(No Model.) 2 Sheets—Sheet 1.

# E. P. HILCHER.

## BAKE OVEN DOOR.

No. 418,285. Patented Dec. 31, 1889.

Fig. 1.

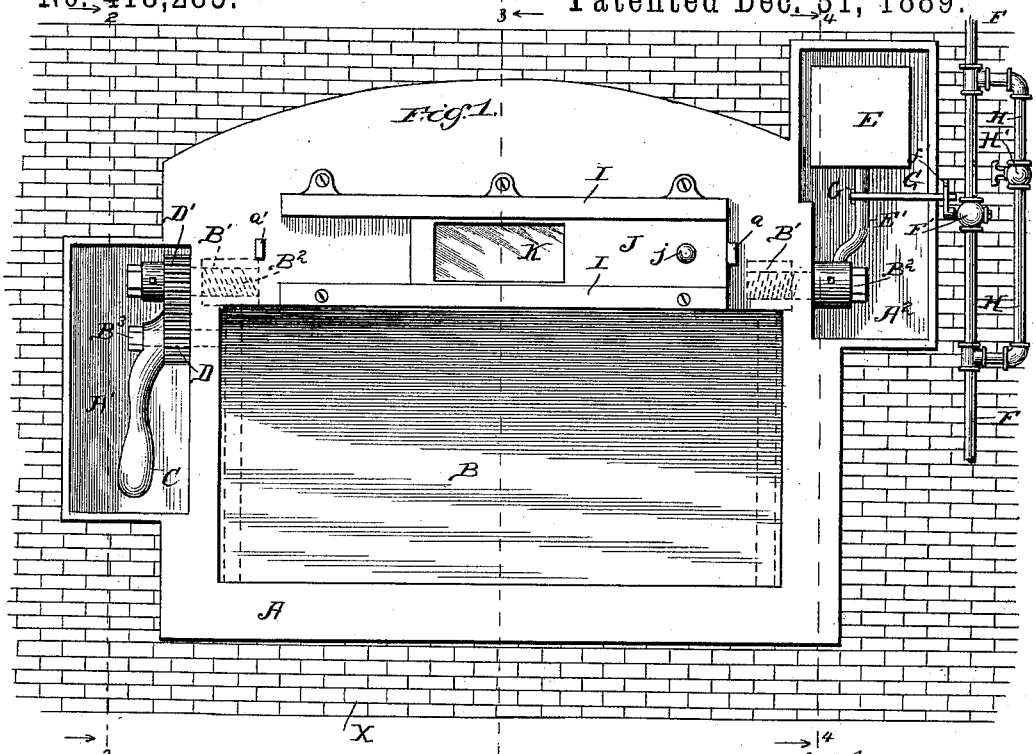



Fig. 2.

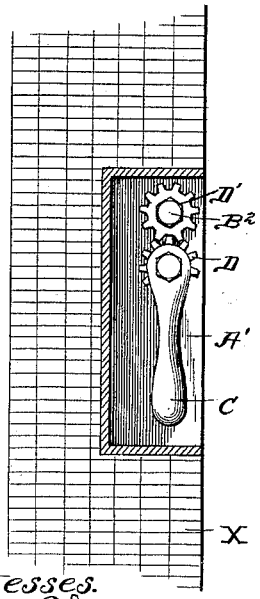



Fig. 3.

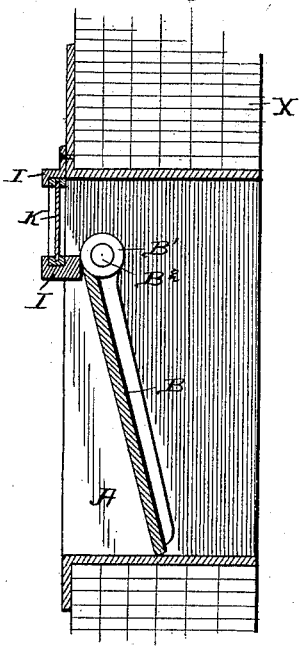
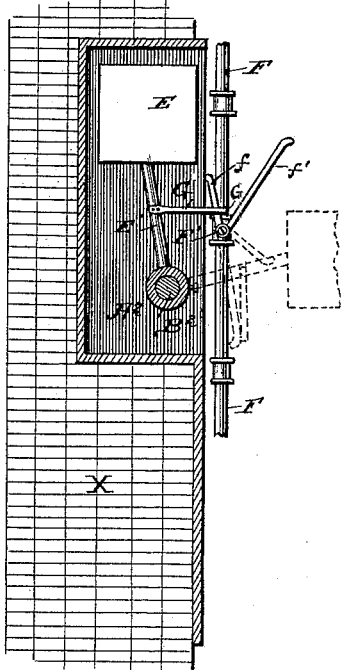



Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

# E. P. HILCHER.

## BAKE OVEN DOOR.

No. 418,285. Patented Dec. 31, 1889.

Fig. 5.

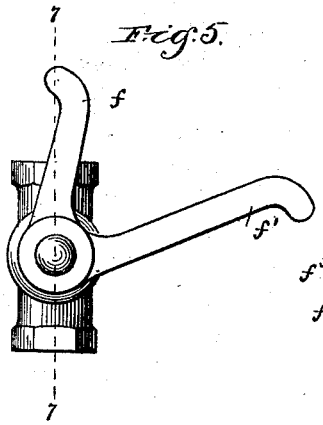



Fig. 6.

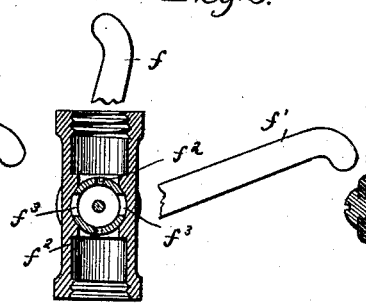



Fig. 7.

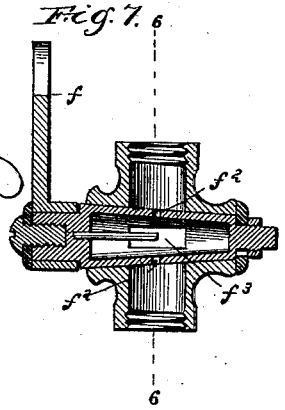
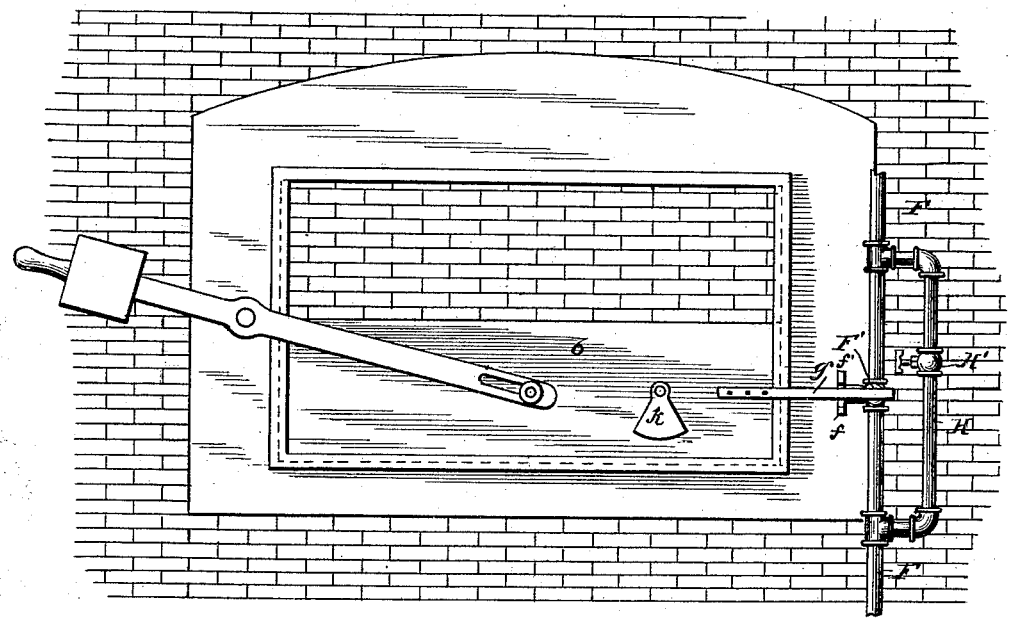



Fig. 8.

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# UNITED STATES PATENT OFFICE.

EDWARD P. HILCHER, OF CHICAGO, ILLINOIS.

## BAKE-OVEN DOOR.

SPECIFICATION forming part of Letters Patent No. 418,285, dated December 31, 1889.

Application filed November 5, 1889. Serial No. 329,381. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD P. HILCHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bake-Oven Doors, of which the following is a specification.

My invention relates to doors adapted to be placed in front of bakers' bake-ovens; and the object which I have in view in combining the several inventions herein described and embodying them in a bake-oven door is to obtain a door which can be more easily operated than can the bake-oven doors heretofore made and used, to secure a door which will permit with but slight effort an inspection to be made of the contents of the bake-oven while the same is in use without opening the bake-oven door, and also to furnish a more easily-constructed automatic apparatus for producing a large flame in the light within the oven when the door thereof is opened and a small flame in such light when the door is closed than has heretofore been obtained; and in addition to the above-enumerated advantages I provide means whereby the light within the oven may be varied in the size of the flame thereof at the will of the person controlling the oven without detaching or interfering with the automatically light-controlling device hereinbefore referred to when the door of the bake-oven is closed and it is desired to inspect the contents of the bake-oven without opening such door.

I have illustrated my invention by the drawings accompanying and forming a part of this specification, in which—

Figure 1 is a front elevation of a bake-oven door embodying my invention. Fig. 2 is a section thereof on line 2 2 of Fig. 1. Fig. 3 is a section on line 3 3 of Fig. 1, and Fig. 4 is a section on line 4 4 of Fig. 1. Fig. 5 is an elevation of the automatic cock controlling the supply of gas to the flame within the bake-oven. Fig. 6 is a section thereof on line 6 6 of Fig. 7, and Fig. 7 is a section of such cock on line 7 7 of Fig. 6. Fig. 8 is a front elevation of a sliding door, to which a portion of the invention herein illustrated in Fig. 1 is attached, and a modification of the bake-oven door so illustrated in Fig. 1 is thereby obtained.

Like letters refer to like parts throughout the several views.

X is the front brick wall of a bake-oven.

A is the frame-work of the bake-oven door.

A′ is a recess in the frame A, and $A^2$ is a similar recess at the other side of such frame A.

B is the bake-oven door.

B′ is a lug or projection extending outward from the upper edge of the door B, and having a screw-threaded hole therein, within which the bolts $B^2$ $B^2$ are tightly turned and rigidly secured. The bolts $B^2$ pass through holes in the side walls of the frame A and serve as pivots around which the door turns when opened. These bolts $B^2$ $B^2$ have, respectively, right and left hand threads; and hence, though they may be readily unscrewed and the door removed at any time, such bolts will not become loosened by use of the bake-oven door.

$B^3$ is a bolt rigidly attached to frame A in recess A′, serving as a pivot around which handle C is turned.

D is a geared wheel or pinion rigidly secured to handle C, and intermeshing with geared wheel or pinion D′, which is rigidly secured to one of the pivotal bolts $B^2$.

By inspection of Figs. 1, 2, and 3 it will be observed that bake-oven door B swings inwardly as opened, and that by turning the handle C outward on bolt $B^3$ from the position illustrated in Figs. 1 and 2 such door is readily opened. In order that the door B may remain at rest at any desired position, and to insure greater ease in the operation thereof, the weight or counter-balance E is secured on arm E′, such arm E′ being rigidly attached to one of the bolts $B^2$, turning with the door B.

It is designed when the bake-oven door is attached to a bake-oven that in the use of such bake-oven for baking purposes the operation of the door in the opening and closing thereof shall vary and control the supply of gas admitted to the flame at all times burning within the oven, and for the purpose of so automatically opening and closing the cock through which the gas from which the flame is obtained flows I employ the following mechanism:

F is a pipe, one end of which is connected

with the gas-supply, and the other end thereof is connected, by a suitable flexible pipe, with the burner within the oven.

F′ is a stop-cock actuated by the turning of arms *f f′*.

G is an arm or lever rigidly secured to arm E′ and turning therewith. When cock F′ is in the position illustrated in Figs. 1, 4, 5, 6, and 7, a small supply of gas is allowed to pass through it to the flame within the bake-oven. When arms *f f′* are in the position indicated by the dotted lines, Fig. 4, a large supply of gas may pass through such cock F′. An inspection of Fig. 6 will show how this result is attained. The arms *f f′* being in the position illustrated in the several figures referred to by full lines, the holes $f^2$ $f^2$ constitute the ways through which the gas flows, and the arms *f f′* being in the position indicated by the dotted lines in Fig. 4 holes $f^3$ $f^3$ form the ways through which the gas flows.

As I have found in practice that an inspection of the contents of the oven is desired frequently, in which case the bake-oven door, if constructed as last described, must be opened therefor, for the purpose of avoiding the necessity of opening the door B, I employ the following-described mechanism:

A peep-hole (hereinafter described) is placed within the door B or near thereto within the frame-work A. I have illustrated such peep-hole in Fig. 1 as being placed in the frame-work A above the door B. In front of this hole there is placed the slide J, moving freely in guides I I. In the sliding door J there is placed mica plate K. When the slide J is in the position illustrated in Fig. 1, the mica plate K is in front of the hole in the frame-work A, and by turning up the gas to the flame within the bake-oven the contents thereof may be inspected.

In order to turn the gas up within the bake-oven when inspecting its contents through the peep-hole and mica plate K, I construct the way H around stop-cock F′ in pipe F, and place in such way H the ordinary gas-cock H′. By turning this cock H′ the flow of gas through pipe F to the flame within the bake-oven may be regulated independently of the automatic cock F′. When the mica plate K is not in use, for the purpose of inspecting the contents of the bake-oven it is slid away from in front of the peep-hole in order to protect it from the smoke or steam contained within the oven, and this is done by moving the door J into contact with the stop *a′* by the handle *j*, or by any suitable device.

When a vertically-sliding door is employed of the kind illustrated in Fig. 8, I make use of the same device for controlling the supply of gas to the flame of the light within the bake-oven, such device consisting of the automatically-operated cock F′, and the way H around such cock F′ with the gas cock H′ therein. In order to operate the cock F′, arm *g* is secured directly to the sliding door, (lettered *b*,) and when such door is closed the arm *g* is within the forked ends *f f′*, and such cock thereby held so that a small supply of gas may flow therethrough. When the door is slid into a raised position, the gas is turned on through such cock F′ by the arm *g* engaging with the arms *f f′*. When the door *b* is in a raised position, the cock F′ may be turned independently of the movement of the door *g;* but when the door is closed the cock F′ is locked so that it cannot be turned. For this reason I find it necessary to have the pipe or way H and gas-cock H′ therein, in order to conveniently inspect the contents of the bake-oven through peep-hole *k*, placed on such door, without raising the door.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a bake-oven door, the combination of a door, pivots rigidly secured thereto and passing through the walls of the frame of the door and rotating with such door, a counter-balance rigidly secured to one of the pivots, and a toothed pinion rigidly secured to the other of the pivots, with a toothed pinion intermeshing with the toothed pinion rigidly secured to the pivot of the door and having a handle extending therefrom, whereby by the raising of such handle the door is raised, substantially as described.

2. In a bake-oven door, the combination of a pivoted door swinging between the side walls of the frame thereof, pivots rigidly secured to such door, turning therewith and extending through the side walls of the frame, a geared pinion rigidly secured to one of such pivots and intermeshing with another geared pinion, having a handle attached thereto by which it may be actuated, an arm attached to the other of the pivots of the door, and a forked lever secured to and controlling the movement of a gas-cock placed in the pipe through which gas is supplied to a light within the bake-oven, the arm secured to the second-named pivot intermeshing with and actuating the forked lever of the gas-cock in the swinging of the bake-oven door, substantially as described.

3. In a bake-oven door, the combination of a movable door, an arm secured to such door and moving therewith, a cock placed in the gas-pipe through which gas is supplied to the light within the bake-oven, such cock intermeshing with and actuated by the arm secured to and moving with the bake-oven door, and a pipe constituting a way around the cock actuated by the moving arm and door, such way having a cock therein adapted to be actuated independently of the cock controlled by the movable arm and door, substantially as described.

4. In a bake-oven door, the combination of a movable door, an arm secured to such door and moving therewith, a cock actuated by such moving arm and door, placed in the pipe through which gas is supplied to the light

within the bake-oven, a pipe having a cock therein forming a way around such arm-actuated cock, a slide adapted to be moved upon the frame of the door, so that a mica plate forming a part thereof and an iron plate also forming a part thereof may be alternately slid in front of a peep-hole in such frame of the door, whereby when the bake-oven door is moved one of such cocks will be actuated thereby, and when such door is closed and the mica plate is slid in front of such peep-hole the other of such cocks may be opened, all substantially as described.

5. In a bake-oven door, the combination of pivoted door B, arm C, having a geared pinion thereon intermeshing with a geared pinion secured to one of the pivots of the door, counter-balance E, secured to the other of the pivots of the door, arm G, intermeshing with forked lever *f f'*, secured to cock F' in pipe F, and pipe H, forming a way around cock F' in pipe F and having cock H' therein, and slide J, movable in the frame of the door and having therein mica plate K, adapted to be placed in front of a peep-hole in the frame or to be removed from in front of such peep-hole, all substantially as described.

EDWARD P. HILCHER.

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