

(No Model.)

S. D. EARL.
SHAKING GRATE.

No. 362,499.

Patented May 10, 1887.

Fig. 1.

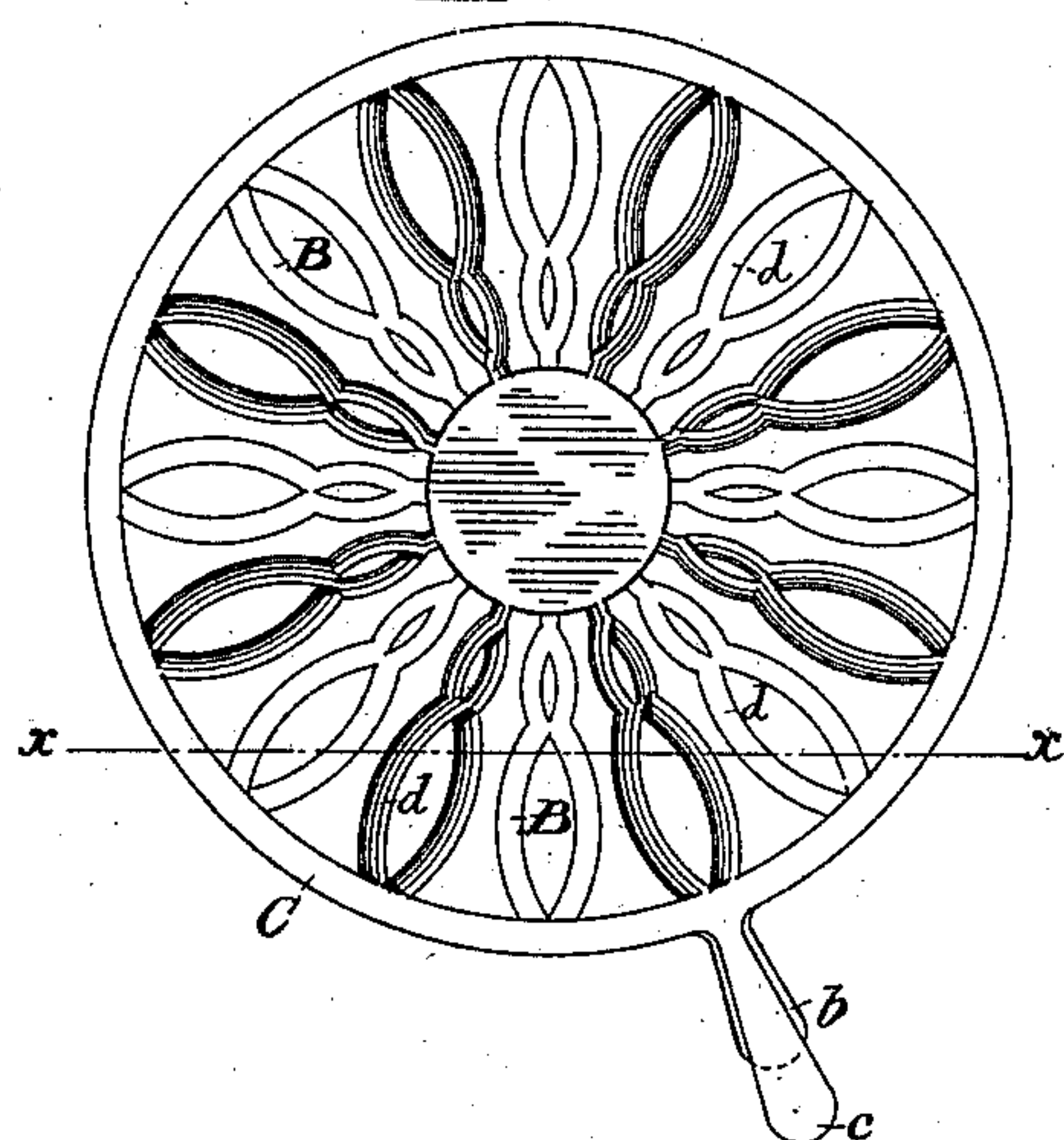


Fig. 2.

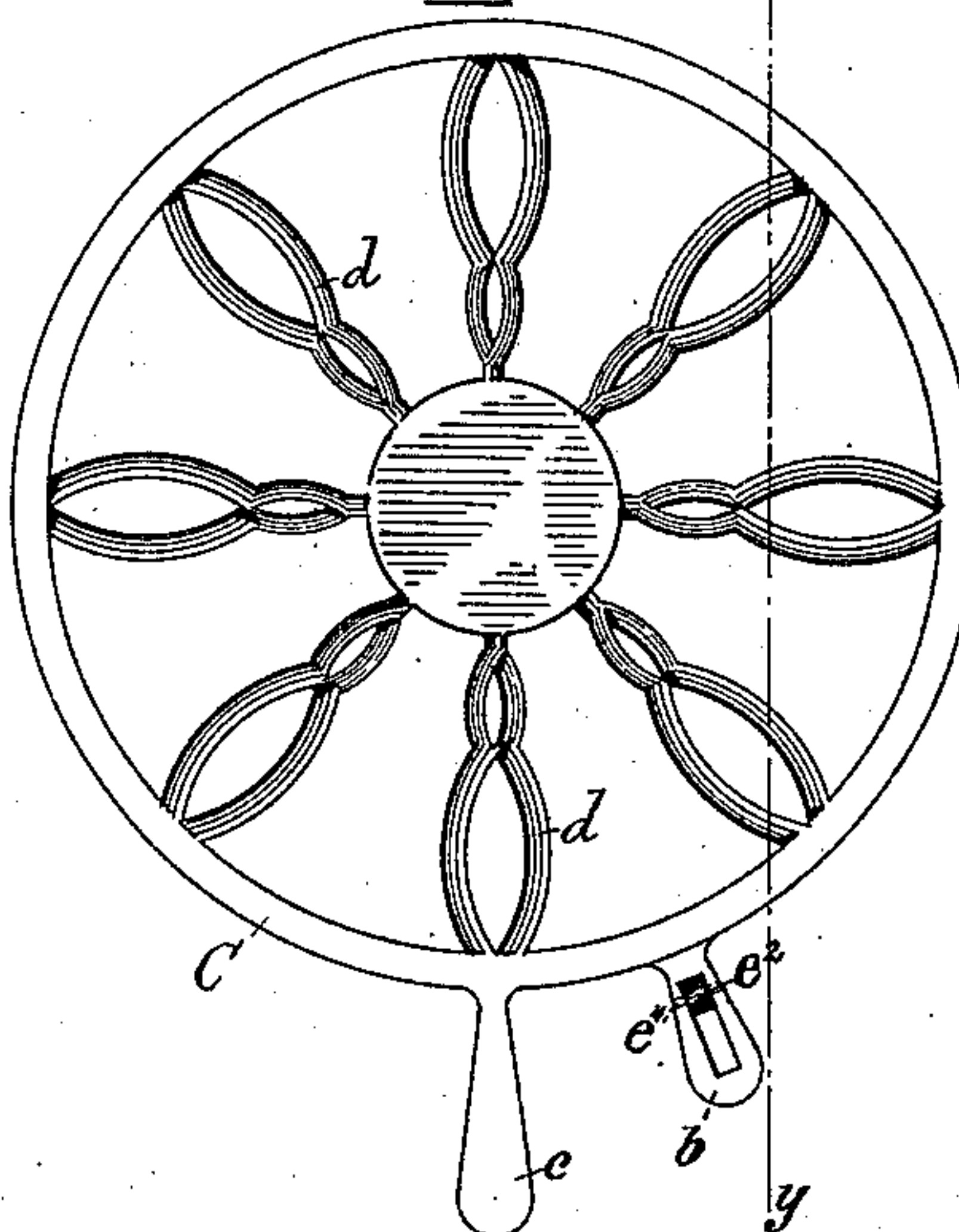


Fig. 3.

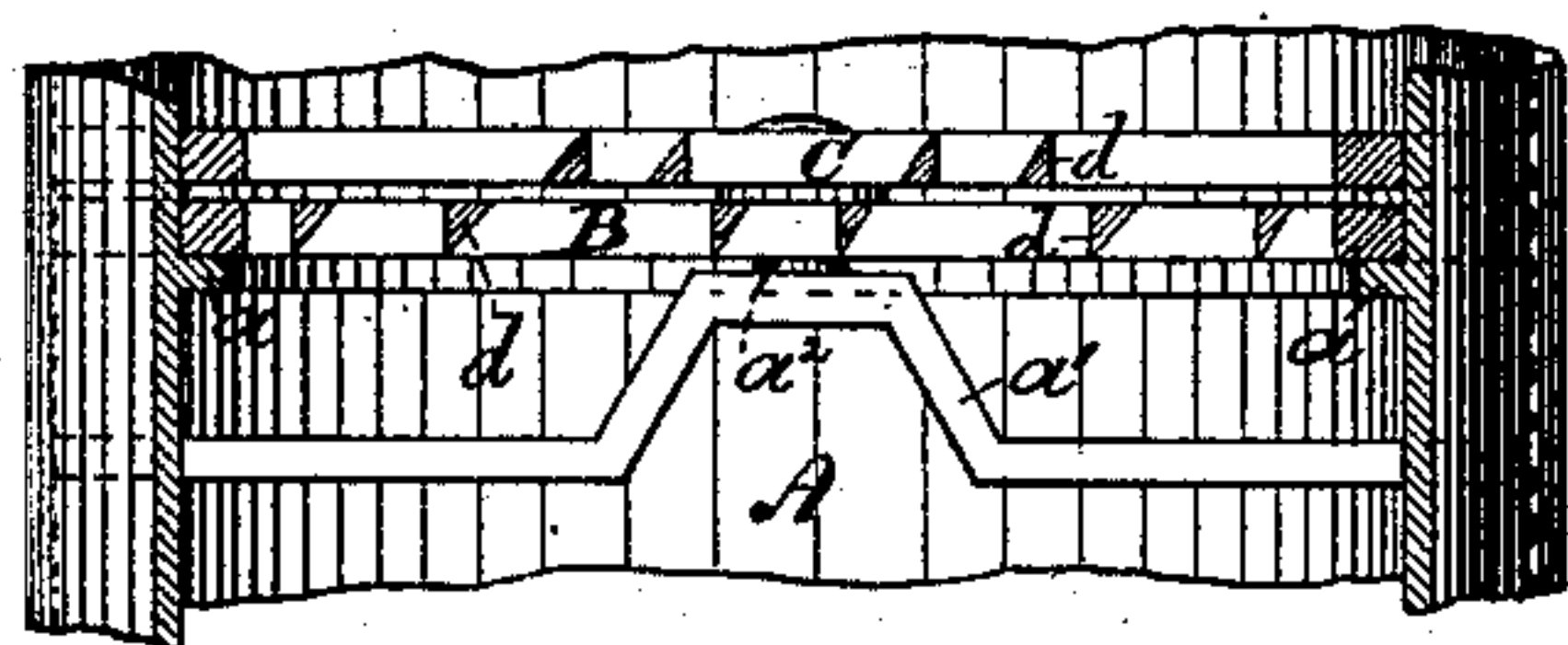


Fig. 4.

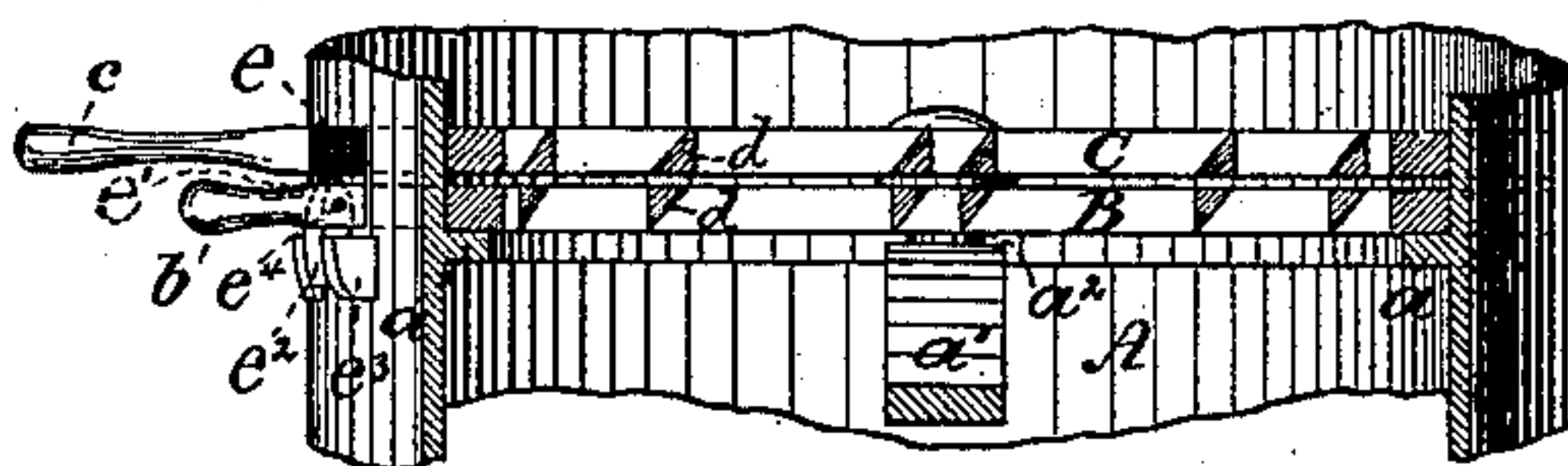


Fig. 5.

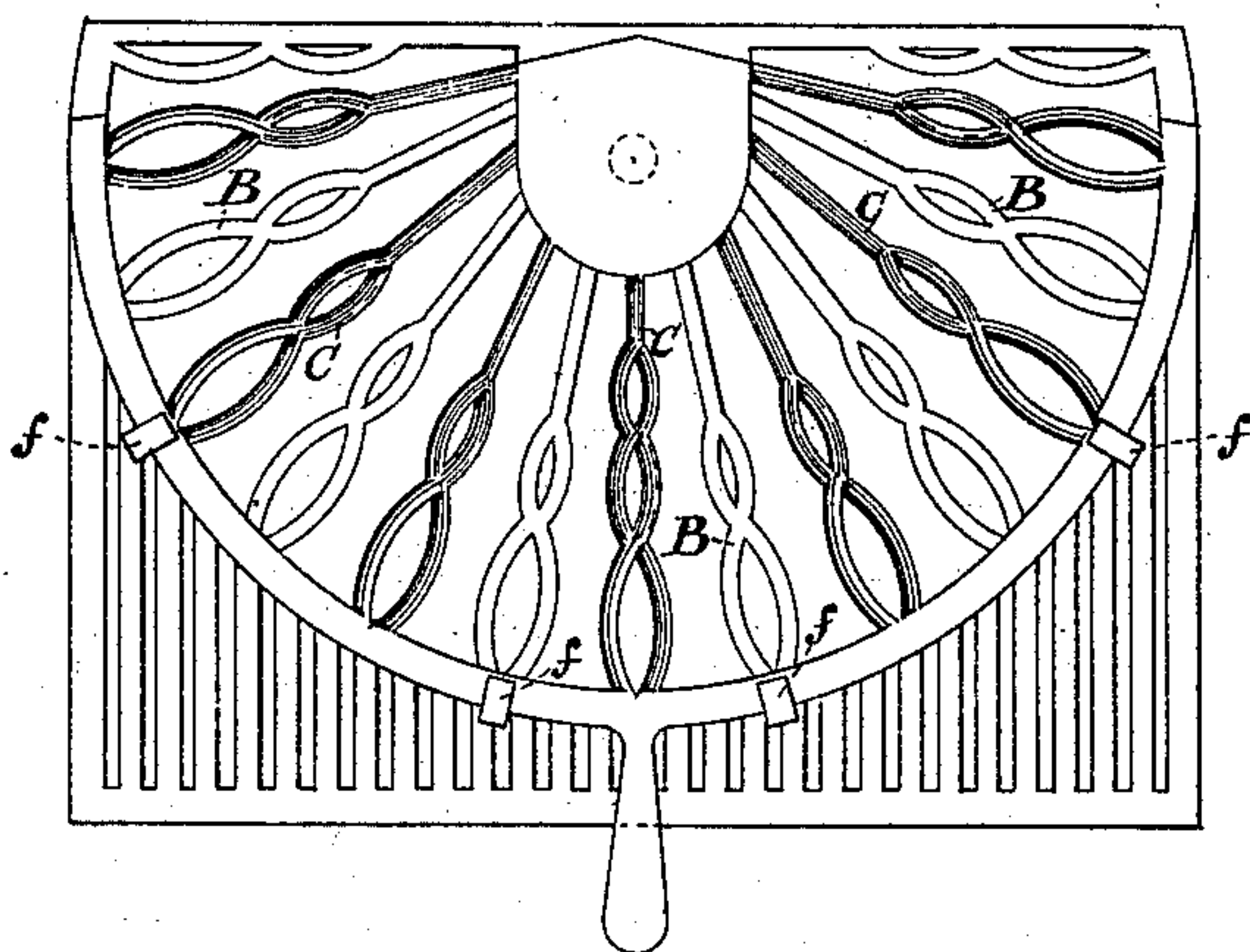


Fig. 6.

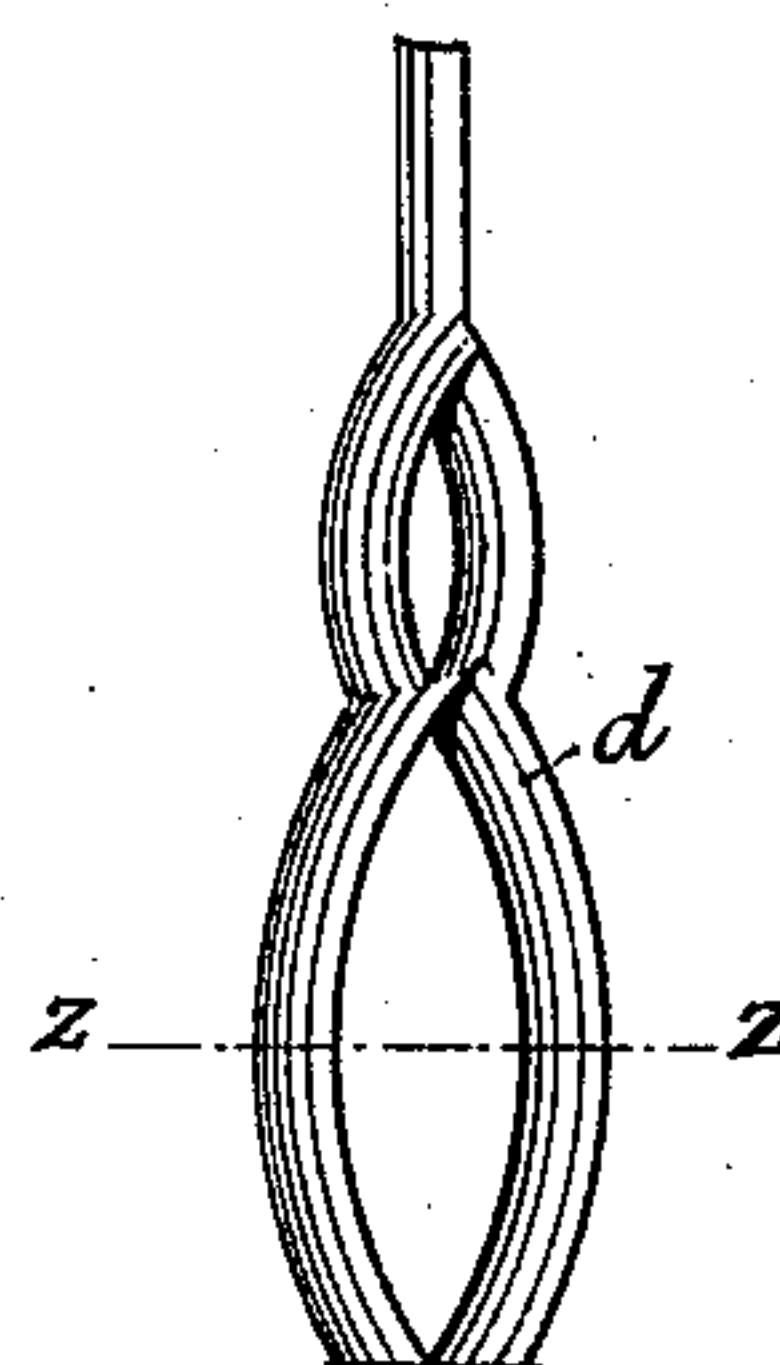


Fig. 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SHAKING-GRATE.

SPECIFICATION forming part of Letters Patent No. 362,499, dated May 10, 1887.

Application filed December 18, 1885. Serial No. 186,046. (No model.)

To all whom it may concern:

Be it known that I, SPENCER D. EARL, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Shaking-Grates, of which improvements the following is a specification.

My invention relates to shaking-grates for stoves or other heating and cooking apparatus for holding the heating mass; and it consists of two cylindrical or semi-cylindrical grates provided with a series of radial knife-edged bars suitably supported within the body or base of a stove or furnace, and having lever-arms for actuating them, whereby all clinkers collecting may be thoroughly broken and ashes accumulating above the grates readily removed without the use of dumping attachments.

The construction and mode of operating the respective grates will be hereinafter more particularly described, and pointed out in the claims.

In the accompanying drawings I have represented my invention in a form which I have found practically efficient, and which embodies the essential features thereof.

Figures 1 and 2 are respectively top or plan views of my improved shaking-grates, showing in the former view the normal position of the radial knife-edge bars of the grates, and in the latter view the position which the radial bars occupy when it is desired to remove the hot mass entirely from the stove or furnace. Figs. 3 and 4 are respectively vertical sections on the lines *x x* and *y y* of Figs. 1 and 2, showing the base or body of the stove, the two grates provided with radial knife-edge bars and lever-arms, the locking-pawl in the lower grate lever-arm held in the pocket cast with the base or body, and the pivotal support for holding the grates within said body or base. Fig. 5 is a top or plan view of a modified form of my improved grates, and one which is susceptible of use in any ordinary construction of range or furnace. Fig. 6 is a top view of one of the knife-edged bars of the grates, and Fig. 7 is a cross section on the line *z z* of Fig. 6.

Similar letters of reference indicate corresponding parts throughout the several views.

Referring to the accompanying drawings for a more specific description of my invention, A represents the body of a stove of any

ordinary well-known construction, provided upon the interior surface thereof with a bead or rail, *a*, for the lower grate, B, to rest upon. A casting, *a'*, of any suitable construction, and forming a support for the respective grates, is rigidly secured to the interior surface of the base A of the stove above the ash pan or pit, having cast therewith upon the upper surface thereof a pivot, *a''*, which extends through the lower grate, B, and into an annular opening in the upper grate, C. These grates B and C are made of cast or wrought iron or other suitable metal, each of which is provided with a series of radial knife-edge bars, *d*, of such form as may be found in practice best adapted to perform the functions of grinding up the cinder or other material collecting above the grates or between the bars, and for depositing the same in a pulverized mass into the ash-pit beneath.

To the grates B and C are cast or otherwise secured thereto two lever-arms, *b* and *c*, extending through elongated slots *e* and *e'*, provided in the body of the stove or furnace A. The lever-arm *b* of the lower grate, B, has pinned thereto a pawl or dog, *e''*, as shown in Fig. 4, and which pawl engages in a pocket, *e'''*, cast onto the exterior surface of the body of the stove A, causing the lower lever-arm, *b*, to become locked while operating the lever-arm *c* of the upper grate, C; or, by releasing the pawl *e''* from the pocket *e'''* in any suitable manner, both lever-arms *b* and *c* may be operated together or in reverse directions for the purpose of shaking and breaking up the clinkers or cinders and depositing the same more or less pulverized into the ash-pit beneath.

In Fig. 5 is shown pivoted to one another in any suitable manner a modified form of my improved shaking-grates B and C, applicable to any ordinary range or furnace. Rigidly secured to the lower grate-bars are a series of projections, *f*, fitting loosely over the top grate, C, and serving to guide the grate in its movement over the lower or stationary grate, B.

The mode of operating the grates may be explained in the following manner: The lower and upper grates, B and C, as shown, for instance, in Figs. 3 and 4, are supported within the body or base A, by means of a pivotal support, *a'*, and the lower grate, B, rests upon the circumferential rail *a*. The lower

grate lever-arm, *b*, is provided with a locking-pawl, *e*², secured thereto by means of a cross-pin, *e*⁴, and which pawl engages in a pocket, *e*³, cast with the body or base *A*, as shown in 5 Fig. 4, and the mode of cutting or grinding the clinkers or cinders, and consequently depositing the ashes therefrom in the ash-pit beneath, is effected by the movement of the upper grate lever-arm, *c*, backward and forward; 10 or, if it should be desired to remove the entire contents of the stove or furnace, it may be readily and effectively accomplished by the movement of the grates into the position shown in Fig. 2; or, again, if so desired, the locking- 15 pawl *e*² in the lower grate lever-arm, *b*, may be released by hand or otherwise from the pocket *e*³, and the respective grates moved backward and forward to cause the radial knife-edged bars of the grates to grind up into 20 a pulverized mass any clinkers or cinders collecting between the two grates or between the bars and deposit them in the ash-pit beneath, as will readily be understood without any more specific description or explanation.

25 Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a stove-body, two

grates formed with knife-edged bars and pivoted together, lever-arms for said grates, a 30 pocket provided in the stove-body, and a pawl secured to one of said lever-arms and engaging in said pocket, substantially as and for the purposes set forth.

2. The combination of a stove-base, two 35 grates formed with knife-edged bars and pivoted together within said base, lever-arms for operating said grates, a pocket cast with said base, and a pawl mounted in one of said lever-arms, substantially as and for the purposes 40 set forth.

3. The combination of a stove-base, a supporting-rail within said base, two grates 45 formed with radial knife-edged bars and pivoted together, a pocket cast with said base, lever-arms for operating said grates, and a pawl pinned to one of said lever-arms, substantially as and for the purposes set forth.

In witness that I claim the foregoing as my invention I have hereunto set my signature in 50 the presence of two subscribing witnesses.

SPENCER D. EARL.

Witnesses:

J. WALTER DOUGLASS,

WALTER S. GIBSON.