

No. 762,476.

PATENTED JUNE 14, 1904.

J. W. FULTON.
FROST PREVENTER.

APPLICATION FILED NOV. 12, 1902.

NO MODEL.

Fig. I

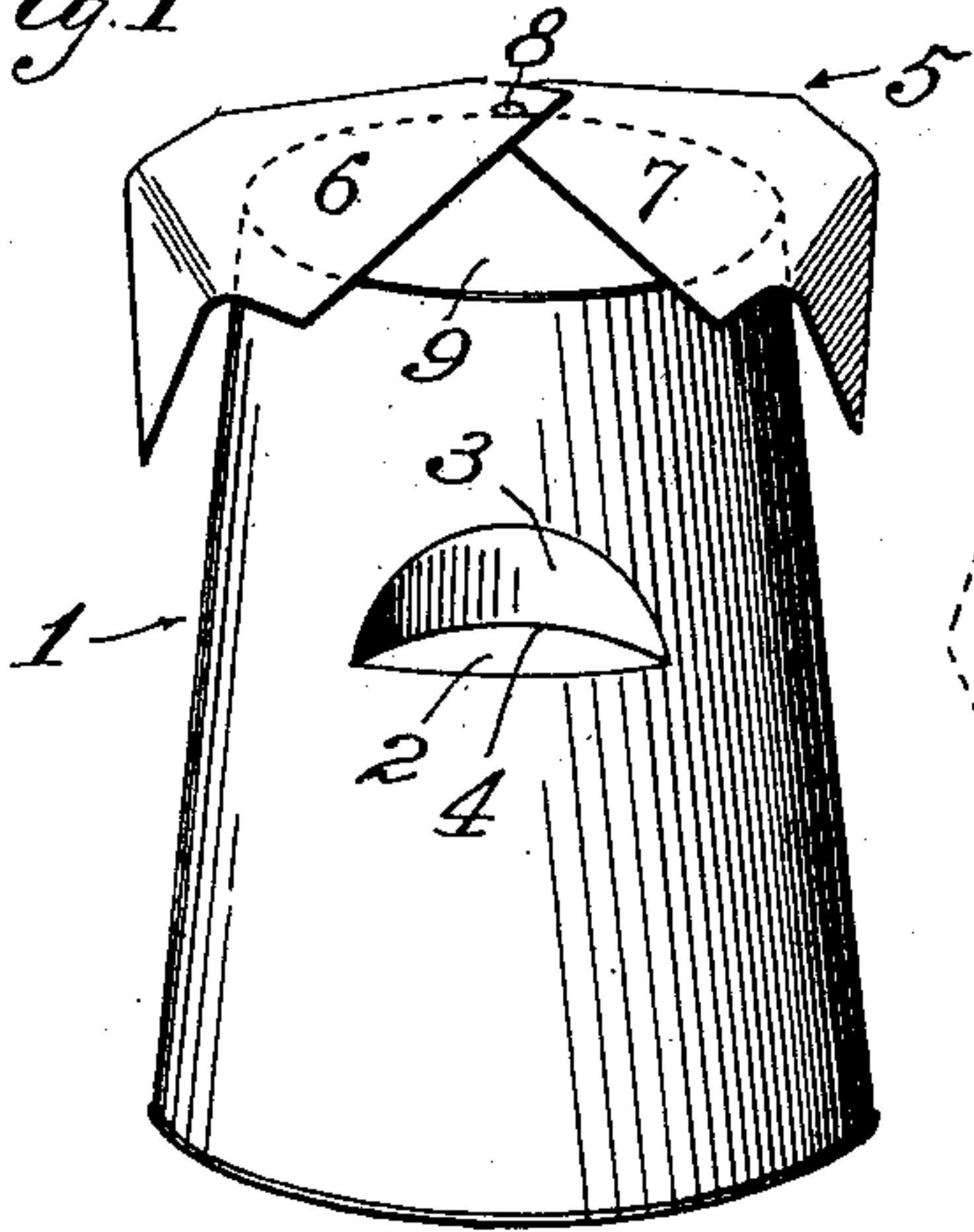


Fig. II

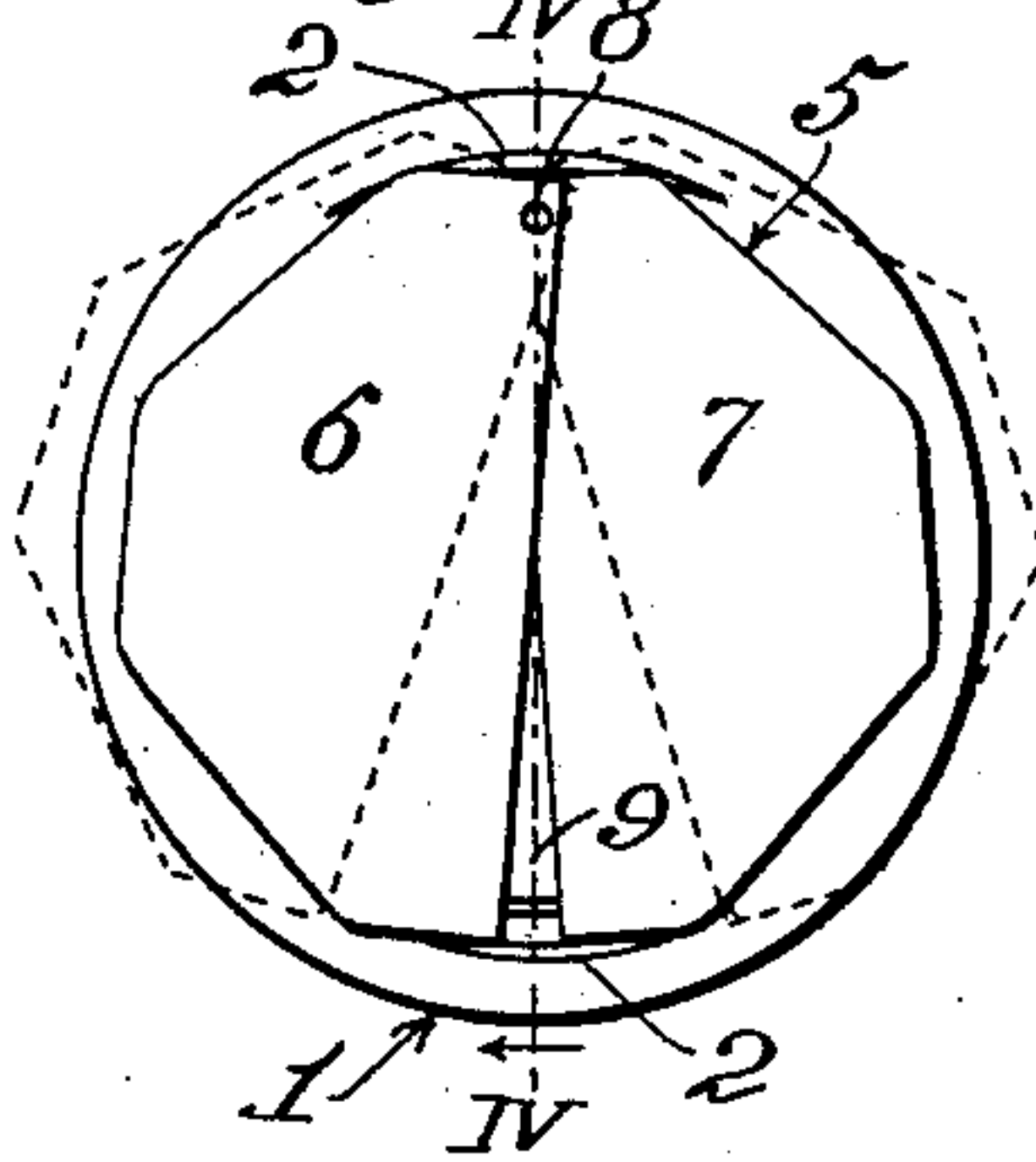


Fig. III

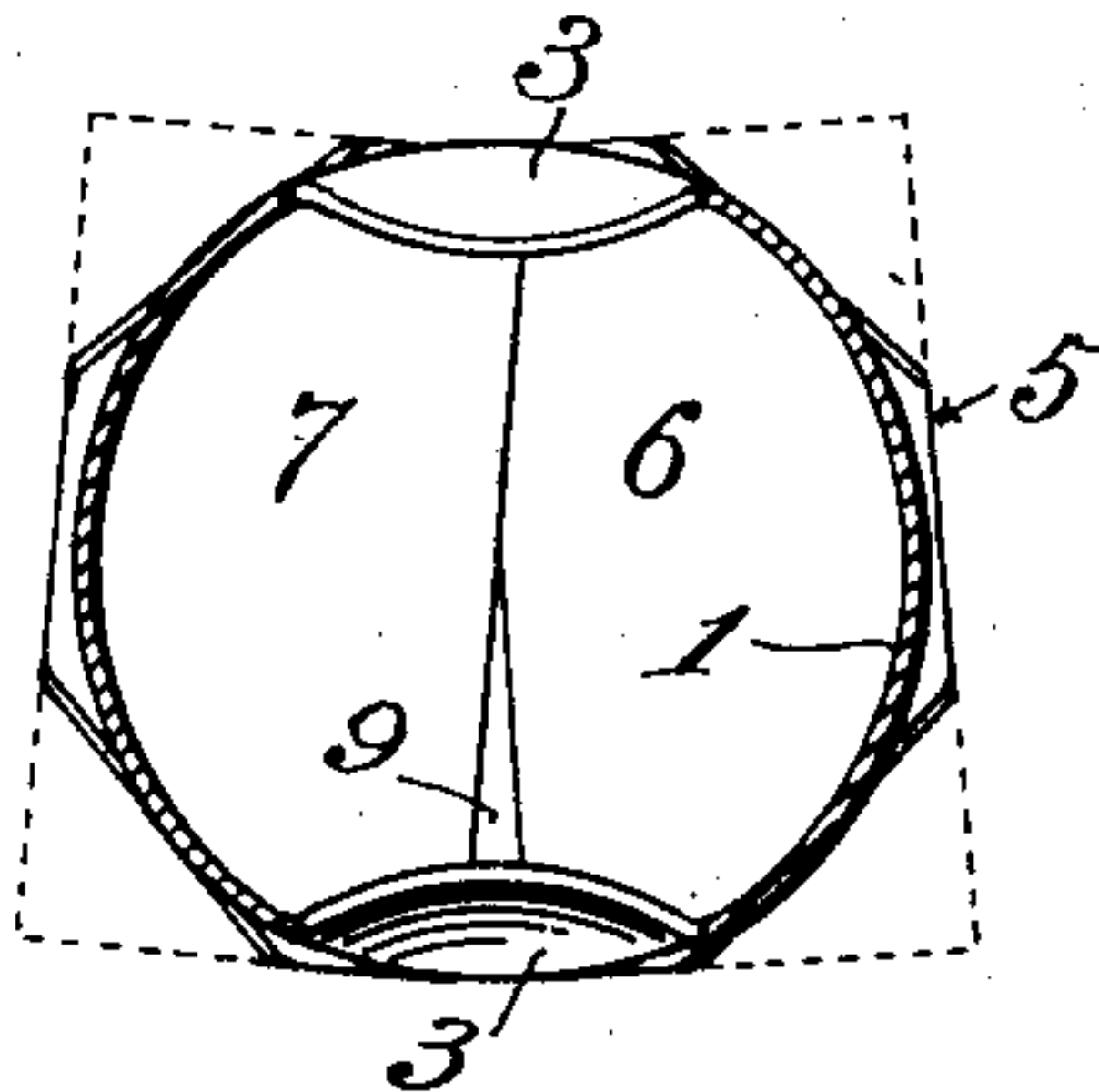


Fig. IV

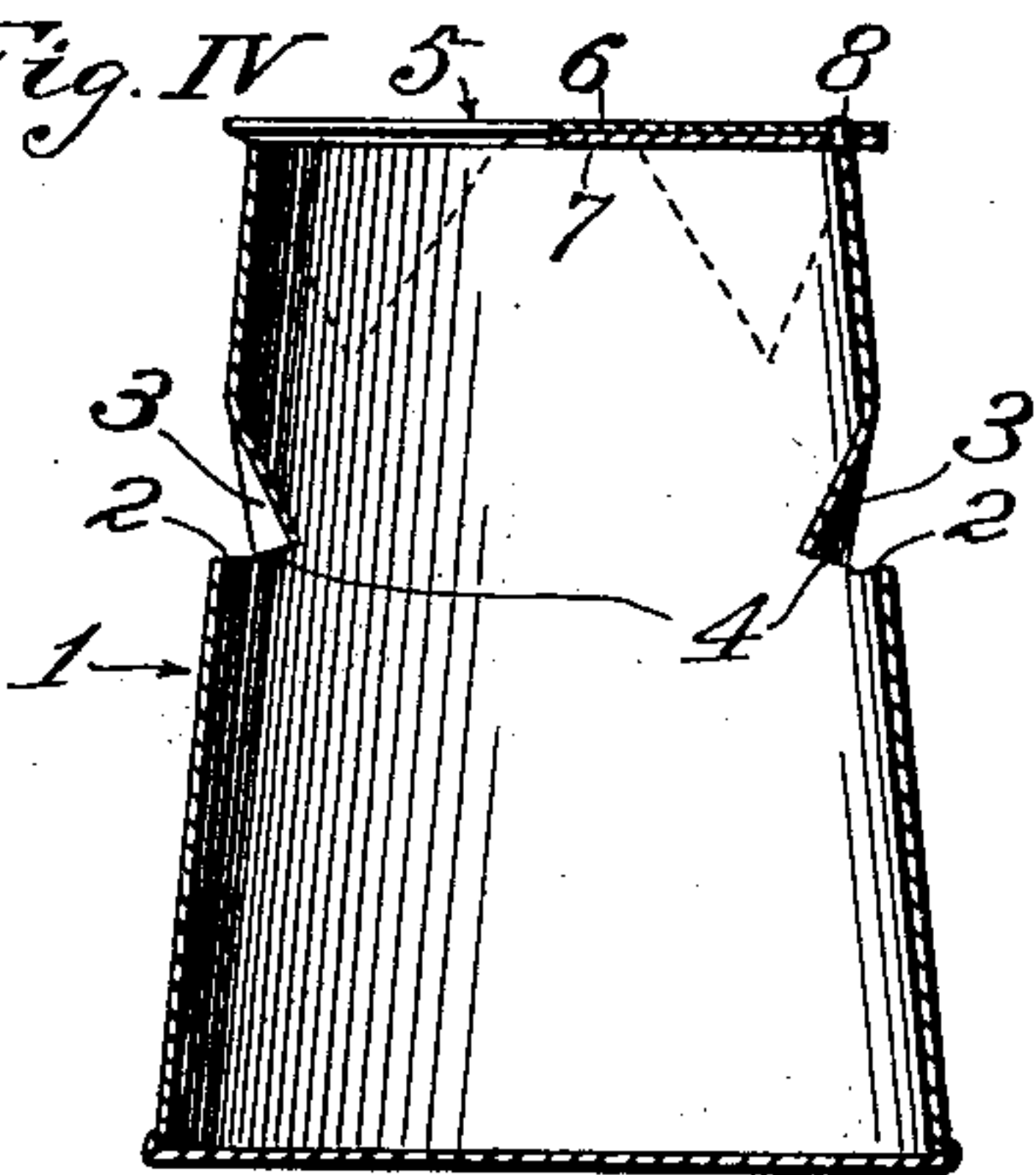


Fig. V

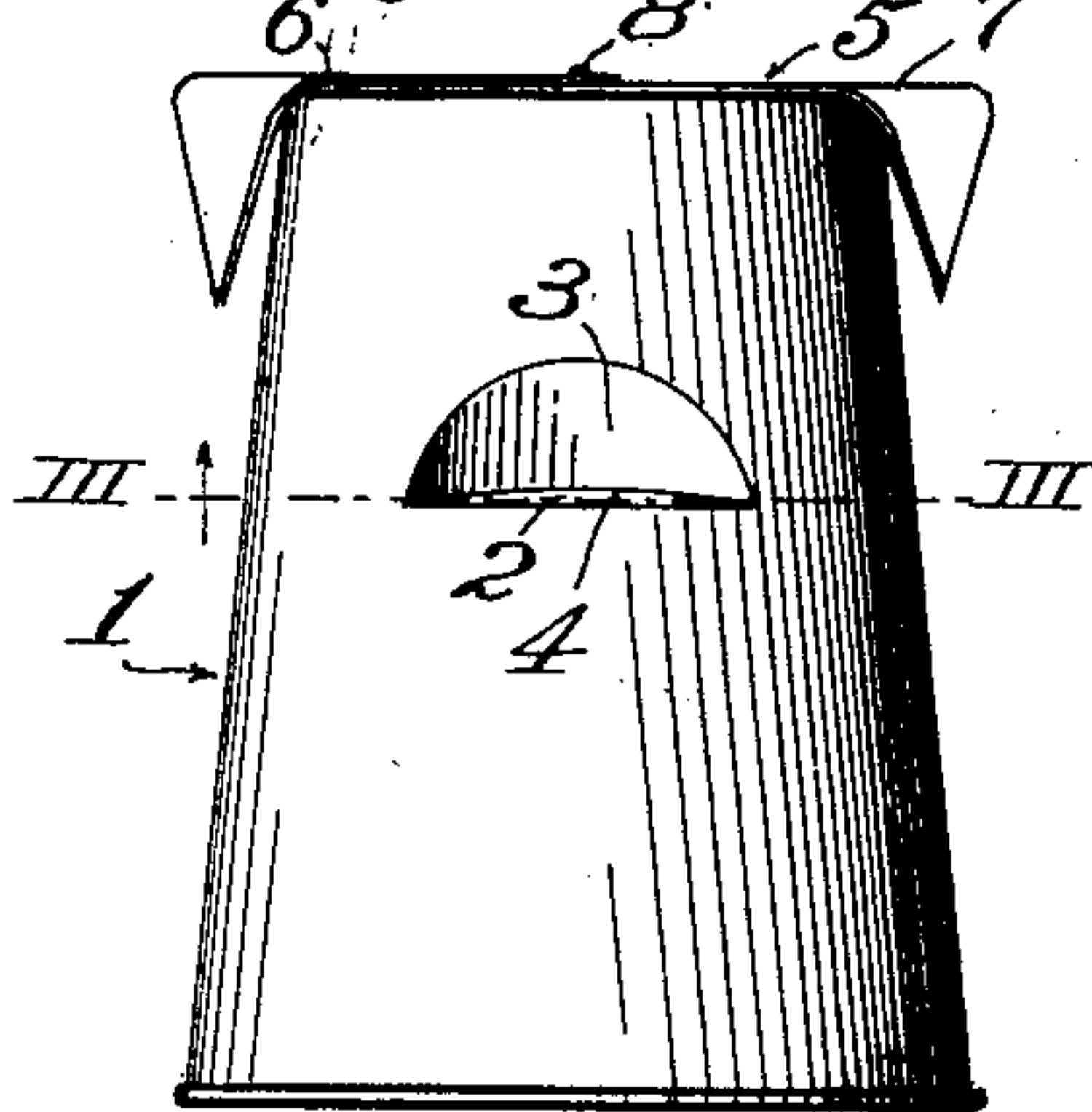


Fig. VI

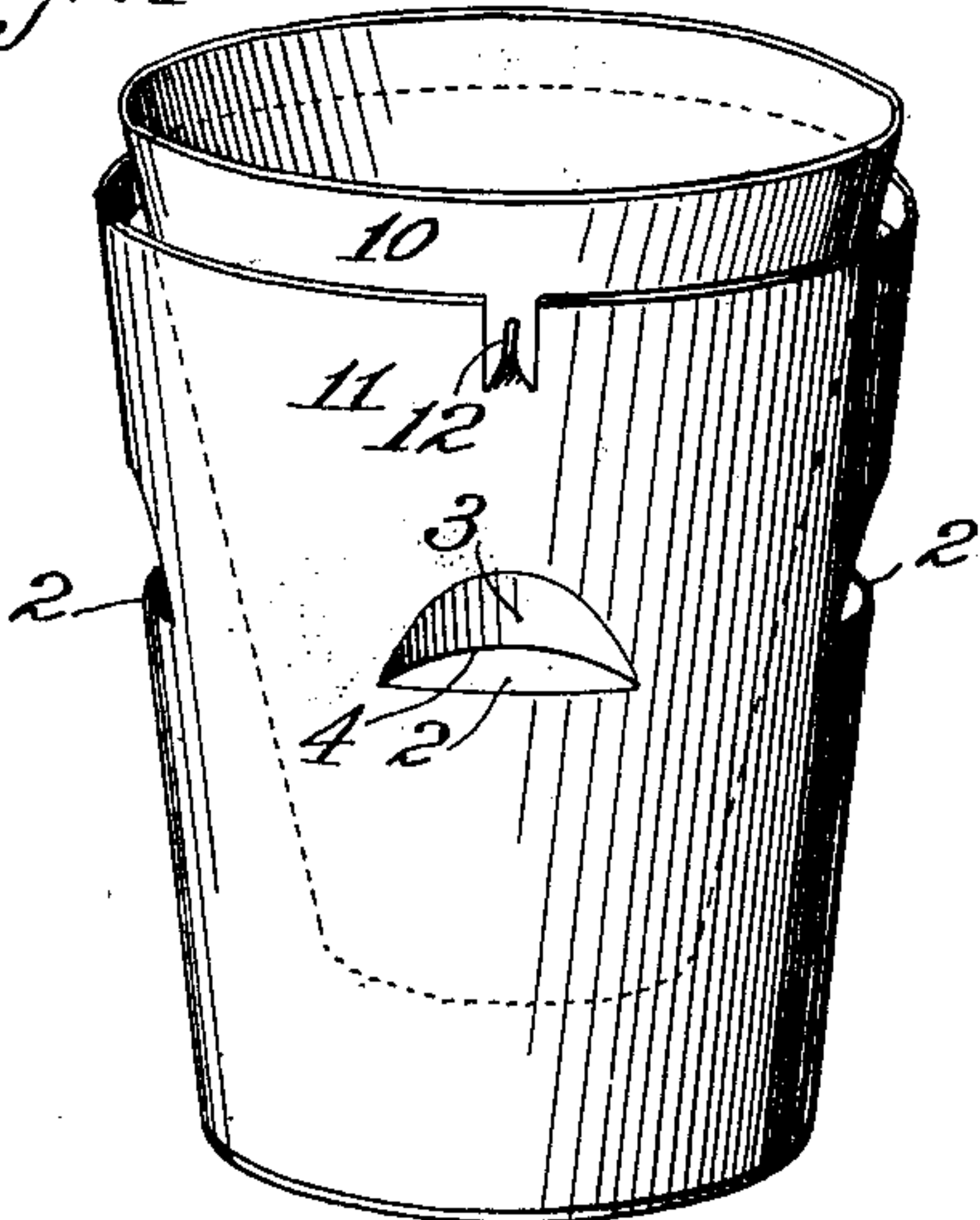
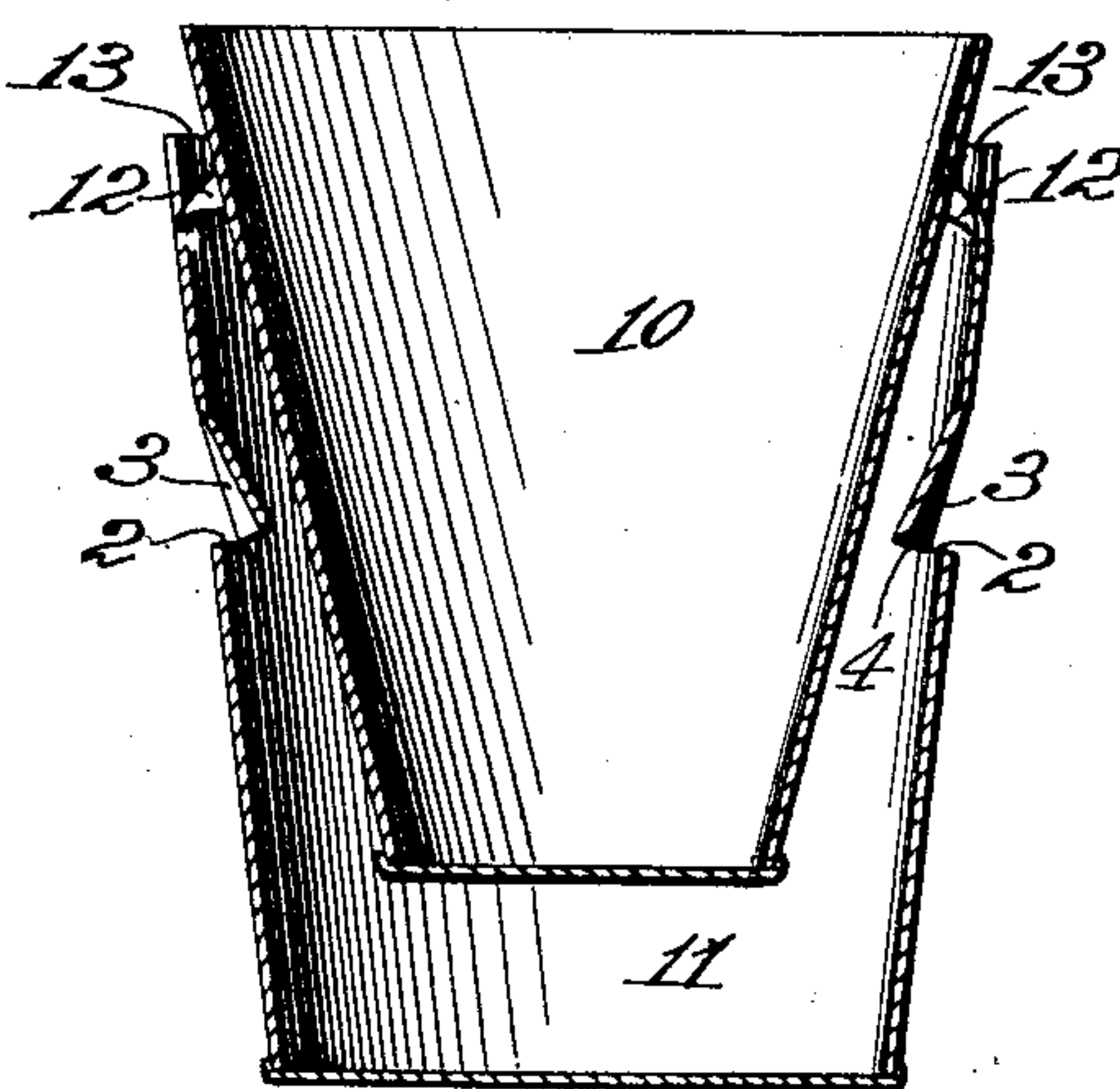


Fig. VII



Witnesses

L. C. Heolly.
J. Townsend.

Inventor

James Wilson Fulton.

[Signature]
J. Townsend Bros
his attys.

UNITED STATES PATENT OFFICE.

JAMES WILSON FULTON, OF POMONA, CALIFORNIA.

FROST-PREVENTER.

SPECIFICATION forming part of Letters Patent No. 762,476, dated June 14, 1904.

Application filed November 12, 1902. Serial No. 131,037. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILSON FULTON, a citizen of the United States, residing at Pomona, in the county of Los Angeles and State of California, have invented a new and useful Frost-Preventer, of which the following is a specification.

An object of the invention is to provide simple and highly-efficient means for producing at will either dense smoke or smudge or an intense heat for protecting trees or plants in orchards, vineyards, gardens, and the like against the action of frost.

In carrying out this invention I so construct the appliance as to introduce the air in a superior manner and provide simple and improved means for controlling the draft and the formation of either smoke or flame, as desired.

My invention may be carried out in various ways, and the accompanying drawings illustrate the same in the form which I deem most desirable.

Figure I is a perspective view of an appliance embodying my invention in its preferred form, a separable cover being shown in place and partly open. Fig. II is a plan of said appliance with the separable cover more nearly closed. Dotted lines indicate positions of parts when the cover is more widely open. Fig. III is a section looking upward on line III III, Fig. V. Dotted lines indicate the shape of blanks from which the members of the separable cover shown are formed. Fig. IV is an axial section on line IV IV, Fig. II. Fig. V is an elevation of the appliance shown in Fig. I. Fig. VI is a perspective view of another form of appliance embodying a modification of my invention. Fig. VII is an axial section of the same.

1 designates a vessel having an inlet 2 in its wall and a downwardly and inwardly extending deflector 3 above said inlet, said deflector being desirably arched, as indicated at 4. Desirably said vessel is formed of sheet metal, and the deflector 3 is formed of an in-bent portion of the wall of such vessel. The vessel may be of any desired form—cylindrical, tapering, or flaring upwardly, as preferred—the top being open and the bottom closed.

In the form I deem most desirable the vessel tapers upwardly, as shown in Fig. I. In Fig. VI, I have shown it flaring upwardly; but I have not deemed it necessary to show the vessel of cylindrical form, as this will be readily understood without specific illustration.

5 designates in a general way a separable cover for the top of the vessel. Said cover is desirably formed of two leaves or members 6 and 7, respectively, pivoted together near one corner by a pivot 8 and adapted to rest upon the top of the vessel to close the same when the members 6 and 7 are brought together for that purpose and adapted to swing apart to provide an opening 9 at one side of the open top of the cover, which opening extends from one side of the open top of the vessel inwardly and toward the other side. I prefer to form the leaves 6 and 7 of this cover from oblong rectangular sheets or pieces of sheet metal, bending the corners at one edge of each sheet down to form stops against the wall of the vessel to hold the cover in place and also to serve as handles for adjusting the leaves for opening or closing the outlet through said cover.

Desirably the vessel is provided with a plurality of inlets 2, and the same are desirably oppositely or diametrically disposed, thus to admit the air evenly from opposite sides.

In the case of a small or medium sized appliance two oppositely-arranged inlets will admirably serve the purpose; but in larger sizes a greater number of inlets may be found desirable. In some cases I may use only one inlet.

In the form shown in Fig. VI an inner vessel 10 is provided to contain water, while the outer vessel contains oil. Both the constructions shown are designed to burn oil in the perforated vessel 1 or 11 of the appliance; but in either construction the removable member, as the cover 5 or the vessel 10, closes the top of outer vessel 1 to a greater or less extent, and thereby varies or regulates the amount of oil consumed, and consequently the amount of heat generated.

In practical operation the perforated vessel will be partially or wholly filled to the openings 2 with some form of combustible,

desirably petroleum distillate or crude oil, and the top being partially or wholly open the combustible may be ignited, whereupon the air to supply combustion flows in through the inlet or inlets in the wall and is directed downwardly and inwardly by the deflectors 3, thereby producing inside the vessel and below the top thereof a rapid combustion and also producing a vaporization of the oil or other combustible, which passes out in the form of a smoke or smudge. When the separable leaves 6 and 7 of the cover are swung apart—say about one-eighth or one-tenth of the circumference of the top—a dense smoke or smudge will be produced. By opening the top to a greater extent the combustion will be more complete and a portion of the smoke will be displaced by flame produced by the greater combustion. When the top is fully open by the removal of the cover 5 or vessel 10, an intense heat is produced.

With a vessel adapted to contain a gallon of oil below the horizontal slits 2 a dense smoke or smudge may be maintained for a period of four hours, more or less, without replenishing the oil. When the top is entirely opened, a like amount of oil would burn for about two hours.

By reason of the arched form of the deflectors the vessel may be filled to the top of the horizontal slits without closing the air-inlet.

In the form in Fig. VI the inner vessel 10 is desirably of such cross-sectional area at the top compared with the top of the external vessel 11 that the outlet around the inner vessel 10 is a narrow annular slit.

12 designates inwardly - extending ears formed by cutting vertical slits in the rim of the outer vessel 11 and bending the strips thus formed inwardly to engage the wall of the inner vessel 10 to support said vessel, the same being desirably tapering, so as to rest upon said ears. Furthermore, the ears 12 are desirably twisted, as shown, to bring their inner edges into vertical position and are then trimmed to fit the inward slope of the inner tapering vessel.

By tapering the vessel upwardly the draft is made more regular and oil burns with less fluctuation or flaring. This effect is also secured by the upward taper of the annular open space 13 around the upwardly-flaring inner vessel 10 in Figs. VI and VII, whereby

the vapors are condensed as they pass up in the vessel.

Now, having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A hydrocarbon-burner for the purpose specified, comprising a vessel having in its wall a slit, and having a portion of the wall above the slit bent inwardly to form a downwardly and inwardly slanting deflector, the inner edge of said deflector being arched or bowed upward above the bottom of said slit.

2. A hydrocarbon-burner for the purpose specified comprising a vessel, the wall of which is perforated and provided with an inwardly and downwardly inclined deflector upon its interior for each opening, each deflector extending from a point above its opening and having a portion of the lower or inner edge above the bottom of said opening.

3. A hydrocarbon-burner for the purpose specified comprising an open-topped vessel the wall of which is provided with openings and also with an inwardly and downwardly inclined deflector for each opening, the inner edge of each deflector being above its opening, and a removable member supported by the wall of the vessel and partly closing the top of said vessel.

4. A hydrocarbon-burner for the purpose specified, comprising an upwardly-tapering vessel having a slit in its wall forming an inlet, and having the wall portion above said slit bent inwardly to form a downwardly and inwardly extending deflector above said inlet, the inner edge of said deflector being arched or bowed upward above the bottom of said slit.

5. The combination of a vessel having one or more inlets in its wall and a cover formed of two leaves pivoted together at one edge and bent down at the corners of their outer edges.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, in the county of Los Angeles and State of California, this 28th day of October, 1902.

JAMES WILSON FULTON.

Witnesses:

JAMES R. TOWNSEND,
JULIA TOWNSEND.