

(No Model.)

2 Sheets—Sheet 1.

J. STEVER.

ADJUSTABLE GRATE FOR STOVES AND FURNACES.

No. 327,615.

Patented Oct. 6, 1885.

Fig. 1.

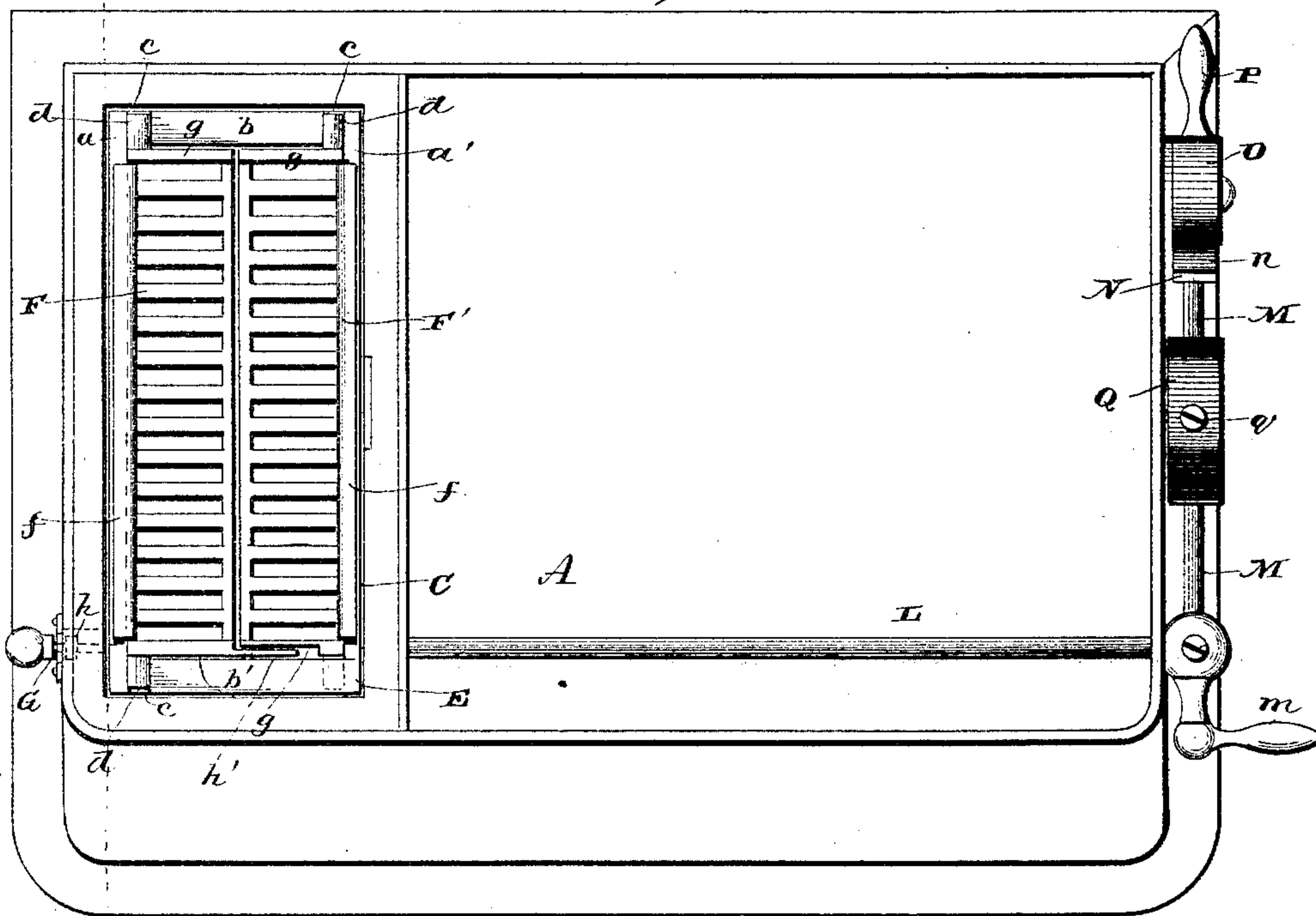
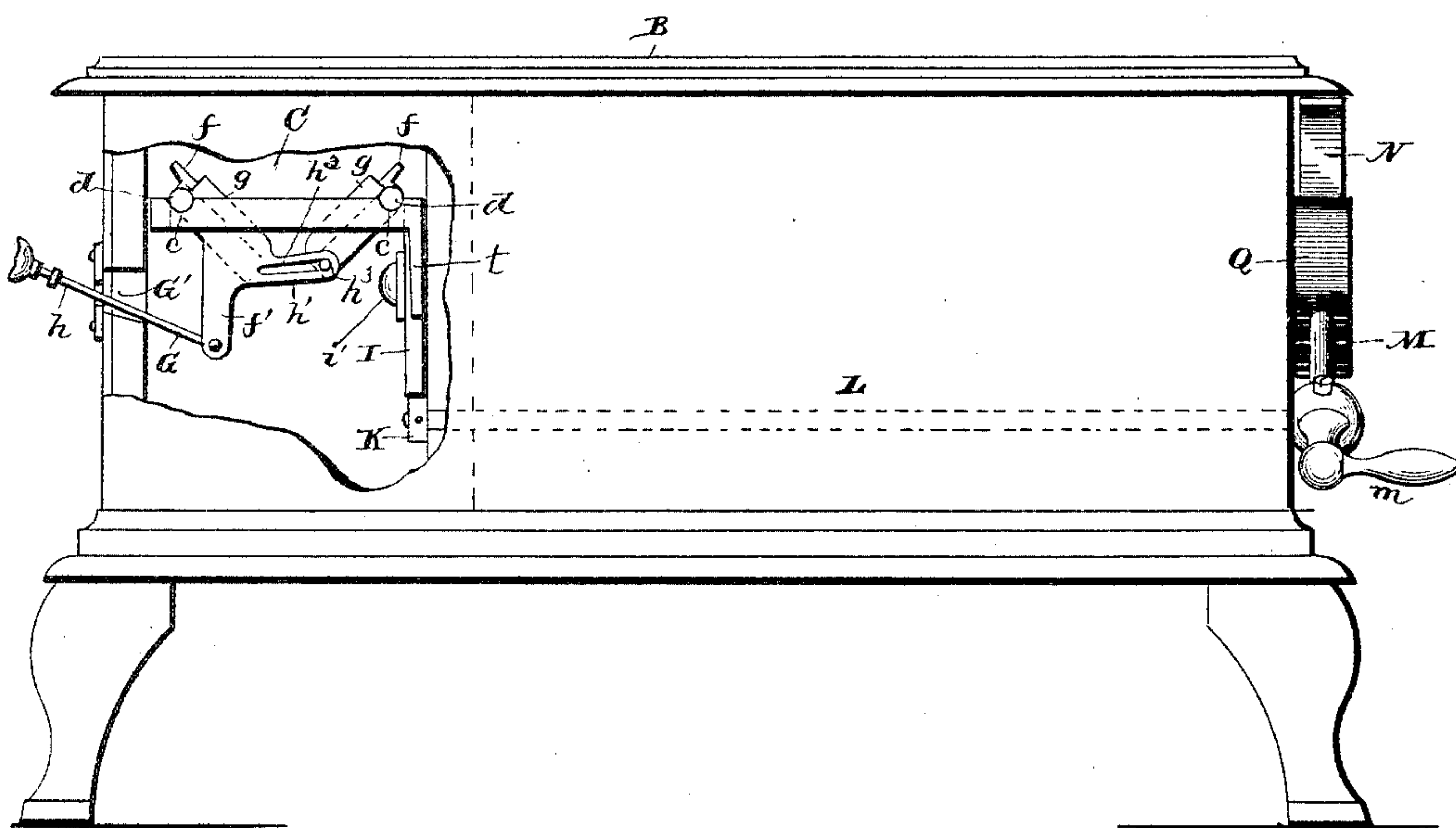


Fig. 2.



WITNESSES

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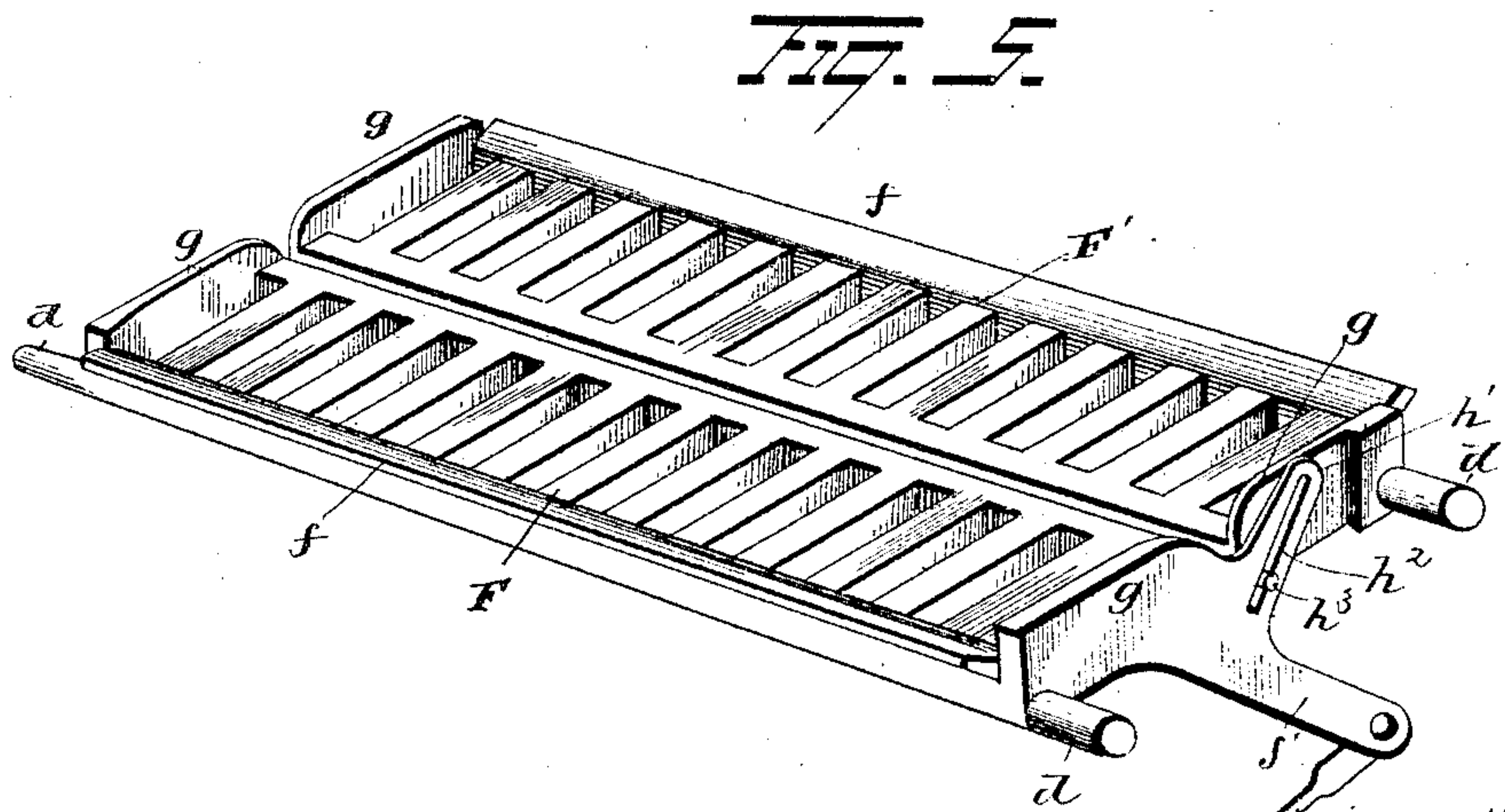
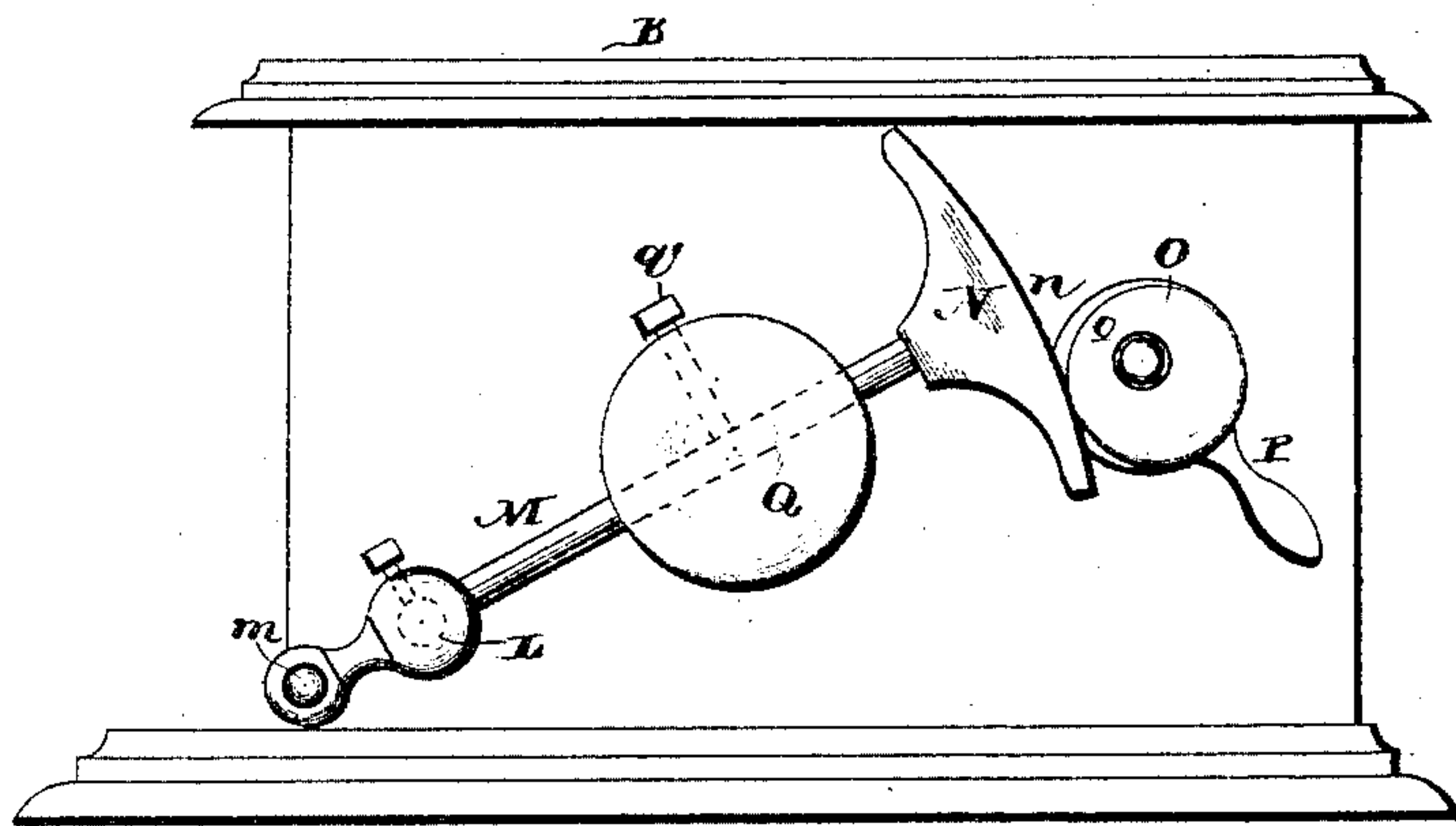
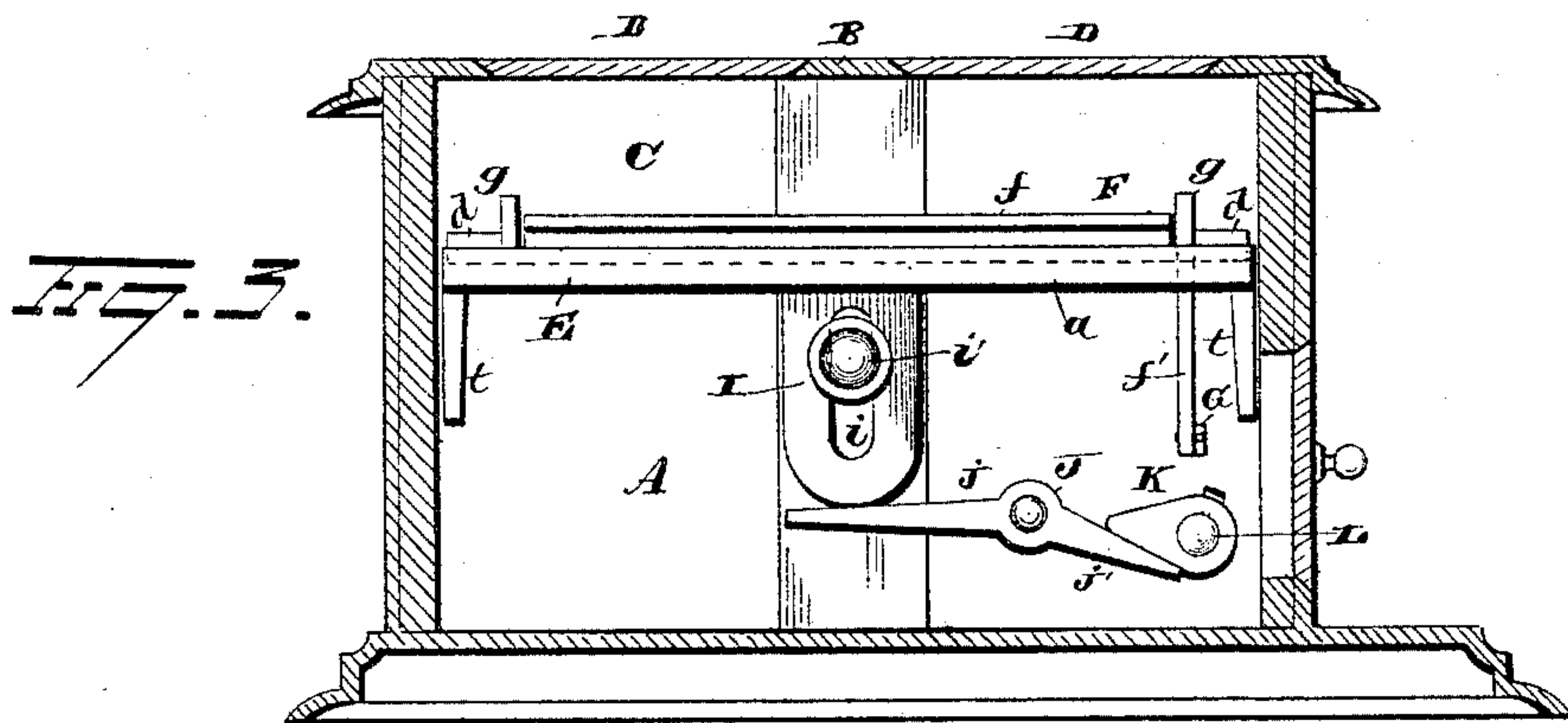
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UNITED STATES PATENT OFFICE.

JEREMIAH STEVER, OF BRIDGEPORT, ASSIGNOR OF ONE-THIRD TO ISAAC EDWARD BOOTH, JR., OF TRUMBULL, CONNECTICUT.

ADJUSTABLE GRATE FOR STOVES AND FURNACES.

SPECIFICATION forming part of Letters Patent No. 327,615, dated October 6, 1885.

Application filed September 18, 1884. Serial No. 143,410. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH STEVER, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain
5 new and useful Improvements in Adjustable Grates for Stoves and Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art
10 to which it appertains to make and use the same.

My invention relates to an improvement in adjustable grates for stoves and furnaces, the object being to provide improved means for
15 regulating the vertical adjustment of the bed of fuel on a grate while the fuel is being consumed; and with this end in view my invention consists in certain features of construction and combination of parts, as will herein-
20 after be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improvement as applied to a cooking-range. Fig. 2 is a side view
25 showing the position of the grate-sections when the ashes and cinders are dumped. Fig. 3 is a section on line *x x* of Fig. 1. Fig. 4 is an end elevation of the stove, showing the devices for regulating the movement of the
30 grate; and Fig. 5 is a detached view of the grate.

A represents a cooking-range; B, the top of the range; C, the fuel-chamber, and D the stove-openings for the insertion of kettles, &c.
35 Within the fuel-chamber C is placed a rectangular grate-frame, E, consisting of the front and rear bars, *a a'*, and side bars, *b b'*, the latter being provided with half-bearings *c*, in which are supported and journaled the trunnions *d*,
40 formed on the opposite ends of the pivoted grate-sections F F'. Each grate-section is constructed with a raised flange, *f*, which serves to prevent the fuel from falling onto the front and rear bars, and with raised flanges *g* that
45 prevent the fuel from falling onto the side bars.

Grate-section F has a depending arm, *f'*, formed or secured to one of the ends. To the lower end of arm *f'* is pivotally connected

the rod G, which extends through an opening, 50
G', in the end of the range, and is provided with a knob and collar, *h*. The end of grate-section F is also provided with an outwardly-projecting arm, *h'*, having an elongated slot, *h''*, within which is received a stud, *h'''*, on the 55
free end of grate-section F. By forcing the rod G inwardly the free ends of the grates are simultaneously raised to a horizontal position and locked against displacement by engaging the collar *h* with the edge of the opening G'. 60
To dump the grate, it is simply necessary to raise the rod G slightly, so as to disengage the collar *h* from the edge of the opening G', when the grate-sections will swing downwardly on their trunnions and dump the fuel or cinders 65
into the ash-box. The rod G being pivoted to the arm *f'* allows the grate to be dumped in any of its vertical adjustments, as will hereinafter appear. Instead of having the stud *h'''* on one of the grate-sections operate within an 70
elongated slot in the other section to insure a simultaneous movement of the grate-sections, the elongated slot may be dispensed with, and the stud be arranged to rest on the upper edge of the arm on the opposite grate-section. 75
Again, instead of the collar on the rod for locking the grate-sections, the rod may be formed of a notched bar and answer the same purpose. Again, instead of employing a pivoted rod for operating the grate, a lever might 80
be used for the same purpose.

The grate-frame E is constructed with a downwardly-projecting arm, I, having an elongated slot, *i*, formed therein, through which extends a stud, *i'*, fastened to the rear wall of 85
the fire-chamber, said stud serving as a guide to prevent the displacement of the grate-frame. The grate-frame is further provided with depending corner guides *t* to prevent displacement. One end, *j*, of a pivoted bar, J, en- 90
gages the lower and rounded end of the arm I, while the other end, *j'*, of the bar engages a tappet, K, secured to the rock-shaft L, which is preferably located within the stove and extends through the lower portion thereof. 95
The outer end of the rock-shaft has secured thereto a long arm, M, provided on its short end with a handle, *m*, and on its longer end

with a segment, N, having a smooth rim, n, with which engages the eccentric friction brake or lock O. This brake consists of the circular metal block o, pivoted at one side of its center to the stove, and is provided with a handle, P.

On the arm M is placed a sliding weight, Q, which may be secured at any desired point thereon by means of a set-screw, q, or other device.

Having described the construction and arrangements of parts of one form of device embodying my invention, I will briefly describe its operation.

When a full charge of coal is placed on the grate, the latter will be in its lowest vertical adjustment, while the outer end of the arm M will be raised to its highest point. The counter-weight is moved outwardly on the arm M until the weight of the grate and the bed of coal supported thereon will but slightly overcome the counter-weight, and then the latter is secured to the arm M by the set-screw or other device. When the coal is ignited, the bed of burning fuel will extend upwardly to within the proper distance of the top of the stove to insure the best and most economical effects in cooking, &c. As the coal is consumed the bed of fuel is consequently decreased in weight, thereby allowing the counter-weight to gradually elevate it and thus retain the fuel in any desired proximity to the stove openings on top of the stove.

The counter-weight acts through the arm M to turn the neck-shaft and cause the free end of the tappet to engage and turn the pivoted arm, which operates to raise the grate-frame with the grate and bed of fuel supported thereon.

A marked saving of fuel and labor is effected by the employment of my improvement, because the maximum effect of the heat is utilized by the gradual elevation of the bed of fuel as it is consumed to the point which the heat is to be transmitted, and, further, the heat will be retained practically uniform at the top of the stove, and thereby insure better results in cooking.

When it is desired to lessen the heat transmitted to the vessels inserted in the stove openings or placed on top of the stove, the grate with its bed of fuel may be lowered by turning the handle m and locking the bar M against displacement by means of the eccentric block being rotated to engage the segmental rim.

The grate-sections may be readily dumped in any of the different positions of the grate.

I am aware that it is not broadly new to connect a counter-weight to the mechanism for adjusting a vertically-movable grate, and also that it is not new to so connect the two sections of a dumping-grate, whereby they are caused to move simultaneously in the same directions, and hence I make no broad claim thereto.

It is evident that many slight changes in the construction and arrangement of the different parts of my improvement might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a vertically-movable grate-frame and dumping grate-sections mounted therein, of a counter-weight and devices for connecting the counter-weight and grate-frame, substantially as set forth.

2. The combination, with a vertically-adjustable grate-frame and dumping grate-sections pivotally mounted therein, of a rock-shaft, devices connecting the rock-shaft and grate-frame, and an adjustable counter-weight connected with an arm attached to one end of the rock-shaft, substantially as set forth.

3. The combination, with a vertically-adjustable grate-frame and dumping grate-sections mounted therein, of a rock-shaft, counter-weight, and friction locking mechanism, substantially as set forth.

4. The combination, with a vertically-movable grate-frame and means for automatically elevating the same as the fuel is consumed, of dumping grate-sections mounted in said frame and devices for dumping the grate in any position in its vertical adjustment, substantially as set forth.

5. The combination, with a vertically-adjustable grate-frame, a counter-weight, and connecting devices for automatically elevating the grate as the bed of fuel is being consumed, of dumping grate-sections journaled in the grate-frame, one of said sections having an arm upon which is supported and moves an arm or stud on the other section, substantially as set forth.

6. The combination, with a vertically-adjustable grate-frame, a rock-shaft, a counter-weight, and connecting devices for automatically elevating the grate as the fuel is being consumed, of a segmental rim and eccentric block for locking the grate in any desired position, substantially as set forth.

7. The combination, with a vertically-adjustable grate-frame, of a rock-shaft journaled within the stove and means for transmitting motion from the rock-shaft to the grate and a counter-weight adjustably connected with the rock-shaft, substantially as set forth.

8. The combination, with the grate-frame provided with a depending arm, of a pivoted arm, a rock-shaft provided with a tappet, and an adjustable counter-weight, substantially as set forth.

9. The combination, with the vertically-adjustable grate-frame, the dumping grate-sections, one operated by the other, of a rod piv-

oted to one grate-section and provided at its outer end with a handle and collar, substantially as set forth.

5 10. The combination, with a vertically-movable grate-frame provided with depending corner guides, of a dumping-grate mounted on said frame, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JEREMIAH STEVER.

Witnesses:

GEO. F. DOWNING,
W. H. RUFF.