A. HARRISON.

ROTARY STOVE GRATE.

No. 9,297. Patented Oct. 5, 1852.

Fig. 1.

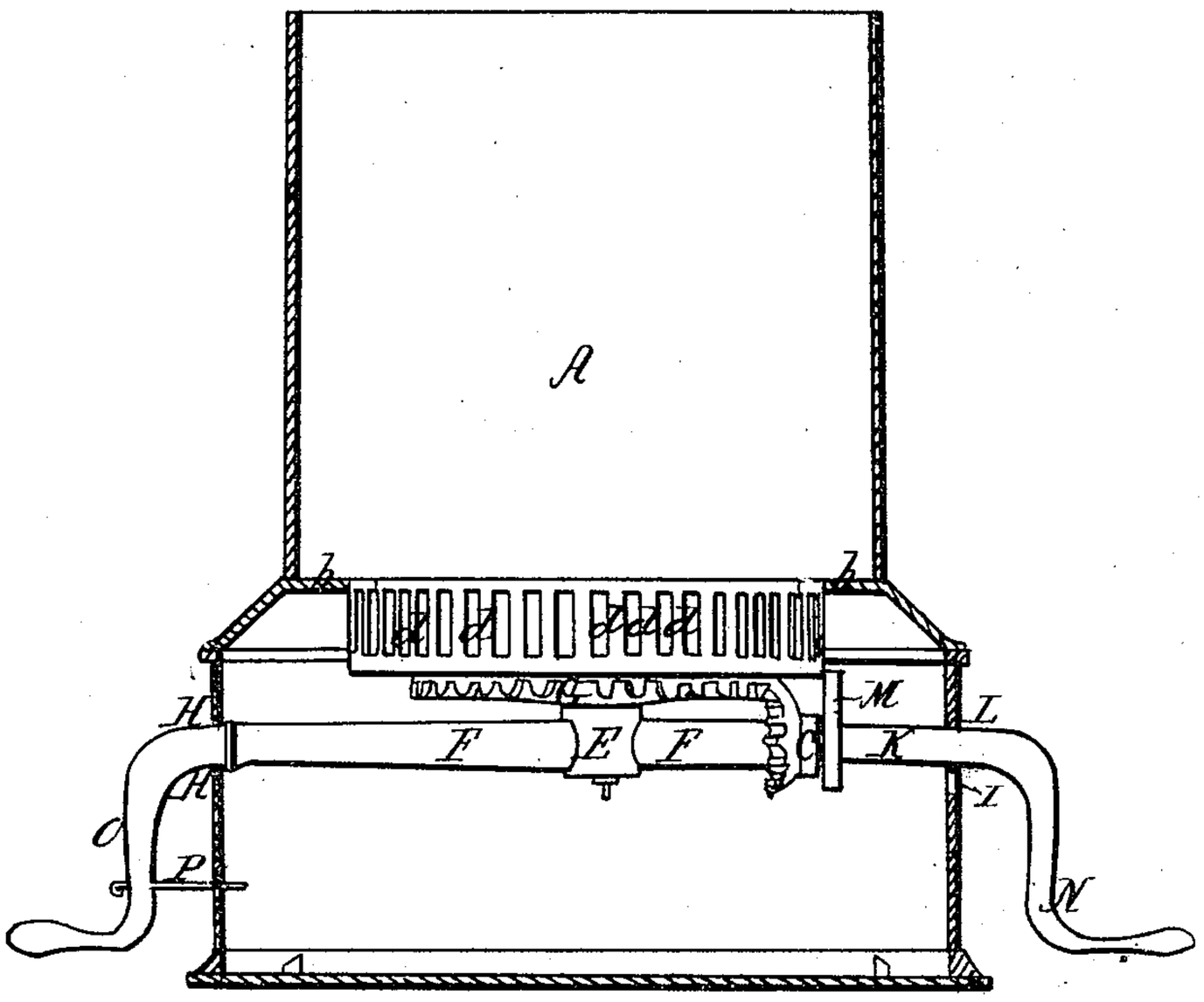


Fig. 2.

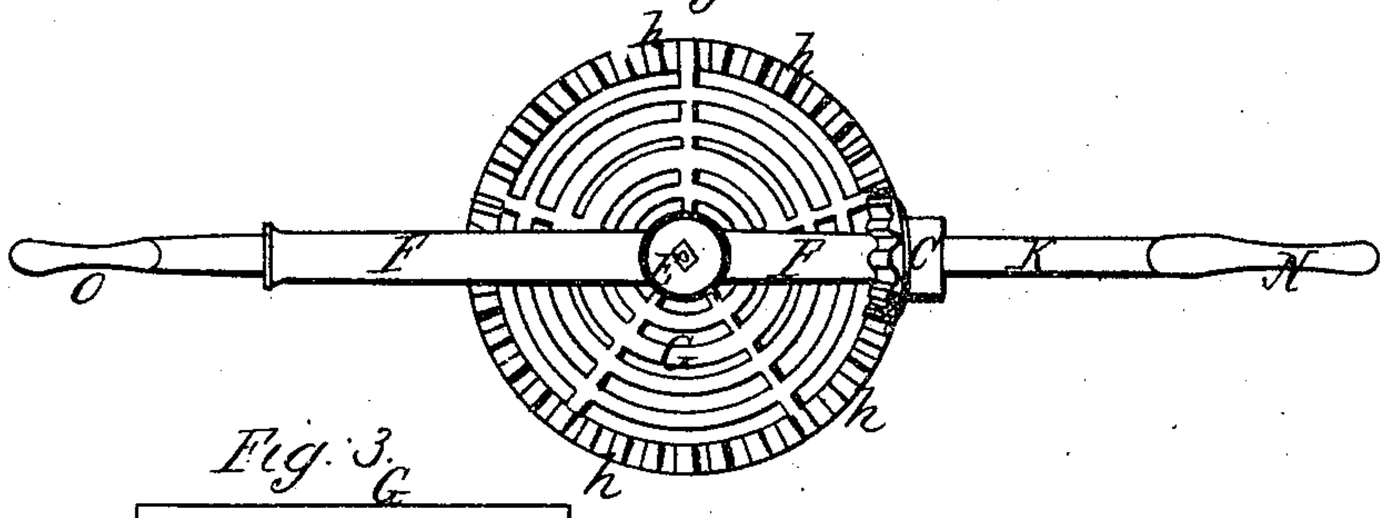
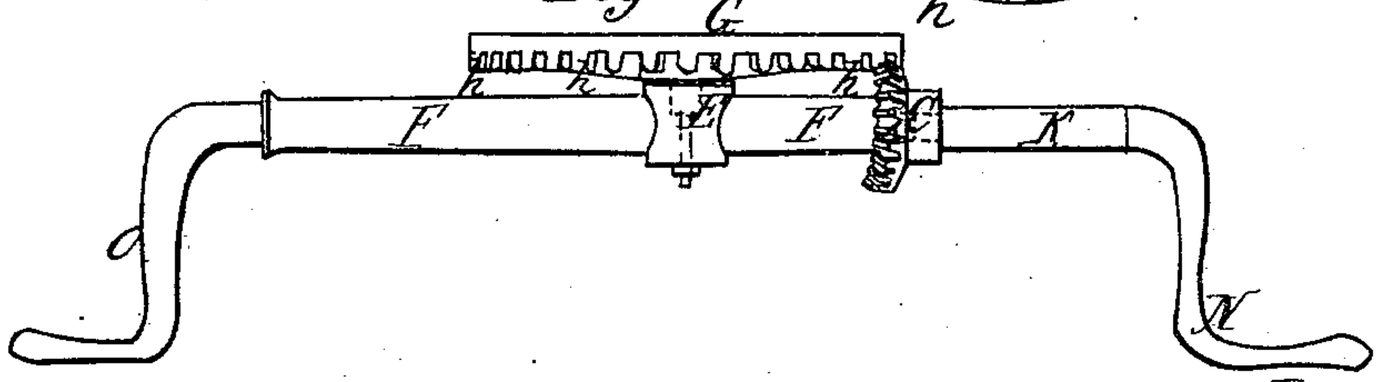


Fig. 3.



Inventor;
Alexander Harrison

UNITED STATES PATENT OFFICE.

ALEXANDER HARRISON, OF PHILADELPHIA, PENNSYLVANIA.

ROTARY STOVE-GRATE.

Specification of Letters Patent No. 9,297, dated October 5, 1852.

To all whom it may concern:

Be it known that I, ALEXANDER HARRISON, of the city and county of Philadelphia and State of Pennsylvania, have invented a new Mode of Constructing Grates for Stoves, Furnaces, Ranges, &c., which I denominate my "Double Rotary Grate;" and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which the application of my grate to an ordinary stove is shown.

The nature of my invention consists, first, in a rotary bottom grate in combination with an annular vertical grating surrounding the same; second, the combination of the rotary and tilting movement of the said bottom grate; and, third, the arrangement and combination of the several parts whereby I effect a rotary and a tilting movement of the said bottom grate.

In the accompanying drawings, Figure 1, is a sectional view of an ordinary cylindrical stove, exhibiting my improved grate as applied thereto. Fig. 2, is a detached view of the grate as seen from below. Fig. 3 is a detached view of the grate as seen from the side.

A, represents the cylinder of a stove of ordinary construction, terminating in a small ledge, projecting inwardly about three or four inches all around the stove. At the inner edge of the ledge are fixed a series of small upright grates, *d*, *d*, *d*, about two inches high, with spaces between them for the admission of air. Within the lower rim of these small vertical grates, a flat circular grate, G, is placed, corresponding nearly in diameter with the interior circle formed by the vertical grates. This flat circular grate G, forms the bottom of the stove, and is supported at its center by a small vertical spindle or shaft E, which rests in a socket formed in the larger horizontal cross shaft F, F. One end of this horizontal cross shaft rotates in a small hole or bearing H formed in the upper part of the base of the stove, and the other end rotates in a small cogwheel, C, supported as hereinafter described.

Around the circumference of the grate, and on the under side, a complete set of cog teeth, *h*, *h*, *h*, are placed. A small miter cog wheel C, is placed upon a short horizontal shaft working in a bearing or hole at L, and through a small vertical hanger at M. This cog wheel fits into and acts upon the cog wheel around the lower circumference of the grate G. This arrangement is such that the grate may be revolved in a horizontal plane upon the small vertical spindle E, by means of the small shaft and cog gearing, and thus the ashes may be shaken out through the crevices in the grate G. At the same time, the small vertical spindle E, with the grate G, which it supports, may be revolved eccentrically with the larger shaft F, and thus the contents of the stove may be discharged. The shafts are respectively operated upon by two cranks, N, and O, outside of the stove. A pin is inserted at P, to fix the crank M, except when it is desired to tilt the grate to discharge its contents. This pin prevents the grate from turning over. At the same time, the shaft K, having separate bearings, and moving independently of the shaft F, can be rotated so as to riddle the fire as above described. The small vertical grates, *d*, *d*, *d*, are made of metal to prevent clinkers from attaching, and thus interfering with the revolution of the grate when it is desired to empty the stove. At the same time this vertical grating serves other useful purposes, namely, preventing the body of coal from rotating with the bottom grate and thereby aiding in separating the ashes therefrom; exposing a larger surface for the entrance of the atmosphere into the body of the fuel—and also of increasing the radiation of the lower part of the body of the stove, and thus keeping it warmer. The latter is an advantage in the ordinary heating stove, as it enables persons to warm their feet conveniently. This arrangement of a short vertical grating may be used alone without the other improvements herein described. In some cases ribs or ledges may be substituted for the said grate bars.

My improved double rotary grate, as above described may be applied to furnaces, ranges, &c., as well as to stoves. Either one of the parts of the rotating apparatus may be employed, without the other.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination of the rotary movement of the bottom grate with the vertical annular grating—or its equivalent—surrounding the same, for the purposes substantially as herein set forth.

2. I claim the rotary movement of the bottom grate with the controllable tilting movement of the same, substantially as herein described.

3. I claim the combination and arrangement of the several parts whereby the aforesaid rotary and tilting movements of the bottom grate are effected, substantially as herein described.

ALEXANDER HARRISON.

Witnesses:
GEORGE HARDING,
J. E. SHAW.