

D. H. ERDMAN.  
Stove-Grates.

No. 151,212.

Patented May 26, 1874.

Fig. 1.

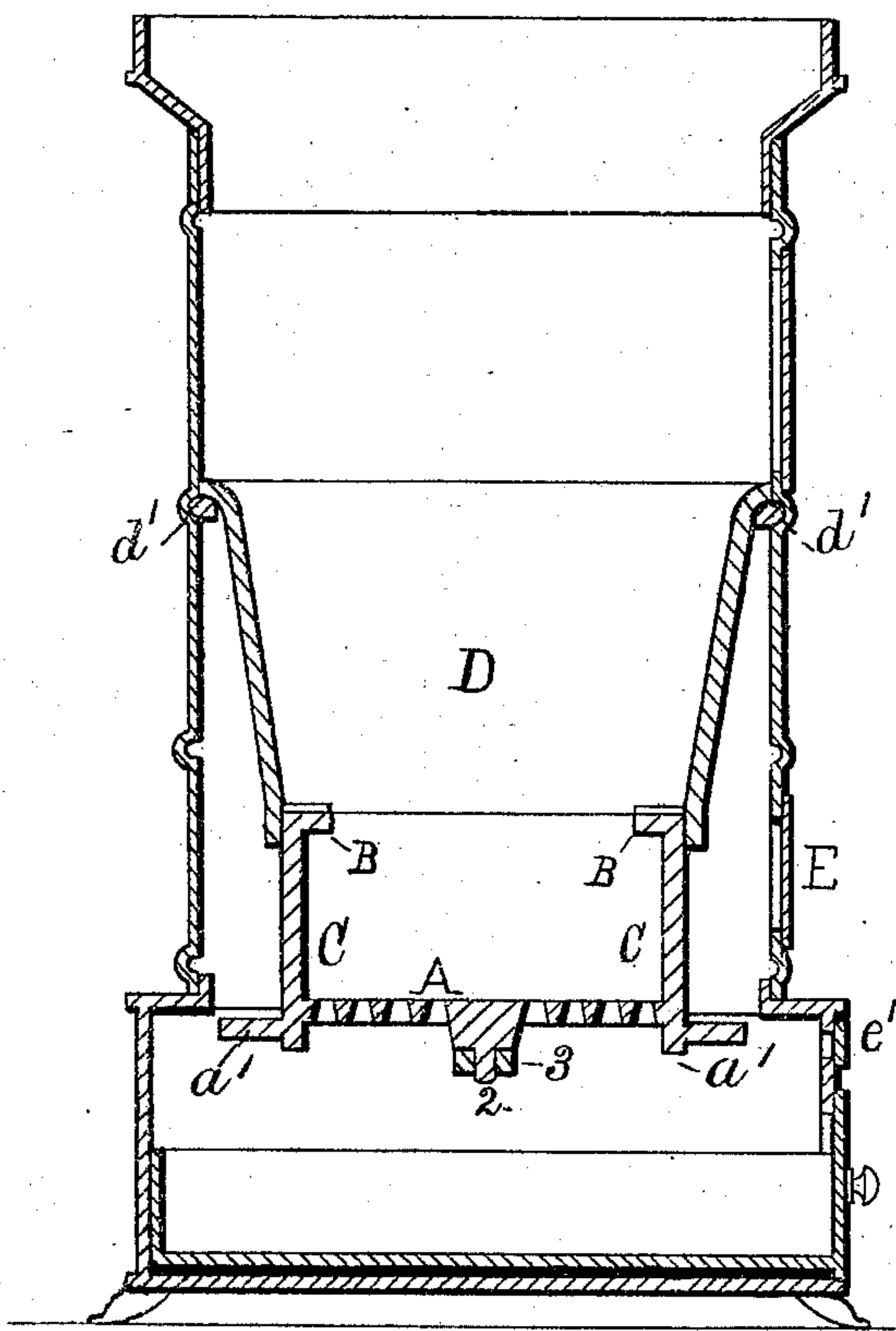


Fig. 3.

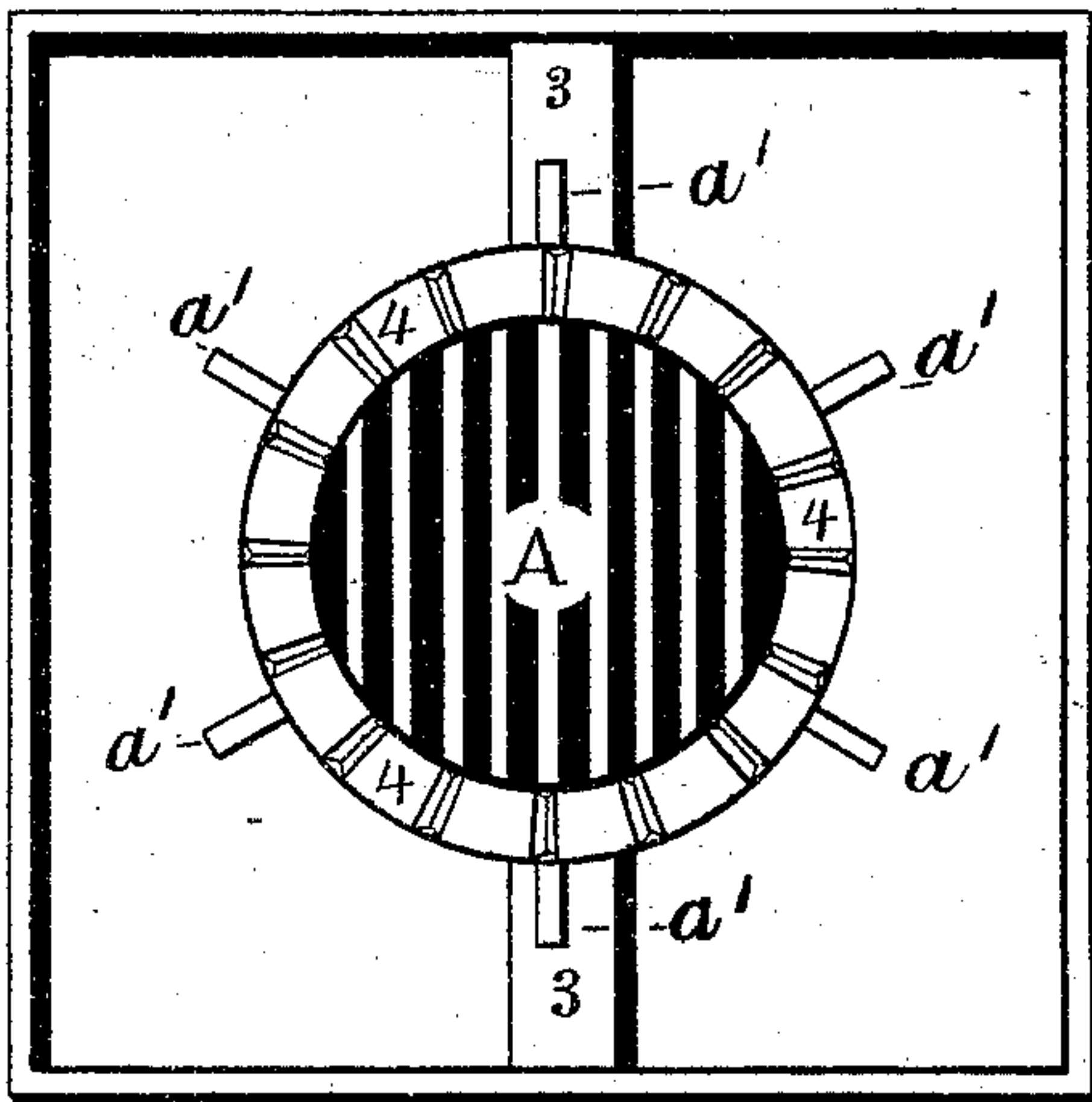
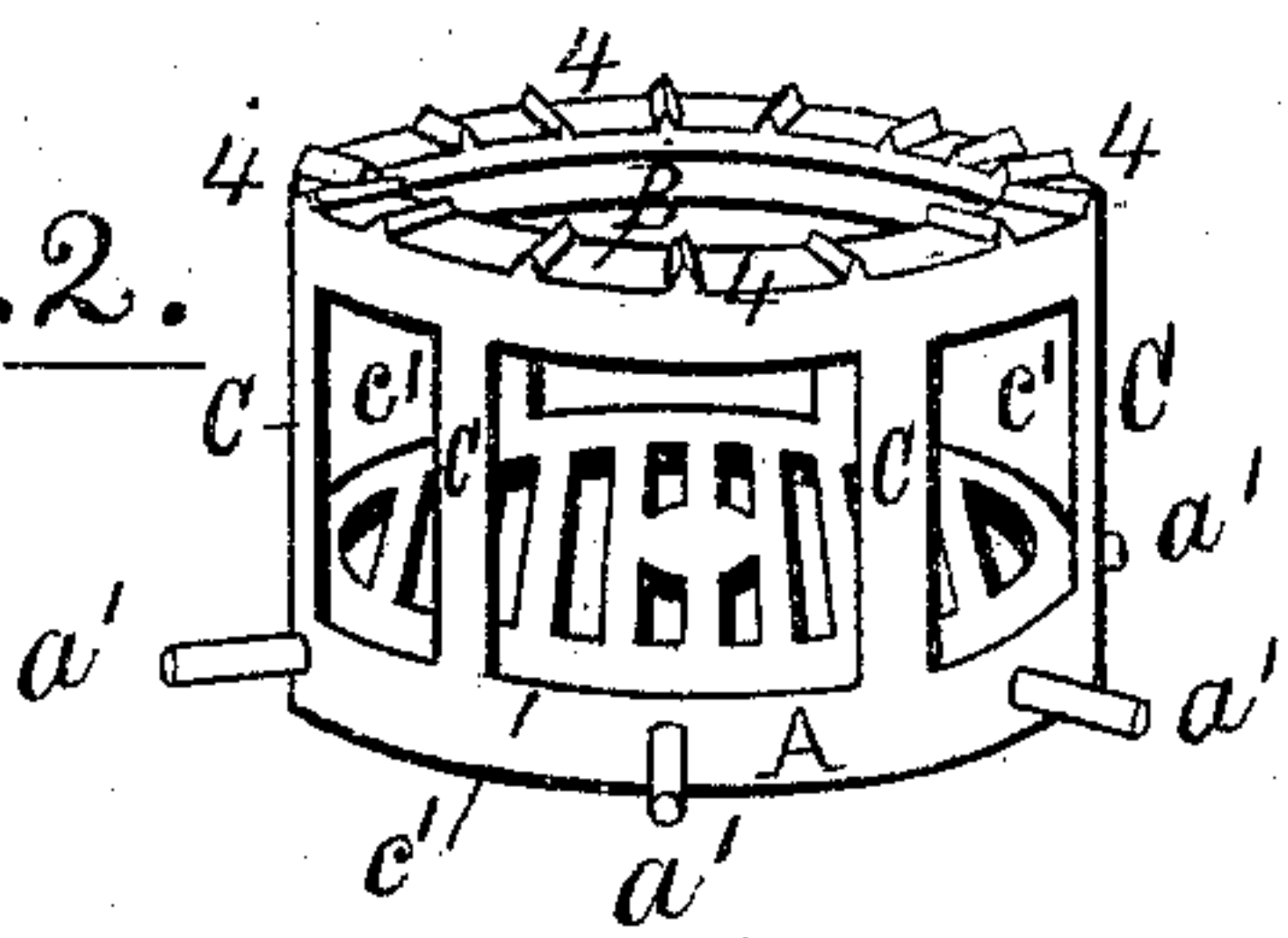


Fig. 2.



WITNESSES:

*Geo W. Bailey*  
*Aug. Berne*

INVENTOR:

*Daniel H. Erdman*



# UNITED STATES PATENT OFFICE.

DANIEL H. ERDMAN, OF CAMDEN, NEW JERSEY, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSEPH COX, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN STOVE-GRATES.

Specification forming part of Letters Patent No. 151,212, dated May 26, 1874; application filed March 3, 1874.

*To all whom it may concern:*

Be it known that I, DANIEL H. ERDMAN, of Camden, in the county of Camden and State of New Jersey, have invented an Improved Grate for Stoves, Ranges, and Heaters, of which the following is a specification:

The object of my invention is to afford a horizontally-rotating grate for stoves, ranges, and heaters, that will give more perfect access to and greater facility in the removal and discharge therefrom of cinders, clinkers, and stones, and at the same time a more reliable support to the incandescent coal above during their removal; and my invention consists substantially of a circular grate proper turning horizontally on a central pivot in the usual manner, and an annular horizontal flange supported rigidly upon the rim of the said grate proper, by suitable uprights or posts, at a sufficient height above the said grate proper to afford a series of openings between them, and also between the said grate proper and the flange for the removal and discharge of said cinders, clinkers, and stones into the ash-pit or drawer in the base of the stove, the said openings being successively presented to the appropriate door by turning the whole device horizontally around on its pivot, and the arch of incandescent coal above being supported in the meantime by the elevated horizontal flange which fits within the lower end of the fire-pot, all of which will be more fully set forth and described herein with reference to the accompanying drawings, in which—

Figure 1 is a central vertical section of an ordinary cylindrical stove-body and square base with a tapering fire-pot, showing my invention applied thereto. Fig. 2 is a perspective view of my improved grate detached. Fig. 3 is a plan view of the said grate and its supporting-bar in the square base of the stove.

A is the grate proper; B, the flange; C C, the uprights, which rigidly connect the rims of the grate and flange together and support the latter, leaving open spaces *c' c'* between; and *a' a'* the radial arms, whereby the whole can be rotated horizontally, and thus either of the said openings presented to the appropriate door in the operation of removing and discharging the cinders, clinkers, and stones, and, if de-

sired, even the whole contents of the fire-pot D, which latter is suspended by its rim from a projecting rib, *d'*, or suitable lugs fixed around the inner side of the body of the stove for the purpose. The whole rotary device, consisting of the grate proper, A, annular flange B, and the connecting mediums C C, rests upon a cross-bar, 3, in the base of the stove, the center-pin 2 of the grate proper, A, being its center of motion. The flange B enters a short distance into the open lower end of the fire-pot D, so as to permit it to move freely around therein, while at the same time it is steadied thereby during the rotary motions required; and the said flange B projecting inward forms an annular support for the arch of incandescent coal above while the cinders, clinkers, and stones are being removed from the grate proper A below, and during the slow rotary movement of the same, in connection with the said flange, for the purpose of giving access to the open spaces *c' c'* successively from the grate-door E in removing and discharging the said cinders, clinkers, and stones down into the ash-reservoir in the base of the stove. The required rotary motions are given by means of the usual socket shaking-bar successively applied to the short radially-projecting arms *a' a'* by introducing it for the purpose through an appropriate adjustable opening, *e'*, (see Fig. 1,) and thus the whole device consisting of the parts A B C can be rotated entirely around horizontally in either direction within the air-space between the same and the surrounding body of the stove, and if the removal of ashes only from the grate be desired a rapid oscillatory motion can be given through the same opening *e'*. For the purpose of more certainly and quickly bringing down the coal or breaking the arch of incandescent fuel above the flange B small, angular, radially-arranged projections 4 4 are cast on the upper side of the flange B, so that a rapid oscillatory motion will necessarily tear away or break up the layer of coal on the said flange. The upright portions C C, which connect A and B together, are not intended to be any longer, nor any farther apart from each other, than sufficient to allow open spaces *c' c'* of sufficient size to allow the usual sizes of the clinkers and stones



to pass freely through them in the operation of removing the former. The parts A B C may be cast in one piece, or, if preferred, in separate pieces, and afterward bolted together. The radial arms  $a' a'$  need not be longer than sufficient to afford a stud which will enter the socket of the usual shaking-bar, and thus, when the latter is applied thereto, enable the operator to either rotate or rapidly oscillate the device A B C, as occasion may require.

It will be seen that this invention will afford perfect facility and expedition in removing and discharging cinders, clinkers, and stones, and, if desired, the whole contents of the fire-pot, or of the ashes alone, as occasion may require.

I am aware that the arrangement of a fire-pot with its lower or discharge end suspended or projecting downward within the air-chamber, in combination with a vibrating grate of larger diameter than the lower end of said fire-pot, suspended at a distance below the said discharge end sufficient for the removal of slate and clinkers over its periphery, has been used, and that said vibrating grate has been supported below the fire-pot by means of arms projecting downward from the fire-pot or cylinder, both as set forth in Spear's patent, reissued, in two divisions, on the 17th of June, 1873; and that a series of annular shelves, perforate or imperforate, arranged or interposed between the grate-opening and the

mouth of the fuel-reservoir, and open to the base of the stove, as in Moore's patent, July 18, 1871, has also been tried; and therefore I do not desire to claim either of said inventions; but

I claim as my invention—

1. The grate proper A, the posts C C, the openings  $c' c'$ , and the inward-projecting flange B, the said parts being constructed as set forth and described, and with the top surface of the grate proper A arranged in the same horizontal plane with the bottom edges of the surrounding openings  $c'$ , to facilitate in the removal of coarse ashes and small lumps that will not pass through said grate A.

2. The combination, with the rotary grate A B C, constructed substantially as set forth, of the radial arms or studs  $a' a'$ , as and for the purpose described.

3. The inward-projecting flange B, of the rotary grate A B C, in combination with the stationary fire-pot D, substantially as described, for the purpose of supporting the incandescent fuel in the said pot during the slow rotary motion given to the said grate in withdrawing cinders, clinkers, or stones therefrom, as described.

DANIEL H. ERDMAN.

Witnesses:

GEO. W. BAILEY,  
AUG. REEVE.