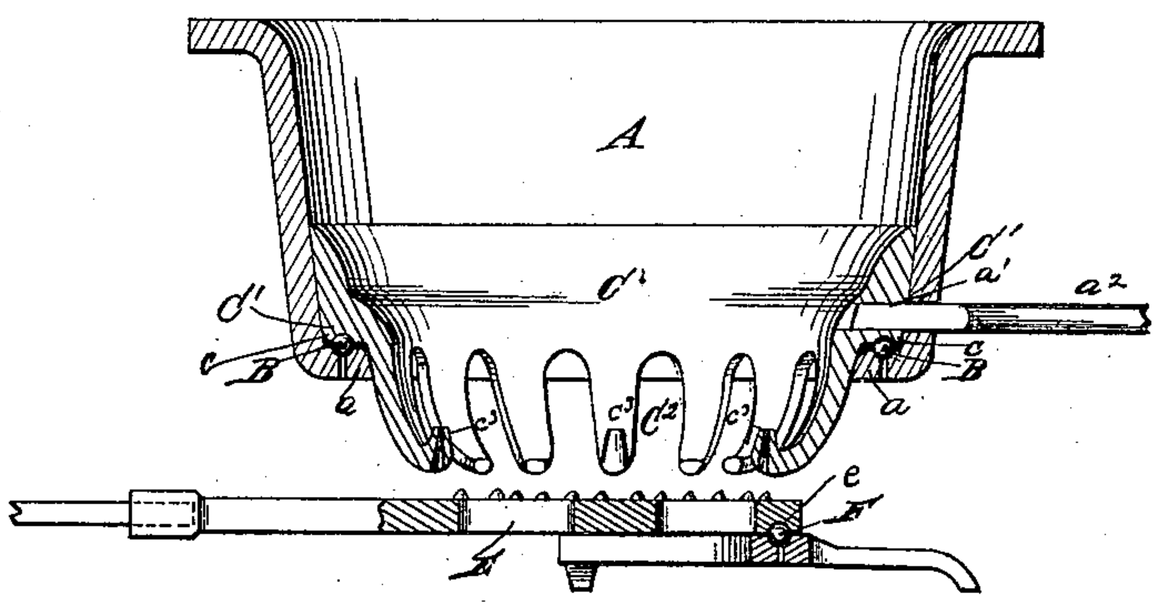
(No Model.)

D. BRAZIER.

GRATE FOR STOVES AND FURNACES.

No. 307,010. Patented Oct. 21, 1884.

Fig. 1.



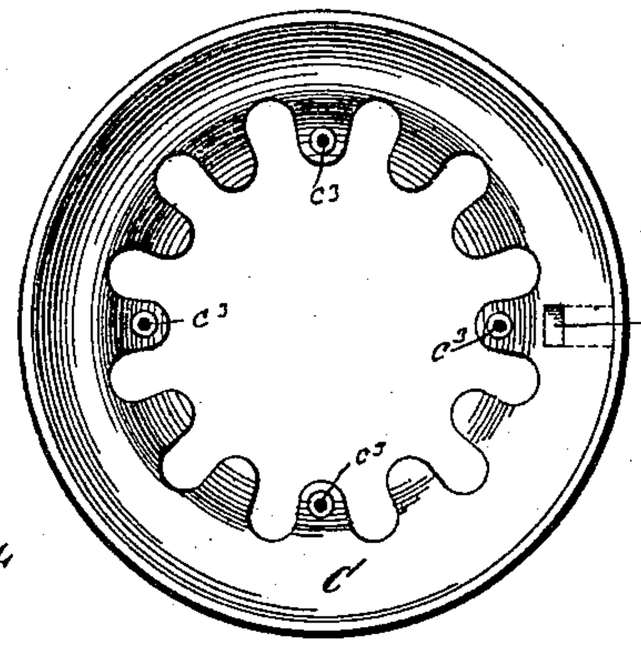


Fig. 2.

Fig. 4.

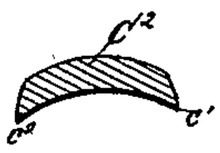
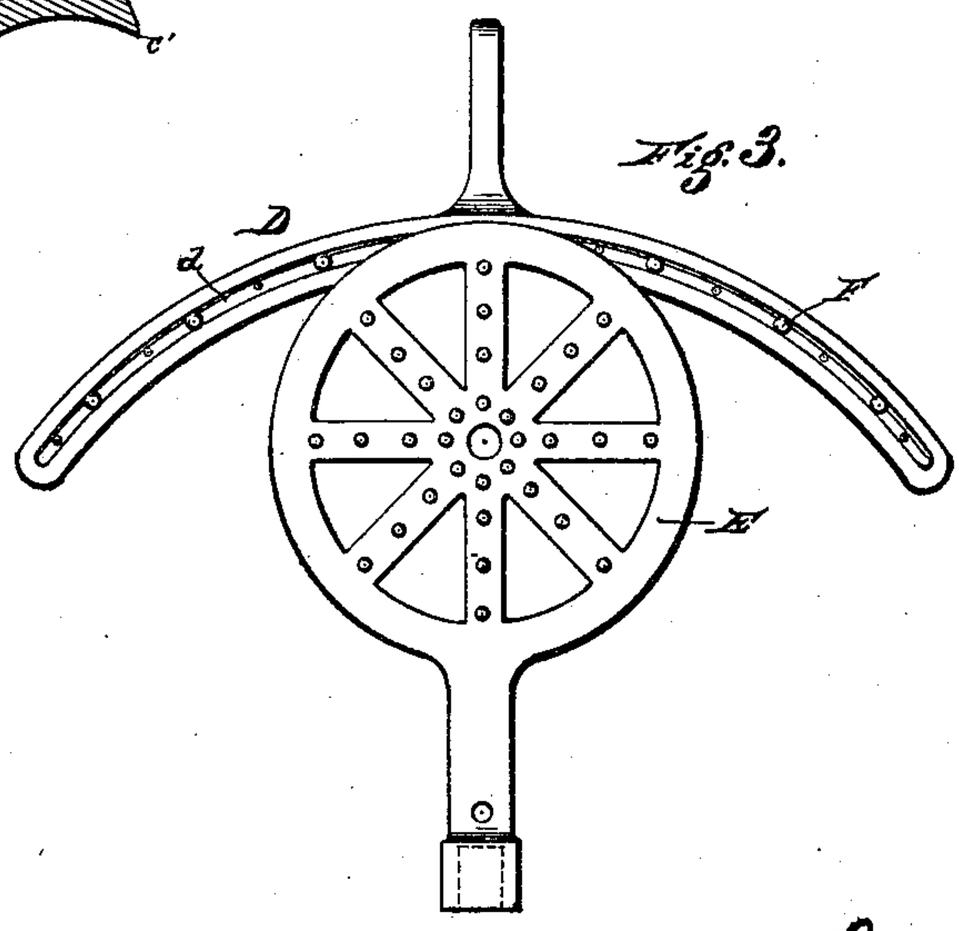


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

DANIEL BRAZIER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-FOURTH TO FREDERICK W. SWIFT, OF SAME PLACE.

GRATE FOR STOVES AND FURNACES.

SPECIFICATION forming part of Letters Patent No. 307,010, dated October 21, 1884.

Application filed January 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, DANIEL BRAZIER, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Grates for Stoves, Furnaces, &c.; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combinations of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical section of a device embodying my invention. Fig. 2 is a plan view of the grinding-grate. Fig. 3 is a separate view of the swinging grate. Fig. 4 is a sectional view of one of the fingers.

The object of my invention is to provide fire-pots for stoves, furnaces, &c., with a grinding-grate adapted to grind the cinders and accomplish their effectual removal from the fire-pot, and also to provide, in connection therewith, a sliding grate to be removed from beneath the grinding-grate in case it is found desirable to dump the fuel from the fire-pot. My object also contemplates the location of the grinding-grates and the sliding grates in place in such a manner that they may be operated readily with compartively little friction.

I accomplish my object as follows:

As illustrated in the accompanying drawings, A represents a fire-pot made in the ordinary way, except that the ordinary depending fingers may be dispensed with, and the lower edge of the fire-pot constructed with a flange, *a*, extending inwardly, said flange being preferably fluted to receive balls or rollers B of suitable size. This flange may also be perforated as desired, for the escape of any ashes that may find their way thereto, and also to permit the air passing through the same to assist in keeping the parts suitably cooled, and to prevent their burning out. I prefer also to construct the fire-pot with a suitable orifice, a', to receive the shaker a^2.

C is my improved grinding-grate, preferably consisting of a band, C′, ribbed on its interior surface, said band constructed with a shoulder, (shown at *c*,) whereby said grate may be engaged upon the flange *a* of the fire-pot. This shoulder I prefer also to provide with a fluting corresponding to that upon the flange *a*, to receive said balls. Projecting from said band are a series of fingers, C^2, of any desired number. These fingers are preferably curved inward toward the center, and upon their inner faces suitably concaved, so that the edges of said fingers, as shown at c' and c^2, will be somewhat sharpened, to more effectually cut and break the cinders. Projecting upward from the extremities of some or all of these fingers are hollow cones c^3, projecting upward to any desired extent, so as to more effectually stir and break up the contents of the fire-pot. The band of this grinding-grate is constructed with a shaker-socket, C^3, accessible through the orifice a' of the fire-pot. It is evident that by locating this grinding-grate within the fire-pot upon these revolving balls in the manner described said grate may be easily operated without undue friction, while the construction of the fingers with their hollow cones will thoroughly accomplish the desired object when said grate is operated. I design to provide more or less of these fingers with these said hollow cones, as may be preferred, depending somewhat upon the size of the stove for which said grate is constructed.

D is the ordinary ring, located beneath the fire-pot, which supports the grate. Upon this ring, however, I locate my sliding grate E. This sliding grate is constructed of small diameter, being only sufficient to properly cover the orifice a^4. Between the finger ends of the grinding-grate said sliding grate may be pivoted to the ring D or otherwise secured thereto in such a manner that it may be slid out of the way in case it is desired to dump the contents of the fire-pot. I prefer to construct said ring and sliding grate with suitable fluting, as shown at *d* and *e*, to receive additional balls F, so that said grate may be slid around, leaving the orifice of the grinding-grate free, this being accomplished also without undue friction.

It will be evident that the construction of the grinding-grate is such that the orifice between its finger ends will be of small diameter, and consequently the size of the sliding grate will be diminished accordingly, this construction permitting a very great saving in the

amount of material employed, as my sliding grate will require but a fraction of the iron in its construction usually necessary in the manufacture of the grates.

I have described both of my grates as resting upon the balls or rollers. While I prefer this construction, I would have it understood that said balls may be omitted without departing from the principle of my invention.

Balls may be used for the purpose of diminishing the friction more cheaply than rollers or wheels, though I contemplate the location and operation of my grinding and sliding grates, as described, either with or without their resting upon balls, rollers, or wheels for the purpose of diminishing the friction.

In use the fire-pot will be held by suitable means to prevent it from turning when the grinding-grate is operated.

This improved grinding-grate may be located in any circular fire-pot, and all that is necessary to adapt the fire-pot to receive the same is to cut off the fingers from the patterns and glue the fluted flange *a* to its lower edge. Thus the device may be employed in the manufacture of stoves, furnaces, &c., without any material expense to the manufacturer for a change of patterns.

I am aware that it is not broadly new to provide a fire-pot with an inwardly-projecting flange from which is suspended a movable section composed of bars curved inward toward the bottom, where they are formed into a grooved ring supporting a horizontal rotary grate. Such construction does not constitute a grinding-grate, and is not my invention.

I am also aware that it is not broadly new to provide a grate with a flange at its upper portion which rests on friction-balls carried by a supporting plate or ring, said flange and plate or ring having grooves or channels in the adjacent faces to receive the balls. Such, therefore, I do not broadly claim, as my invention comprises a fire-pot having an inward-projecting flange provided with a circular flute containing balls or rollers, and a grinding-grate having a fluted shoulder suspended on the balls or rollers, and provided with pendent fingers free and disconnected at their lower extremities, whereby the grinding-grate has perfect freedom of movement for grinding out the cinders from the fire-pot.

What I claim is—

1. The combination of the fire-pot provided with an inwardly-projecting flange, *a*, of the grinding-grate suspended from said flange, and constructed with pendent fingers free and disconnected at their lower extremities and concave on their inner surfaces to form sharpened edges c' c^2, substantially as described.

2. The combination of the fire-pot provided with an inwardly-projecting flange, *a*, having a circular flute in its upper side containing balls or rollers, with the grinding-grate having a fluted shoulder, *c*, suspended on the balls or rollers, and constructed with pendent fingers free and disconnected at their lower extremities, substantially as described.

3. The combination, with a fire-pot provided with a flange, *a*, of a grinding-grate located upon said flange, said grate provided with downwardly-projecting fingers curved inward at their extremities, and part or all of said fingers provided with the hollow upwardly-projecting cones, substantially as described.

4. The combination, with a fire-pot constructed with a flange, *a*, of a grinding-grate consisting of the band located upon said flange, the band of said grate constructed with downwardly-projecting fingers curved inward at their extremities, said fingers concave on their inner faces and provided with any desired number of hollow cones projecting upward from their extremities, substantially as described.

5. The combination of the fire-pot having a projecting flange, the grinding-plate constructed with pendent fingers and suspended from the flange, a sliding grate below the lower extremities of the pendent fingers, and a ring supporting the sliding grate independently of the grinding-grate, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

DANIEL BRAZIER.

Witnesses:
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M. B. O'DOGHERTY.