

(No Model.)

F. HUMPHREVILLE.
INCUBATOR THERMOSTAT.

No. 333,075.

Patented Dec. 22, 1885.

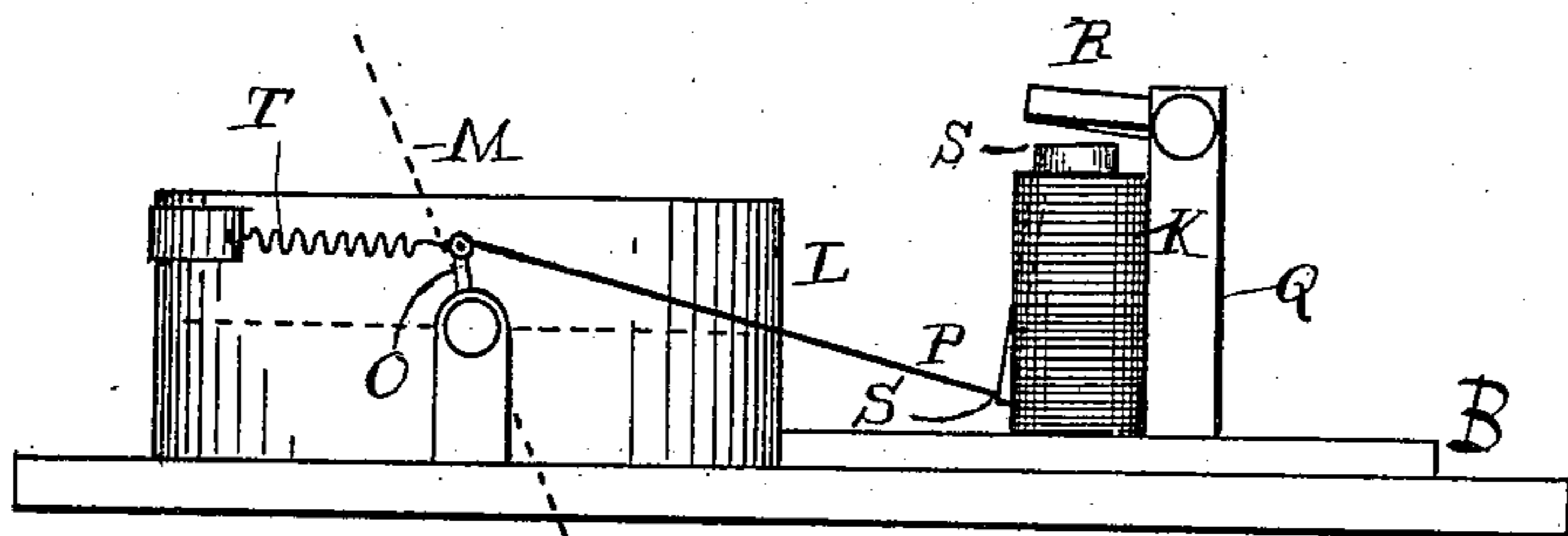


Fig. 2.

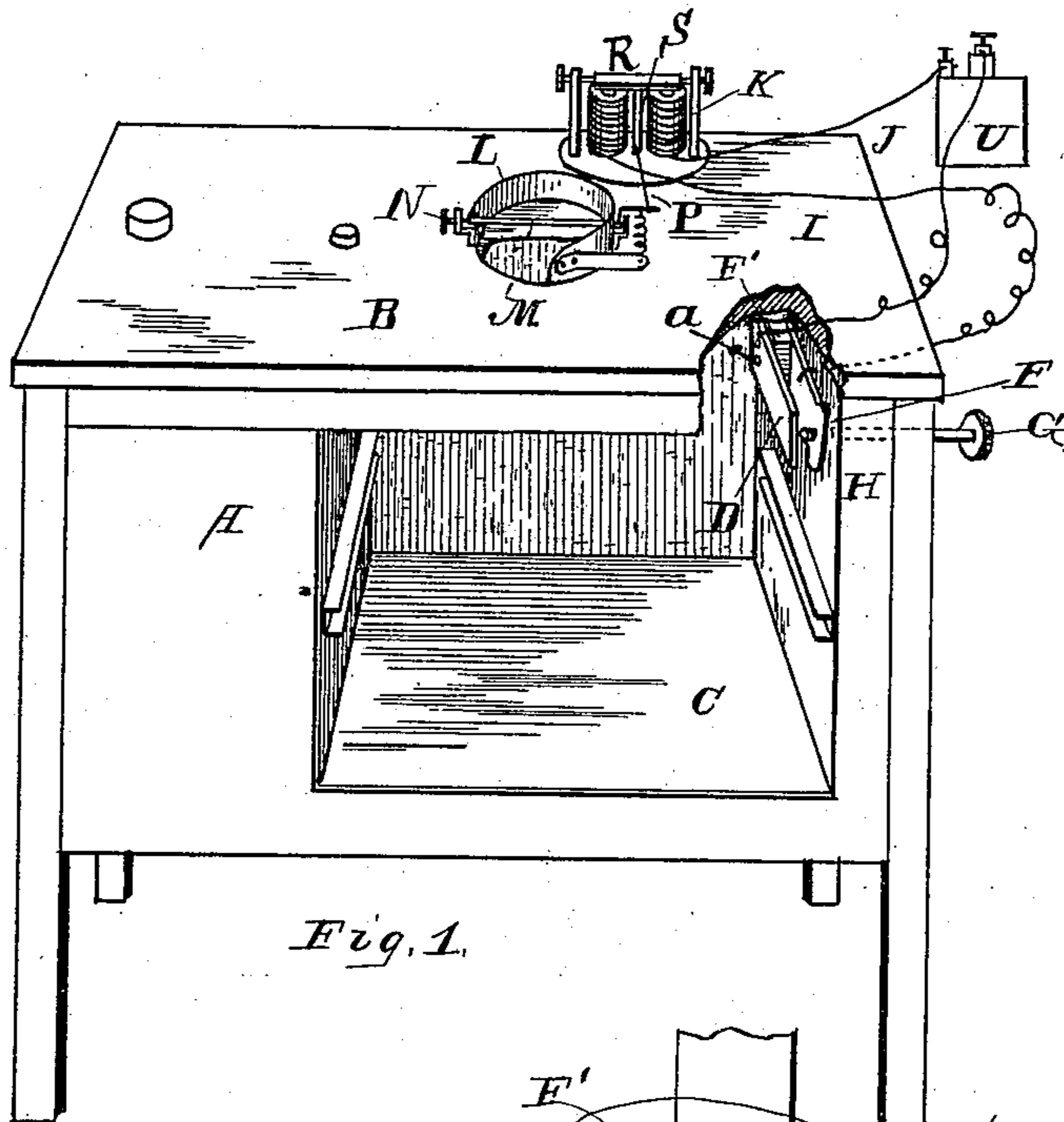


Fig. 1.

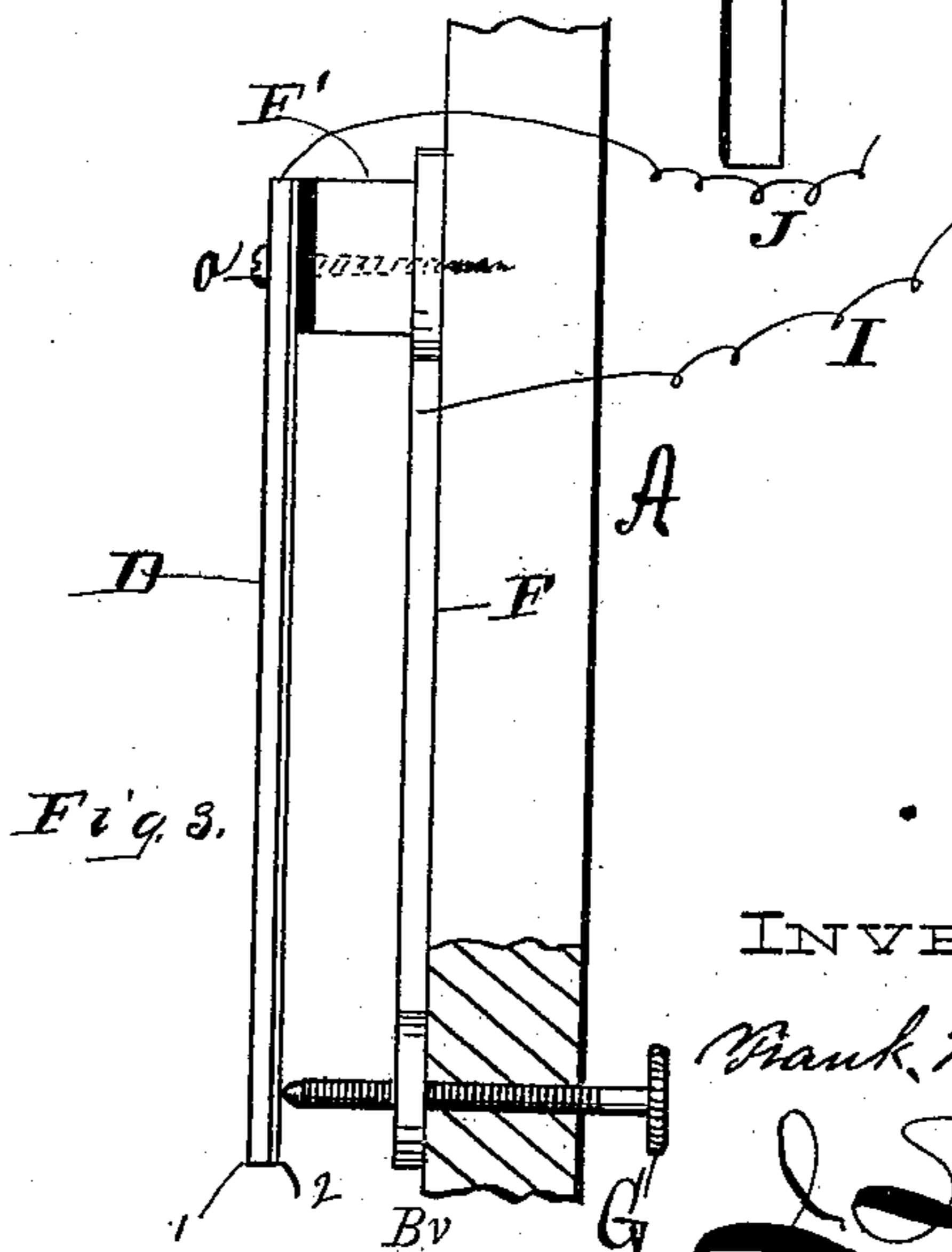


Fig. 3.

WITNESSES:

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FRANK HUMPHREVILLE, OF LANCASTER, PENNSYLVANIA.

INCUBATOR-THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 333,075, dated December 22, 1885.

Application filed November 26, 1884. Serial No. 148,907. (No model.)

To all whom it may concern:

Be it known that I, FRANK HUMPHREVILLE, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement in Incubator-Thermostats, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a perspective view of my improved thermostat applied to an incubator. Fig. 2 is a side view of the ventilating-flue and electro-magnet, showing the means by which the armature actuates the damper within the flue. Fig. 3 is a view, enlarged, of the bimetallic bar, showing its attachment to the metallic plate and side of the incubator.

My invention relates to improvements whereby a thermostat is so improved and combined with a valve in the outlet-flue of an incubator, and with an electro-magnetic device, that the temperature inside of the incubator will be automatically registered, as will be fully understood from the following description when taken in connection with the annexed drawings.

The invention which I am about to describe is an improvement on Letters Patent No. 296,413, granted to me on the 8th day of April, 1884.

A designates an incubating-chest, of which B is the top, and C the hatching-chamber. Inside of the chamber C, and preferably near the top thereof, is a thermostat consisting of a bimetallic spring-bar, D, which is secured at one end only to one end of a plate, F, by means of a screw, *a*, which passes through an insulating-block, F', through the said plate F, and into the side of the incubating-chest A. The plate F thus prevents the bar D from being affected by shrinkage of the wall of the chest A. Through the wall of the chest and through the plate F is tapped a thumb-screw, G, the inner point of which is in as close relation to the free end of the bar D as may be found desirable. The heat within the chamber C during incubation gradually expands the spring-bar D, and in so doing bows it more or less, and causes its free end to impinge against the point of the screw G. This closes the electric circuit formed by the wires I J, an electro-magnet K, and battery U. Through

the top of the incubator-case, directly over the chamber C, is a flue, L, which is provided with a damper or regulator, M, the rod N, fixed to which, is allowed to oscillate in bearings formed by said flue. On one end of the rod N, outside of the flue, a crank-arm, O, is keyed, to which one end of a connecting-rod, P, is attached.

K designates an electro-magnet, which is secured to two uprights, Q, rising from the top B, and between these uprights is pivoted a flat armature, R, and at an intermediate point between its ends is secured a downwardly-extended arm, S, to the lower end of which the connecting-rod P is attached. To the opposite end of this connecting-rod P, and attached to the crank-arm, and also to the flue L, is a spiral spring, T, which operates to close the damper M, and in so doing press the armature from the cores of the helices.

The operation is as follows: When the free end of the spring-bar D is in contact with the point of the screw G, the electric current does not pass through the electro-magnet; hence it is demagnetized, and the armature R is freed from the cores of the helices by the retraction of the spring T. At the same time the damper M will be moved to a horizontal position and thus closed. The spring-bar D is composed of different metals 1 and 2, each having a different expansive power when exposed to the influences of heat. In present illustration the metal marked 1 expands more rapidly than metal marked 2, and hence curves the bar into contact with the screw G. By this means the armature R is magnetized and drawn down on the cores of the electro-magnet, which movement draws, by means of the rod P, the crank-arm O, and thus opens the damper. The spring-bar now straightens through the admission of cold air into the incubating-chamber C, the circuit is broken, the armature demagnetized, and the spring T draws back the crank-arm O and closes the damper.

It is obvious that the thumb-screw G can be used to regulate the amount of expansion in the bar D, and thereby determine the amount of heat permitted in the chamber C before the contact is made.

Having described my invention, I claim—
In an incubator, the following elements, viz:

frame A, chamber C, spring-bar D, composed
of two different metals, screw G, a battery and
electro-magnet, the lever R and its depending
arm, damper M, crank-arm O, rod P, the
5 spring T, and the wires I and J, the whole
constructed, combined, and operating as de-
scribed.

In testimony that I claim the foregoing I
have hereunto set my hand, this 3d day of No-
vember, 1884, in the presence of witnesses.

FRANK HUMPHREVILLE.

Witnesses:

CHAS. E. LONG,
JNO. C. LONG.