

(No Model.)

J. W. HILTON.  
STOVE OR HEATER.

No. 494,809.

Patented Apr. 4, 1893.

FIG. 1.

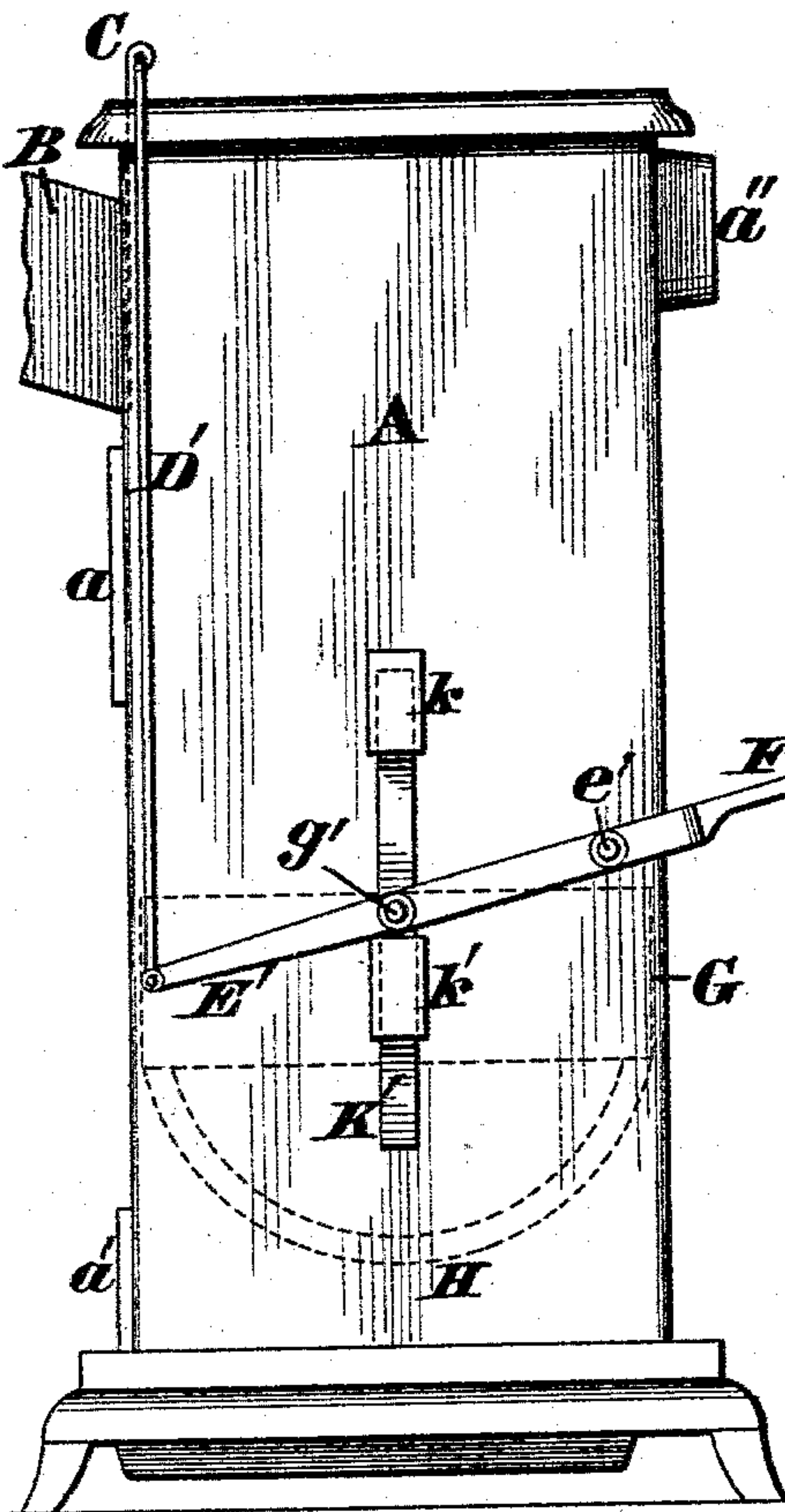


FIG. 2.

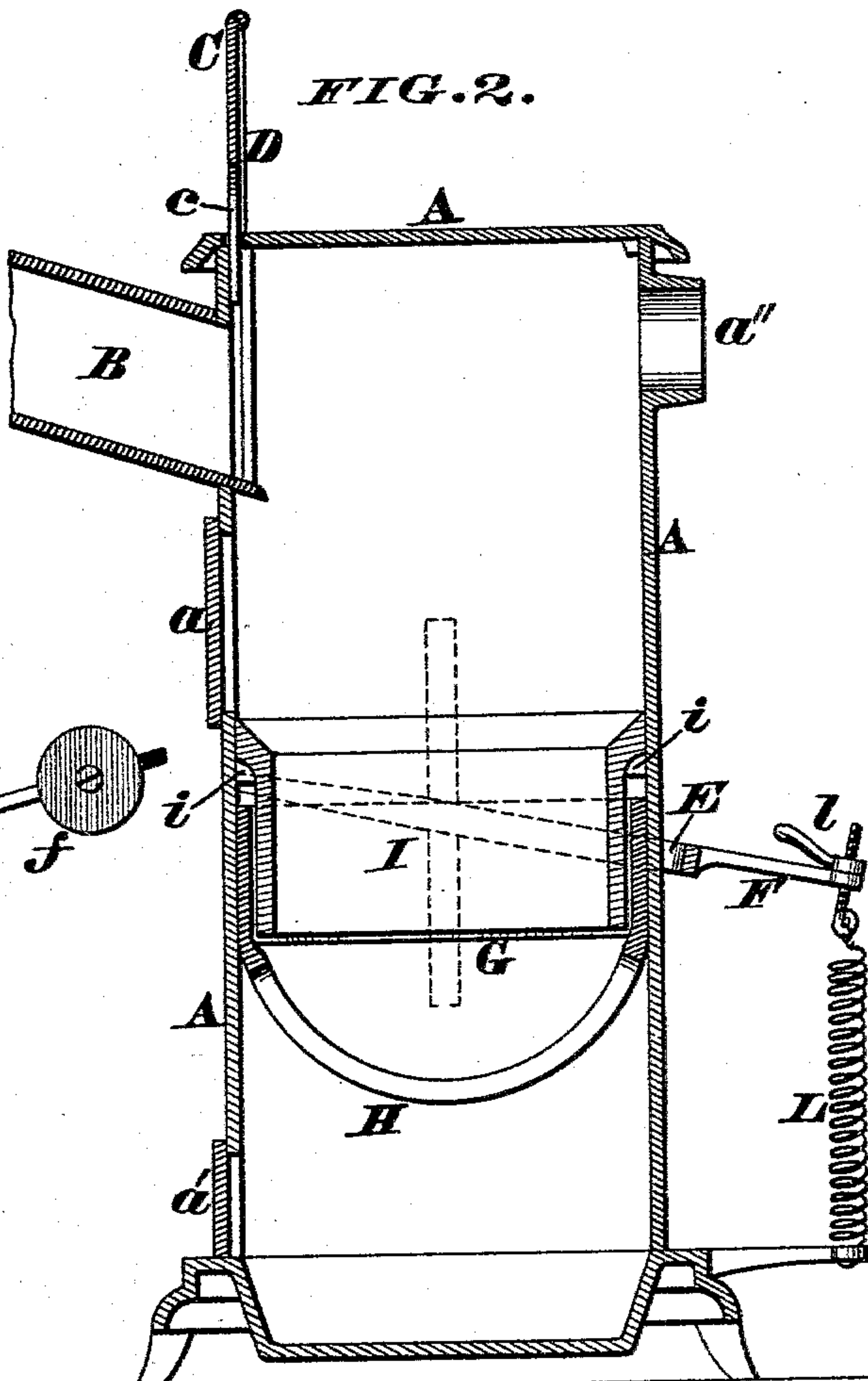


FIG. 3.

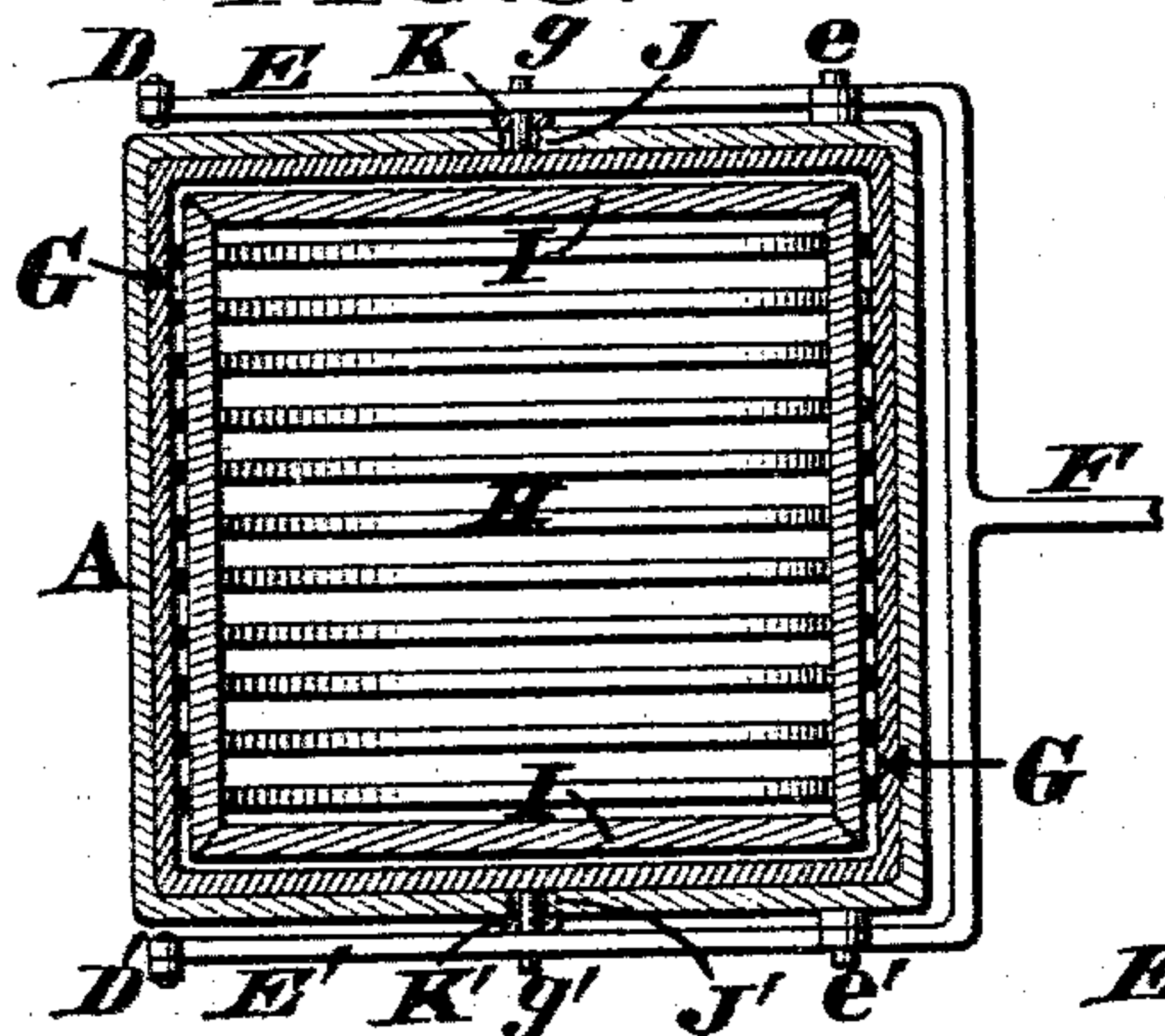


FIG. 4.

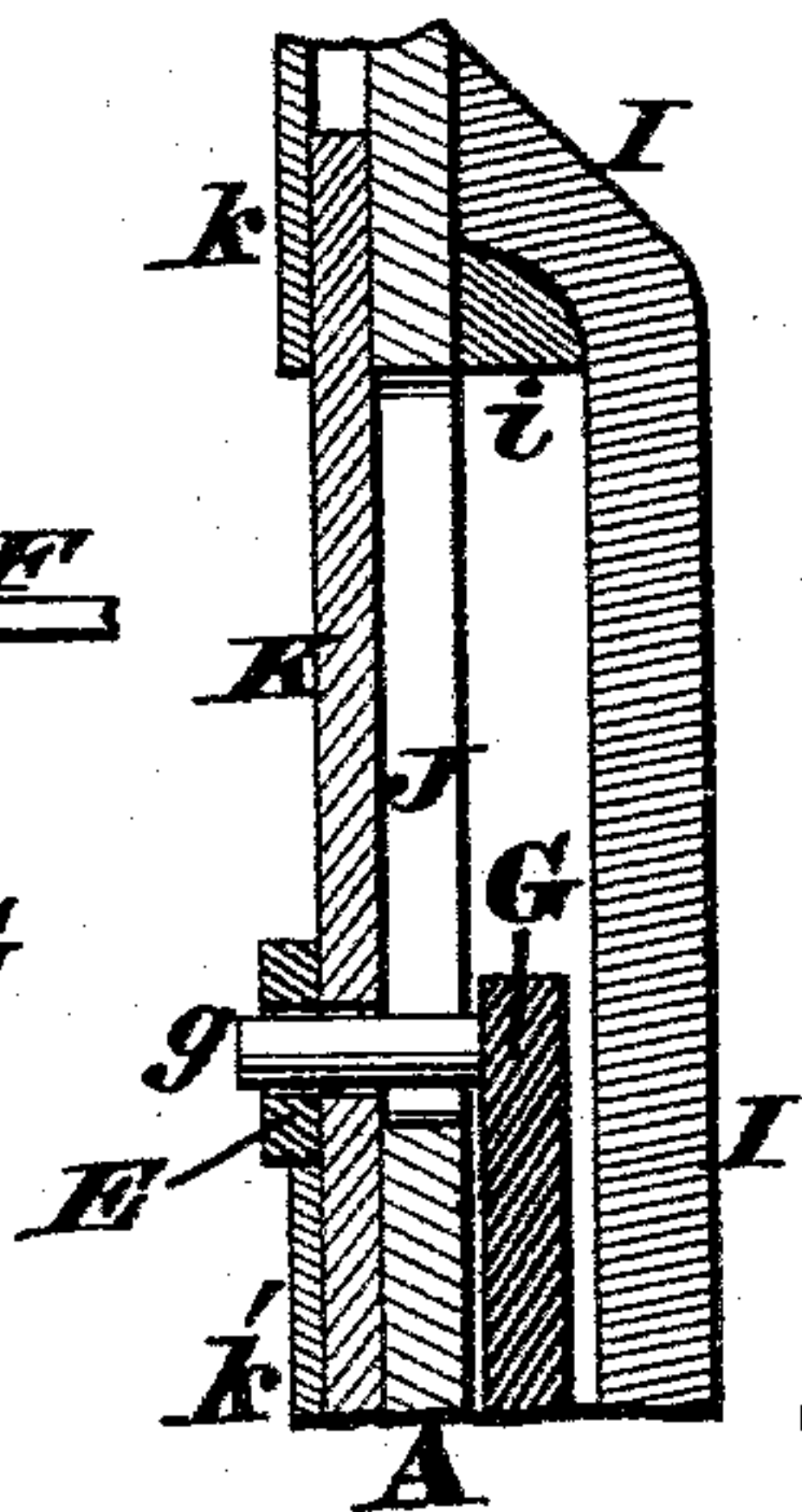
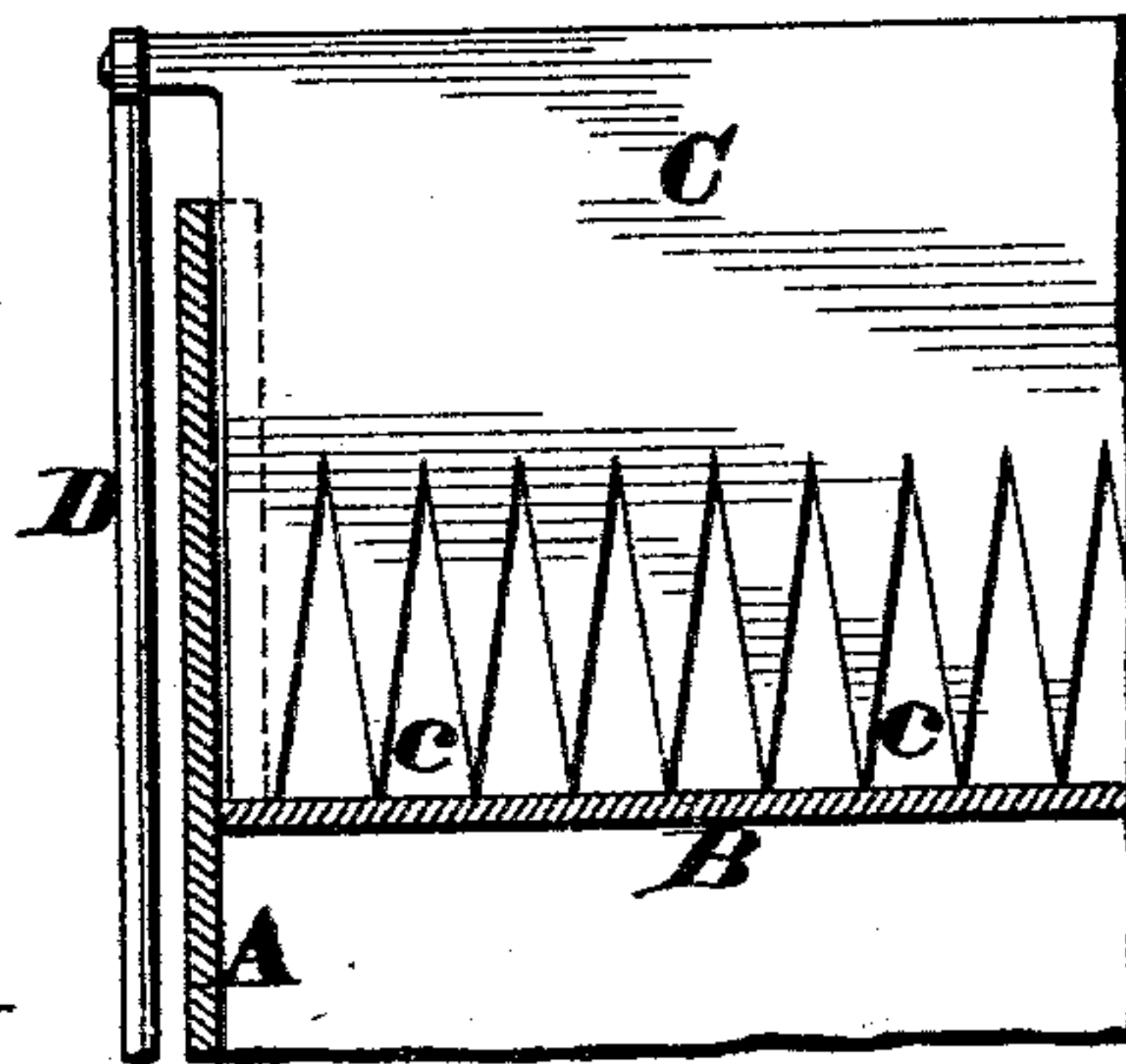


FIG. 5.



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# UNITED STATES PATENT OFFICE.

JOHN W. HILTON, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO  
BENJAMIN P. NEWELL, OF SAME PLACE.

## STOVE OR HEATER.

SPECIFICATION forming part of Letters Patent No. 494,809, dated April 4, 1893.

Application filed December 27, 1892. Serial No. 456,417. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. HILTON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Stoves and Heaters; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form part of this specification.

The object of my invention is to construct a stove or other similar heating-apparatus in such a manner as to insure an automatic charging of the furnace when the fuel therein has burned down to a certain level, which result is accomplished, as follows. The grate of the apparatus is so arranged as to be moved up and down within the shell or casing, and is usually suspended from an external lever provided with an adjustable weight, or its equivalent, which weight can be so applied as to cause an upward shifting of said grate, at the proper time. Furthermore, this lever is adapted to operate a cut-off at the lower end of an inclined chute communicating either with an elevated bin or magazine containing the coal or other fuel. The arrangement of these devices is such as to keep the cut-off closed while the furnace is full, but before the fire in the same gets too low, the weight on the lever elevates the grate, opens the cut-off, and thus re-charges the apparatus, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a side elevation showing my improvements applied to a heating-stove, the grate and cut-off being in their normal positions. Fig. 2 is a vertical section taken from front to rear of the stove, the grate and cut-off being elevated to permit the recharging of the furnace. Fig. 3 is a horizontal section of the stove, taken in the plane of the lever-pivots *e. e'*. Fig. 4 is an enlarged vertical section through one of said pivots and its accessories. Fig. 5 is an enlarged front elevation of a portion of the cut-off.

A represents the outer shell or casing of a stove or other similar heating-apparatus, which casing is represented as square in transverse section, although it may be made circular or of other desired shape. *a* represents

the furnace door of this casing, *a'* the ash-pit door, and *a''* the neck to which the smoke pipe is applied. Attached to the front plate of this casing, and near the top of the same, is an inclined chute B, leading to a coal-bin, or stove-magazine or other elevated source of fuel supply, the delivery end of said chute being normally closed with a reciprocating cut-off C, whose lower margin is, preferably, provided with a series of V-shaped slots *c*, as represented in Fig. 5. This cut-off is confined to a proper path by guides within the casing, and is operated by a pair of external rods D, D', whose lower ends are coupled to the forks E, E', of a lever F, said forks being pivoted to said casing at *e. e'*, as seen in Fig. 3.

*f* is a shiftable weight carried by lever F. Passing through these forks are studs *g. g'*, projecting horizontally and outwardly from a square box or frame G, adapted to be readily moved up and down within the casing A. This box is open at top, but provided at bottom with grate-bars H, having, usually the semi-circular shape seen in Fig. 2.

I is a furnace lining resting upon bearers *i. i'* of the shell or casing, the sides of which latter are slotted vertically at J. J'. to permit free play of the studs *g. g'*, and the slots being covered with slides K. K', that traverse guides *k. k'*, as more clearly seen in Fig. 4.

The operation of this heating-apparatus is, as follows. The weight *f* is first properly adjusted to compel an elevation of the grate H before the fire in the furnace has burned entirely out, which adjustment is all the attention the stove requires. Therefore, when the stove is charged with fuel the weight of the same will force the grate down to the position indicated by dotted lines in Fig. 1, thereby closing the cut-off C, and preventing any further supply of coal, for the time being. But as the coal is consumed, the weight in the grate gradually diminishes, and when the fuel has burned down to a certain level, the load becomes less than the weight *f*. Consequently, when this level is reached, said weight automatically lifts the grate to the position seen in Fig. 2, and as the cut-off C moves in unison with the grate, said cut-off is accordingly opened. A supply of fuel now runs from the chute B directly down into the furnace, and



as soon as it is properly filled, the accumulated weight depresses the grate, thereby closing the cut-off C and preventing any further admission of coal. This descent of the grate is somewhat sudden and produces sufficient concussion to rattle out the ashes and cinders, which fall into the pit at the base of the stove.

In the modification of my invention, seen in Fig. 2, the weight is omitted from lever F, and a spring L substituted therefor, the pull of which spring is regulated by a tension device

7. In another modification, an outer jacket may surround the stove, so as to conceal the forks, slides and other operative parts, or these parts may be located within the casing, but as such an arrangement would expose them to the intense heat of the furnace, it would be objectionable in some cases.

I claim as my invention—

1. The combination, in a heating-apparatus, of a reciprocating-grate, a weighted lever supporting said grate, and a cut-off having suitable connections, whereby it is opened when said grate is elevated, and closed when said grate is lowered, substantially as herein described, and for the purpose stated.

2. The combination, in a heating-apparatus, of a vertically-slotted casing A J J', forked lever E E' F, pivoted thereto, reciprocating grate H, fitted within said casing and furnished with a pair of studs *g. g'*. and slides K, K', applied to the exterior of said casing, said studs *g. g'*. being passed through the slots J. J'. and engaged with said slides K, K', and forks E, E', as herein described, and for the purpose stated.

3. The combination, in a heating-apparatus, of a casing A, having vertical-slots J, J', a forked lever E E' F, pivoted to said casing and carrying a weight *f*, a cut-off C, coupled to said forks E, E', by rods D, D', and a reciprocating grate H, fitted within said casing and having studs *g. g'*. that traverse said slots J. J'. and engage with said forks, all as herein described, and for the purpose stated.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. HILTON.

Witnesses:

JAMES H. LAYMAN,  
BENJ. P. NEWELL.