(No Model.)

# S. PORTER.

## HEAT INDICATOR FOR OVENS.

No. 315,164. Patented Apr. 7, 1885.

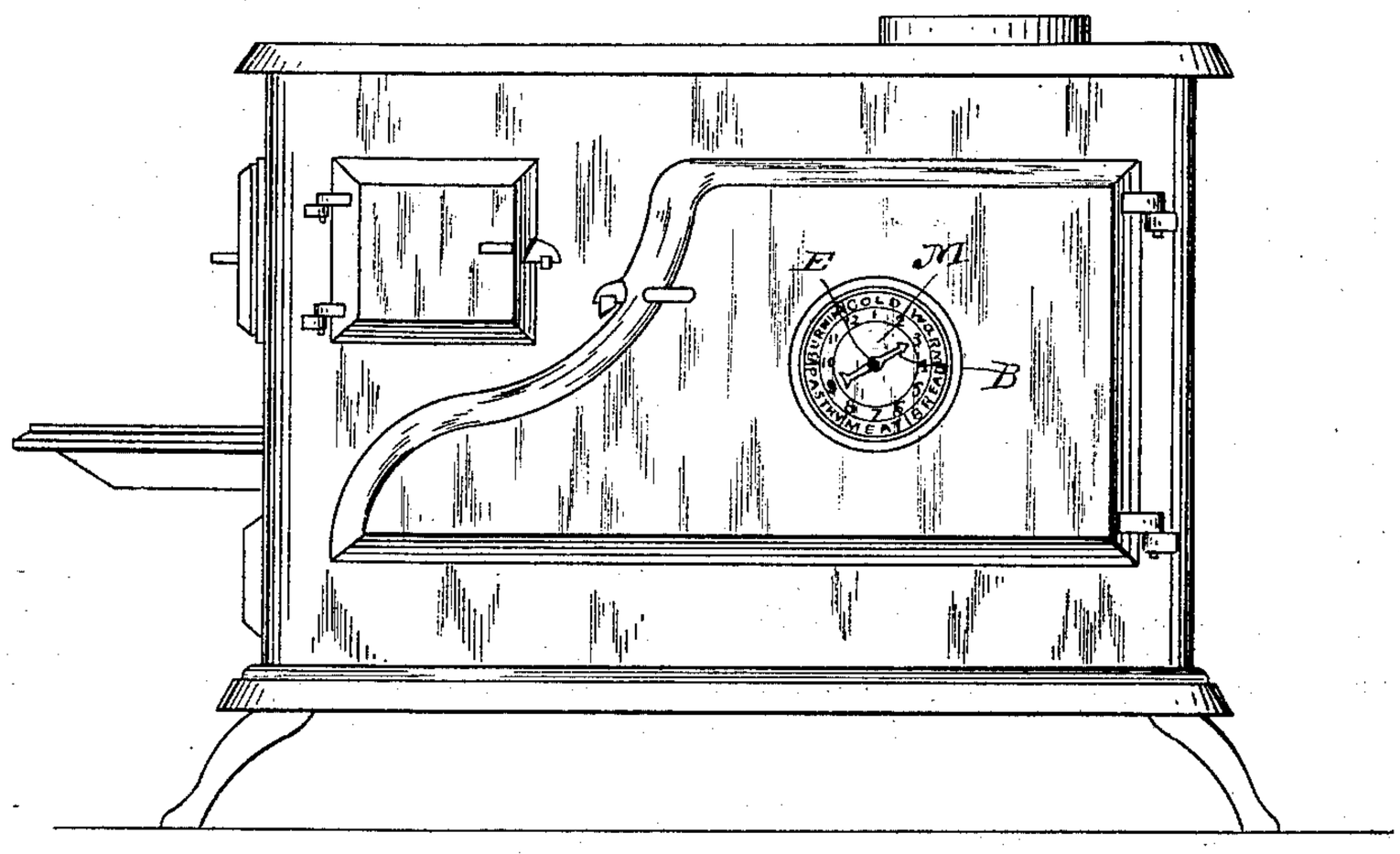


Fig. 1.

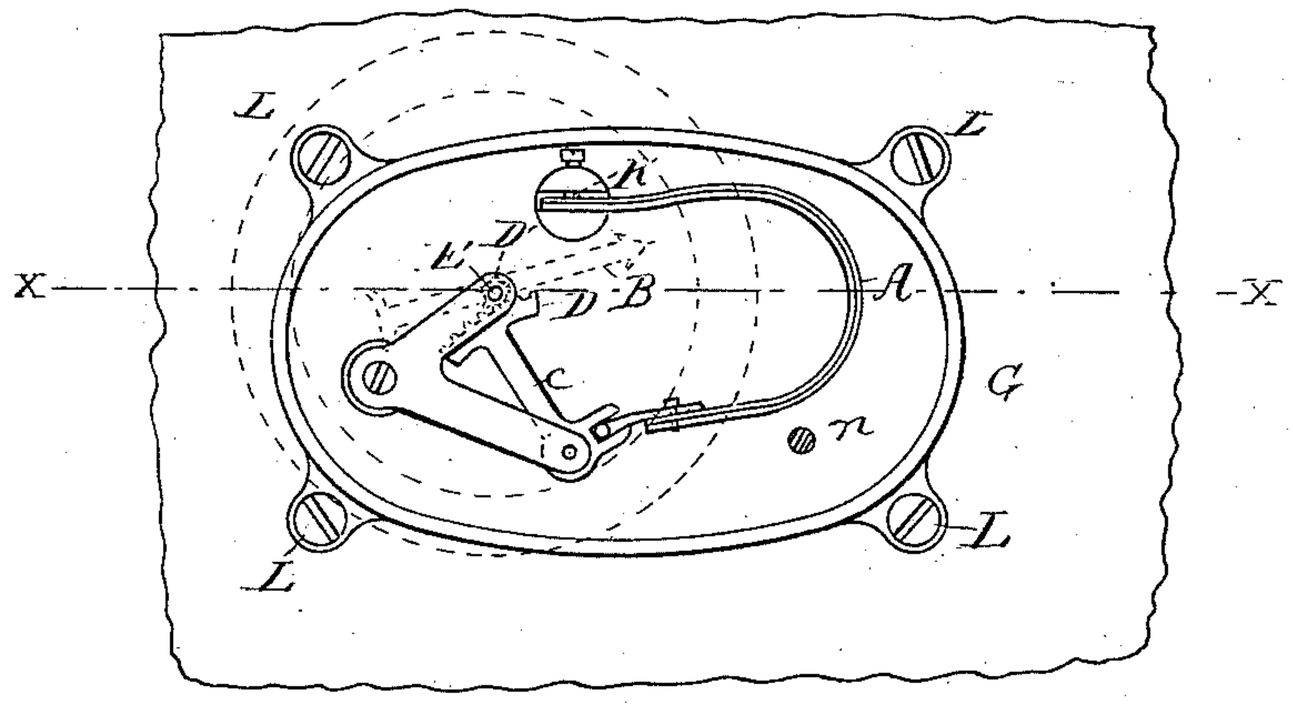


Fig. 2.

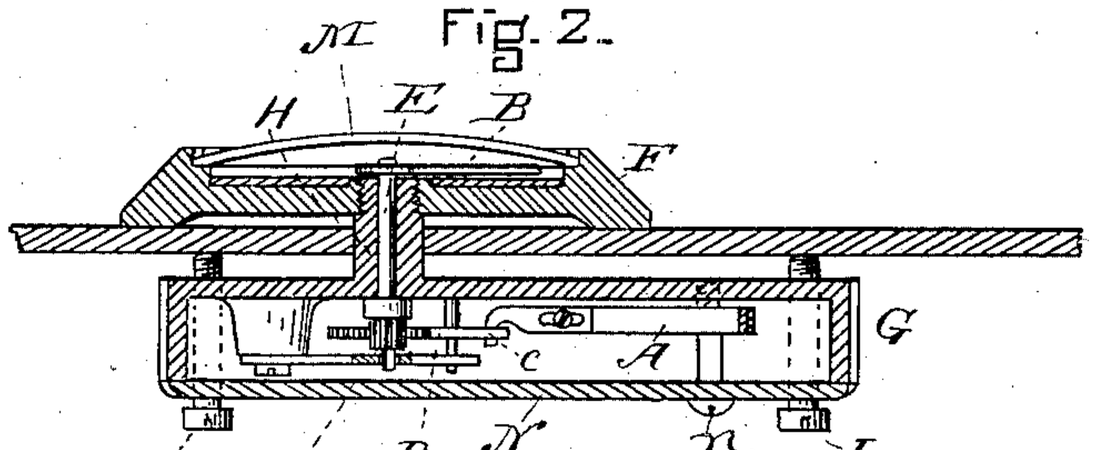


Fig. 3.

WITNESSES

J. Henry Taylor.
James F. Bligh.

INVENTOR

Stephen Porter

# UNITED STATES PATENT OFFICE.

STEPHEN PORTER, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO IRA E. FAIRBANKS, OF SAME PLACE.

## HEAT-INDICATOR FOR OVENS.

SPECIFICATION forming part of Letters Patent No. 315,164, dated April 7, 1885.

Application filed September 8, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN PORTER, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Heat-Indicators for Ovens, of which the following is a specification.

The object of my invention is to provide a simple and accurate indicator to be attached to an oven or other hot-air chamber, which shall indicate the temperature of the hot-air chamber to a person outside while the door of the chamber remains closed, and I accomplish this by means of the mechanism hereinafter described.

In the accompanying drawings is represented a structure of the character described in the form now best known to me.

In the drawings, Figure 1 represents in elevation an oven with the apparatus attached, as seen from outside. Fig. 2 represents in plan the internal mechanism whereby the dial of the indicator is moved, and Fig. 3 represents the whole apparatus in vertical section on the line *x x* of Fig. 2.

In the drawings, A represents a curved arm formed of two strips of metal of unequal expansion—as, for instance, brass and steel—the steel strip being on the inner or concave side. One end of this arm A is fixed, but the other or free end engages, as shown. For this I make use of an elbow-lever, C, having its short arm adapted to engage with and be moved by the free end of the expansion-arm A. The long arm of the lever C carries a rack, D, which meshes with a pinion, D′, mounted upon a shaft, E, which carries the index B.

For more conveniently noting the extent of travel of the index B, I provide an indicator-plate, F, having suitably-marked divisions, over which the moving index passes.

The apparatus thus described I inclose within a suitable box or case, and provide this with suitable attachments in such a manner that the whole may be readily attached to the oven-door by one attachment, instead of attaching each part separately, as has heretofore been done. This I accomplish in the following manner: I set the post K, to which the fast end of the expansion-arm A and the pivot which carries the elbow-lever are attached, upon a plate, G. Upon this plate, also, I mount the sleeve H, which affords a bearing for the shaft E, and which by being exteriorly screw-threaded engages with the indicator-plate F. By this construction I am enabled to clamp the whole structure firmly in place, as shown, the sleeve H and plates F and G acting as a bolt, washers, and nut to clamp the whole firmly in place. By means of screws L, I can adjust the attachment when so made to doors of different thickness.

When the door of the oven is such that the index B can be seen through it, it is of course not necessary to have the index on the outside of the door, and consequently not necessary to perforate the door itself. In such case, also, the sleeve H and plate F may be dispensed with, and the screws L may be used to attach the apparatus to the door. The indicator-plate F may also, if desired, be cast upon or made a part of the oven-door itself; but the separate plate F, I believe to be generally the most desirable and convenient form.

To protect the dial and indicator, a transparent plate, M, may be used, and to prevent the lever, rack, and pinion from clogging or their disarrangement, I employ a covering-plate, N, attached to the plate G by a screw, *n*, as shown.

When thus arranged, the apparatus is readily attachable to oven-doors of any thickness. By means of my improvement, also, the temperature and temperature variation of the interior of the oven may be constantly observed without opening the door. Its location upon the door I prefer for various reasons, although it may be located elsewhere upon the walls of the oven.

I claim—

1. In a heat-indicator for ovens and other similar hot-air chambers herein described, the combination of the expansion-bar A, elbow-lever C, pinion D and shaft E, supporting-plate G, covering-frame N, provided with adjusting-screws L, and an index, B, mounted upon said shaft E.

2. In a heat-indicator of the character described, the combination of the expansion-bar A, elbow-lever C, pinion D and shaft E, supporting-plate G, covering-frame N, provided with adjusting-screws L, screw-threaded sleeve H, indicator-plate F, and an index, B, mounted upon the shaft E, all substantially as herein set forth, and for the purpose herein specified.

In testimony whereof I have hereunto subscribed my name this 6th day of September, A. D. 1884.

STEPHEN PORTER.

Witnesses:
J. HENRY TAYLOR,
JAMES F. BLIGH.