

(No Model.)

T. RUDELL.

GRATE CLEANER AND CINDER AND ASH SEPARATOR.

No. 470,212.

Patented Mar. 8, 1892.

Fig. 2.

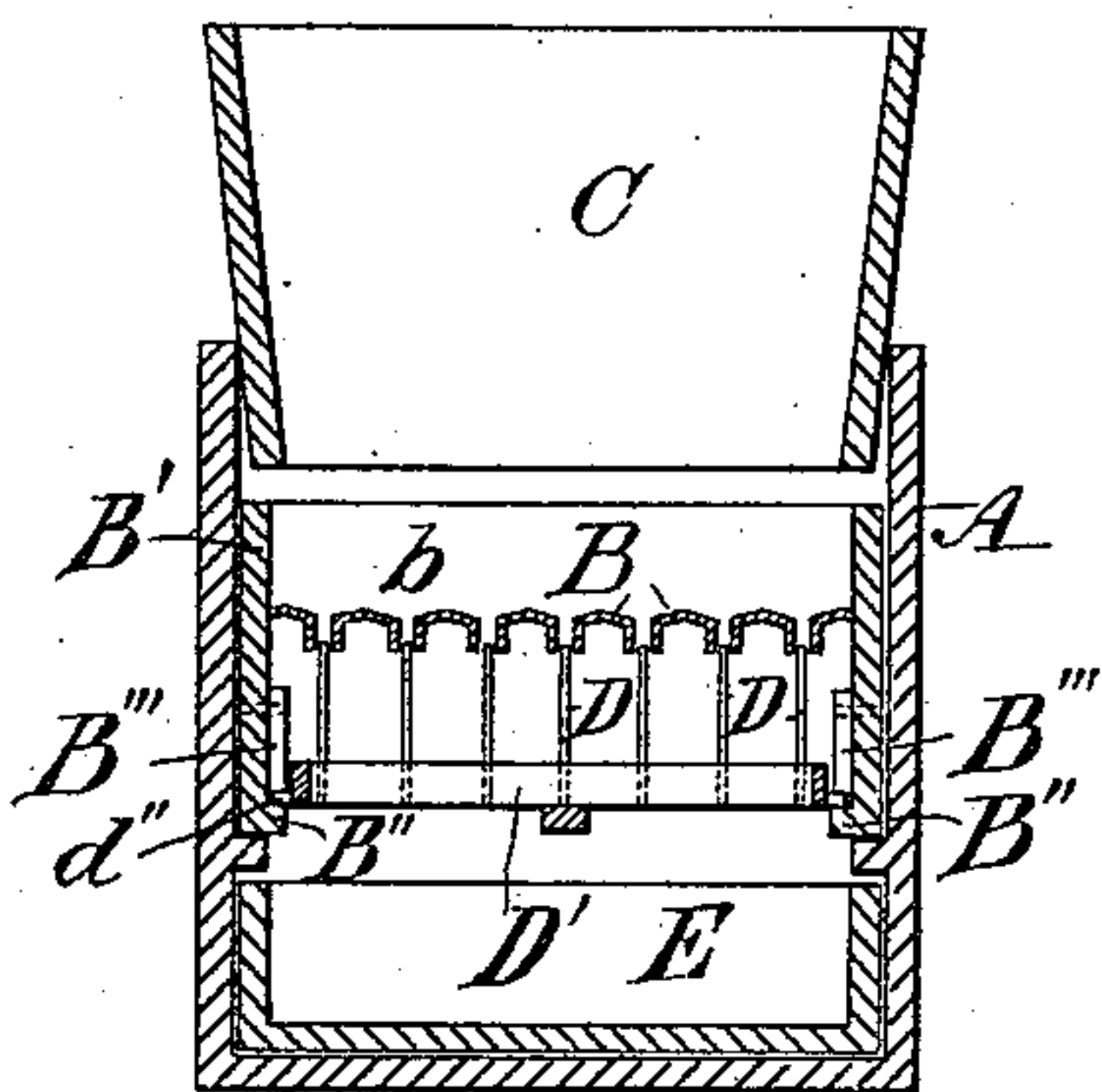


Fig. 1.

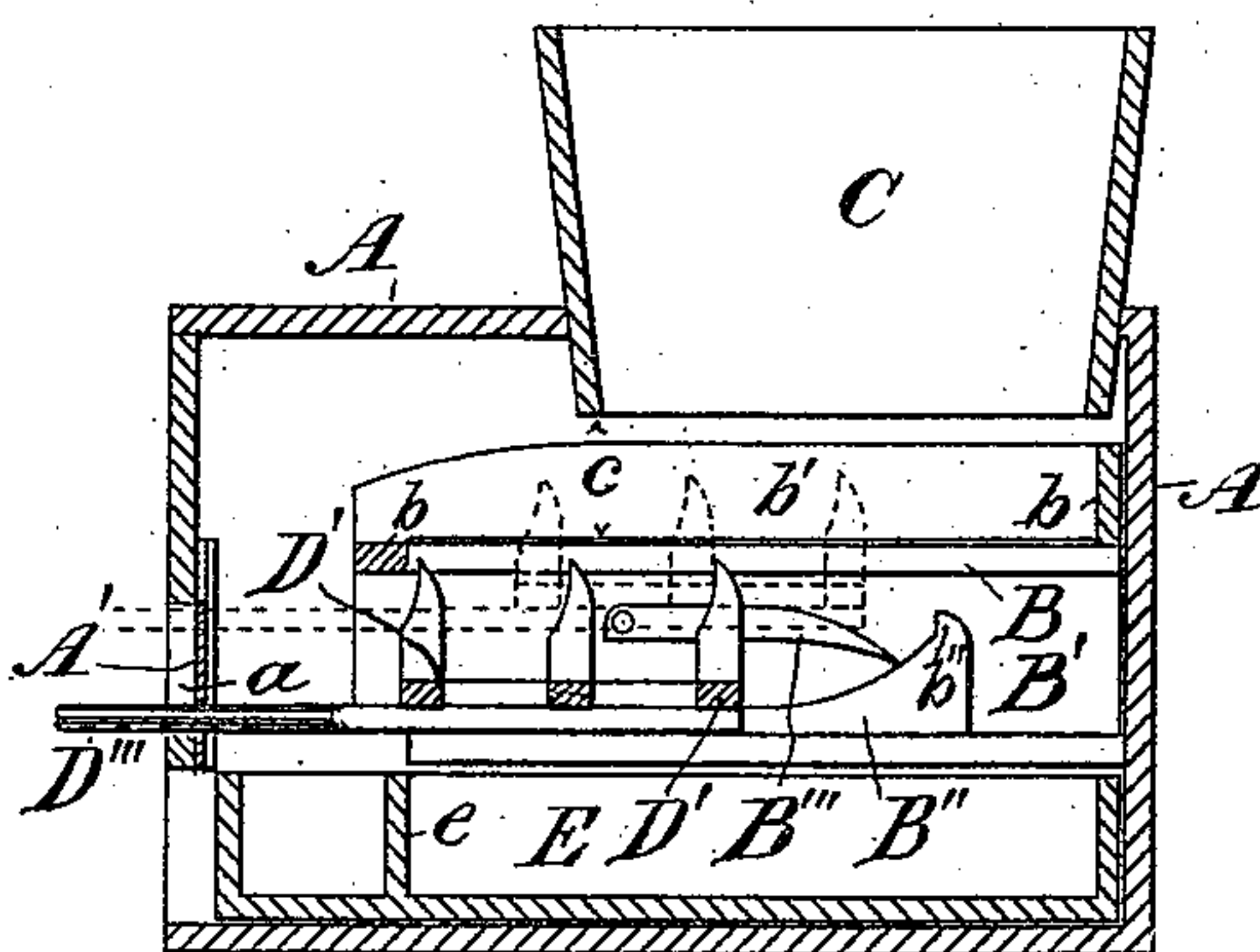


Fig. 3.

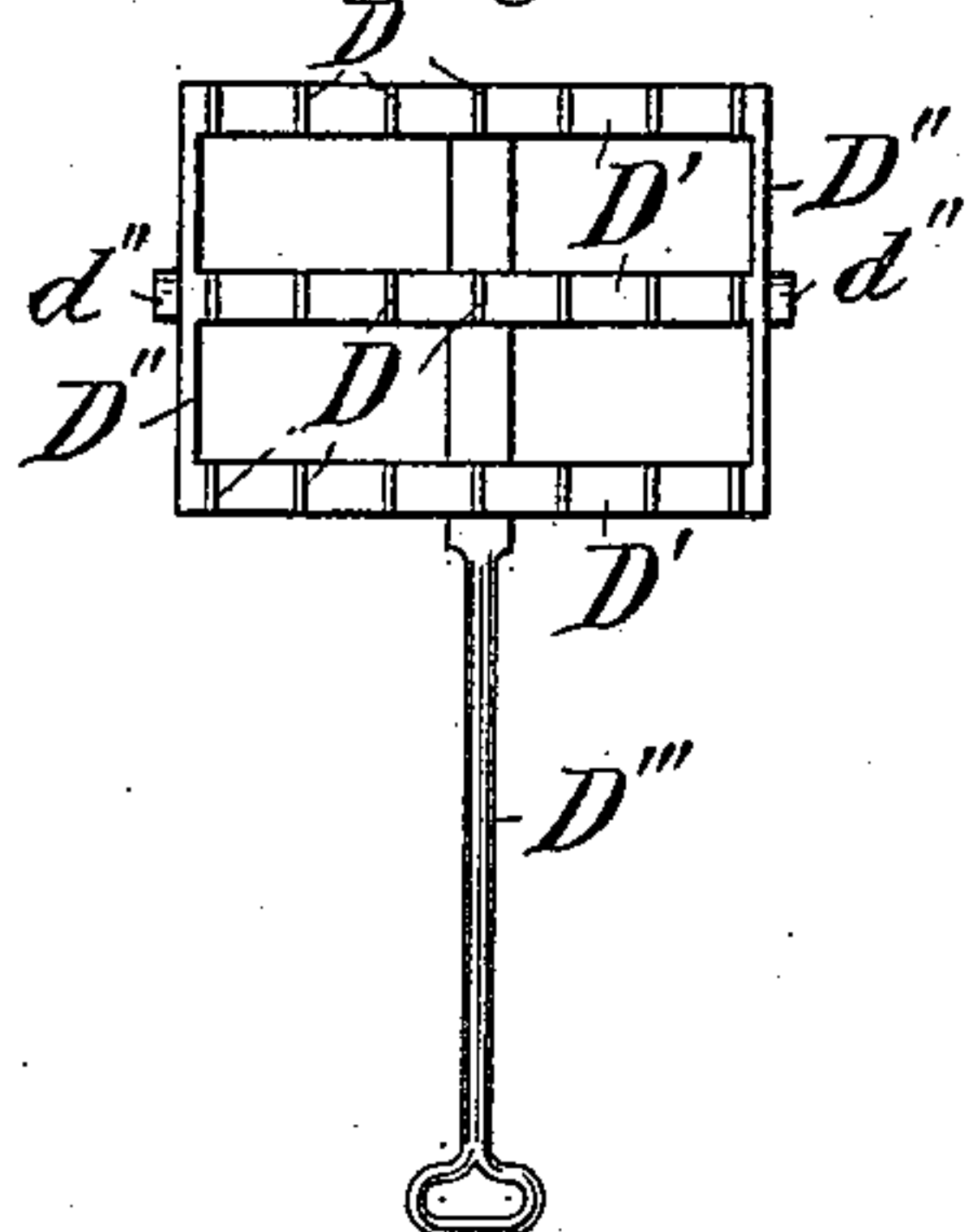


Fig. 4.

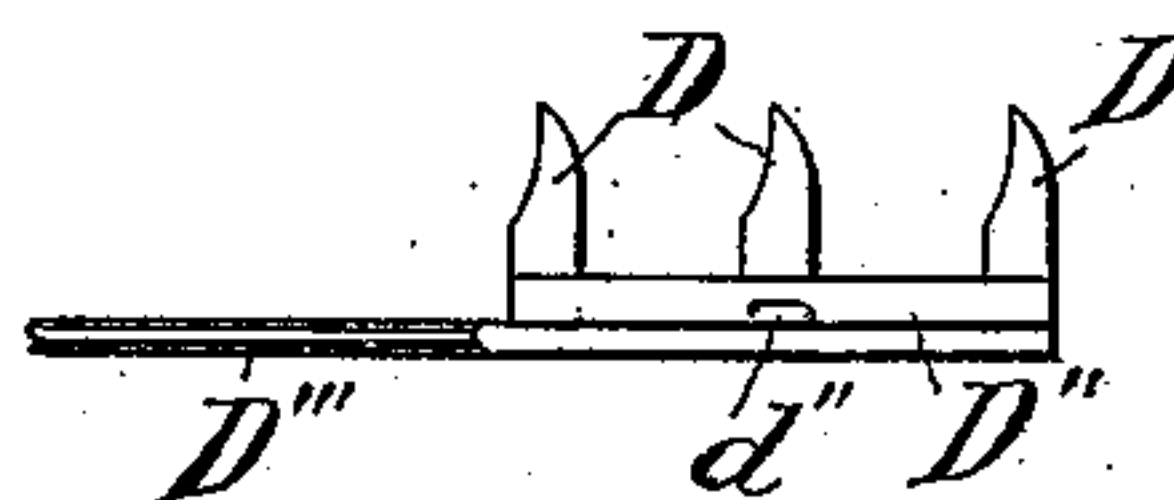


Fig. 6.

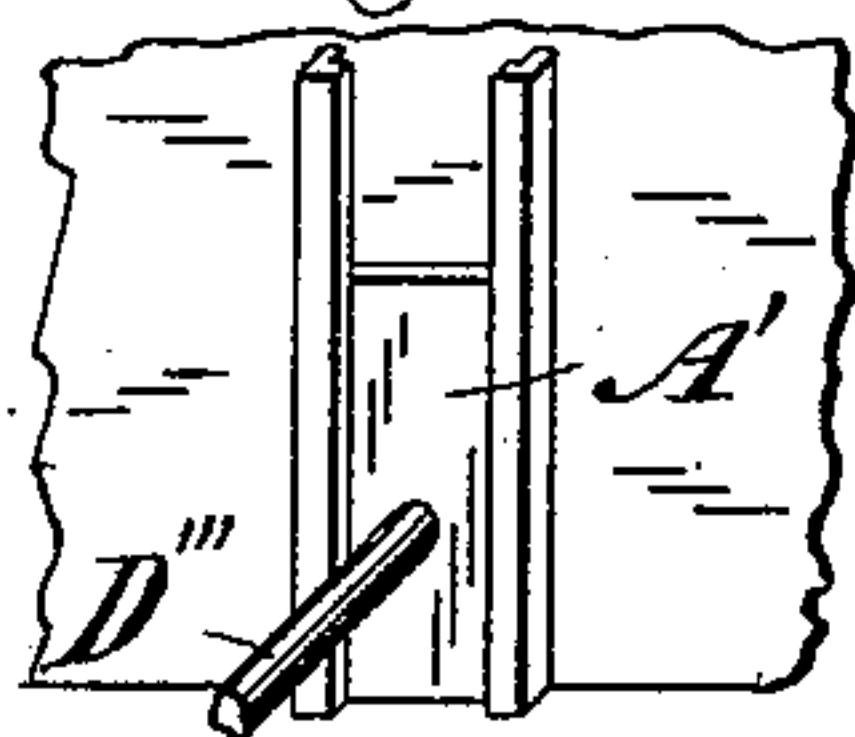
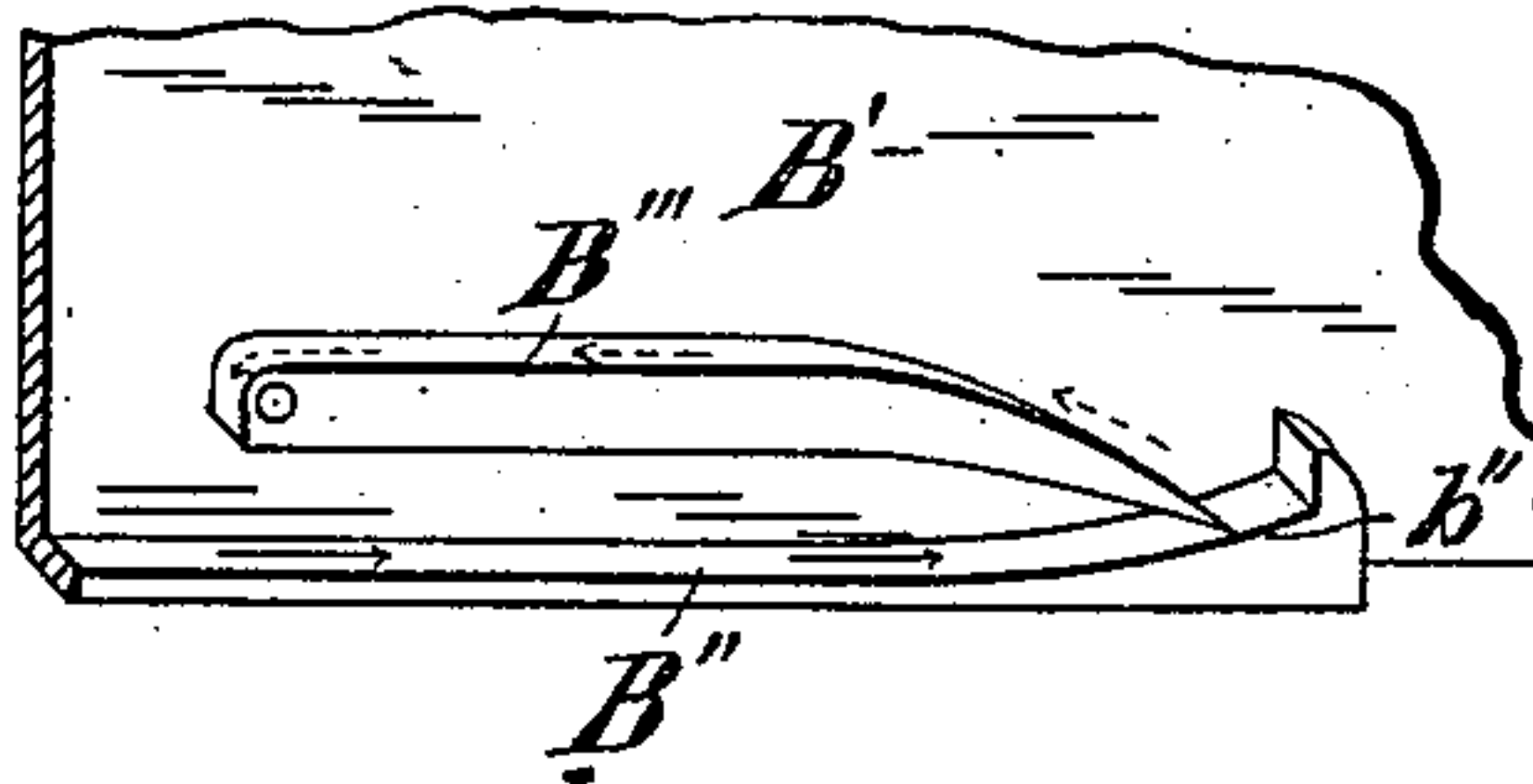


Fig. 5.



Witnesses:
Chas. Raley.
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UNITED STATES PATENT OFFICE.

THOMAS RUDDELL, OF OUSTIC, CANADA.

GRATE-CLEANER AND CINDER AND ASH SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 470,212, dated March 8, 1892.

Application filed May 14, 1891. Serial No. 392,692. (No model.)

To all whom it may concern:

Be it known that I, THOMAS RUDDELL, of Oustic, in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Grate-Cleaners and Cinder and Ash Separators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part hereof.

My invention, which will be hereinafter fully set forth and claimed, relates to fire-grates and devices for removing cinders and ashes from the same and for separating the cinders and ashes.

The object of my invention is to remove cinders and ashes from fire-grates effectually and to separate the cinders and ashes while dropping from the grate.

Figure 1 is a section of an ash-pit and fire-pot, taken parallel to the direction of the grate-bars, showing the rake moving backward and the dotted lines showing the rake moving forward, as indicated by arrows. Fig. 2 is a section of the same, taken transversely to the grate-bars. Fig. 3 is a top view of the rake. Fig. 4 is a side elevation of the same. Fig. 5 is a detail showing the runners for the rake and the pivoted latch-bearing diverting its course. Fig. 6 is a detail showing the self-adjusting bearing for the rake-handle at the front of the ash-pit.

A is the part of a furnace or stove inclosing the ash-pit B B'.

b is the grate, and C is the fire-pot. The grate consists of straight longitudinal bars B, having straight sides without obstructions of any kind, and are carried on bearers b at the front and rear, which are connected by the sides B'. These project above and below the grate-bars, said upper projection and the rear bearer b forming above the bars a rim b', nearly reaching to the lower edge of the fire-pot, and consequently causing the open space c between the fire-pot and grate-bars at the front.

B'', Figs. 1, 2, and 5, is a ledge or runner secured to or formed integrally with each frame-side B' at or near its lower edge, but not necessarily along its full length, and terminating at the rear with a slight upward incline and hook or stop b''. Said runners are

some distance below the bars B and parallel with each other.

B''' is a latch-bearing having its front end pivoted to the frame-side B', one to each side, under the grate-bars and above the runner B'', and terminating at the rear in a point curved downward, which when in its normal position rests upon the inclined end b'' of the runner a little distance from the hook or stop.

A rake consisting of several cross-bars D', provided with flat teeth D, pitched to fit the spaces between the grate-bars and secured to sides D'', each of which is provided with a pintle or bearing d'', and to the central bar or handle D''', is placed under the grate and slides by said pintles upon the runners B''. The teeth D are of sufficient length to keep in engagement between the grate-bars when in their lowest position, and the latch-bearings B''' are pivoted sufficiently high above the runners as to allow the pintles d'' to pass freely under the pivot-joint when the rake moves rearwardly, sufficient space being also allowed between the points of the latch-bearings and the stops b'' that the pintles clear said points. The rake-handle D''' passes through a plate A', held in guides inside the front of the casing A, said plate being at liberty to slide up or down to adapt itself to the position of the handle and covering a large slot a in the front of the casing, in which the handle plays while moving backward and forward. The movement or length of traverse of the rake may be limited to a little more than the distance between two teeth longitudinally—i. e., between two bars D'. In large grates the rake may be in two or more sections transversely, in which case extra runners and latch-bearings to suit the requirements must of course be provided with a corresponding pair of slots a and plates A' to accommodate the rake-handles.

E is an ash-pan placed in the bottom of the ash-pit and under the runners B''. It is provided with a transverse partition e, which forms a small compartment in the front part of the pan, designated to receive the cinders, while the ashes drop in the rear part. If desired, two separate pans can be used instead, one for cinders and the other for ashes.

To clear the grate of cinders and ashes and to separate one from the other, the rake is

moved forward and backward by drawing out and pushing in the handle D'''. When the rake is pushed back, the pintles d'' have passed the points of the latch-bearings B''' and rest upon the runners B'' against the stops b''. When drawn forward, the pintles mount upon and slide over the latch-bearings, the teeth D thereby rising correspondingly, breaking up the ashes, and drawing the clinkers and cinders before them to the front, where they drop in the front part of the pan. As soon as the pintles have passed the heels of the latch-bearings the rake drops on the runners B'' again, and on being pushed back the pintles slide along the runners and pass under the latch-bearings, the teeth D thus not acting except during the forward stroke.

I claim as my invention—

1. The combination of the grate-bars B, suitably supported, runners B'' under and parallel to said bars, latch-bearings B''', pivoted at their forward ends between the runners and bars and having their rear ends pointed and resting on the rear end of said runners, and a rake consisting of teeth D, engaging the spaces between the bars and secured to a frame adapted to slide upon the runners B'' and latch-bearings B''' and provided with a handle extending through the furnace-front, substantially as set forth.

2. The combination of grate-bars B, transverse bearers b, supporting said bars, side plates B', supporting said bearers and projecting above and below said bars and forming with the rear bearer b a rim above said bars, runners B'', formed on the lower edge of said sides, and a latch-bearing B''', pivoted to each side above the runner and having a pointed rear end resting on said runner, substantially as set forth.

3. The combination of a boxing A, inclosing a grate and ash-pit, a grate-frame supported by said boxing and consisting of sides B' and transverse bearers b, placed below the upper edge of the sides so as to leave a rim b', grate-bars B, supported by said bearers, parallel runners B'' on the lower edge of the sides, a latch-bearing B''', pivoted by its front end to each side and above the runner, the rake consisting of cross-bars D', with teeth D, secured to sides D'', having pintles d'', and to a bar or handle D''', and a sliding plate A' inside the front of the boxing A, through which said handle passes, substantially as set forth.

In testimony whereof I have signed in the presence of the undersigned witnesses.

THOS. RUDELL.

Witnesses:

J. L. MCKAY,

CHARLES W. FLEWWELLING.