

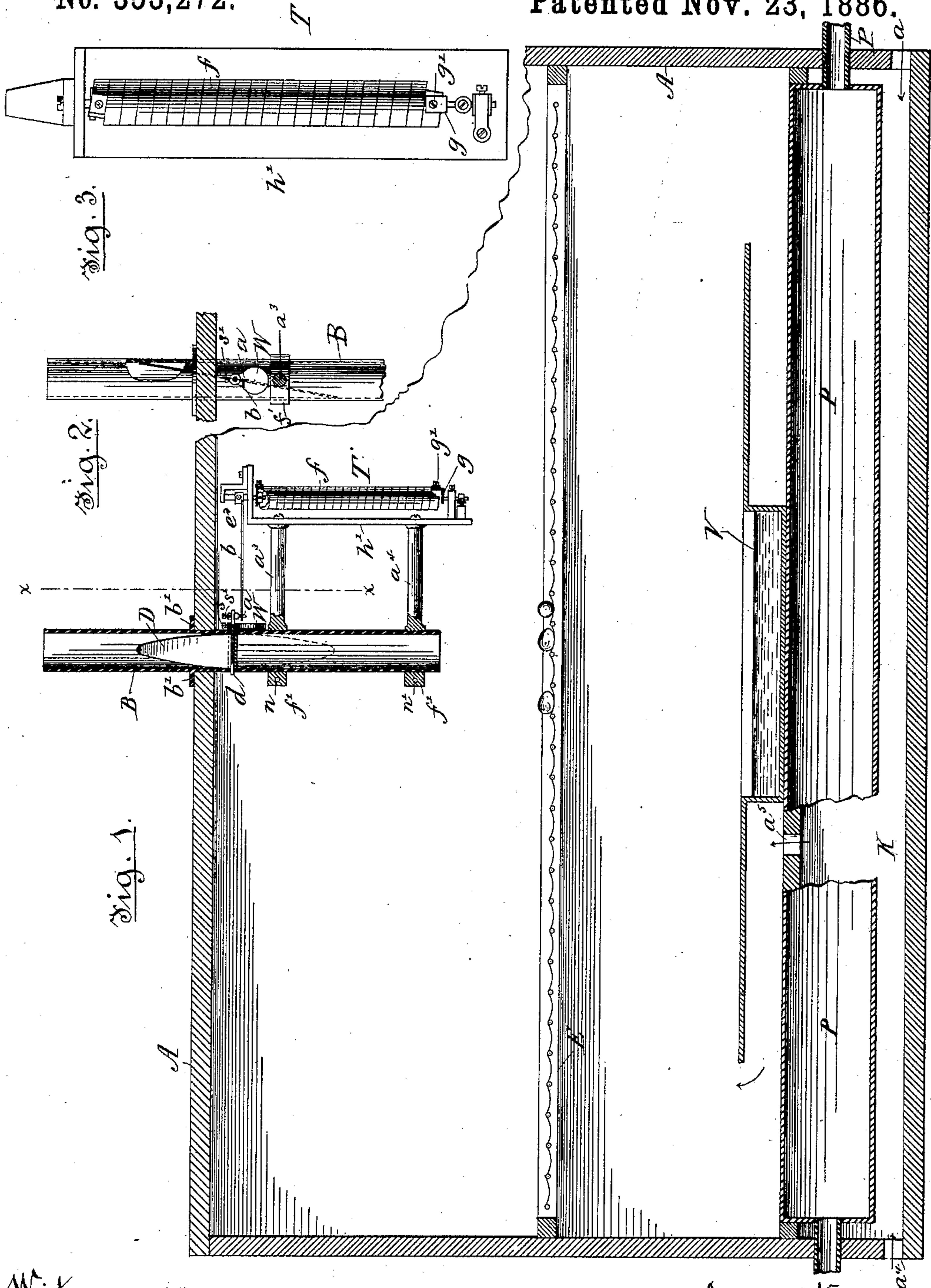
(No Model.)

G. B. ST. JOHN.

HEAT REGULATOR FOR INCUBATORS.

No. 353,272.

Patented Nov. 23, 1886.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE B. ST. JOHN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
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HEAT-REGULATOR FOR INCUBATORS.

SPECIFICATION forming part of Letters Patent No. 353,272, dated November 23, 1886.

Application filed August 21, 1885. Serial No. 175,179. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. ST. JOHN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Heat-Regulators for Incubators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention has for its object to prevent the overheating of incubators.

In my improved apparatus the temperature of the incubator is lowered whenever it reaches a predetermined point, the temperature being lowered before the degree of heat becomes harmful.

Incubators have heretofore been supplied with automatic temperature-regulating mechanism for effecting precisely this result, and hence I make no broad claim to such invention, my invention consisting in the peculiar construction and arrangement of apparatus to this end, substantially as I will now proceed to particularly set forth and claim.

In accordance with my invention an incubator of any usual or known form is provided with an outlet-pipe for the heated air, the said pipe (shown as provided with a collar or flange and held in adjusted position within the incubator) being provided with a damper, which acts to prevent the escape of the air so long as it is heated only to the normal or required temperature. The damper referred to is shown as elliptical in shape, and is secured to a shaft turning in bearings in the said pipe, the said shaft being provided with an adjustable counter-weight, which normally acts to turn the said damper so as to close the outlet-pipe. To allow the air to escape when it has become abnormally heated, I have placed within the incubator a thermostatic instrument, substantially such as described in United States Patent No. 330,161, dated November 10, 1885, granted to Thomas W. Shepherd, its sensitive coil and arbor, rotated by the said coil, moving a pointer to strike a lug or finger on the damper-shaft, thereby turning the damper and opening the outlet-pipe when the said sensitive helical coil is acted upon by the increased temperature of the incubator. The thermostat is not herein broadly claimed.

Figure 1 is a sectional elevation of an incubator provided with my improved apparatus, the lower half of the damper being shown in dotted lines. Fig. 2 is a section of Fig. 1 on the line $x x$, and Fig. 3 is a rear view of the thermostatic instrument.

The frame A, steam-pipe P, support E, and water-vat V are and may be of any usual construction common to incubators. The pipe B, extended into the incubator and having a flange, b' , resting upon the top of the frame A, is provided with a shaft, d , having its bearings in the said pipe, the said shaft having connected to it a damper, D, (shown as elliptical in form,) the said damper being normally held in position to close the passage of the pipe B by means of a counter-weight, W, (see Figs. 1 and 2,) fastened to the shaft d , and adjustable thereon by means of a screw, s .

I have placed within the incubator a thermostatic instrument, T, substantially such as described in United States patent referred to, its sensitive coil f and arbor e^2 , rotated by the said coil according to variations in temperature, moving a pointer, b , to strike a lug or finger, a , on the damper-shaft d , thereby turning the shaft d and damper D, opening the passage H of the pipe B, and allowing the escape of air when the latter is heated above the point at which it is desired the temperature of the incubator should be maintained.

The thermostat T is maintained in position within the incubator by means of arms $a^3 a^4$, secured to the frame h' of the thermostat, and provided with forks f' , which encircle the pipe B, and are clamped together by means of the screws $n n'$.

When the temperature of the incubator, heated by air which enters the chamber K through the openings $a^4 a^4$, and which, after circulating around the steam-pipe P, enters the incubator proper by passages a^5 , only one of which is shown, has risen to a predetermined point, which point I shall call the "danger point," the pointer b of the thermostat T is oscillated by the action of the heat upon the sensitive helical coil f , which heat expands the said coil and rotates the arbor e^2 , causing the pointer to strike against the finger a , as shown in Fig. 1, which rotates the shaft d sufficiently to turn the damper D into posi-

tion to afford an outlet for the heated air in the incubator, the escape of the heated air effecting the lowering of the temperature within the incubator to below the danger point.

5 When the temperature of the incubator has again become normal, the sensitive helical coil, contracting, removes the pointer *b* from the finger *a*, allowing the weight *W* to act upon the shaft *d* and damper *D*, to prevent the upward passage of air in the pipe *B*. This action is repeated as often as the temperature of the incubator reaches or nearly reaches the danger point.

The opening and closing of the passage in the pipe *B* can be regulated to maintain any desired temperature by adjusting the finger *a* on the shaft *d*, and by means of the micrometer-screw *g'* and attachment *g*.

I claim—

20 1. The combination, with the frame *A* and

pipe *B*, set therein, of a damper, *D*, a damper-shaft, *d*, in said pipe, a counter-balance, *W*, and pin *a* on said shaft, and a thermostat provided with an arm, *b*, to engage the said pin to open the damper at an undue rise in temperature, substantially as described. 25

2. The frame *A*, pipe *B*, and a damper arranged in said pipe, a damper shaft, and a pin, *a*, thereon, combined with the thermostat *T*, having a pointer, *b*, and the arms *a*³ *a*⁴, secured to said thermostat and engaging the pipe, substantially as and for the purpose described. 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. B. ST. JOHN.

Witnesses:

GEO. HOLMAN,
EDGAR W. UPTON.