

(No Model.)

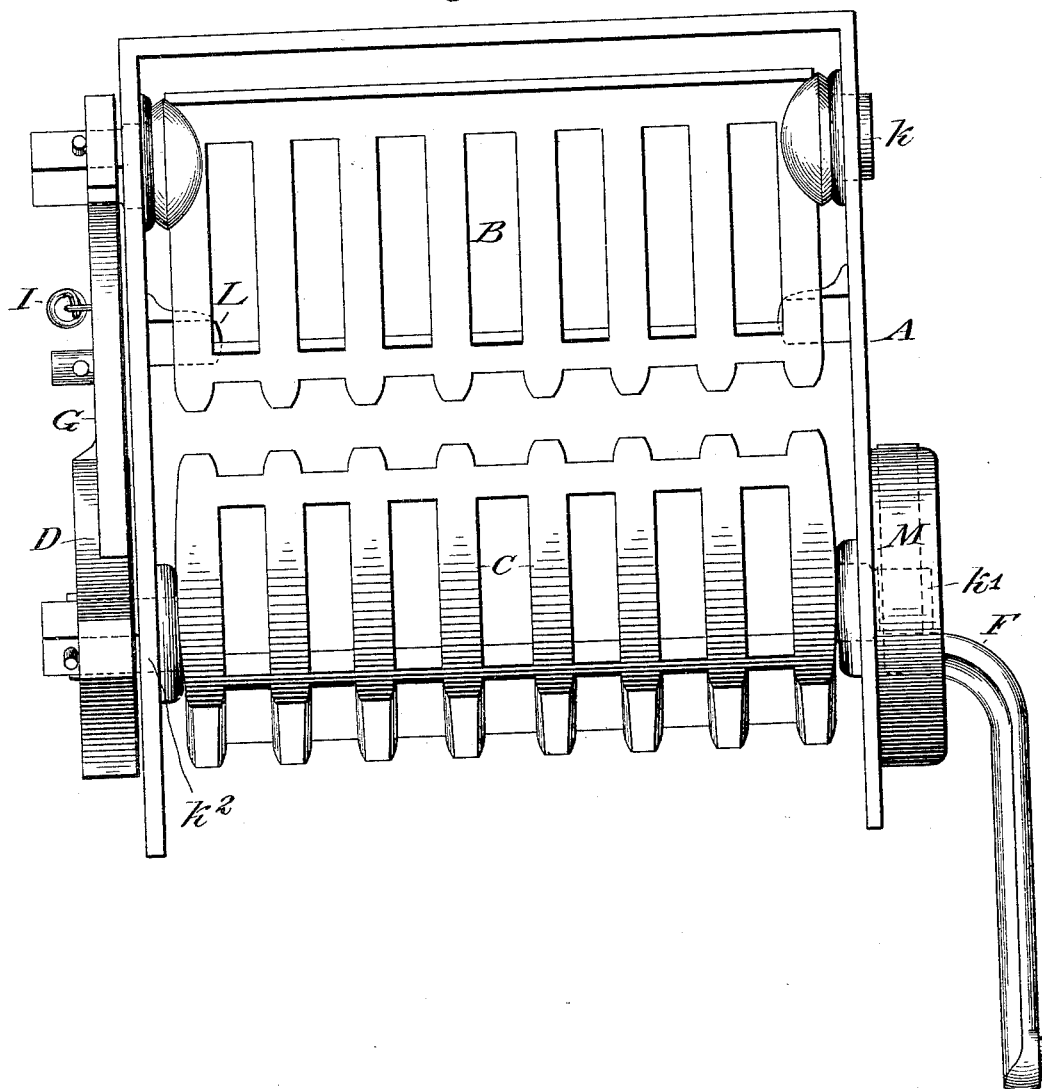
2 Sheets—Sheet 1.

W. BUCK.  
FURNACE, STOVE, OR RANGE GRATE.

No. 419,178.

Patented Jan. 14, 1890.

*Fig. 1.*



Witnesses:  
*Philip Buck*  
*H. J. Linsgood*

Inventor:  
*William Buck*

(No Model.)

2 Sheets—Sheet 2.

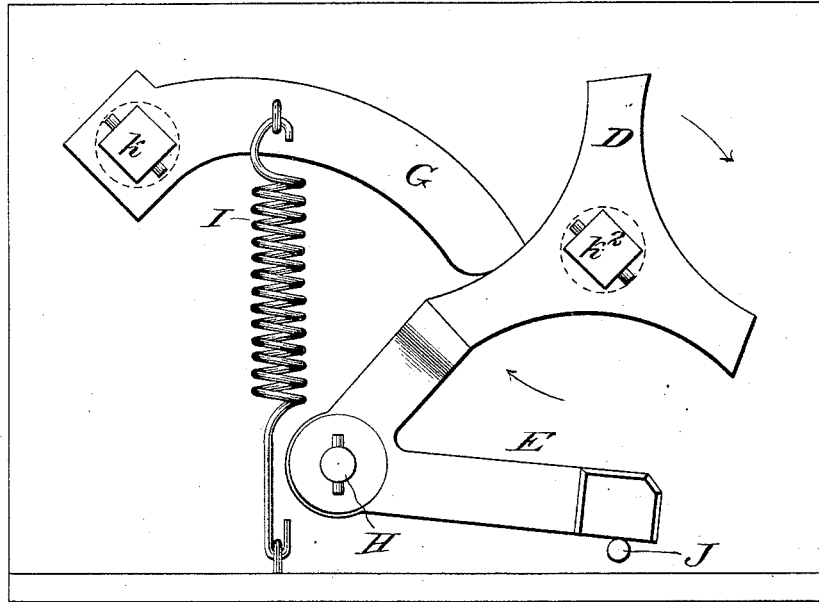
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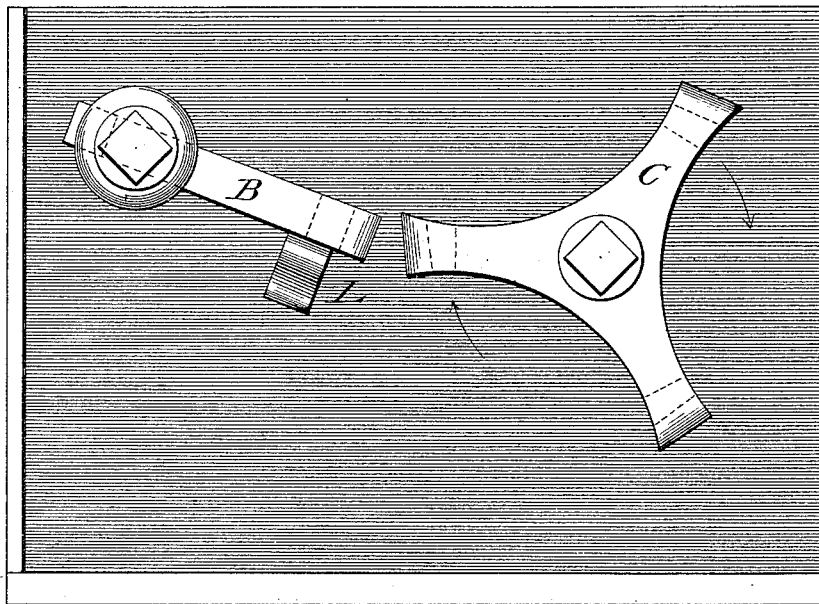
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*Fig. 2.*



*Fig. 3.*



*Witnesses:*

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*William Buck*

# UNITED STATES PATENT OFFICE.

WILLIAM BUCK, OF BRANTFORD, ONTARIO, CANADA.

## FURNACE, STOVE, OR RANGE GRATE.

SPECIFICATION forming part of Letters Patent No. 419,178, dated January 14, 1890.

Application filed May 22, 1889. Serial No. 311,720½. (No model.) Patented in Canada January 19, 1888, No. 38,390.

*To all whom it may concern:*

Be it known that I, WILLIAM BUCK, a citizen of the Dominion of Canada, residing at the city of Brantford, in the county of Brant and Province of Ontario, Canada, have invented a new and useful Range, Stove, or Furnace Grate, (for which I obtained a patent in the Dominion of Canada on the 19th day of January, A. D. 1888, No. 38,390,) of which the following is a specification.

My invention relates to improvements in a range, stove, or furnace grate in which a triangular rotatory section is operated in conjunction with a vibratory section; and the object of my improvement is to afford an easy, reliable, and efficient working-grate, by which the fire may be thoroughly cleaned of clinkers and ashes. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the grate. Fig. 2 is an end view of the fire-box, showing the cam-wheel, lever, balance-pawl, and spiral spring. Fig. 3 is an end view of triangular rotatory section and the vibratory section of the grate.

Similar letters refer to similar parts throughout the several views.

A is the fire-box, in which the two grate-sections B and C are journaled. The vibratory section B has two journals  $k$ , on which it oscillates. They are located as near the rear of the fire-box as practicable. One of these journals  $k$  extends through the side of the fire-box A a short distance, the projecting part of which is made square, and on which is placed the lever G, which has a squared opening for the reception of the projecting part of journal  $k$ . The lever is held in place on the journal by a pin which passes through the end of the journal, in a hole drilled in the square part thereof. On the inside of the fire-box A there are two lugs LL, on which the vibratory section B falls. The spiral spring I is fastened to the lever G and to the bottom or side of the stove or furnace. The lever G being attached to the journal  $k$  of the vibratory section B, and the spiral spring I being attached to the lever G and to the bottom of the stove or furnace, the vibratory section B, after it reaches its highest point, is caused to descend with a greater speed

than if the spring were not used. The triangular rotatory concave section C has two journals  $k'$  and  $k^2$ , resting in the fire-box A, on which it rotates. The journals  $k'$  and  $k^2$  project through the fire-box A a short distance, the projecting parts being squared on one end.

The handle F is applied in order to turn the section C, the handle having a square opening in it corresponding with the size of the shaft  $k'$ . On the squared projecting part of the journal  $k^2$  is located the cam-wheel D. To hold the cam-wheel on the journal  $k^2$ , a hole is drilled through the journal and a pin inserted therein.

E is the balance pawl or stop, fulcrumed on a pin II, which locks the triangular rotatory concave section C at a certain point and time, preventing said section C from being turned backward. This balance lever or pawl E has a stop J underneath it. By this means the heavy end of the pawl can drop only a certain distance. The pins H and J are fastened to the fire-box A.

In Fig. 3 is shown an end view of the two sections B and C. The journals of section B are placed much nearer the top of the fire-box A than the journals of section C. It will be seen that section B, when standing in its dormant position, inclines downward toward the triangular rotatory concave section C. The ashes and cinders that slide down section B are caught by the concave section C and dumped out at the front of the stove, and are caught in the usual manner. The direction section C is turned is designated by the arrows.

The stop or guard M, projecting out from the fire-box A, prevents the handle F from making more than one-third of a revolution at one operation.

Having now described the different parts of my invention, its mode of operation is described as follows: The handle F is placed on the journal  $k'$  of the triangular rotatory section C in a perpendicular position. The cam-wheel D is fastened on the opposite journal  $k^2$ . The lever G is fastened on one of the journals  $k$  of the vibratory section B. The other end of the lever rests in one of the cams of the cam-wheel D. The balance-lever or lock E is in its proper place, as shown, for the purpose of locking the section C, pre-

venting it from being turned backward. The handle F is turned the way indicated by the arrows in Figs. 2 and 3, and is only turned one-third of a revolution at a time, thus giving the vibratory section B one vibration. The locking device has now assumed its proper position again, as shown in Fig. 2. The ashes and clinkers, by this motion of the handle F, are removed from the fire. Said motion can be repeated as often as and whenever found necessary.

I am aware that prior to my invention rotatory and vibratory grates have been made. I therefore do not claim such a combination, broadly; but

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

In a range, stove, or furnace grate, the

combination of the triangular concave rotatory section C and the vibratory section B, co-operating with each other, the vibratory section B and the triangular concave section C having journals  $k$   $k'$  and  $k''$ , respectively, on which they operate in the fire-box A, the lever G, fastened to the journal  $k$  of the vibratory section B, and the cam-wheel D, fastened on the journal  $k''$  of the triangular concave rotatory section C, and against which the lever G rests, the brackets L L, the spring I, and the balance fulcrumed lever or lock E, all substantially as shown, and for the purpose specified.

WILLIAM BUCK.

Witnesses:

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