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P. M. COOK ET AL

ATOMIZER

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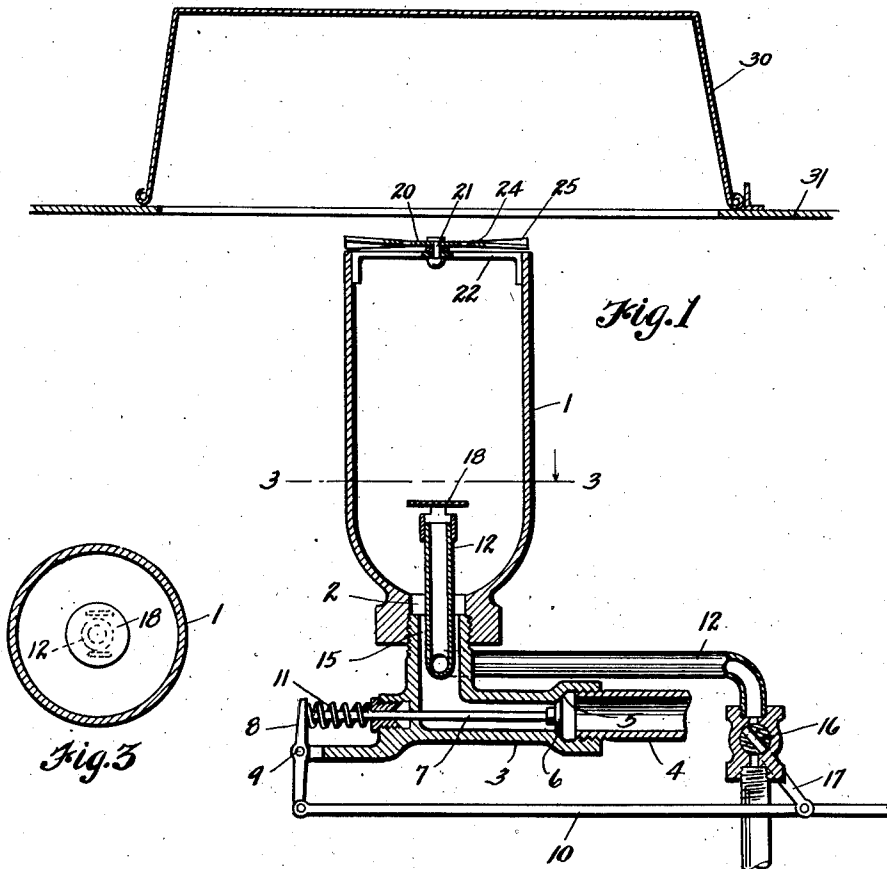
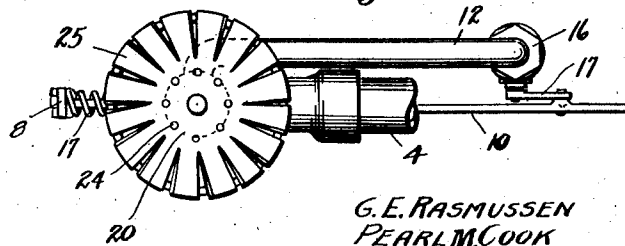


Fig. 2



G. E. RASMUSSEN
PEARL M. COOK
G. W. SKINNER
INVENTOR

BY *Richard J. Cook*
ATTORNEY

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UNITED STATES PATENT OFFICE.

PEARL M. COOK, GUST E. RASMUSSEN, AND GILBERT W. SKINNER, OF SEATTLE,
WASHINGTON.

ATOMIZER.

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This invention relates to atomizers and more particularly to means whereby a liquid such as oil may be very finely atomized and effectively spread in this atomized condition over an extended surface.

It is the principal object of the invention to provide a device of the above character that is especially designed for use in oiling bread pans, or the like, and which comprises in its construction means whereby the oil delivered therethrough may not only be atomized, but may be discharged or spread evenly over the entire inner surface of the pans.

A still further object of the invention is to provide an atomizer comprising a cup-like body into which the oil, or other liquid to be atomized, is delivered and also into which air, under pressure, is adapted to be delivered to blow the oil from the cup through an impeller or fan which is to be actuated to atomize and spread the oil.

Other objects of the invention reside in the various details of construction and combination of parts as will be hereinafter described.

In accomplishing the various objects of the invention, we have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Figure 1 is a central, vertical section through an atomizer embodying the present invention.

Figure 2 is a top view of the same.

Figure 3 is a sectional view taken on the line 3—3 in Figure 1.

Referring more in detail to the drawing—

The atomizer in its preferred form of construction comprises a cup-like body 1 of cylindrical form open at its upper end and closed at its lower end and provided centrally at its lower end with an opening 2 through which the discharge end of an air valve housing 3 is threaded. This housing, which connects with a pipe 4 leading from a source of air under pressure, not shown, is provided with a valve seat 5, against which a valve 6 operates; the valve being mounted on a stem 7 that extends from the housing where it is engaged by one end of a lever 8 pivotally supported, as at 9, from the housing and to which a link 10, whereby it may be moved to open the valve, is connected. A spring 11 is coiled about the

outer end portion of the stem and is so connected therewith that it normally holds the valve in closed position to prevent the discharge of air into the cup 1.

Also entering the cup centrally through the opening 2 is a small pipe 12 through which oil or other liquid to be atomized may be discharged into the cup. This pipe enters the side of the valve housing into the air channel and is then turned upwardly through the valve connection and opening 2 into the cup. The oil pipe is of such diameter that it will leave an annular space about it through which air may enter the cup. The outer end of the pipe may connect to a source of supply, not shown, which may flow by gravity, or by other pressure, and which may be controlled by a valve 16 in the pipe operable by means of a lever 17 that is connected with the link 10; the connection with the link being such that movement of the link simultaneously effects the closed end opening of both the valve 6 and valve 16.

Fixed over the discharge end of the oil pipe within the cup, is a deflector plate 18 located in spaced relation from the end of the pipe and disposed horizontally and at a right angle to the axle line of the pipe. The construction described provides that upon opening the valves 6 and 16, air will be discharged into the cup through the opening 2 and oil will be discharged through the pipe 12 against the deflector plate 18 and will thereby be thrown laterally in an atomized condition and caught up by the air and carried upwardly from the upper end of the cup.

Over the upper end of the cup is a disk 20 rotatably supported by a pin 21 fixed in a cross bar 22 across the upper end of the cup. The disk is mounted so as to revolve in a plane that is parallel with and close to the end of the cup. It is provided near its center with a plurality of perforations 24 and upon its periphery with impeller blades 25 against which the air discharged through the cup will impinge to cause the disk to revolve at a high rate and to thereby more finely atomize the oil and cause it to be discharged upwardly and laterally in all directions.

In Figure 1 we have shown the atomizer located beneath an inverted bread pan 30 on a support 31 and used in this instance as

a means of oiling the interior of the pan before the bread is placed therein for baking. It is to be understood, however, that such atomizers are adapted to be used for various purposes and in various types of machines, and we do not wish to limit its use to any single device or machine.

It is further apparent that details of construction in the device, especially in the means of control for the oil and air delivery, could be varied without departing from the spirit of the invention and for this reason we do not wish to be limited to the details shown.

The matter shown and claimed herein is described but not claimed in our Letters Patent No. 1,522,867, issued Jan. 13, 1925.

Having thus described our invention, what we claim as new therein and desire to secure by Letters-Patent, is:

1. An atomizer comprising a cup-like body, a pipe entering the cup for the delivery of the liquid to be atomized, a deflector plate over the end of said pipe whereby the liquid is discharged laterally thereof and a delivery pipe for air under pressure entering the base of the cup, and means for simultaneously controlling the influx of air and liquid into said cup-like body.

2. An atomizer comprising a cup-like body, a rotatable impeller disposed over the open end of the cup, a pipe entering the base of the cup for the delivery therein of air under pressure, a pipe entering the cup for the delivery into the air current of the liquid to be atomized and a deflector spaced from the end of said pipe against which the liquid is discharged.

3. An atomizer comprising a cup-like body, a delivery pipe for air under pressure leading into the base of the cup, a delivery pipe for the liquid to be atomized leading

into the cup centrally within the air delivery pipe and a deflector plate supported in spaced relation from the end of the latter pipe against which the liquid is discharged and deflected laterally.

4. An atomizer comprising a cup-like body having a central opening in its base for connection with a source of air under pressure, a delivery pipe for liquid to be atomized extended into the cup centrally of said opening, a deflector plate supported from the end of said pipe, and a rotatable impeller mounted over the open end of the cup to be revolved by the discharge of air thereagainst.

5. An atomizer comprising a cup-like body, an air delivery pipe entering the base of the cup, an oil delivery pipe entering the cup centrally within the air delivery pipe, a deflector plate supported from the end of the oil delivery pipe, and a disk rotatably mounted over the end of the cup adapted to be revolved by the discharge of air there-through; said disk having impeller blades about its periphery and perforations through its body.

6. An atomizer comprising a cup-like body, a delivery pipe for air under pressure leading into the base of the cup, a delivery pipe for the liquid to be atomized leading into the cup centrally within the air delivery pipe, a deflector plate supported in spaced relation from the end of the latter pipe, an impeller rotatably mounted above the open end of the cup, valves in the air and liquid delivery pipes and means for simultaneously opening and closing said valves.

Signed at Seattle, King County, Washington, this 2nd day of January, 1924.

GUST E. RASMUSSEN.
GILBERT W. SKINNER.
PEARL M. COOK.