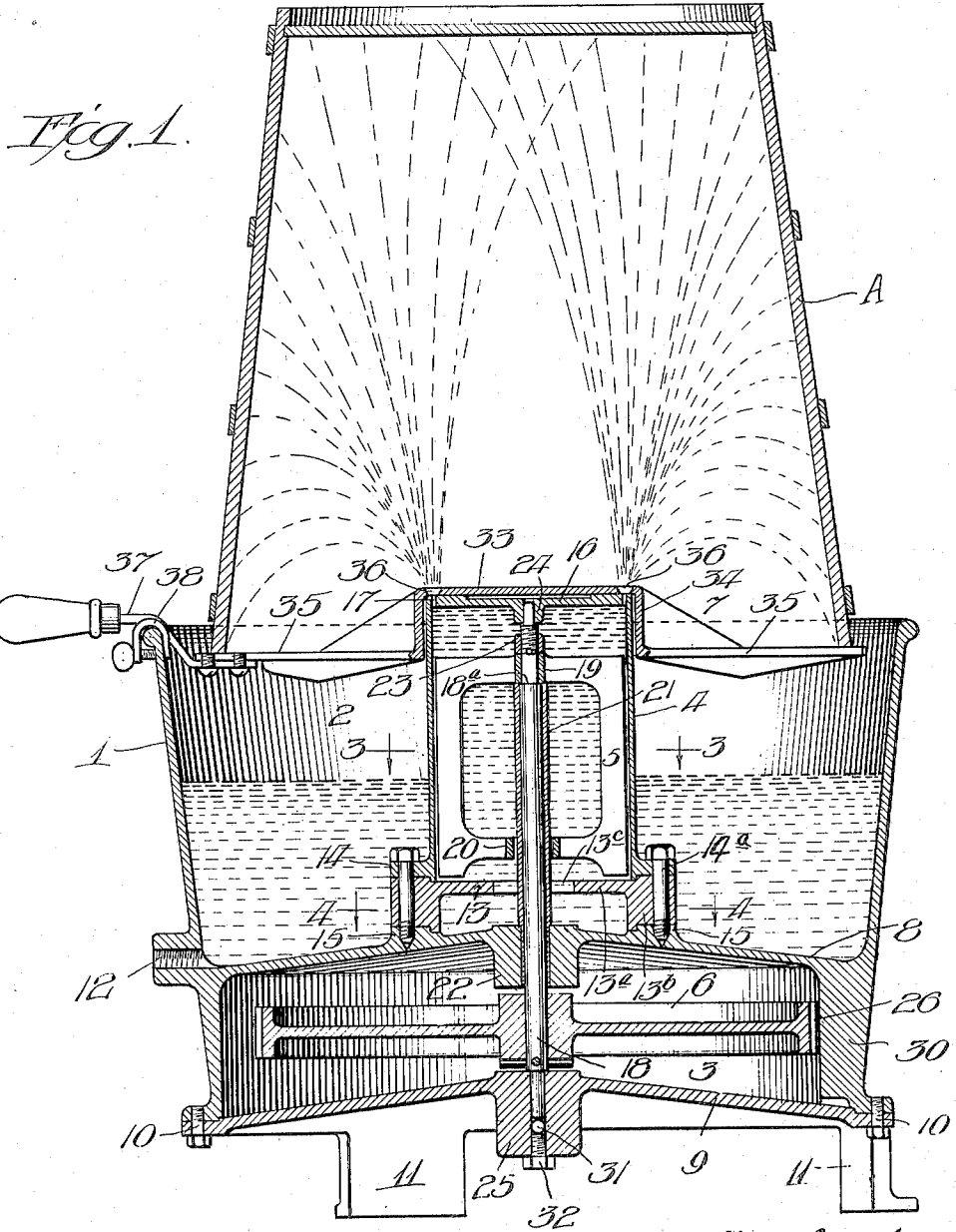


T. L. VALERIUS AND O. LARSEN.
 APPARATUS FOR COATING CONTAINERS.
 APPLICATION FILED MAR. 6, 1918.

1,325,815.

Patented Dec. 23, 1919.
 2 SHEETS—SHEET 1.



Witness:

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Fig. 2.

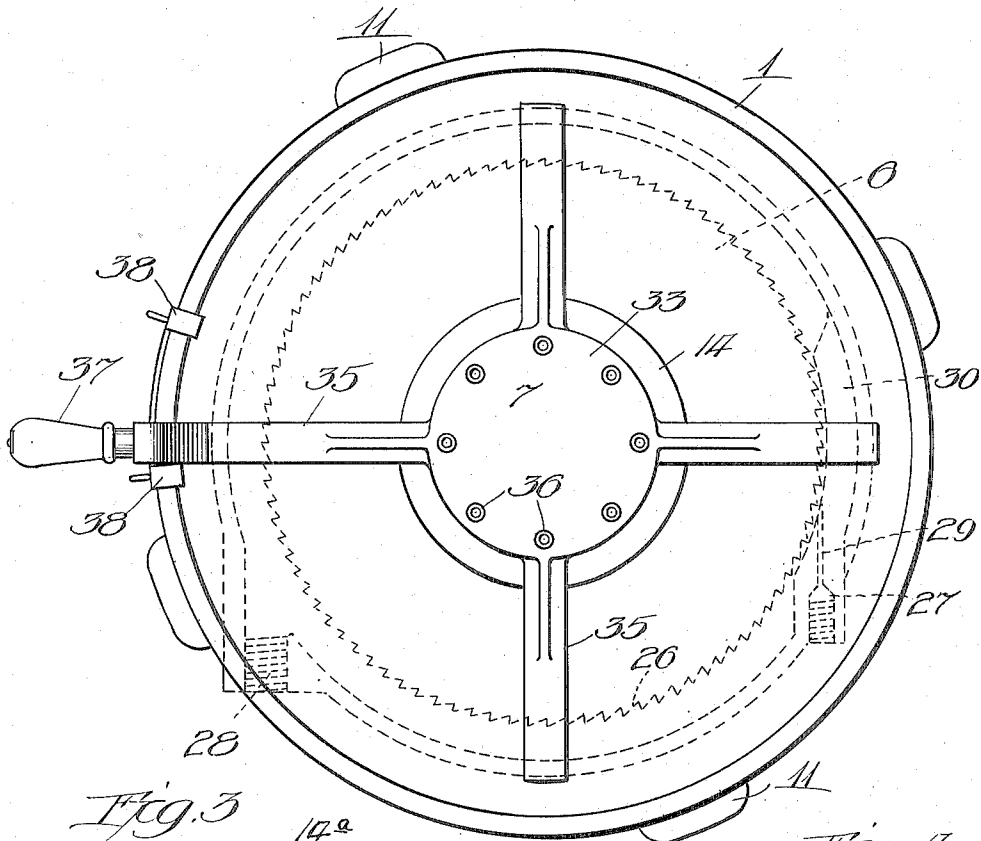


Fig. 3.

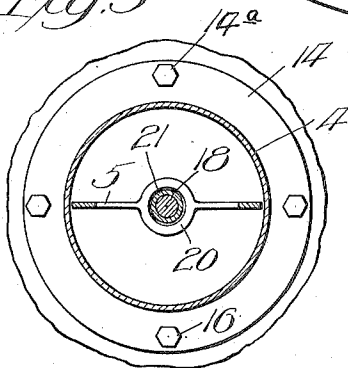
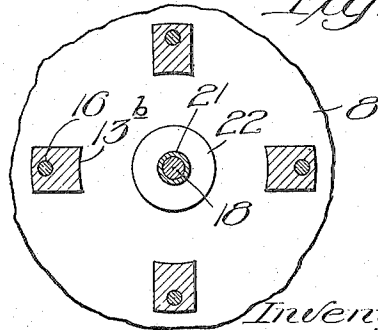


Fig. 4.



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UNITED STATES PATENT OFFICE.

THEODORE L. VALERIUS AND OLAF LARSEN, OF FORT ATKINSON, WISCONSIN,
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APPARATUS FOR COATING CONTAINERS.

1,325,815.

Specification of Letters Patent. Patented Dec. 23, 1919.

Application filed March 6, 1918. Serial No. 220,733.

To all whom it may concern:

Be it known that we, THEODORE L. VALERIUS and OLAF LARSEN, citizens of the United States, residing at Fort Atkinson, in the county of Jefferson and State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Coating Containers; of which the following is a specification.

The invention relates to an apparatus for coating the interior of butter tubs or like receptacles with paraffin for purposes of sanitation and preservation; and the general object of the invention is to provide an apparatus of the character stated, of improved construction and arrangement, which will effectively accomplish the desired result.

Another object of the invention is to provide an apparatus for coating receptacles which is very rapid, economical and otherwise efficient in operation.

A further object of the invention is to provide an apparatus wherein steam employed for liquefying the paraffin may be utilized to actuate the coating means.

The objects of the invention thus generally stated, together with other and ancillary advantages, are obtained by the preferred embodiment of the invention illustrated in the accompanying drawings forming part hereof, in which Figure 1 is a central vertical sectional view through the apparatus with an inverted butter tub supported in position thereon, and showing the manner in which the paraffin is applied to the interior of the tub. Fig. 2 is a top plan view of the apparatus. Fig. 3 is a sectional view taken on line 3—3 of Fig. 1. Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

Generally stated, the apparatus comprises an outer casing 1 transversely partitioned to form a paraffin container 2 and a steam chamber 3; an inner casing or cylinder 4 within the container 2 and having an impeller 5 therein; a turbine wheel 6 within the steam chamber arranged to drive the impeller 5; and a table 7 mounted on the cylinder 4 and arranged to support a tub A in position to receive a coat of paraffin drawn from the container 2 and forced out, in the form of a spray, through the upper end of the cylinder 4 by the impeller 5.

The casing 1 is substantially cylindrical

in form and spaced a substantial distance within its lower end is a transverse partition 8 which forms the bottom wall of the container 2 and the top wall of the steam chamber 3. Preferably, the partition 8 is shaped to form a steam dome so that the steam will more effectively impart its heat to the container 2 to liquefy the paraffin. The lower end of the steam chamber 3 is closed by means of a plate 9 suitably secured to the lower end of the casing 1 as by means of bolts 10, and suitable legs 11 for the apparatus may be formed integral with the bottom plate 9 at spaced intervals throughout its periphery. 12 is a threaded opening leading from the lower end of the container 2 and arranged to receive a drain cock (not shown).

Centrally disposed within the container 2 in upright position is the inner casing or cylinder 4. Said cylinder is mounted upon a base 13 comprising a circular plate 13^a having a plurality of spaced supporting blocks 13^b at its periphery. The lower end of the cylinder is provided with an outwardly extending flange 14, and bosses 15 are formed on the upper surface of the partition 8 upon which the supporting blocks of the base 13 are adapted to rest. Cap screws 14^a passing through openings in the flange 14 and in the blocks of the base, and threaded into the bosses 15 serve to secure the cylinder 4 in position in the container. The circular plate of the base thus forms a bottom wall for the cylinder spaced a short distance above the partition 8, and said wall is provided with a central opening 13^c through which the cylinder communicates with the container 2. The upper end of the cylinder 4 protrudes a short distance above the upper end of the outer casing 1 and is closed by means of a top wall 16 having near its periphery a plurality of equidistantly spaced outlet openings or ports 17.

Mounted within the cylinder 4 upon a vertical shaft 18 is the impeller 5. Said impeller is of suitable construction, being herein shown in the form of a substantially rectangular frame having an upper hub 19 fixed to the shaft 18 and a lower hub 20. The shaft 18 is arranged to operate within a sleeve 21, the lower end of which is mounted in a boss 22 formed on the partition 8, and which extends upwardly in the cylinder

to the lower end of the upper hub 19 of the impeller. The opening in the lower hub of the impeller is of sufficient size to freely receive the sleeve 21, and the upper hub of the impeller is fixed to the shaft 18 by means of a nut 23 threaded on the upper end of the shaft and clamping the hub against a shoulder 18^a on the shaft. The upper end of the shaft 18 extends into a bearing 24 formed in the upper wall 16 of the cylinder.

The lower end of the shaft 18 extends downwardly through the steam chamber 3 into a bearing 25 formed on the bottom plate 9 of said chamber, and within the chamber the shaft has fixed thereto the turbine wheel 6. Said wheel may be of any preferred construction and is provided at its periphery with a plurality of buckets or pockets 26 which are arranged to receive the impact of steam entering the chamber through an inlet opening 27 (Fig. 2) and discharging therefrom through an outlet opening 28. Said openings are arranged at opposite sides of the chamber 23 tangentially of the periphery of the turbine wheel, and the inner end of the inlet opening is restricted to form a jet or nozzle 29 which terminates in a thickened arcuate portion 30 of the chamber wall immediately adjacent the periphery of the turbine wheel. The steam entering through the opening 27 thus is effectively directed against the pockets 26 of the turbine wheel to drive the same and also the impeller 5 at high speed. Preferably the lower end of the shaft 18 is mounted upon a bearing ball 31 supported on the upper end of a screw 32 threaded into the lower end of the bearing 25 in the bottom plate.

It will be apparent that the steam admitted into the steam chamber 3 quickly heats the paraffin in the container 2 and reduces it to liquid form, and that the turbine formed by the chamber 3 and the wheel 6 is actuated by the steam, when the paraffin has been thus liquefied, to drive the impeller 5, but the steam is prevented from entering the container. The impeller, in turn, draws the liquefied paraffin from the container 2 through the opening 13^c in the base 13 and into the cylinder 4 and forces it upwardly in the form of a spray through the ports 17 in the top wall 16 of the cylinder.

The table 7, however, which is arranged to support a receptacle to be coated, such as the inverted tub A, serves to control the flow of the paraffin through the ports 17. Said table is supported upon the upper end of the cylinder 4 and comprises a central bearing plate 33 having a downturned rim flange 34 and a plurality of radial arms 35 arranged to support the tub. The rim flange 34 fits neatly around the upper end of the cylinder 4 and the plate 33 is provided near its periphery with a plurality of openings 36 arranged to be brought into register with

the ports 17 in the upper end of the cylinder 4. A rotation of the table, however, will carry the opening 36 and the ports 17 out of register, and thus the flow of paraffin may be cut off. To one of the arms 35 of the table is secured a handle 37 which extends radially outwardly and upwardly over the adjacent rim of the outer casing 1 and in sliding contact therewith, and preferably a pair of stops 38 are secured to the rim of the casing 1 at opposite sides of the handle 37 to facilitate the positioning of the table so as to permit or prevent the spraying of paraffin as desired.

While we have herein shown and described with considerable particularity the preferred embodiment of our invention, we do not intend to be limited, in the interpretation of the following claims, to the details of construction set forth, except as may be necessitated by the prior art.

We claim as our invention:

1. An apparatus of the character described having, in combination, an outer casing having a horizontal partition forming a container for paraffin in the upper portion of the casing and having a bottom wall forming a steam chamber in the lower portion of the casing, a cylinder within said container having a top wall with an outlet opening therein and a bottom wall with an inlet opening therein, said cylinder being supported upon said partition with its bottom wall spaced a short distance above the partition, a shaft bearing in the bottom wall of the casing and extending upwardly through the partition and into the cylinder, an impeller on the shaft in the cylinder, a turbine wheel on the shaft in the steam chamber, and means for admitting steam to said chamber to liquefy the paraffin and to rotate the impeller to force the paraffin from the container and cylinder in the form of a spray.

2. An apparatus of the character described having, in combination, an outer casing having a container for paraffin and a steam chamber below said container, a cylinder within the container communicating at its lower end with the container and having spraying ports in its upper wall, an impeller in said cylinder, a steam turbine wheel in said steam chamber, a shaft directly connecting said impeller and turbine wheel, and means for controlling the flow of paraffin through said ports in the cylinder.

3. An apparatus of the character described having, in combination, a casing having a transverse partition forming a container for paraffin in the upper portion of the casing and having a bottom wall forming a steam chamber in the lower portion of the casing, a turbine wheel mounted in the steam chamber, means for admitting steam into the steam chamber to liquefy the paraffin in the

container and to actuate the turbine wheel, and means actuated by the turbine wheel to force the paraffin from the container in the form of a spray.

5 4. An apparatus of the character described having, in combination, a container for paraffin, a steam chamber below said container having a steam inlet and outlet, a cylinder within said container communicating there-
10 with at its lower end and having a spraying port in its upper wall, an impeller in said cylinder, a turbine wheel in said steam chamber arranged to be driven by the incoming steam to rotate the impeller, and means for
15 controlling the flow of paraffin through said ports.

5. An apparatus of the character described having, in combination, a container for paraffin, a steam chamber adjacent said container, a turbine wheel mounted in the steam chamber, the wall of said chamber having a steam inlet nozzle therein arranged to direct the incoming steam against the turbine wheel, and means actuated by said turbine
20 wheel to force liquefied paraffin from the container in the form of a spray.

6. An apparatus of the character described having, in combination, a container for paraffin, means for heating the paraffin to
30 liquefy the same, and means for forcing paraffin from the container in the form of a spray including a cylinder within the container having a plurality of outlet ports in its upper end, a table having a central sup-
35 porting plate with a plurality of openings therein and a plurality of radial arms for supporting a receptacle to be coated, said table being movable to bring the openings in the plate in and out of register with the ports
40 in the cylinder.

7. An apparatus of the character described having, in combination, a container for paraffin, means for heating the paraffin to liquefy the same, and means for forcing the paraffin
45 from the container in the form of a spray including a cylinder within the container having an outlet port in its upper end, a table having a central plate bearing on the upper end of said cylinder and having an opening
50 therein, means for moving said table to bring the opening therein in and out of register with the opening in the cylinder, and means for limiting the movement of said table in opposite directions.

8. An apparatus of the character described having, in combination, a container for paraffin, means for heating the paraffin to liquefy the same, means for forcing the paraffin from the container in the form of a spray, and
60 means for supporting a receptacle in position to be coated including a table having radial arms upon which the receptacle may rest.

9. An apparatus of the character described
65 having, in combination, a container for par-

affin, means for heating paraffin to liquefy the same, means for forcing paraffin from the container in the form of a spray, and a single means adapted to support a recep-
70 tacle in position to be coated and to control the flow of paraffin.

10. An apparatus of the character described having, in combination, a container for paraffin, means for heating the paraffin to liquefy the same, a cylinder in the con-
75 tainer communicating at its lower end therewith and having an outlet port in its upper end, an impeller within the cylinder, and means for rotating the impeller to force paraffin in the form of a spray through said out-
80 let port in the cylinder.

11. An apparatus of the character described having, in combination, a container for paraffin, means for heating the paraffin to liquefy the same, a cylinder having an outlet
85 port in its upper end, a base plate at the lower end of said cylinder spaced from the bottom of the container and having a central opening therein, an impeller in the cylinder, and means for rotating the impeller to draw
90 paraffin from the container through the opening in said base plate and force it through the outlet port in the cylinder in the form of a spray.

12. An apparatus of the character de-
95 scribed having, in combination, a container for paraffin, steam heating means for liquefying the paraffin in the container, and means including an actuator exterior to the container and operable by the steam which
100 liquefies the paraffin, for forcing the paraffin from the container in the form of a spray.

13. An apparatus of the character de-
105 scribed having, in combination, a container for paraffin, steam heating means for liquefying the paraffin in the container, means including an actuator exterior to the container and operable by the steam which
110 liquefies the paraffin, for forcing the paraffin from the container in the form of a spray, and means controlling the flow of paraffin.

14. An apparatus of the character de-
115 scribed having, in combination, a container for paraffin, steam heating means for liquefying the paraffin in the container, means including an actuator exterior to the container and operable by the steam which liquefies the paraffin, for forcing the paraffin
120 from the container in the form of a spray, and means for supporting a receptacle in position to receive a coat of paraffin.

15. An apparatus of the character de-
125 scribed having, in combination, a container for paraffin, steam heating means for liquefying the paraffin in the container, means actuated by the steam which liquefies the paraffin for forcing the paraffin from the container in the form of a spray, and a table arranged to cooperate with the spraying
130

means to control the flow of paraffin and for supporting a receptacle in position to be sprayed.

16. An apparatus of the character described having, in combination, a container for paraffin, means for liquefying the paraffin in the container, means for forcing the paraffin from the container in the form of a spray including a cylinder, and a plate on the upper end of said cylinder for controlling the flow of paraffin.

17. An apparatus of the character described having, in combination, a casing having a container for paraffin, coating means, and a steam turbine for actuating said means, said casing being arranged to utilize the steam which actuates the turbine, for liquefying the paraffin in the container.

18. An apparatus of the character described having, in combination, a container for paraffin, coating means, and a steam turbine for actuating said means including a chamber having a steam inlet and outlet and arranged to heat the container.

19. In an apparatus of the character described, spraying means including an impeller, a steam chamber, and a turbine wheel mounted in the chamber and operatively connected with the impeller, said chamber having a thickened arcuate portion with a steam inlet nozzle therein arranged to direct

the incoming steam against the turbine wheel.

20. In an apparatus of the character described, means for spraying liquefied paraffin including a container, a cylinder within the container having an outlet port, and an impeller within the cylinder and operable to draw paraffin from the container into the cylinder and force it through said port.

21. In an apparatus of the character described, spraying means including a cylinder having an outlet port, and a table having a central portion bearing on the upper end of said cylinder and radial arms for supporting a receptacle to be sprayed, said central portion of the table having an opening therein adapted to register in one position of the table with the port in the cylinder.

22. An apparatus of the character described having, in combination, a container for liquid coating material, and means for supporting a receptacle upside down over the liquid coating material in the container by engagement with the top of said receptacle throughout a relatively small portion of the periphery thereof.

In testimony whereof we have hereunto set our hands.

THEODORE L. VALERIUS.
OLAF LARSEN.