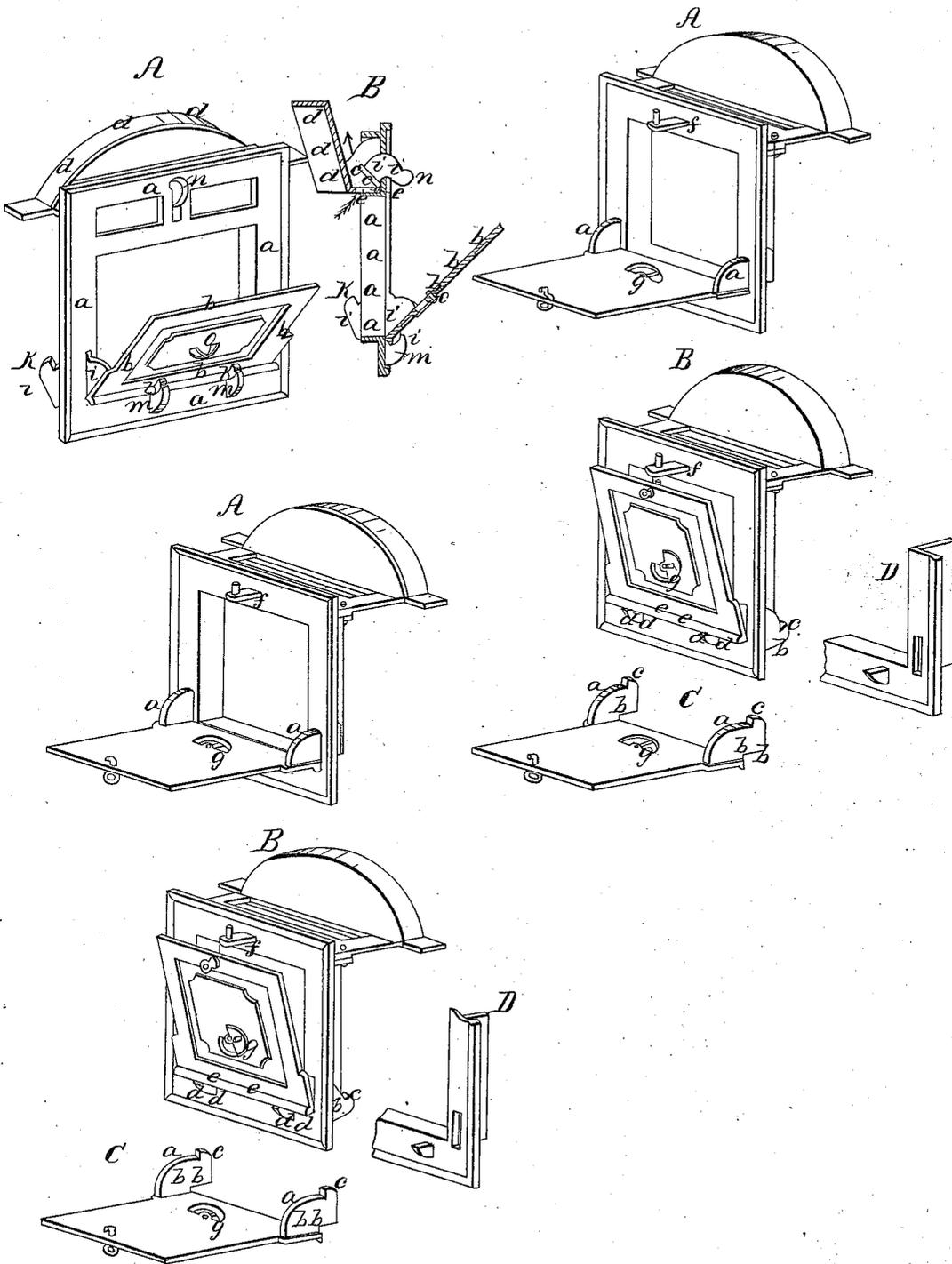


E. Barrows,
Hinge.

N^o 366.

Patented Aug. 31, 1837.



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UNITED STATES PATENT OFFICE.

EBENEZER BARROWS, OF BOSTON, MASSACHUSETTS.

QUADRANT HINGE FOR STOVES.

Specification of Letters Patent No. 366, dated August 31, 1837.

To all whom it may concern:

Be it known that I, the undersigned, EBENEZER BARROWS, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, manufacturer, and a citizen of the United States of America, have invented a new and useful Substitute for a Hinge for Falling-Doors, Leaves, and Dampers, which I denominate the "Quadrant hinge," and of which the following is a true, full, and exact description.

The object of this improvement is to supply a substitute for a common hinge, that will be simple and cheap, strong and durable, and that may be cast in one piece with the door or leaf, and may serve as a table or platform when opened. The invention applies particularly to the doors of cooking and other stoves, ovens and furnaces and oven and other flues; but may be used advantageously for some other kinds of doors. In case of a common six-plate cooking stove, for example, let the door be intended to swing or move on its lower edge, so that when it is opened by letting down, it may serve as a platform or table to be used in this position for cooking or heating. In the first place to support the door at the bottom, a ledge, flanch or one, two or more projections, are cast upon or attached and fixed to the lower side the door space, a little below its edge for the door or leaf to rest upon, and be supported by. The door being closed may be fastened by a latch, button catch, or other contrivance at the top or sides. To keep the leaf in place when open or shut, or when opening or shutting, and to support it when let down, that is, to serve all the purposes of a common hinge and the additional purpose of a leg or prop, the inventor makes use of the following contrivance. A vertical mortise or slit is made on each side of the door-space near the bottom, one, two, or three inches more or less in vertical length, and an eighth, quarter or half an inch, or an inch, more or less in horizontal breadth, extending to or a little below the line of the bottom of the door-space, and at a sufficient distance from the side of the door-space to leave a sufficient strength of material between the mortise and the edge. The mortise may be carried farther off from the edge so as to leave any space the constructor may choose between it and the side-edge of the door-space. Or instead of such a mortise, a space, equal to the

dimensions of the mortise, and corresponding to it, as above described, may be cut out or made in the stove plate on each side of the door space, at the bottom part, for an inch, or for two or three inches more or less, according to the size of the door or kind of material, so that, the door being removed the door-space will appear wider an inch, or two or three inches, more or less in height at the bottom, by an eighth, or half an inch, or an inch more or less on each side, than it is above the height. On the inner side of the door or leaf is cast, a projection resembling somewhat the form of a quadrant, one of the straight sides of which is attached to and cast upon, and with, the door of leaf, the other straight side or edge standing perpendicularly, or nearly perpendicularly, to the plane of the door or leaf: the straight side to be of about the length of the mortise or opening on the sides of the door-space already described, so that this part of the quadrant, when the leaf lies horizontally, may project through the mortise a little beyond the inner surface of the stove plate, and when the leaf is raised to close the same, the circular edge of the quadrant will move freely in the mortise or opening, and fill it in any position; the circular edge passing in every position near to or in contact with the top of the mortise or opening. At the angle of the straight and circular or curved edge of this quadrant; at the greatest distance from the door plate, is a projection or shoulder standing up from the circular edge, the back edge of this projection being a straight or curved continuation of the straight edge of the quadrant. This projection is of the same thickness as the rest of the quadrant. This projection may stand up half of an inch more or less, or it may measure a half of an inch more or less in a line parallel to the plane of the door or leaf-plate, or it may be curved or rounded so as to come to an angle at the top so as to make the transverse horizontal sections of this projection in this position of various dimensions. The dimensions in these respects are to be governed by the strength of the material and amount of weight to be sustained or degree of force to be resisted by the projection.

The leaf being put at its position when half open, the quadrant at each end will easily pass into the mortise or space or jogs on the sides of the door-space, and the leaf

being placed upon its supports may be let down to a horizontal position, or any other position which it is calculated to rest in, when the projection (being in this position
 5 the upper projection) on the quadrant coming in contact with the inner surface of the stove plate, directly over the mortise or jog, will stay and support the leaf in that position. The part of or rather supplement
 10 to the quadrant, which projects within the stove, when the leaf lies horizontally, must be so constructed as to admit of the free motion of the leaf, and in such manner that when the leaf is raised and stands perpen-
 15 dicularly, and is fastened at the top, this part of the quadrant, projecting in this position below the horizontal plane drawn through the line of the lower edge of the door, shall, at its front edge in this posi-
 20 tion, fit to the inner surface of the stove, and so hold the door or leaf close to the stove plate, and cause it to shut fairly.

Supposing the leaf to rest and be stayed horizontally by the stay or projection in a
 25 direction perpendicular to the door plate, then the part of the structure occupying the angle of the door plate in this position and the stove plate, will of course be a quadrant, and the structure will be extend-
 30 ed on the posterior part horizontally a sufficient distance to pass through the stove plate, and hold upon it, by means of its upward projection above described. If the
 35 door be intended to rest in a different position the figure of the structure will vary accordingly, that is, its curved edge between the door plate and the upward projecting
 40 stay, will be more or less than a quadrant of a circle, or exactly such a quadrant. The structure may evidently be altered in form, still retaining its principles and use as above
 45 described, but any such formal modification the inventor deems to be comprehended within his improvement, and his patentable right. The above description
 50 with such modifications as will be obvious will be equally applicable to an oven-door, or furnace-door or damper, or any other door.

The inventor refers to the annexed drawing in explanation and illustration of this specification.

It may be added that the application of this invention is not confined to a door or
 55 opening that stands vertically. The doorway (and so the door-leaf when closed) may be horizontal or at an angle oblique to the horizon. In reference to such position some

parts of the above specification are subject to modifications which will be obvious with-
 60 out any particular specification of the same. If, for example, the door is applied to the closing of a vertical flue, in which the door will rest horizontally to close the flue, the
 65 door or leaf will be supported in that position by resting on its frame on side-pieces, and not by the bearing of the projecting part of the hinge, as it may be where the door lies horizontally when opened. So one
 70 hinge may serve for a door, instead of two, in many cases, by placing the hinge at one edge in the middle of the leaf, instead of putting a hinge at each side or end, and the mortise for the hinge will in such case be in
 75 the lower part of the stove-plate, surrounding the door-way; that is, under the door-way; and so it may be if the door-way be in an oblique position; and in case of a horizontal door or damper to close a vertical
 80 flue or opening, the hinge may move in a mortise in a plate standing vertically, or at right angles with the frame or side pieces of the door or damper, and in such case the door or damper may be opened and closed
 85 by taking hold of the projecting part of the hinge, that stands out in front of this vertical plate, through which the hinge projects and in which the hinge-mortise is made. The inventor deems it unnecessary to
 90 specify all the modifications of his invention arising from the different forms and positions of the door-way.

The undersigned claims as his invention and the subject of a patent—

The contrivance or structure above de-
 95 scribed as resembling the quadrant, somewhat in form, applied to the purpose above described. He also claims as his invention and the subject of a patent, the im-
 100 provement, whereby this hinge is cast in one piece with the door leaf or damper requiring only a mortise or jog in the door-frame or damper-frame to complete the hanging of the door-leaf or damper. He
 105 also claims as his invention and the subject of a patent, the combination of the above description of hinge with the improvement of casting it in one piece with the door leaf or damper.

In witness whereof I hereto subscribe my
 110 name this 13th day of July A. D. 1837.

EBENEZER BARROWS.

Witnesses:

GEO. MOREY,
 WILLARD PHILLIPS.