P. MALCAMP.

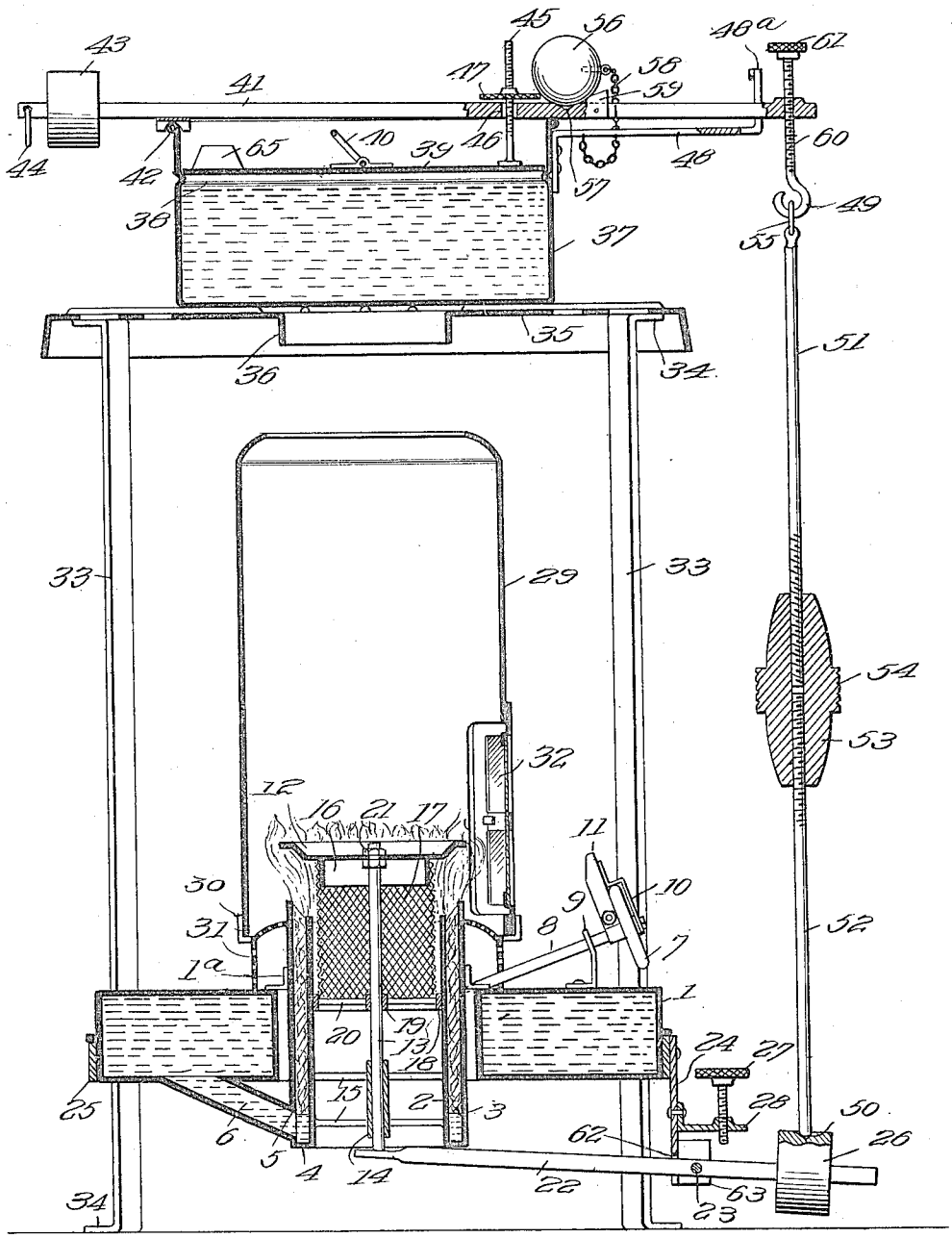
STERILIZER.

APPLICATION FILED JULY 13, 1915.

1,231,402.

Patented June 26, 1917.

2 SHEETS—SHEET 1.



WITNESSES:

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Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

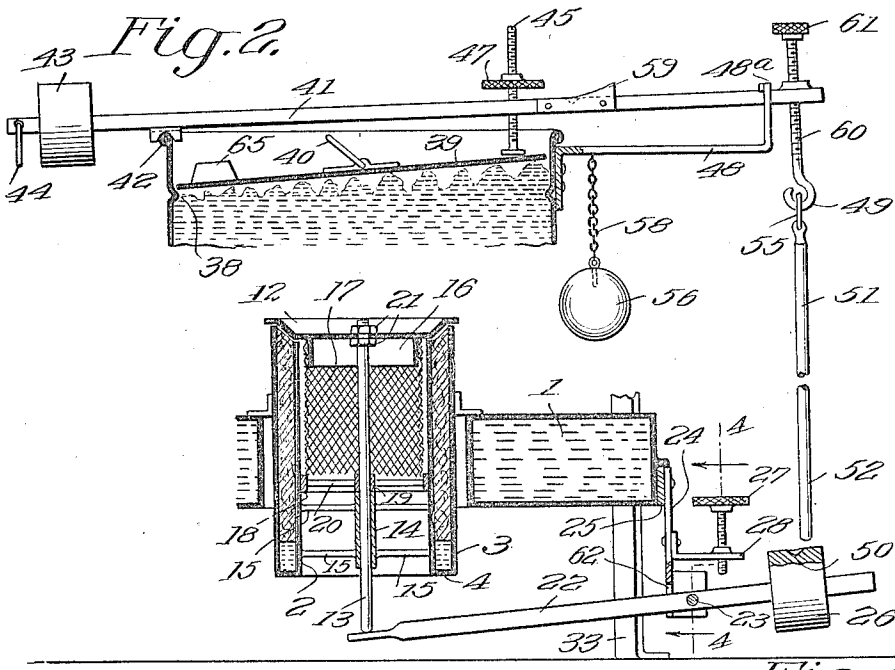

Fig. 4.

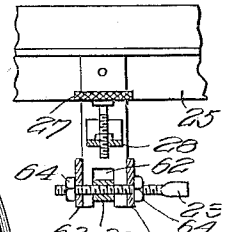

Fig. 3.

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PHILIP MALCAMP, OF NEW ORLEANS, LOUISIANA.

STERILIZER.

1,231,402. Specification of Letters Patent. Patented June 26, 1917.

Application filed July 13, 1915. Serial No. 39,708.

To all whom it may concern:

Be it known that I, PHILIP MALCAMP, a French subject, but who has applied for naturalization of the United States, and a resident of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Sterilizers, of which the following is a specification.

My invention is an improvement in sterilizers, and the invention has for its object to provide a sterilizer comprising a container for the material to be sterilized and having a cover supported by the container just above the level of the material and adapted to be agitated by the boiling of the material and adapted for use with the wick heater forming the subject-matter of my copending application, Serial No. 876,829, filed Dec. 12, 1914, wherein a damper is provided movable toward and from the wick to extinguish the same, and mechanism in the form of a swinging lever for lifting the damper when the outer end of the lever is depressed, and a lever balanced on the container and having at one end a depending rod adjustable with respect to the lever and engaging the first-named lever to hold the damper open, said first-named lever having a weight at the opposite end from the rod for normally moving the rod upward, and wherein a weight is provided resting loosely on the last-named lever and adapted to be dislodged by the movement of the cover for permitting the first-named weight to lift the rod to permit the damper to extinguish the flame.

In the drawings:—

Figure 1 is a vertical section through the sterilizer and heater,

Fig. 2 is a partial sectional view similar to Fig. 1 with the parts in another position,

Fig. 3 is a top plan view of the sterilizer, and

Fig. 4 is a section on the line 4—4 of Fig. 2, looking in the direction of the arrows adjacent to the line.

In the present embodiment of the invention, the heater comprises an oil reservoir or tank 1, having a central double wall wick tube, consisting of an inner wall 2 and an outer wall 3, spaced apart from each other and connected at their bottom by a web 4. The wick 5 is mounted between the tubes 2 and 3 and the annular space between the tubular walls of the wick tube is connected to the reservoir by an inclined connecting pipe 6, leading from the bottom of the reservoir and opening into the bottom of the annular chamber of the wick tube.

The wick is raised and lowered by means of a hand wheel 7, secured to a shaft which is journaled in a sleeve 8, and the sleeve is supported at its outer end in a bearing bracket 9 on the reservoir. The shaft is connected with the wick to raise and lower the same when the shaft is oscillated in opposite directions in the usual manner.

An indicator 10 is secured to the shaft, and an arm 11 is secured to the sleeve, the arrangement being such that when the indicator and the arm are in register the wick will be at the proper position to obtain the best results. A damper 12, in the form of a disk, is secured to the upper end of a rod or shaft 13, the said rod or shaft being arranged at the axis of the wick tube and mounted to slide in a bearing sleeve 14, which is connected to the inner wall 2 of the wick tube, by arms 15.

A circular rib or web 16 depends from the damper 12 at the under side thereof, and a cylindrical screen 17 is supported by the rib. The lower end of the screen is connected to a ring 18, which fits within the wick, and the ring is connected to the shaft by means of a hub 19 and arms 20, the hub encircling the shaft or rod, and the arms connecting the hub to the ring.

The damper has a central opening through which the rod passes, and nuts 21 are threaded on to the rod on opposite sides of the damper. The damper is of a diameter to extend beyond the outer surface of the outer wall 3 of the wick tube, so that when the damper is in the lowest position of Fig. 2, it will close the upper end of the annular chamber of the wick tube.

The lower end of the rod or shaft 13 rests upon the flattened portion of a lever 22, which is pivoted as indicated at 23 intermediate the ends of the lever to a bracket 24, which depends from the supporting ring 25 of the reservoir. A weight 26 is slidably mounted on the outer end of the lever, and a set screw 27 is threaded through an arm 28, extending laterally outward from the bracket 24 above the lever. By means of the set screw the position of the damper 12 may be adjusted.

A chimney 29 of metal or the like is supported by a holder 30, concentric with the

wick tube, and the ends of the chimney are open as shown, the upper end being reduced. At its lower end the chimney rests in the holder 30, and a perforate hood 31 is arranged between the top of the tank or reservoir and the outer surface of the wick tube, the holder 31 being connected to this hood. The perforations of the hood permit the free entrance of air to the flame. The chimney is of metal as shown, and the door is provided with panes of transparent material, as for instance, isinglass or mica.

The heater is supported by the ring 25 before mentioned, and the said ring is connected to standards or uprights 33, each standard or upright having a lateral lug 34 at each end, the lugs at the lower ends of the uprights resting upon the supporting surface for the heater, while the lugs at the other end support a grid 35, having a central opening encircled by a depending marginal rib 36. The grid has the usual depending flange at its outer end, and the container 37 for the material to be sterilized is supported by the grid over the central opening.

This receptacle is cylindrical in form, having an open top and near the top the receptacle is provided with an inwardly extending annular rib 38. The cover 39 for the receptacle rests upon this rib, the said cover being a disk having a bail or handle 40, pivoted thereto for convenience in manipulating the cover.

The rib 38 is spaced below the top of the receptacle, and a lever 41 is supported by the receptacle above the cover. This lever is of a length to extend from one edge of the grid to and beyond the other diametrically of the heater and the receptacle 37, and the rod is pivoted to the cover at the edge remote from the weight 36 as indicated at 42, resting upon the cover at the opposite edge as shown.

A weight 43 is mounted to slide on the rod at the end adjacent to the pivotal connection, and the lever is provided with a stop 44 at the said end, the stop being in the form of a ring passing through an opening in the lever. An upstanding rod 45 is provided passing through an opening 46 in the lever and is engaged by a nut 47 above the lever. The lower end of the rod has a head as shown, which rests upon the cover at the edge remote from the pivotal connection of the lever.

An arm 48 extends radially outward from the receptacle 37 above the cover, and at its outer end the arm has spaced upstanding arms 48^a, which extend on opposite sides of the lever. A threaded rod 60 is passed through a threaded opening in the lever outside of the arms 48^a, the said rod having a milled head 61 at its upper end for convenience in turning the same, and the lower end of the rod is provided with a hook 49.

The weight 26 has a radial notch or recess 50 in its periphery, and at its upper side, and the lower end of the sectional rod rests in this notch or recess. The rod consists of an upper section 51 and a lower section 52, the meeting ends of the sections being threaded and being engaged by an internally threaded sleeve 53. From Fig. 1 it will be seen that the sections of the rod are threaded in opposite directions, and the sleeve has an annular rib 54 at its center, the periphery of the rib being milled or roughened as shown.

The upper end of the section 51 is provided with a ring 55, which engages the hook 49 of the rod 47. A weight 56 normally rests in a depression or recess 57 in the upper face of the lever just at the edge of the receptacle adjacent to the rod 45, and this weight is connected to the radial arm 48 by means of a flexible member 58, a chain in the present instance. One end of the chain is connected to the weight and the other end to the radial arm.

The container 37 is of any desired capacity, and is arranged to hold the required amount of material to be sterilized, as for instance, a quart, with a little space between the surface of the material and the cover 39. The material should not fill the receptacle higher than the under surface of the rib 38 upon which the cover rests.

The pivotal connection of the lever 41 with the receptacle is such that it may be easily detached. As shown this connection is made by a U-shaped member, comprising a body, which is secured to the under surface of the lever, and arms depending from the body, and each arm is notched to receive the edge of the receptacle. This provides for a rocking movement of the lever on the receptacle without any longitudinal movement of the lever and without any lateral swinging movement, while at the same time the lever may be easily detached merely by lifting it away from the receptacle.

The rod 51—52—53 is made sectional to permit the use of containers 37 of larger capacity. By turning the sleeve 53 in the proper direction the sections of the rod may be moved away from or toward each other.

A small plate 59 is arranged at one side of the lever, in such manner that the ball weight 56 must fall always from the lever at the side thereof and can not fall from the other side. It will be noted from an inspection of Fig. 4 that the bracket 24 which supports the lever 22 and the set screw 27 has its lower end forked as indicated at 62 to receive the lever, and the bracket arm is provided with a pair of outwardly extending lugs 63, the said lugs being at the side edges of the bracket. The pivotal connection 23 is a screw threaded rod which passes through registering openings in the lugs 63

and in the lever, and the rod is engaged by nuts 64 at the outer side of the lugs 63.

A weight 65 is arranged on the cover near one edge and the cover is so placed with respect to the lever 41 that the weight will be at a point diametrically opposite the rod 45.

It is essential that the milk or other material to be sterilized fill the vessel to near the cover 39 so that when the milk begins to boil the ebullition of the milk will lift the cover as indicated in Fig. 2. In sterilizing milk, the sterilization is complete as soon as the milk commences to boil and the process should then be stopped.

In operation the parts are arranged as shown in Fig. 1. The set screw 27 is turned up to a position such that when the lever 22 is free to move under the influence of gravity the damper 12 will drop down upon the end of the wick extinguishing the flame. The vessel containing the material to be sterilized is placed on the grid and the lever and connected parts are arranged as shown in Fig. 1.

The sectional rod 51—52 is adjusted by means of the threaded rib 60 until the damper is in the proper position to permit the wick to burn, that is, in somewhat the position of Fig. 1. The device is now ready for operation. As soon as the milk begins to be disturbed by the boiling that edge of the cover remote from the weight 65 will be lifted, lifting the rod 45.

It will be noted from an inspection of Fig. 1 that the edge of the nut 47 extends beneath the ball weight 56 in the recess 57 far enough to dislodge the ball when the nut is lifted by the lifting of the rod. The weights of the several elements, namely, the damper 12 and its connections, the lever 22, the weight 26, the sectional rod and sleeve and connections are so proportioned that when the ball weight 56 is in place the damper will be held lifted, and as soon as this weight is dislodged from the lever by the boiling movement of the milk, the weight of the damper and connected parts will swing the outer end of the lever 22 upward as shown in Fig. 2.

The damper dropping upon the burning wick will extinguish the flame, thus putting a stop to the further heating of the milk or other material being sterilized. The sterilizing attachment comprising the container 37, the cover, the lever 41 and connected parts are detachable from the heater merely by lifting them away. The ring 44 permits the lever 41 and connected parts to be hung up out of the way, and when the container and other elements are removed the heater may be used for other purposes. The arms 48^a of the radial arm 48 prevent or limit lateral swinging movement of the adjacent end of the lever.

It will be noted from an inspection of Fig. 1 that the inner wall of the wick tube is of lesser height than the outer wall, and the damper 12 is shaped to fit against the upper ends of the walls, that is, the margin of the damper is offset upwardly with respect to the body of the damper, so that when the damper is in lowered position the margin will rest upon the upper end of the outer wall of the wick tube while the edge of the body of the damper will rest upon the upper end of the inner wall of the wick tube with the web which connects the offset margin with the body extending between the walls of the wick tube.

The upper end of the wick is preferably beveled as shown, the arrangement being such that when the damper is in lowermost position, the air will be shut off entirely from the wick to immediately extinguish the flame. The ring 18 and the hub 19 guide the damper and the rod, so that there will be no jamming of the damper to prevent its immediate fall when the weight 56 is dislodged.

The wick tube 2—3 is held in the central opening of the tank or reservoir by means of an angle ring 1^a. It will be noticed that the opening for the wick tube is of greater diameter than the external diameter of the tube itself, so that a space is left between the periphery of the tube and the reservoir. This angle ring 1^a is provided with openings for permitting the air to pass upward in this space.

I claim:—

1. A sterilizer, comprising in combination with the oil heater, having a central draft tube and a wick encircling the tube, a damper mounted to move vertically toward and from the burning end of the wick for extinguishing the same, a lever pivoted to the heater and having its inner end connected with the damper to raise and lower the damper when the outer end of the lever is swung in opposite directions, a weight on the outer end of the lever, a container for containing the material to be sterilized arranged above the heater, a cover resting loosely in the container and adapted to be disturbed by the boiling milk, a lever mounted to rock near one end at one side of the container and resting near the other end on the container and extending beyond the container at both ends of the lever, a weight adjustable on that end of the lever remote from the weight of the first-named lever, a rod threaded through the other end of the last-named lever and having a hook at its lower end, a sectional rod, a connection between the sections for moving them from and toward each other, the upper end of the rod being connected with the hook of the threaded rod and the lower end resting on the weight of the first-named lever, a rod

passing loosely through the lever at the end adjacent to the sectional rod and resting at its lower end on the cover, said cover having a weight at the opposite side from the rod, a washer threaded on to the rod above the lever, a ball weight resting on the lever at the washer, the lever having a recess for the weight and the washer extending beneath the weight when it is in the recess, said weight being adapted to be dislodged by the movement of the cover, and balancing the damper to hold the outer end of the first-named lever depressed.

2. A sterilizer, comprising a container for containing the material to be sterilized, a cover within the container and resting loosely on the container and adapted to be moved by the boiling of the material to be sterilized, a lever supported diametrically of the container above the cover, a weight adjustable on one end of the lever, a rod depending from the other end, a threaded rod passing loosely through the lever at the side of the container adjacent to the depending rod and resting loosely on the cover, a weight on the lever adjacent to the rod, a washer adjustable on the rod and adapted to dislodge the weight when the cover is moved by the boiling material, a heater for heating the material in the container, said heater having a wick, a damper mounted to move toward and from the wick for extinguishing the flame, a lever pivoted intermediate its ends, a rod connected with the damper and resting on the inner end of the lever, the depending rod of the first-named lever resting upon the outer end of the last-named lever, the dislodgeable weight being arranged to balance the parts and to hold the damper elevated.

3. A sterilizer, comprising a container for the material to be sterilized, a cover resting loosely on the container and adapted to be moved by the boiling of the material to be sterilized, a lever supported by the container above the cover, a rod depending from one end of the lever, a rod connected with the lever adjacent to the depending rod and adjustable with respect thereto and resting loosely on the cover, a weight on the lever adjacent to the rod, a washer adjustable on the rod and engaging beneath the weight for dislodging the weight when the cover is moved by the material to be sterilized, a heater for the container, an extinguisher for the heater, a lever pivoted intermediate its ends, a rod connected with the extinguisher and resting on the inner end of the lever, the depending rod of the first-named lever resting upon the outer end of the last-named lever, and the dislodging weight being arranged to balance the parts and to hold the extinguisher elevated.

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Witnesses:
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RAYMOND GAUCHE.