

J. A. LAWSON.

GRATE.

No. 176,971.

Patented May 2, 1876.

Fig. 1.

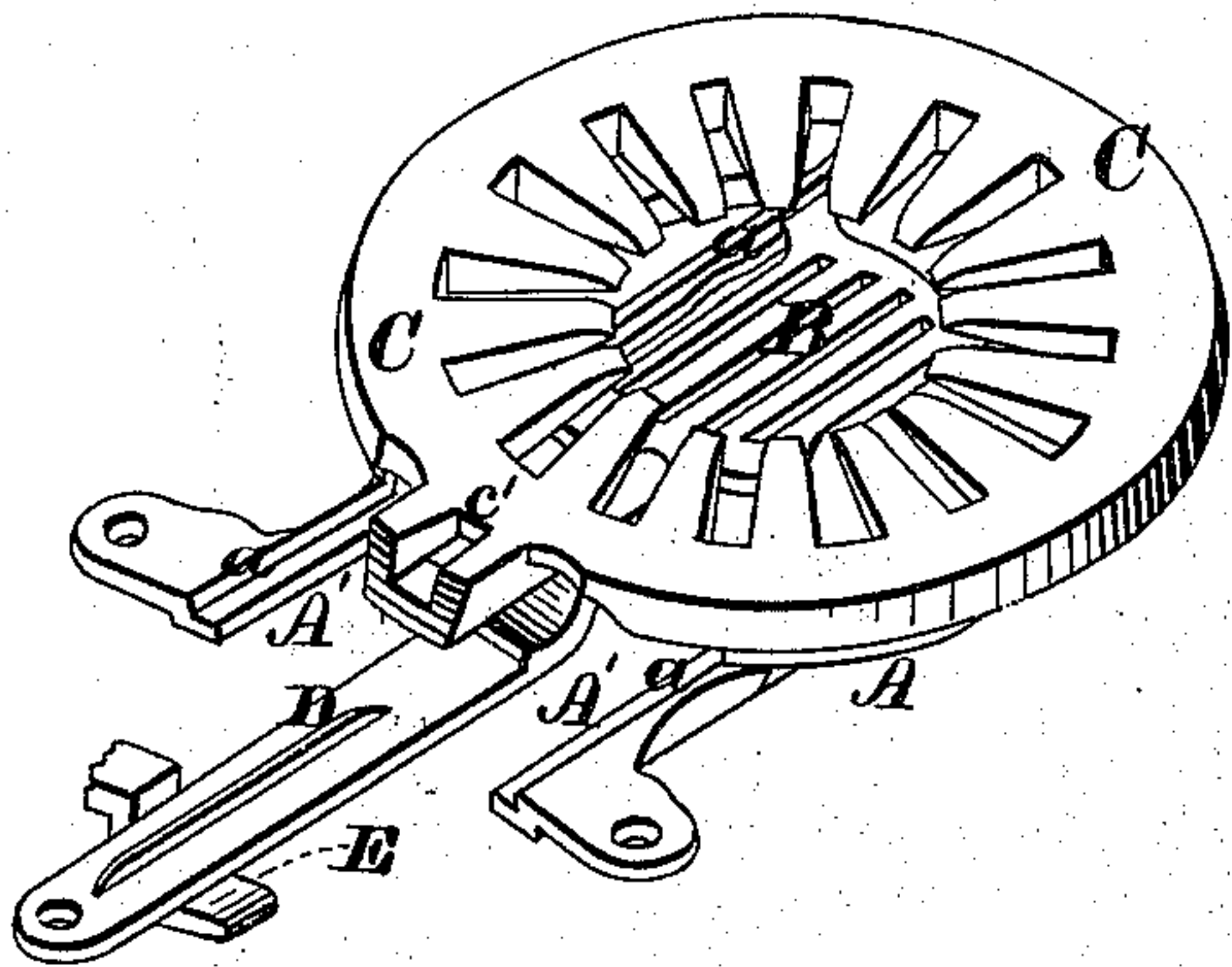


Fig. 2.

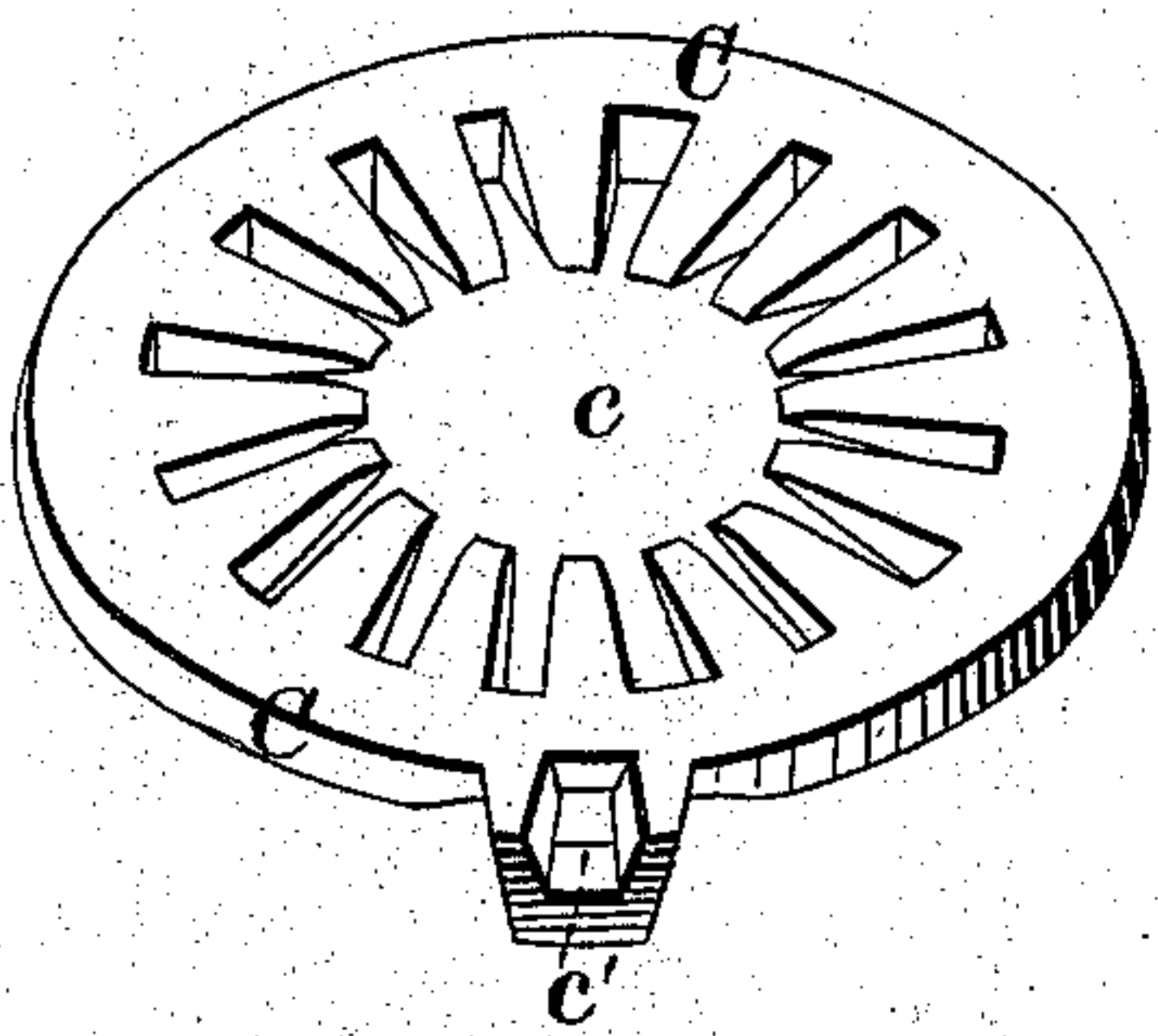


Fig. 3.

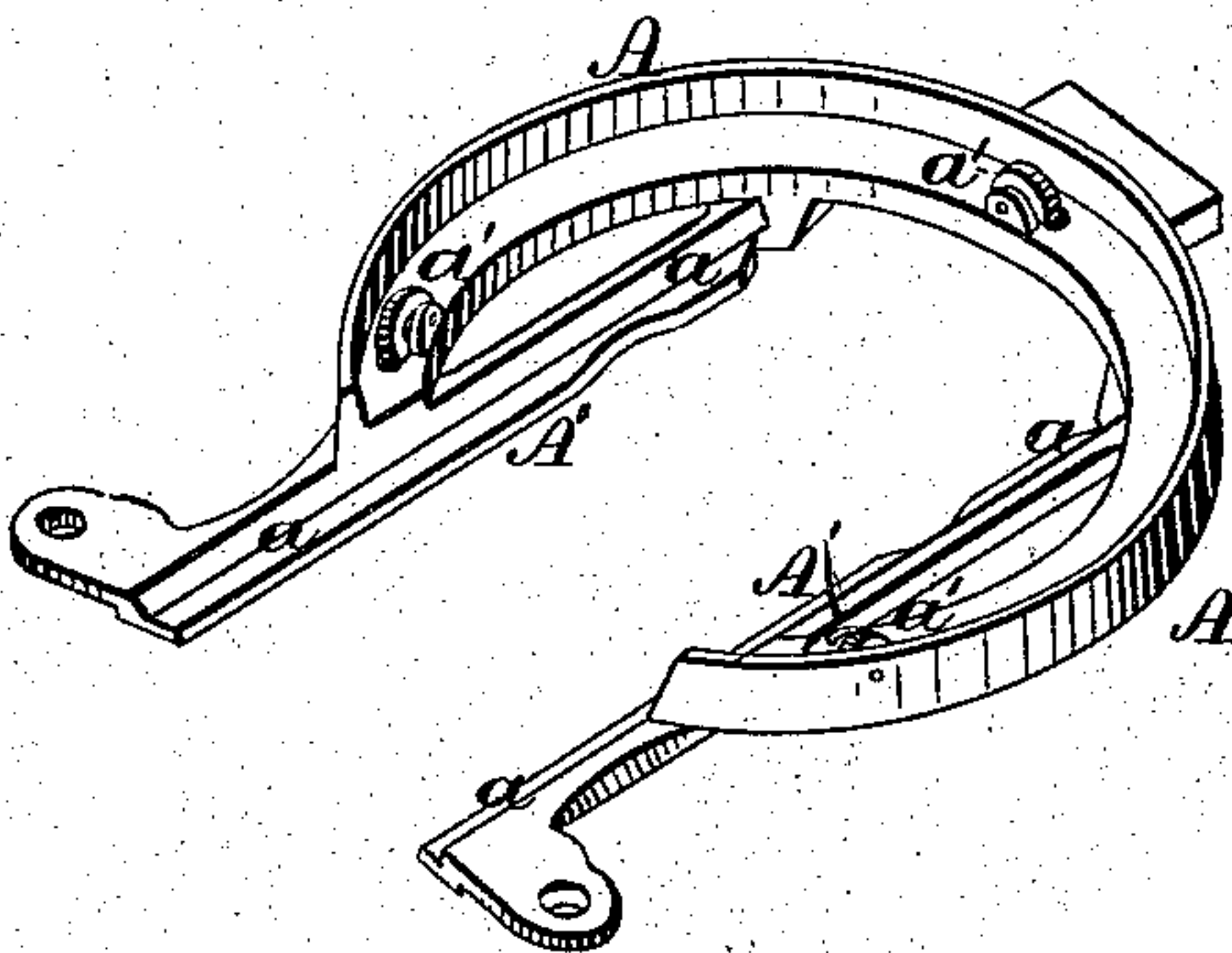


Fig. 4.

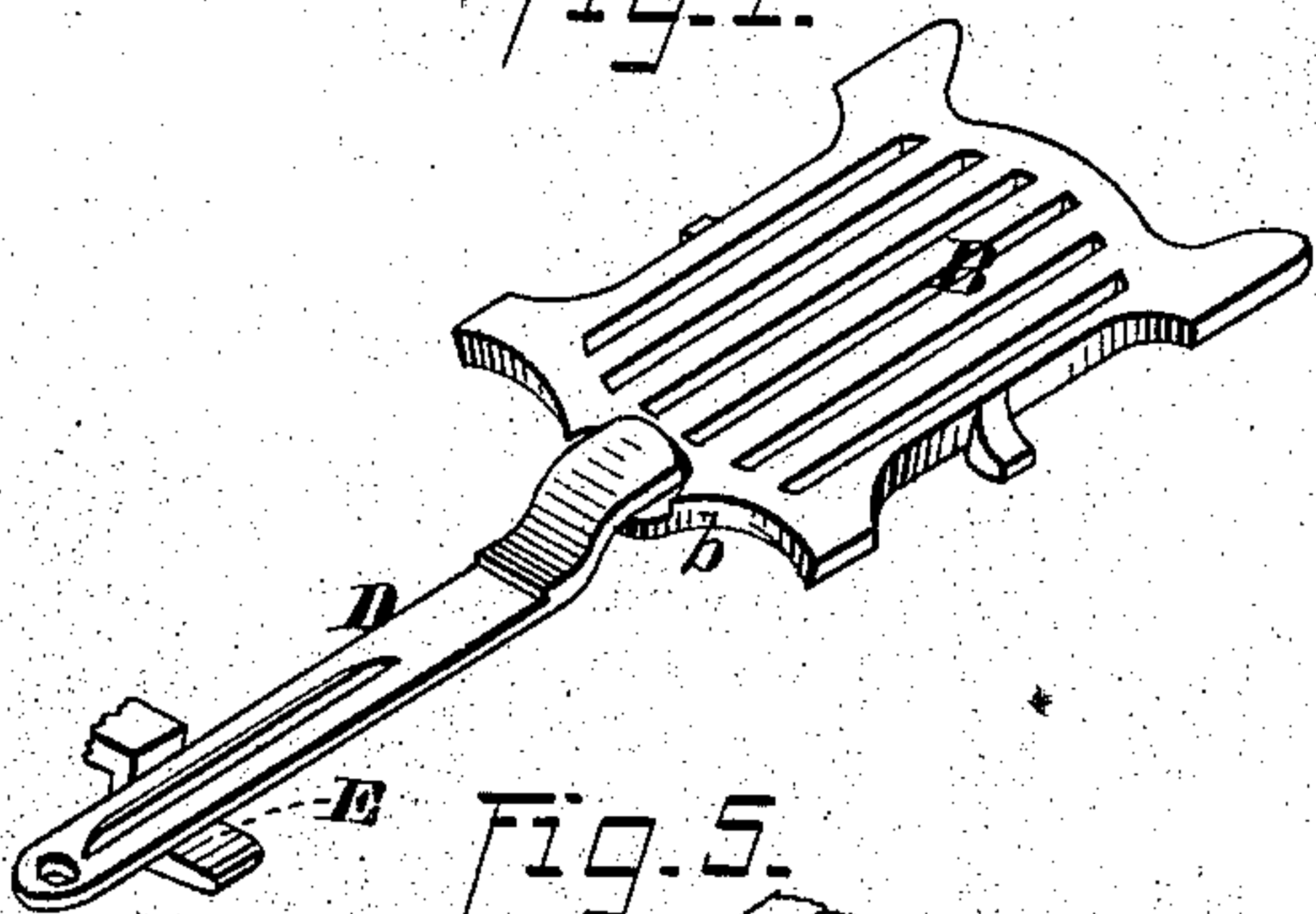
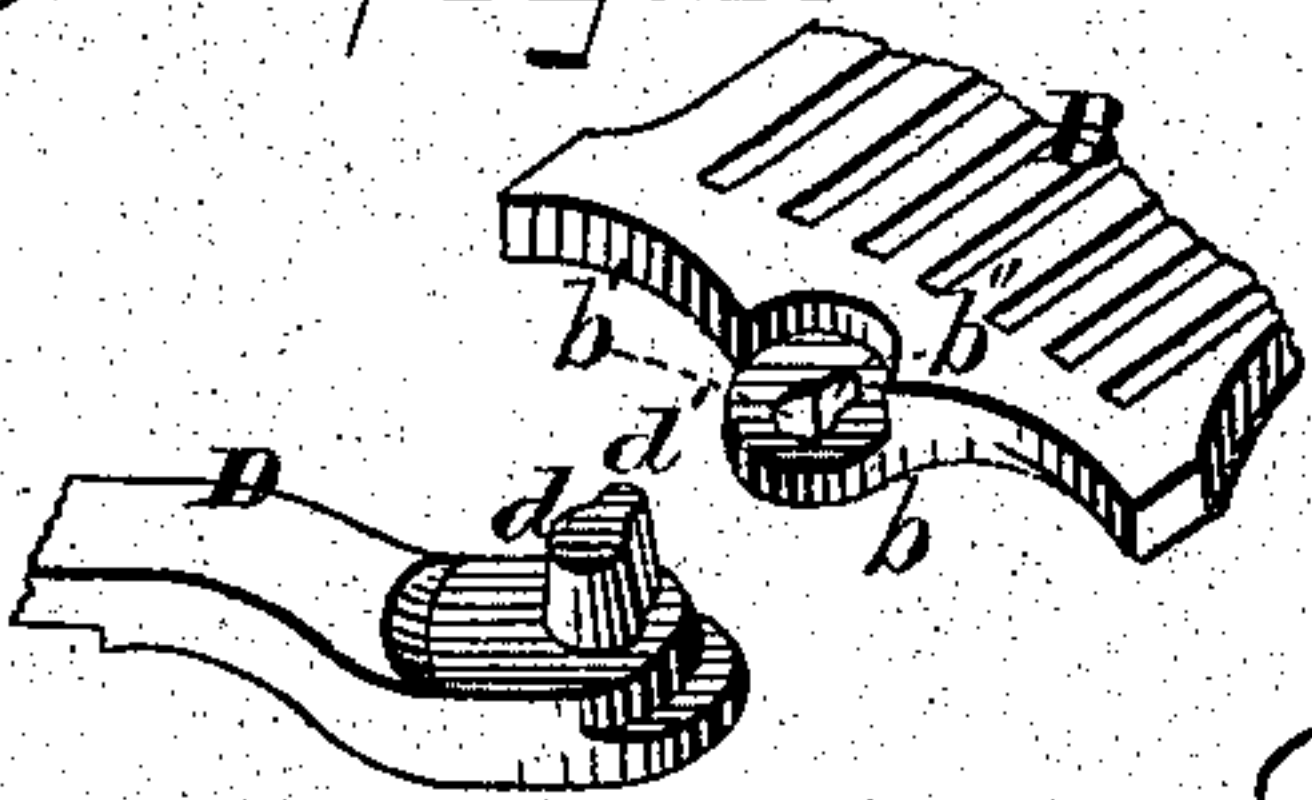


Fig. 5.



WITNESSES=

Jas. C. Hutchinson

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UNITED STATES PATENT OFFICE.

JAMES A. LAWSON, OF TROY, NEW YORK.

IMPROVEMENT IN GRATES.

Specification forming part of Letters Patent No. 176,971, dated May 2, 1876; application filed February 26, 1876.

To all whom it may concern:

Be it known that I, JAMES A. LAWSON, of Troy, in the county of Rensselaer and in the State of New York, have invented certain new and useful Improvements in Grates for Stoves; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the main or supporting grate, supplemental grate, and grate-frame, as combined for use. Figs. 2, 3, and 4 are like views of said parts separated from each other; and Fig. 5 is a perspective view of the engaging portions of the detachable handle and supplemental grate.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the efficiency of stove-grates, and render more easy the removal of ashes and clinker; to which end it consists, principally, in the construction of the grate-frame, by means of which a horizontally-revolving main grate and a horizontally-sliding supplemental grate are supported in position for operation, substantially as is hereinafter specified.

It consists, further, in a circular grate constructed with an open center, and having a vibratory motion around its axis, in combination with a lower supplemental grate, which slides horizontally upon or within parallel ways that are attached to or upon part of the supporting-frame of said upper grate, substantially as and for the purpose hereinafter shown.

It consists, further, in the peculiar construction of the handle or bar for operating the supplemental grate, and its combination with the same, substantially as and for the purpose hereinafter set forth.

It consists, finally, in the means employed for supporting in position the operating-bar of the supplemental grate when the ash-pit door is opened, substantially as is hereinafter shown and described.

In the annexed drawings, A represents the main portion of the frame of my grate, which part is formed upon a circular line, and has secured to its lower side two straight bars, A'

and A', that are arranged in parallel lines, and extend from the rear inner edge of said part A forward to a point considerably in advance of its front outer edge. Between the bars A' and A' the front portion of the circular portion A of the frame is removed, and within the inner upper side of each bar is formed a right-angled rabbet, a, that receives one edge of a grate, B, and in connection with the opposite rabbet forms bearings for and within which said grate may be moved horizontally in a line passing from front to rear. At equidistant points within the circular portion A of the grate-frame are journaled three rollers, a' and a', each of which revolves upon an axis that is horizontal, and placed in line radially with the axial center of said portion A, and upon said rollers is placed a grate, C, that has an annular form in plan view, and is serrated around its inner edge, the arrangement being such as to enable said grate to be rotated in a horizontal plane around its axial center.

As thus constructed and combined it will be seen that when the grates B and C occupy their normal position, the former is directly beneath the central opening c in the latter, and operates as a supplemental grate to close said opening and prevent the downward passage of coal or cinders from above, without, in any manner, restricting said upper grate C in its motion around its axis.

When it is desired to remove slate or cinders from the combustion-chamber, the lower or supplemental grate B may be drawn partially or entirely out from beneath the central opening c of the upper grate C, and through said opening said refuse will fall into the ash-pit. Ordinarily, the agitation of the main grate C will be sufficient to clean the fire, but, to remove pieces of slate or other refuse too large to pass through the interstices of the same and the lower grate, the operation above described is necessary.

The upper grate C is agitated by means of a shaker-bar of usual form, which is introduced through a suitable opening in the door of the stove, and has its inner end contained within a socket, c', that is provided at the front edge of said grate. The lower or supplemental grate B is operated by a bar, D, which extends forward through a correspond-

ing opening within the ash-pit door, said bar being left ordinarily in engagement with said grate. In order that the shaker-bar D may maintain its position when the ash-pit door is opened, a lug, E, is secured to the lower side of the top base-plate of the stove, just inside of said door, and extends downward, and then horizontally to one side beneath said bar, and furnishes a bearing for the latter. When it is desired to remove the lower grate B it is necessary that the shaker-bar D should be detached therefrom, to accomplish which object the following-described construction is had: The inner end of the bar D is made semicircular in plan view, and upon its lower side is provided a pin, *d*, which extends vertically downward, and has upon one side, near its lower end, a feather, *d'*, which extends rearward and to one side upon a radial line. Within the forward end, at the transverse center of the grate B, is a semicircular boss, *b*, which contains a central opening, *b'*, that corresponds in size and shape to the pin *d*, and at its rear side has a recess, *b''*, for the passage of the feather *d'*. The upper side of the boss *b* is counterbored, as shown, for the reception of the semicircular end of the shaker-bar, while the lower side of the latter is, in like manner, counterbored to receive the round forward end of said boss, the arrangement described affording sufficient end bearing to entirely relieve the pin *d* from wear.

As thus constructed, the shaker-bar may be placed in or removed from engagement by turning its forward end to one side until the feather *d'* coincides with the recess *b''*. When in place said bar is firmly locked by the feather, and prevented from accidental displacement. The position of the feather is such as to cause it to coincide with its recess when

the bar is moved outward from the open side of the lug E.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the horizontally-sliding supplemental grate B and the rotating main grate C, the supporting-frame composed of the circular portion A, and parallel bars A' and A', provided each with a rabbet, *a*, substantially as and for the purpose specified.

2. In combination with circular main grate C, provided with an open center, *c*, and arranged to vibrate around its axis, the supplemental grate B, placed below said main grate, and arranged to slide horizontally upon or within the parallel ways A' and A', which are attached to and form part of the supporting-frame A of said main grate, substantially as and for the purpose shown.

3. In combination with the supplemental grate B, provided with the semicircular boss *b*, opening *b'*, and recess *b''*, the shaker-bar D, having the pin *d* and feather *d'*, substantially as and for the purpose set forth.

4. In combination with the longitudinally-reciprocating shaker-bar, capable of having its forward end moved laterally, the right-angled lug E, secured upon the lower side of the base-plate of the stove, and furnishing a support for said bar, substantially as is shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of January, 1876.

JAMES A. LAWSON.

Witnesses:

LEWIS L. FOSDICK,
JOHN B. FOSDICK.