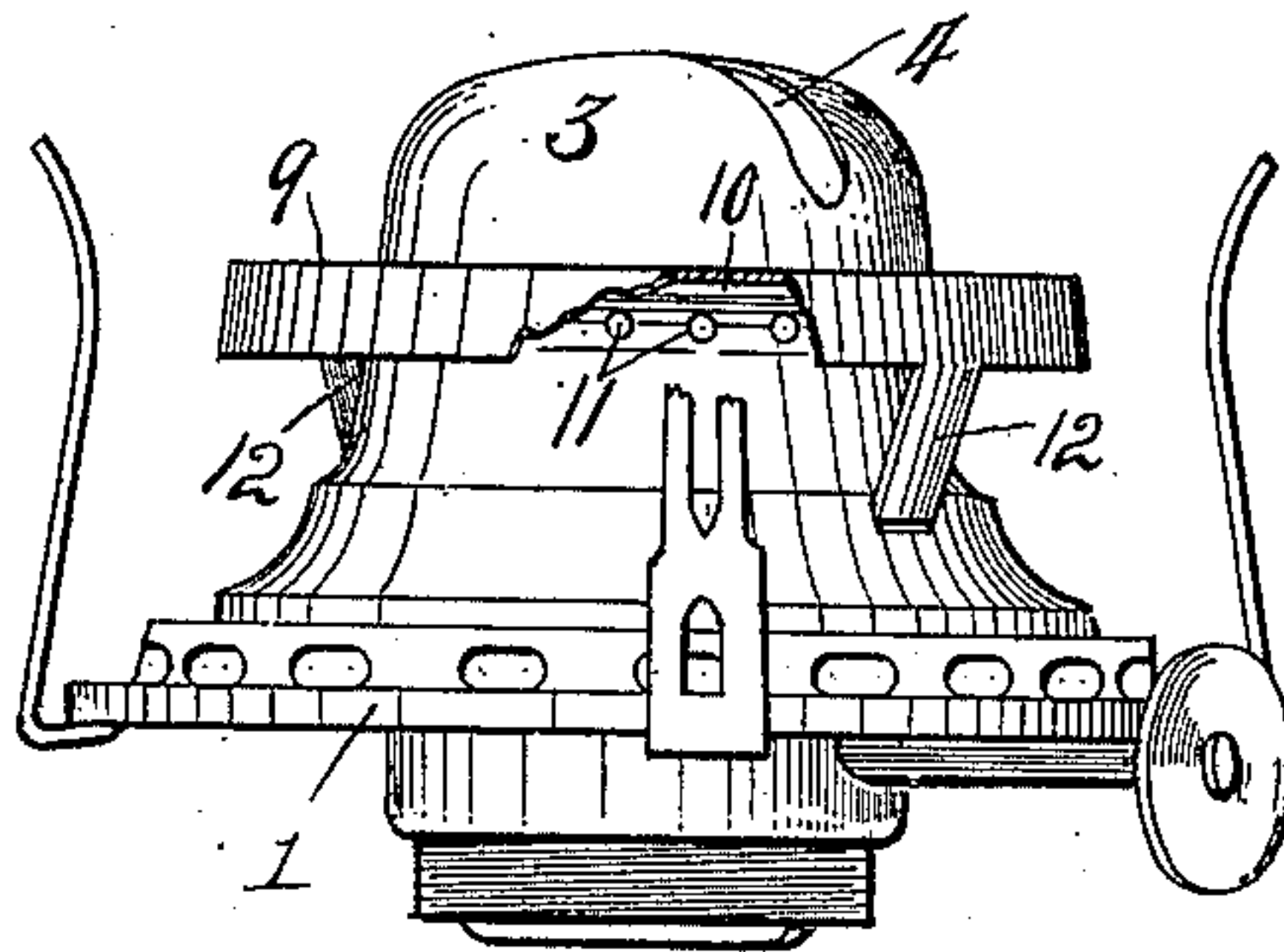


Fig. 2.

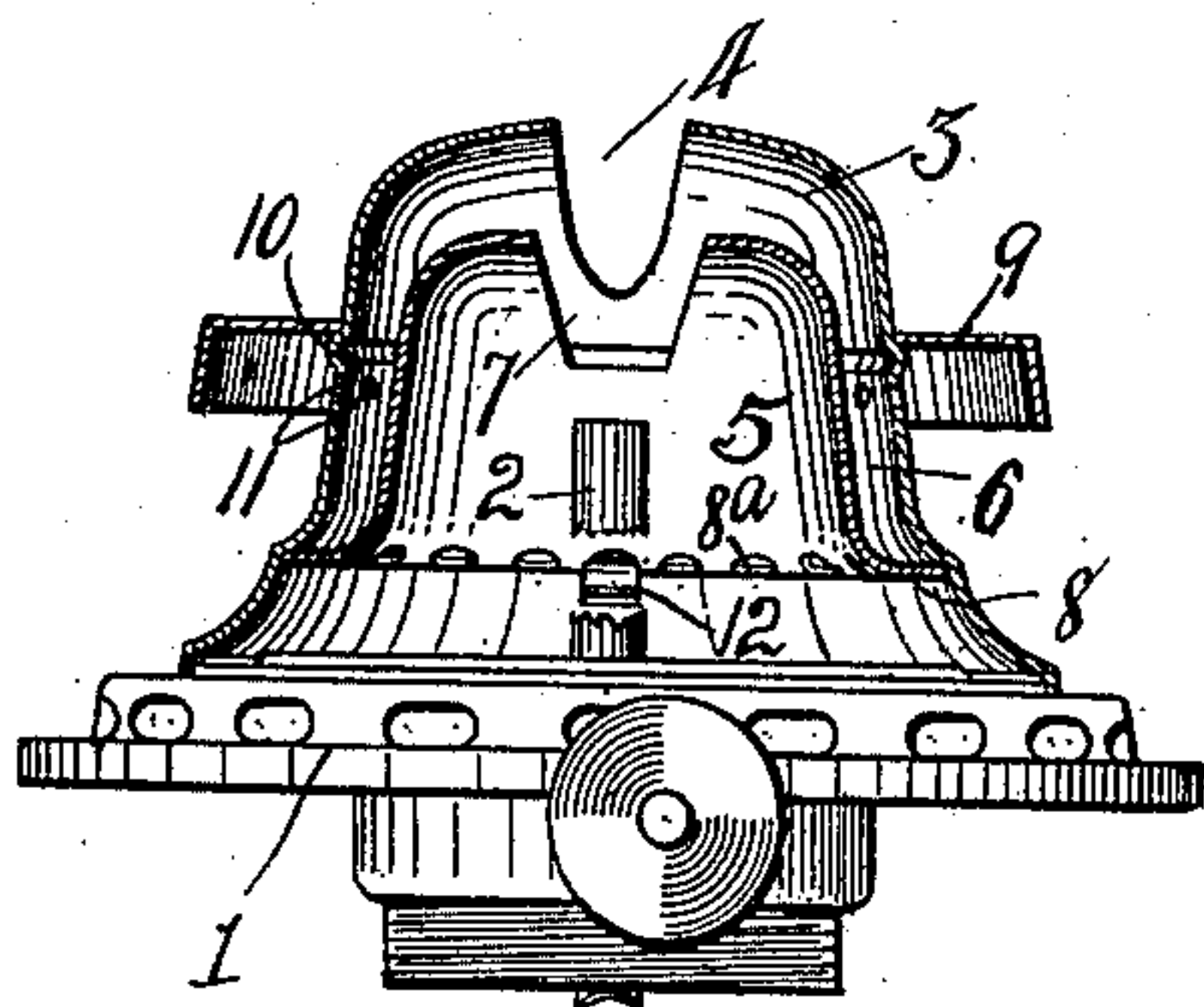
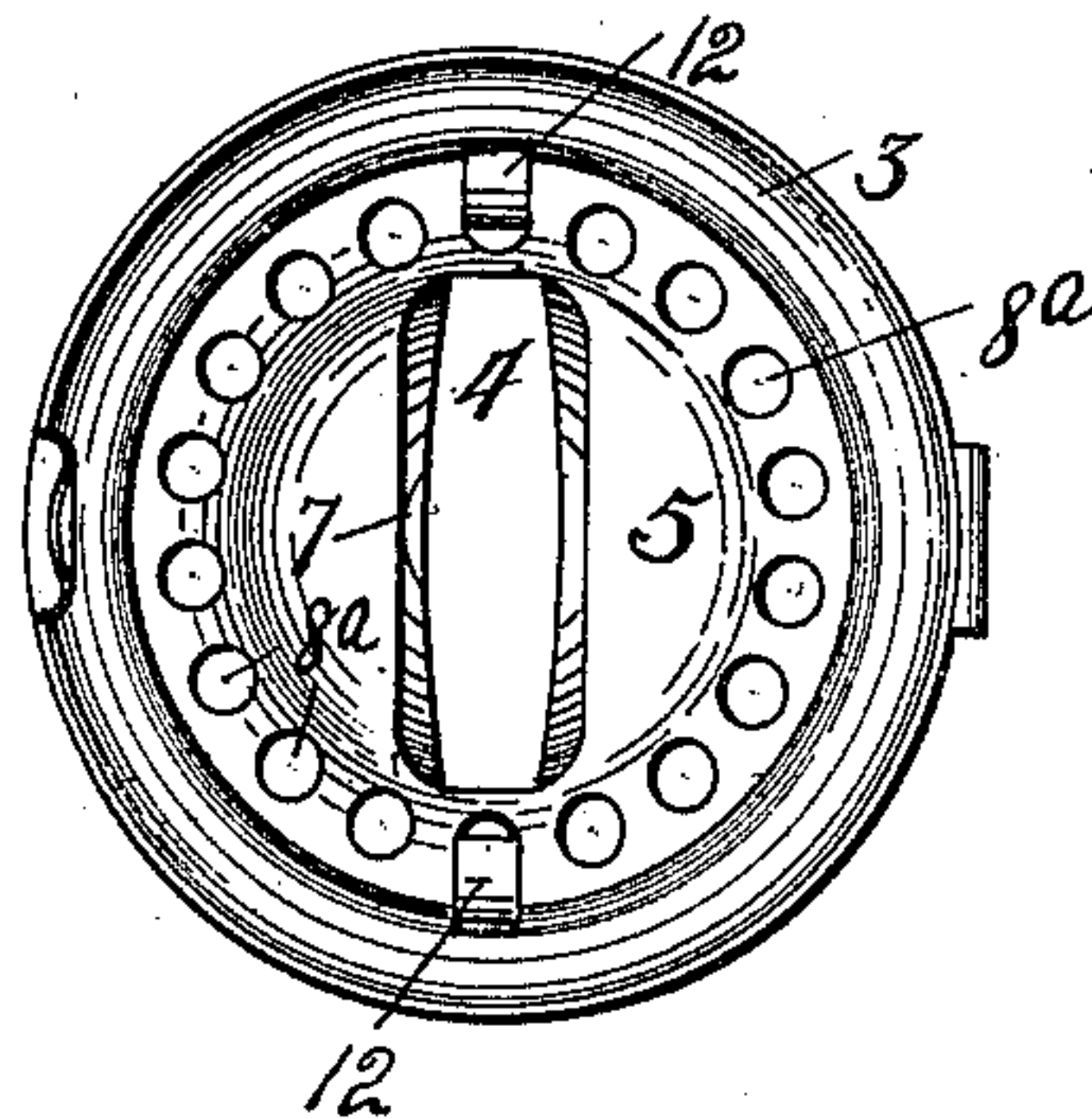


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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BURNER.

995,773.

Specification of Letters Patent. Patented June 20, 1911.

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To all whom it may concern:

Be it known that I, FREDERIC A. CURTIS, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Burner; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates particularly to burners of the class adapted for the burning of kerosene or other hydrocarbon oils of low gravity for illuminating purposes.

The object of my invention is to enhance the value and practicability of burners of this class by the provision of an improved form of hood within the burner dome, which coöperates with the dome and associated parts to effect a more perfect combustion of the carbonaceous gases rising from the burner wick while burning than has heretofore been possible.

The invention is fully described in the following specification, and, while in its broader aspect, it is susceptible of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a plan view of a burner embodying the invention. Fig. 2 is a section on the line x, x in Fig. 1 of the dome and associated parts thereof. Fig. 3 is a side elevation of the burner with a portion broken away, and Fig. 4 is a bottom view of the dome and associated parts.

Referring to the drawings, 1 designates the burner base, 2 the wick-tube rising therefrom, and 3 the dome, which is mounted upon the base over the wick-tube and has the usual flame opening 4 in register with the upper end of such tube.

A burner-hood or supplemental dome 5 is mounted within the dome 3, being preferably substantially the shape of such dome but smaller than it to provide a space 6 therebetween, as shown, and having its top provided with an elongated flame opening 7 in register with the dome opening 4 and of greater width and length than the end of the wick-tube 2. The lower edge of the

hood 5 is turned or flared outwardly to extend across the space 6, as shown at 8, and provided with a plurality of openings 8^a which open into the space 6 entirely around its bottom. The air which passes through the openings 8^a becomes quite highly heated in its passage through the space 6, after which it commingles with the burning gases rising from the wick and effects a more perfect burning of such gases and makes a whiter and cleaner flame than would otherwise be the case.

The dome 3 is provided on its outer side adjacent the upper end of the hood or inner dome 5 with an encircling flange 9 having its outer edge turned downwardly to form an overhanging ledge around the dome, as shown. This ledge is shown, in the present instance, as resting upon a bead 10 around the outer side of such dome. Provided in the dome 3 beneath the flange 9 are a plurality of openings 11 which admit air to the space 6 between the two domes for the purpose of cooling the air passing upwardly through the space 6, thus tending to check or retard the flow of such air. It is found in burners in which this air cooling feature is eliminated that the air rushes so rapidly through the space 6 and flame opening 4 of the dome as to injure the flame due to the highly heating of the air as it rises between the walls of the dome 3 and 5. It is found, however, that by directing cooling air into the space 6 adjacent the top thereof, that the air passing through such space is cooled and consequently retarded so as to act more gently upon the flame and products of combustion rising from the wick.

The flange 9 has legs 12 depending from its downwardly turned edge, which legs project through openings in the wall of the dome 3 at the base of the dome 5 and are bent upwardly under the flared lower edge of the dome 5 and into registering ones of openings 8^a therein, thus serving to support both the dome 5 within the dome 3 and the outer edge of the flange 9. Both of these parts may, however, be supported in any other suitable manner.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is,—

1. In a burner of the class described, the combination of a base, a main dome rising
5 from such base, a supplemental dome mounted within such main dome and having a flame opening in register with the flame opening in said main dome, said supplemental dome being substantially the shape
10 of but smaller than said main dome and having its lower edge flared outwardly and secured to the main dome above its lower edge, said domes cooperating to form an air space between the same, which space leads
15 to said flame openings, said supplemental dome having its lower edge provided with openings to permit a restricted flow of air to said air space from the interior of the lower portion of the main dome and said
20 main dome being provided with openings for admitting air to said air space above the bottom thereof, substantially as described.

2. In a burner of the class described, the combination of a main dome having a flame
25 opening therein, a supplemental dome mounted within such main dome and having a flame opening in register with the flame opening in said main dome and cooperating therewith to provide a surrounding intermediate air space leading to the dome flame
30 opening, said supplemental dome having its lower edge fashioned to permit a restricted flow of air to such space and said main dome being provided with openings for admitting
35 air to such space above the bottom thereof, and a flange overhanging such main dome openings.

3. In a burner of the class described, the combination of a dome, a deflector-hood therein, and a flange surrounding such dome,
40 said dome having openings therein beneath such flange for admitting air to the interior thereof.

4. In a burner of the class described, the combination of a dome, a deflector-hood dis-
posed therein and cooperating therewith to
45 form an intermediate surrounding space, said hood having its lower edge fashioned to admit air to such space and an outwardly and downwardly projecting flange surround-
50 ing the dome adjacent the top of such hood, said dome having openings beneath such flange for admitting air to said space.

5. In a burner of the class described, the combination of a dome, a deflector-hood
55 supported therein with its major portion in spaced relation to the dome to form an intermediate air space with its lower edge perforated and flaring outwardly in substantial abutment with the dome wall, a
60 flange encircling the dome and having depending legs which project through the dome wall and under the lower edge of such hood to serve to support the same, said dome
65 having openings beneath said flange for admitting air to the space between the dome and hood, substantially as described.

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

FREDERIC A. CURTIS.

Witnesses:

C. W. OWEN,
E. E. THOMAS.