C. J. KOEHLER.

ELECTRIC STERILIZER.

APPLICATION FILED APR. 17, 1919.

1,314,671.

Patented Sept. 2, 1919.

2 SHEETS—SHEET 1.

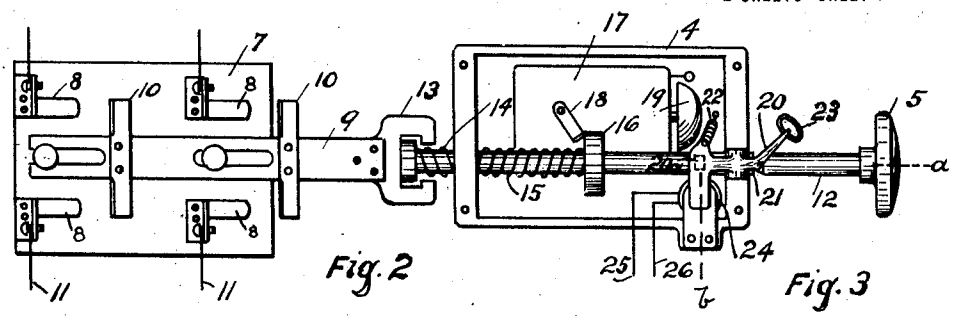


Fig. 2

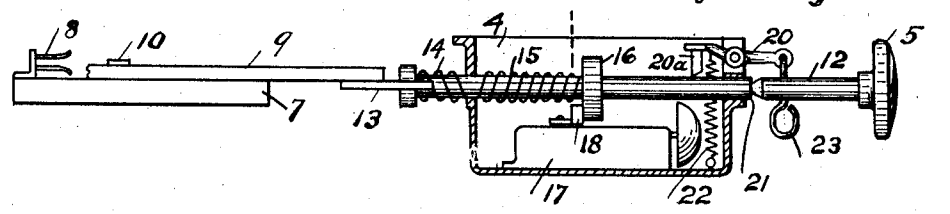


Fig. 3

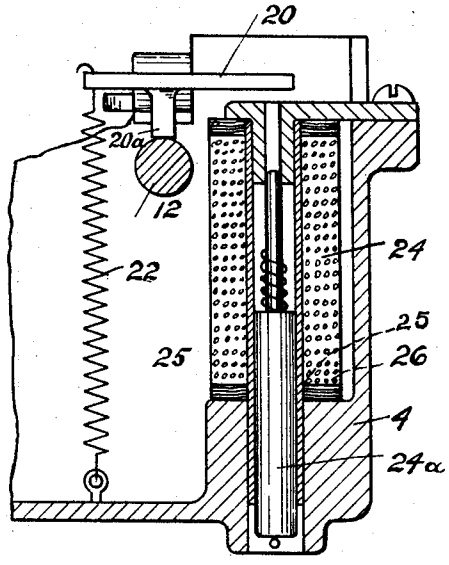


Fig. 4

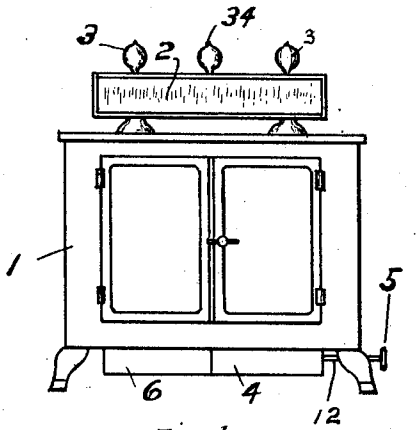


Fig. 1

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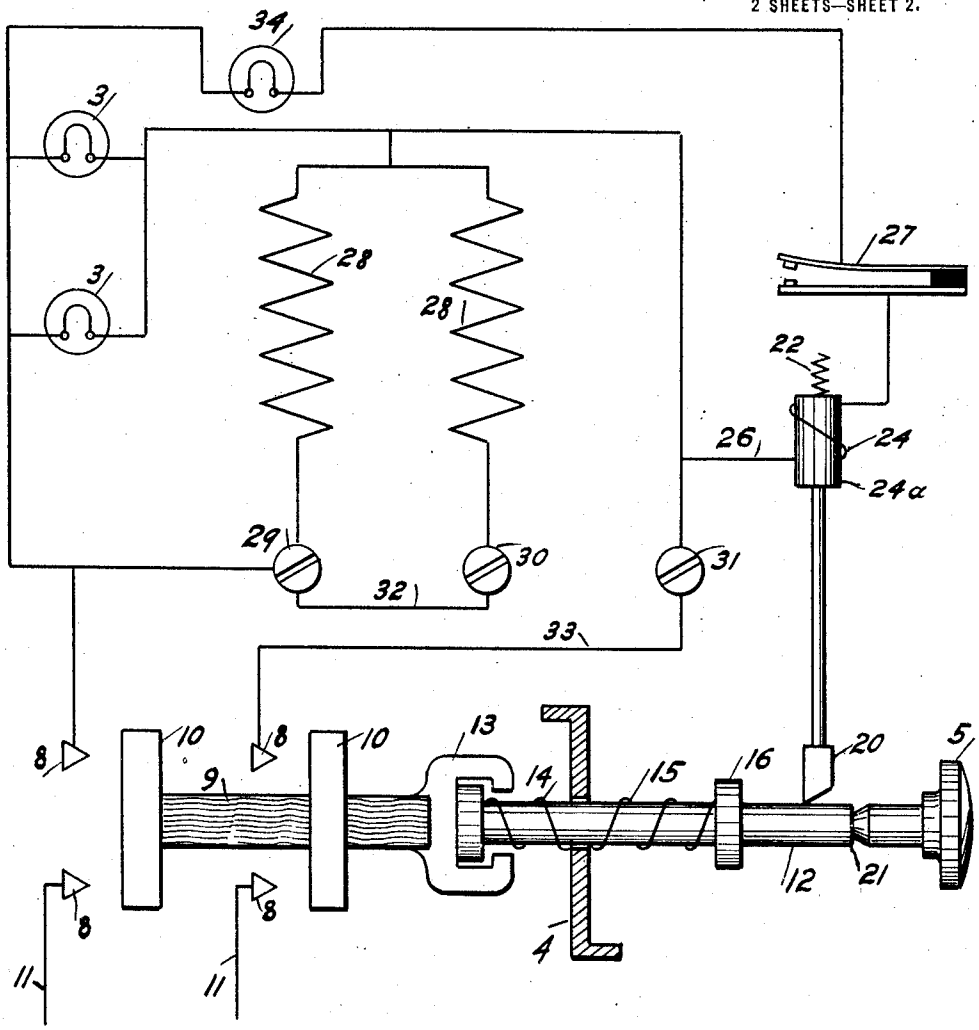


Fig. 5

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UNITED STATES PATENT OFFICE.

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ELECTRIC STERILIZER.

1,314,671. Specification of Letters Patent. Patented Sept. 2, 1919.

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To all whom it may concern:

Be it known that I, CHARLES J. KOEHLER, a citizen of the United States, residing at Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Electric Sterilizers, of which the following is a specification.

This invention, pertaining to electric sterilizers, relates to the electrical apparatus and will be readily understood from the following description taken in connection with the accompanying drawings, on a variety of scales, in which:—

Figure 1 is a front elevation of a sterilizer embodying my invention:

Fig. 2 a plan of the apparatus for effecting the control of the electric current:

Fig. 3 a vertical longitudinal section of a portion of this apparatus in the plane of line *a* of Fig. 2:

Fig. 4 a vertical transverse section of a part of this controlling apparatus in the plane of line *b* of Fig. 3: and

Fig. 5 a diagram illustrating the electric connections.

In the drawings:—

1, indicates the sterilizing cabinet:

2, a sign thereon:

3, electric lamps on the cabinet:

4, a box secured below the cabinet and containing mechanism for the control of the circuits:

5, a handle for operating the switch-rod of the box:

6, a box under the cabinet for inclosing the switch:

7, an insulating base disposed in the box 6:

8, two pairs of terminals attached to the base 7 and forming parts of knife switches:

9, a bar of insulating material fitted to slide on the base 7:

10, knife-edged cross-bars attached to sliding bar 9 and adapted to coöperate, respectively, with the pairs of terminals 8:

11, the supply mains connected to each pair of the terminals 8:

12, a rod disposed in line with bar 9 and adapted to slide in the end walls of box 4, this rod having the handle or knob 5 on its outer end:

13, a coupling connecting the bar with the rod, this coupling having some degree of lost motion:

14, a short compression spring surrounding rod 12 between the coupling and box 4, this spring serving to cushion the releasing movement of the rod:

15, a compression spring surrounding the rod and serving to produce the releasing movement of the rod:

16, a collar fast on the rod, one end of spring 15 abutting against this collar:

17, a spring clock movement, of known character, disposed within box 4:

18, an arm rotated by the clock movement and having its extremity bearing normally against the inner face of collar 16:

19, a bell carried by the clock movement:

20, a spring pressed trigger-lever pivoted to one wall of box 4:

20ª, a trigger carried by the trigger-lever and adapted to engage a shoulder on rod 12 and hold the rod in its active position:

21, the shoulder of the rod, to be engaged by the trigger when the rod is in active position:

22, a spring urging the trigger to position of engagement:

23, a handle connected with the trigger lever for releasing it by hand:

24, a solenoid:

24ª, the loosely sliding core of this solenoid, the same being adapted to engage the trigger lever and release the trigger:

25 and 26 the wire of the solenoid:

27, a thermostatic circuit closer in the circuit including the solenoid:

28, resistance coils disposed within the sterilizing chamber:

29, 30 and 31 binding posts:

32, a removable jumper connecting binding-posts 29 and 30:

33, a wire connecting binding-posts 31 with one of the terminals 8: and

34, a lamp in circuit with circuit-closer 27.

The present apparatus has been designed primarily for the sterilization of glasses and spoons used in connection with dispensing fountains. The resistance coils 28 and the thermostatic closer 27 are inclosed within the sterilizing chamber, it being the duty of the resistance coils, when properly supplied with current, to raise the temperature in the sterilizing chamber, and it being the duty of the thermostatic circuit closer to open the circuit when the desired sterilizing temperature has been reached.

The glasses, etc., to be sterilized, having been placed in the sterilizing chamber, and the doors of the chamber closed, knob 5 is

pushed in, the result being the closure of the circuit from the supply mains, the winding of the clock movement, the automatic locking of switch-rod 12 in its active position, the lighting of the lamps 3, and the heating up of the resistance coils.

Assume, as would generally be the case, that it be desired to subject the articles being sterilized to an atmospheric temperature of three hundred degrees for a period of one and one-half minutes, and that the thermostatic circuit closer 27 will close when the sterilizing chamber shall have reached a temperature of three hundred degrees. The clock movement may be of that known character in which the bell begins to ring ten seconds before the clock stops. The regimen of the apparatus will be as follows:

The knob is pushed in; the rod latches to active position; the clockwork has been wound; the lamps 3 glow; the coils begin to heat up; the temperature in the sterilizing chamber begins to rise; the thermostatic circuit closer begins to close; the temperature in the sterilizing-chamber reaches three hundred degrees; the thermostat closes; the lamp 34 glows; the solenoid energizes and unlatches the rod; the rod retracts and, with a slight hammer blow at the coupling, opens the supply circuit; the current through the coils and the lamps ceases; the clockwork starts; at the end of eighty seconds the bell has moved within the range of its hammer; the bell begins to ring; the clockwork stops; the bell ceases ringing; and the sterilizing chamber may now be opened and the contents removed.

The object of the lost motion in the coupling 13 is to cause the retracting switch-rod to give a slight hammer blow to the knife switches to facilitate their being opened. If it be desired to cut off the supply current at any time, or for any reason, the trigger may be released by means of the handle 23. Lamp 34 glows when the circuit closer closes and should cease to glow almost instantly. If it continues to glow it is a sign that the switch-rod has not unlatched by the action of the solenoid, in which case the rod is to be unlatched by manipulating handle 23.

The diagram of Fig. 5 may be taken as illustrating the apparatus designed for the utilization of a supply current at one hundred and ten bolts. If current should be applied at two hundred and twenty bolts, then jumper 32 is to be removed and wire 33 put to binding-post 30 instead of to binding-post 31.

I claim:—

1. An electric sterilizer comprising a sterilizing cabinet, a resistance coil therein, a supply circuit therefor, a knife-switch to close said circuit, a switch-rod, a trigger to hold the switch-rod in active position to move said switch to position of closure, a spring to force the switch-rod out of active position, and a lost-motion coupling between the switch-rod and the knife-switch, combined substantially as set forth.

2. An electric sterilizer comprising a sterilizing chamber, a resistance coil therein, a supply circuit therefor, a knife-switch to close the circuit, a switch-rod to move said switch to position of closure, a trigger to hold the switch-rod in active position, a spring to force the switch-rod out of active position, a compression-spring to cushion the switch-rod when it goes to inactive position, and a lost-motion coupling between the switch-rod and the knife-switch, combined substantially as set forth.

3. An electric sterilizer comprising, a resistance coil, a supply circuit therefor, a switch to close said circuit, a rod to move said switch to position of closure, a spring to move the switch to open position, a trigger to hold the switch to closed position, a solenoid connected with the supply circuit when said switch is closed, a connection between the trigger and the core of the solenoid to release the trigger when the solenoid is energized, and a normally open thermostatic circuit closer disposed in the circuit supplying the solenoid, combined substantially as set forth.

4. An electric sterilizer comprising, a resistance coil, a supply circuit therefor, a switch to close said circuit, a rod to move said switch to position of closure, a spring to move the switch to open position, a trigger to hold the switch to closed position, a solenoid connected with the supply circuit when said switch is closed, a connection between the trigger and the core of the solenoid to release the trigger when the solenoid is energized, a normally open thermostatic circuit closer disposed in the circuit supplying the solenoid, a clockwork arranged to be wound when the switch-rod is pushed to active position and to be started when the trigger releases the switch-rod, and a bell arranged to be rung by the clockwork prior to its stopping, combined substantially as set forth.

5. An electric sterilizer comprising, a resistance coil, a supply circuit therefor, a switch to close said circuit, a rod to move said switch to position of closure, a spring to move the switch to open position, a trigger to hold the switch to closed position, a solenoid connected with the supply circuit when said switch is closed, a connection between the trigger and the core of the solenoid to release the trigger when the solenoid is energized, a handle for releasing the trigger, and a normally open thermostatic circuit closer disposed in the circuit supplying the solenoid, combined substantially as set forth.

6. An electric sterilizer comprising, a re-

sistance coil, a supply circuit therefor, a switch to close said circuit, a rod to move said switch to position of closure, a spring to move the switch to open position, a trigger to hold the switch to closed position, a solenoid connected with the supply circuit when said switch is closed, a connection between the trigger and the core of the solenoid to release the trigger when the solenoid is energized, a handle for releasing the trigger, a normally open thermostatic circuit closer disposed in the circuit supplying the solenoid, and a lamp in circuit with the solenoid, combined substantially as set forth.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."