No. 741,303. PATENTED OCT. 13, 1903.

F. W. BURD.

THERMOSTAT FOR INCUBATORS.

APPLICATION FILED NOV. 5, 1902.

NO MODEL.

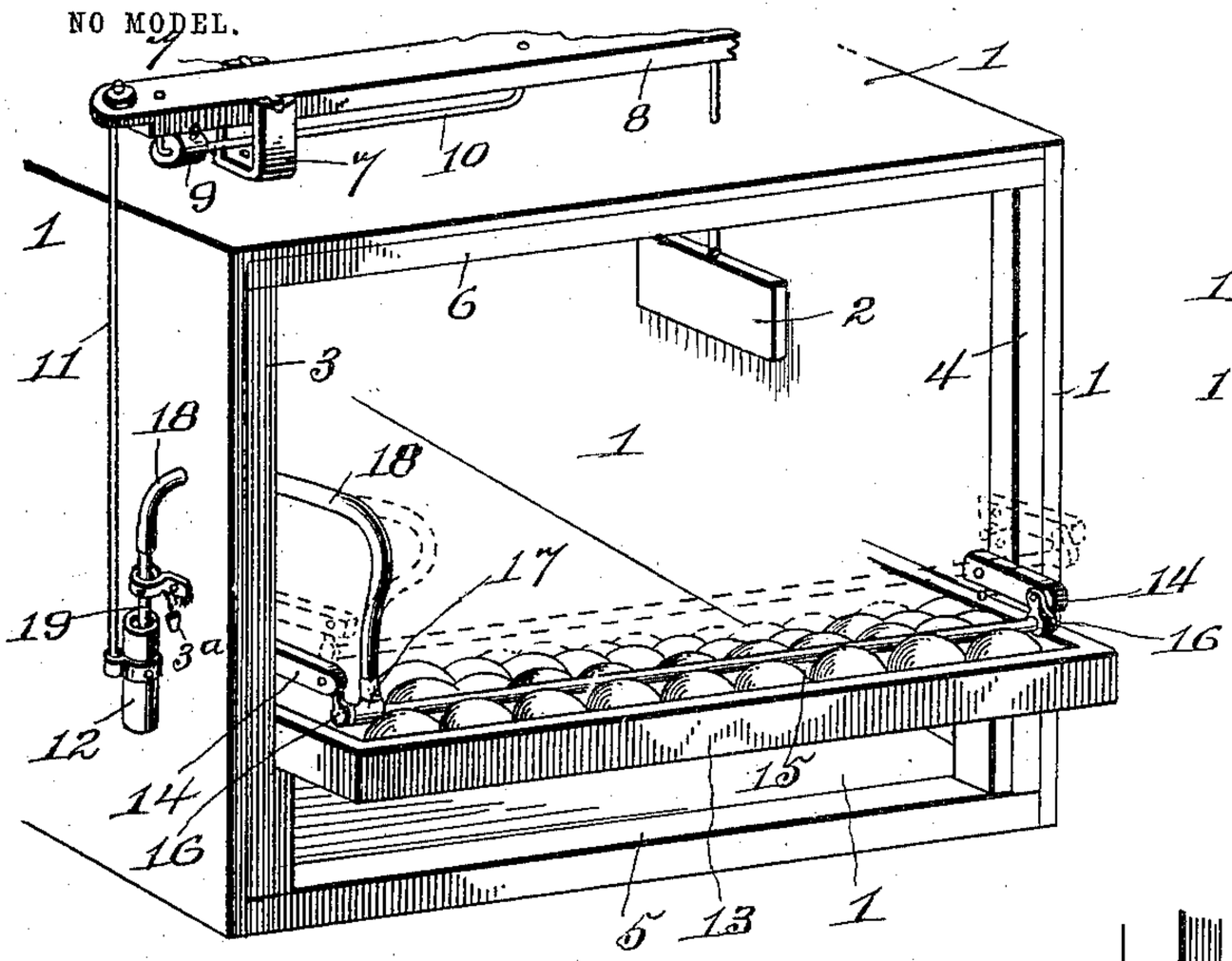

Fig. 1.

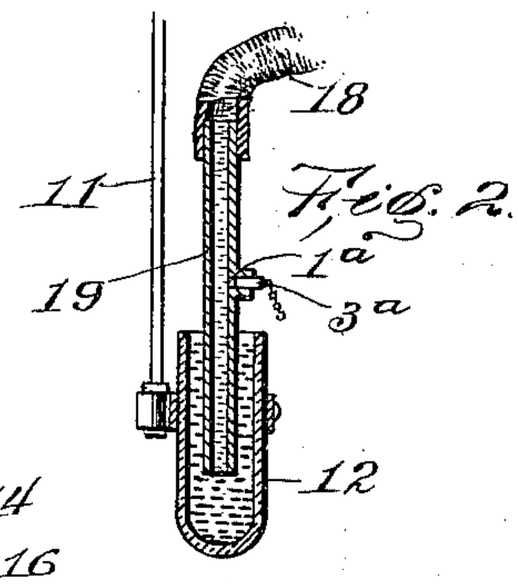

Fig. 2.

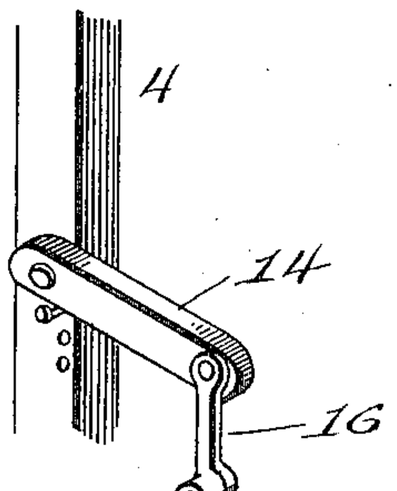

Fig. 3.

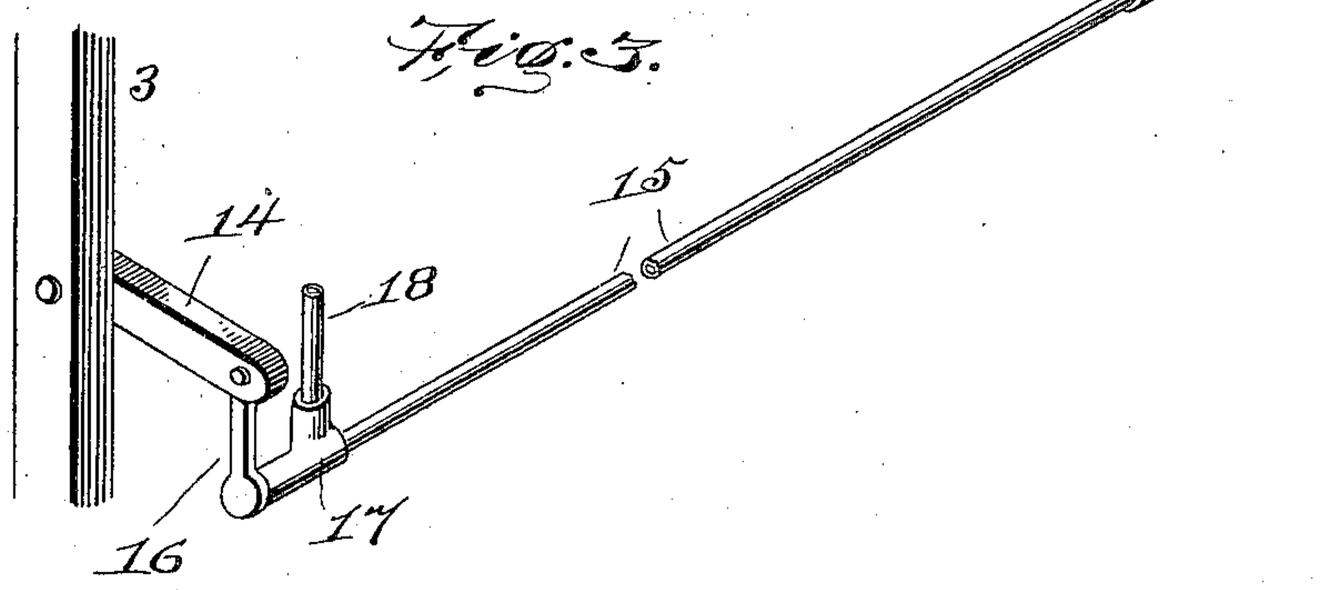

Fig. 4.

Witnesses
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No. 741,303. Patented October 13, 1903.

UNITED STATES PATENT OFFICE.

FRED W. BURD, OF SPRINGFIELD, VERMONT.

THERMOSTAT FOR INCUBATORS.

SPECIFICATION forming part of Letters Patent No. 741,303, dated October 13, 1903.

Application filed November 5, 1902. Serial No. 130,188. (No model.)

To all whom it may concern:

Be it known that I, FRED W. BURD, a citizen of the United States, residing at Springfield, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Thermostats for Incubators, of which the following is a specification.

This invention relates to automatic temperature-regulators, and more particularly to those regulators adapted for use in connection with incubators which embody a fluid thermo-column and a damper operated by a mercury-tube.

The object of this invention is to provide a thermostat for incubators, comprising a fixed thermo-column telescoping a movable mercury cup or tube connected to a damper and a swinging thermo-tube having a flexible pipe connection with said thermo-column.

A further object of the invention is to provide a pivoted or hinged thermo-pipe adapted to be swung into contact with the eggs in an incubator and to be swung away from the egg-tray in depositing and removing the eggs.

Still another object is to provide a temperature-regulator which will be extremely sensitive and responsive to great or small variations in temperature and which will operate by taking the temperature of the eggs by contact with them.

Having the foregoing objects in view the invention consists in certain novel features of construction and combinations of parts, to be more fully described, and hereinafter pointed out in the claims.

In the accompanying drawings, forming part of this application, Figure 1 is a perspective view of part of an incubator having my invention applied. Fig. 2 is a detail section of the telescoping tube and cup. Fig. 3 is a detail perspective view of means for swinging the thermo-pipe.

The same numeral references denote the same parts throughout the several views of the drawings.

Inasmuch as the device is applicable to incubators in common use, no special illustration or description thereof will be entered into.

A supporting-frame is provided detachable or separate from the incubator box or casing 1, which has the usual damper 2, or such frame may constitute the frame of said box or casing, or it may be entirely dispensed with and the thermostat devices hung from the box or casing. A frame preferable for carrying out my invention consists of uprights 3 and 4, connected at the bottom by a base 5 and at the top by beam 6, the casing having a U-shaped fulcrum-post 7 for a damper-lever 8. A counterweight 9 is slidably hung from the lever 8 on a rod 10, so that the weight may slide through the fulcrum-post 7. One end of the lever 8 is connected to the damper 2, and the other end has a depending rod 11, carrying a cup or tube 12, containing mercury, the lever and its connections being upon the exterior of the incubator, and therefore being capable of attachment to the incubator-casing, if desired. An egg tray or receptacle 13 is located between the uprights 3 and 4 and may rest upon the frame-base or incubator-floor; but I prefer to elevate it somewhat, as shown in the drawings.

Arms 14 are pivoted to the uprights 3 and 4, and to said arms is hung a pipe 15, containing ether and alcohol or alcohol only. The ends of the pipe are provided with brackets 16, pivoted to the arm ends to permit proper adjustment of the pipe between the eggs when the arms are dropped to set the pipe down in contact with the eggs. An L-coupling 17 connects a flexible tube 18 to the pipe 15, and said tube 18 extends to the outside of the incubator, where it is attached to a metallic tube 19, opening within the cup and having a vent 1^a and fixed to the exterior of the incubator in such position as to permit the mercury-cup to slide vertically on the tube 19. The vent is closed by a rubber or other stopper 3^a when the incubator is brought to proper temperature.

The incubator is first heated to about 98° before the tubes 18 and 19 are connected; otherwise expansion would be too great.

It is obvious that the heat within the incubator will expand the contents of the pipe 15 and cause it to flow through the tube 18 and pipe 19, which extends into the cup and opens into the mercury contained in the cup, so as to drive the cup down, and the latter carries with it the rod 10, which opens the damper.

It will be seen that the pipe 15 is readily swung upwardly to give free access to the egg-tray, and when said pipe is swung down-

wardly it comes in direct contact with the eggs, where it is capable of adjustment thereon, without swinging the pipe-arms.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a thermostat for incubators, the combination, with a tube fixed upon the outside of the incubator, and a cup containing mercury and slidable on said tube, of a pivoted pipe containing a fluid and adapted to be swung into and out of contact with the contents of the incubator, and a flexible tube connecting the fixed tube and the pivoted pipe.

2. In a thermostat, the combination with a slidable mercury tube or cup, a fixed tube upon which the cup slides, the fluid-pipe, and the flexible tube connecting the fixed tube and fluid-pipe, of the pivoted arms to which the said pipe is hung so as to be swung into and out of position.

In witness whereof I hereunto set my hand in the presence of two witnesses.

FRED W. BURD.

Witnesses:
H. H. BLANCHARD,
R. M. COLBURN.