

(No Model.)

F. ALLEN.
OVEN THERMOMETER.

No. 420,568.

Patented Feb. 4, 1890.

Fig 1.

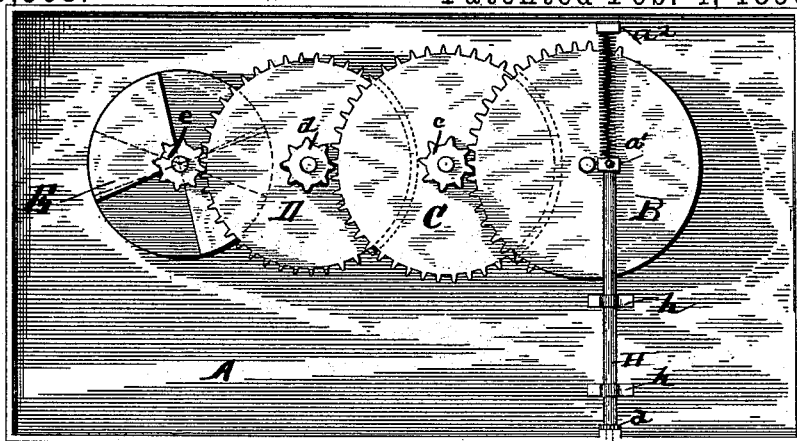
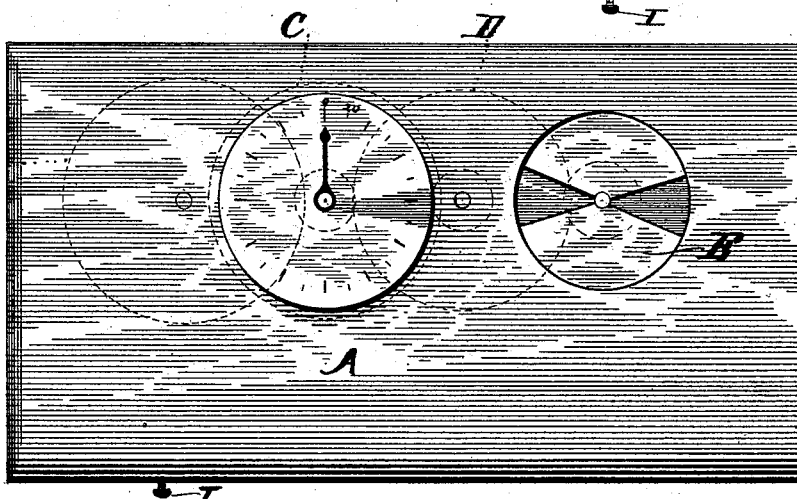


Fig 2



Witnesses
R. B. Seward.
James E. Young.

Inventor
Francis Allen
By his Attorneys James G. Young
E. C. Seward.

UNITED STATES PATENT OFFICE.

FRANCIS ALLEN, OF KANSAS CITY, KANSAS.

OVEN-THERMOMETER.

SPECIFICATION forming part of Letters Patent No. 420,568, dated February 4, 1890.

Application filed July 8, 1889. Serial No. 316,787. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS ALLEN, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Automatic Heat Regulators and Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an automatic heat regulator and indicator, more especially adapted for use in connection with ovens of cooking-stoves.

The object is to provide mechanism whereby the heat in ovens may be regulated automatically at any desired degree, and which shall be simple in construction, comparatively inexpensive of production, and efficient and durable in operation.

With these ends in view the invention consists in certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a plan view of the inner side of an oven-door, showing my invention secured thereto in position. Fig. 2 is a similar view of the opposite side of oven-door, showing the indicator and valve.

In the drawings, A denotes an oven-door, to the inner side of which is journaled a train of gear, consisting in this instance of the cog-wheels B, C, and D. The arbors of the wheels C and D are provided each with a pinion *c* and *d*, respectively. The oven-door is provided with a rotary valve E, the arbor of which is also provided with a pinion *e*. An indicator-finger is secured to the opposite end of the arbor of the wheel C, and is made to rotate around a dial-plate F, secured to the outer side of the oven-door and suitably graduated.

It will be observed that when rotary motion is imparted to the wheel B, the teeth of which engage the pinion *c*, the wheel C, which is in mesh with the pinion *d*, will be rotated, and in turn will rotate wheel D, which, through

its engagement with the pinion upon the rotary valve, will rotate said valve. The indicator-finger will also be rotated during this operation around the indicator-plate.

A rod H, of copper or other suitable material rendered expansible by heat, is seated upon a step *a*, secured to the inner side of the oven-door, and has its upper end in engagement with a step *a'*, secured to the wheel B to one side of its center. The rod is held in position by keepers *h*. A similar step *a*² is secured above this wheel to the door, and affords a seat for the upper end of a spring, (shown in this instance as a coil-spring,) which has its lower end in engagement with the upper side of the seat *a'*. The energy of this spring is exerted to force the wheel B in a direction opposite to that caused by the expansion of the rod H.

A set-screw I has an engagement with the step *a*, for the purpose of adjusting the expansible bar vertically, the object of which will presently appear.

The operation of the device is as follows: In cooking articles—as, for instance, in baking bread—the expansible rod is adjusted vertically by the set-screw until the gear is rotated a distance to bring the indicator-finger opposite 380° Fahrenheit, marked on the indicator-plate, which is found to be sufficient heat to bake with. When the heat within the oven reaches a point above 380°, the valve, due to the expansion of the rod, will have rotated sufficiently to admit cold air within the oven, which will cool the bar and cause it to contract. The spring will then exert its force downward until the valve is closed and the step *a* on the wheel B contacts with the upper end of the rod.

It is obvious that in cooking other articles requiring greater or less heat the indicator will be set accordingly.

Having thus fully described my invention, I claim—

In combination, an oven-door, a train of gearing journaled thereon, a damper journaled in said door and connected with said gearing, an indicator-plate secured to said door, an indicator-finger journaled in said

door and connected with said gearing, steps
secured to said door, respectively, near the
upper and lower edges of the same, a step
secured to one of the gears at a point from
5 its center, an expansible and contractible
rod engaged with the lower step and with
the step upon the gear, a spring having its
ends engaged, respectively, with the upper

step and the step of the gear, and means for
adjusting said rod, substantially as set forth. 10
In testimony whereof I affix my signature in
presence of two witnesses.

FRANCIS ALLEN.

Witnesses:

BESSIE E. YOUNG,
PERRY C. PHILLIPS.