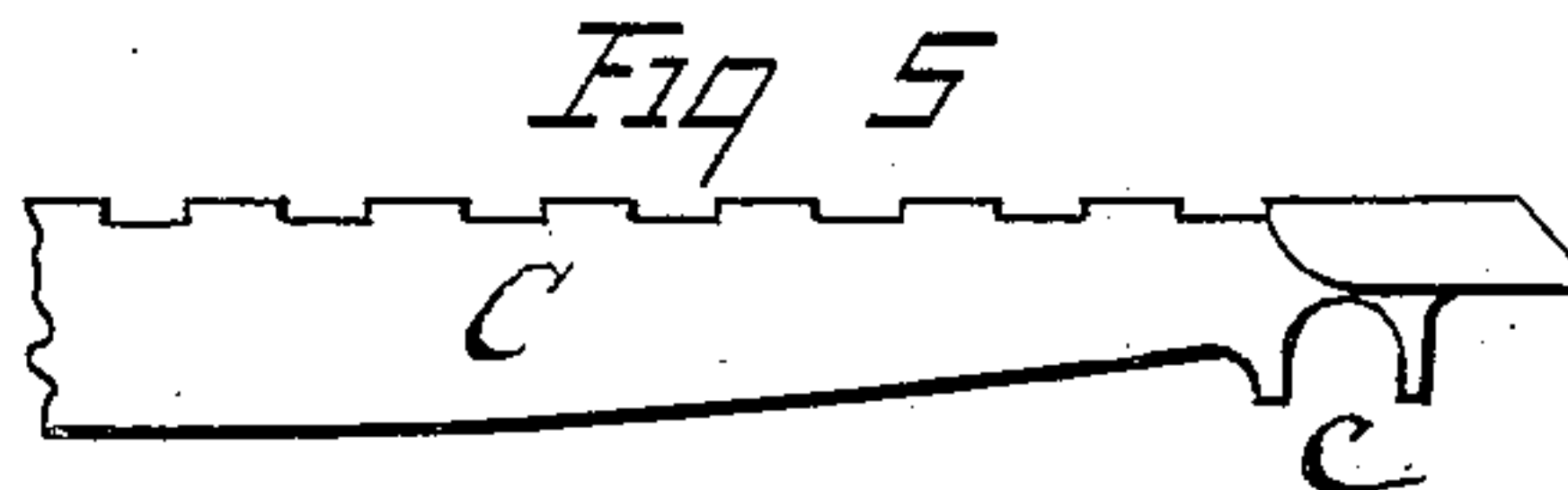
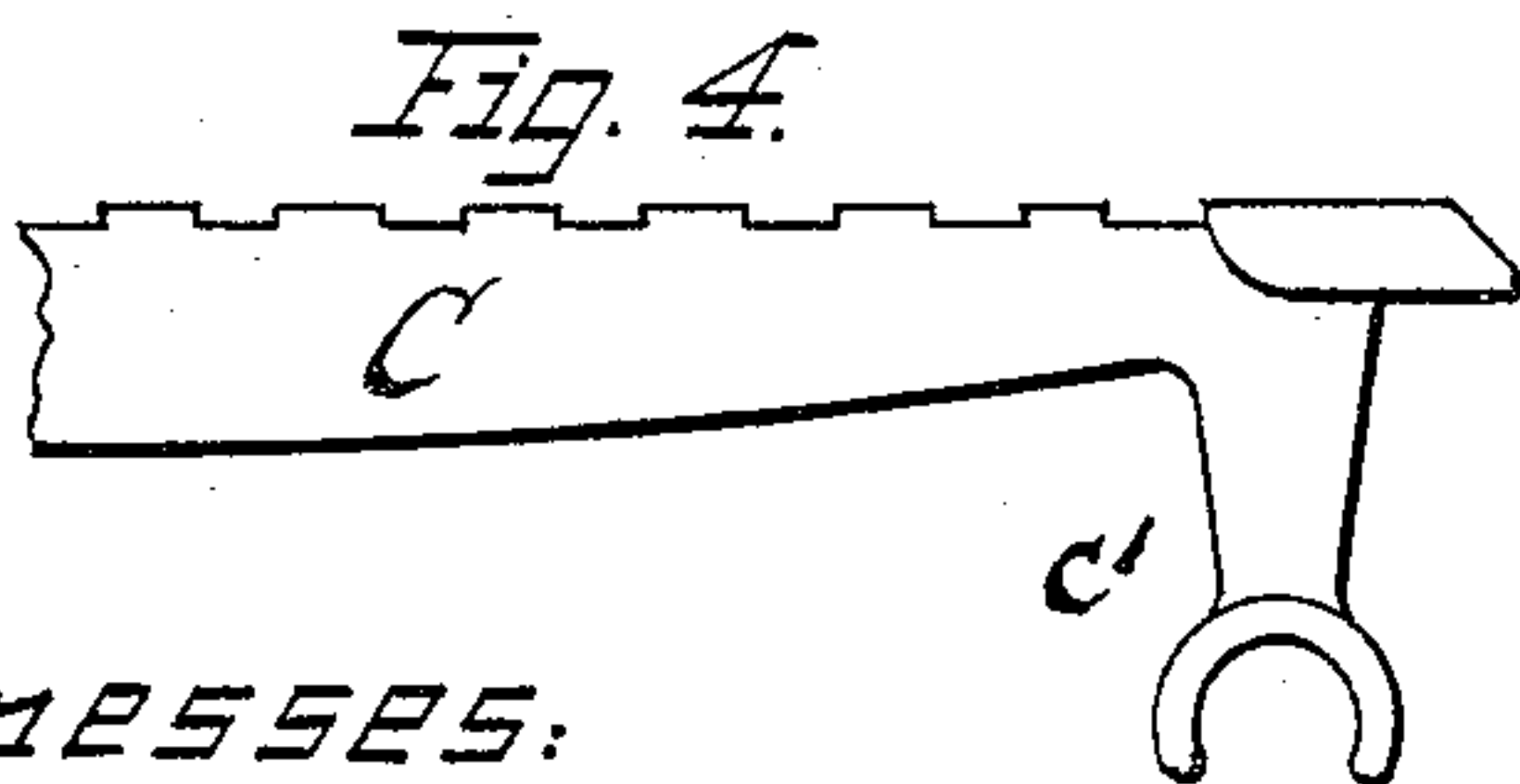
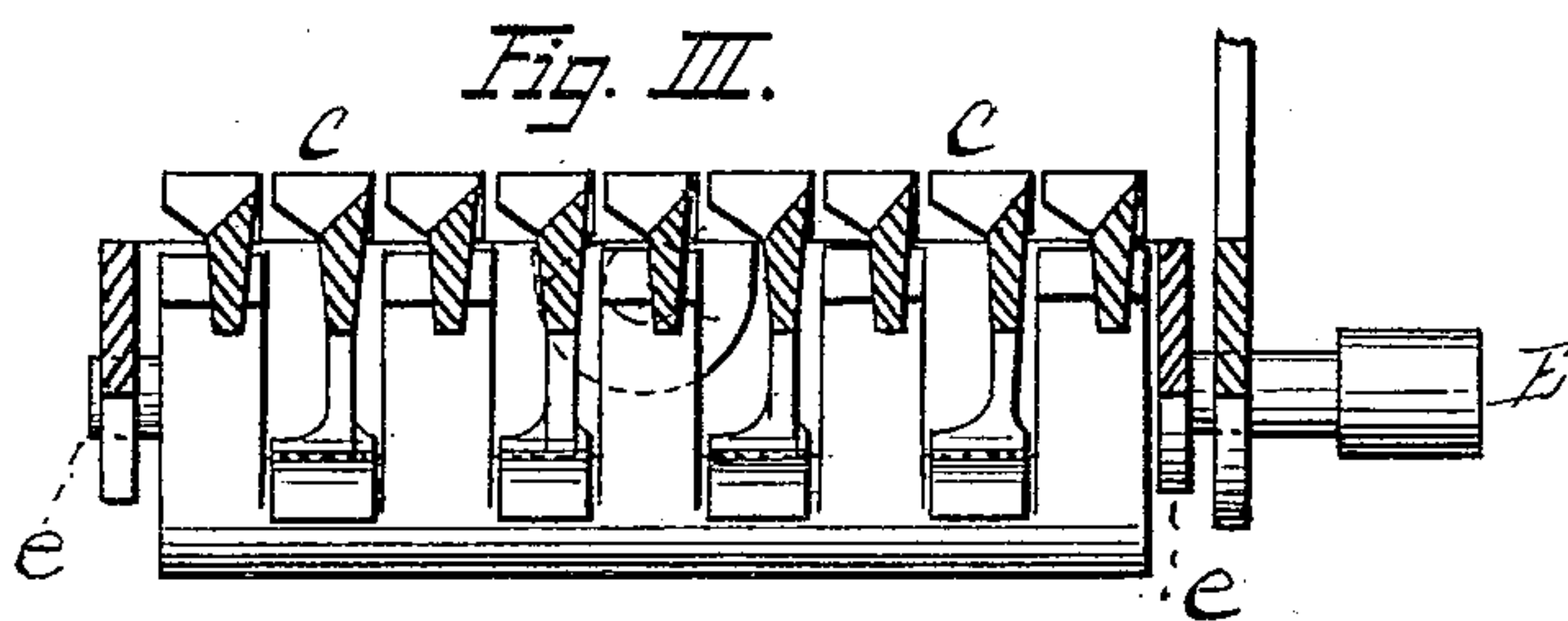
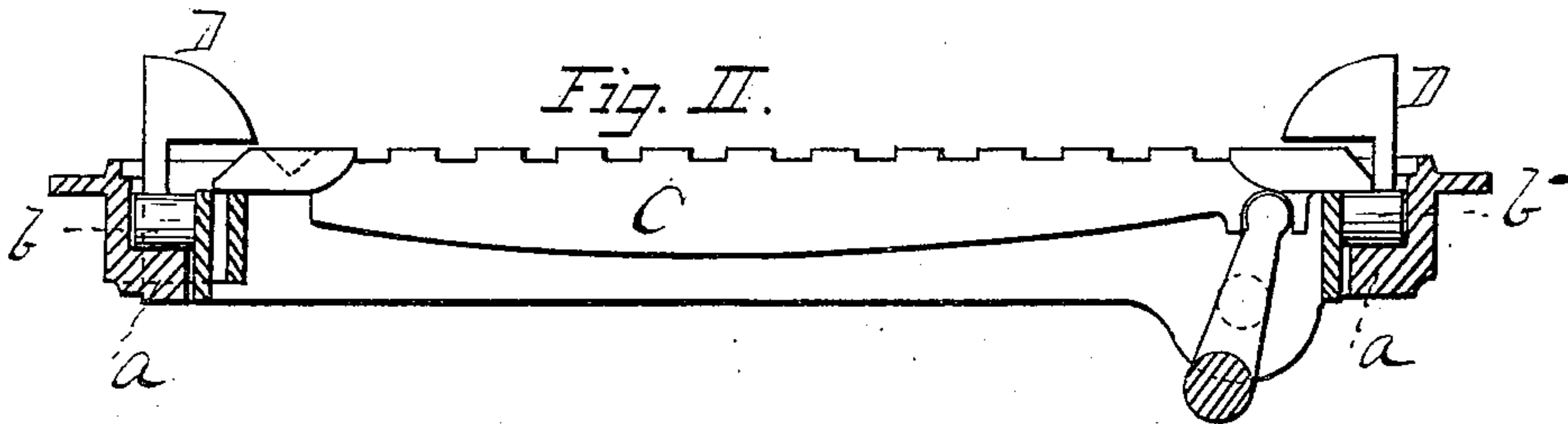
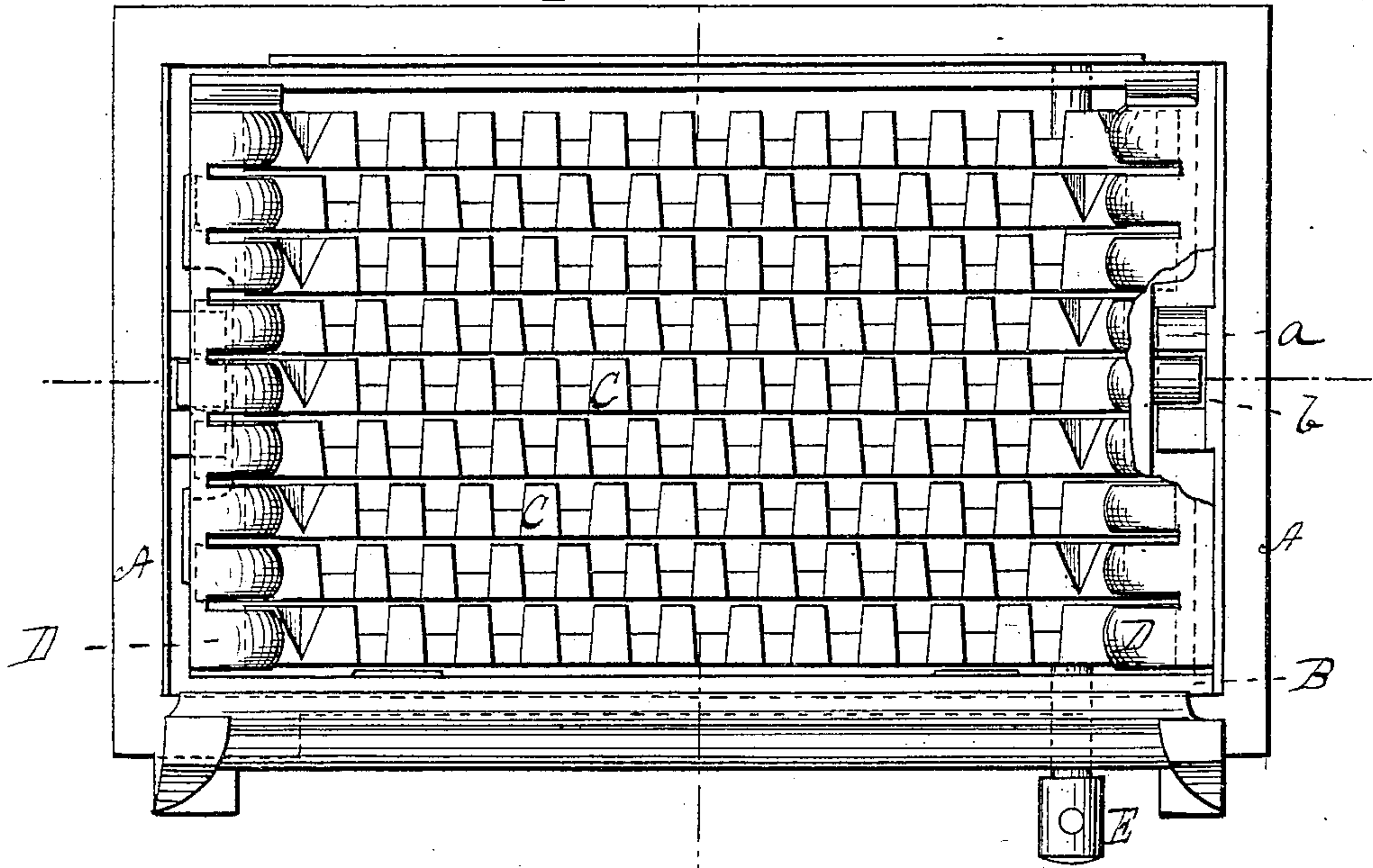


(No Model.)

F. S. BISSELL.
Agitating and Dumping Grate.
No. 238,636. Patented March 8, 1881.

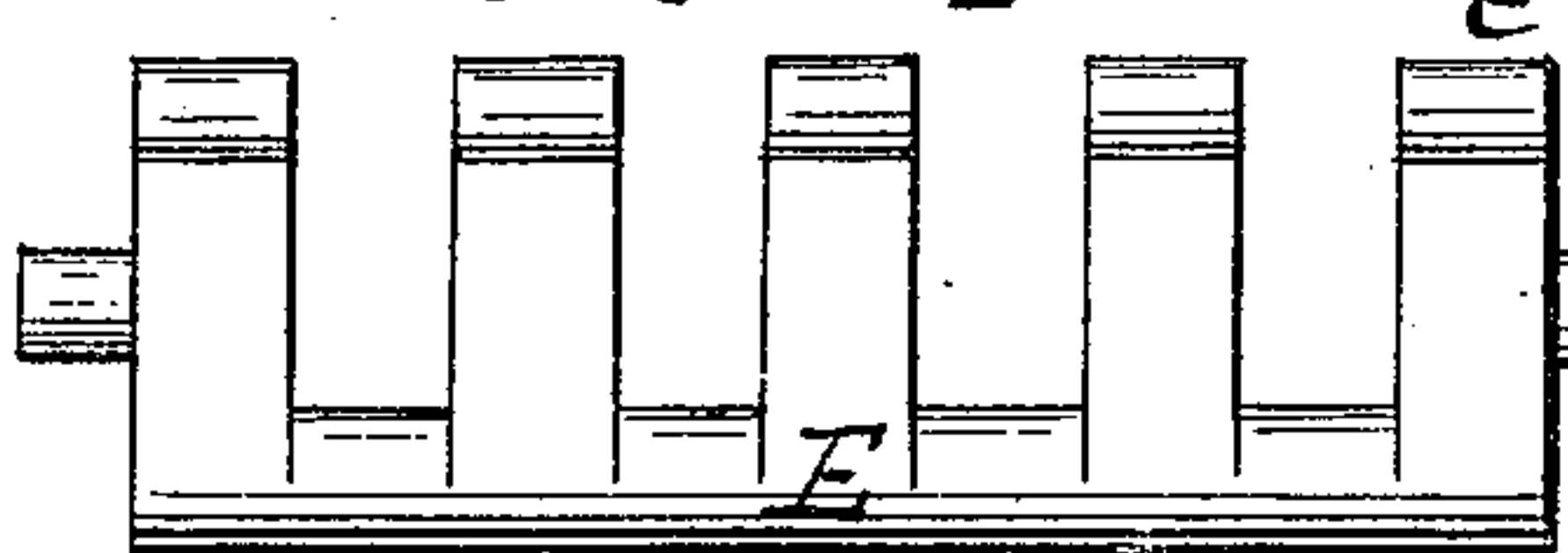
Fig. I.



WITNESSES:

Alex. Scott
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Fig. E.



Inventor:

Frank S. Bissell
By F. W. Ritter, Jr.
att'y

UNITED STATES PATENT OFFICE.

FRANK S. BISSELL, OF PITTSBURG, PENNSYLVANIA.

AGITATING AND DUMPING GRATE.

SPECIFICATION forming part of Letters Patent No. 238,636, dated March 8, 1881.

Application filed August 3, 1880. (No model.)

To all whom it may concern:

Be it known that I, FRANK S. BISSELL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Agitating and Dumping Grates; 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 to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

In the drawings, Figure 1 is a plan view of a grate embodying my invention. Fig. 2 is a longitudinal vertical section. Fig. 3 is a transverse vertical section, showing the grate in position for dumping. Figs. 4 and 5 are detached views of the bars, and Fig. 6 is a similar view of the agitating or oscillating bar.

Like letters refer to like parts wherever they occur.

My invention relates especially to grates for open fire-places, open-fire-place heaters, or open-fire-place stoves, but is generally applicable for cook-stoves, ranges, and other like places where a light agitating and dumping grate is desirable. It has for its object to obtain a dumping-grate of that class wherein the fuel is agitated by a sliding or reciprocating motion of the bars imparted from the front of the grate.

It consists, generally, in a grate capable of a longitudinal sliding or reciprocating motion, in combination with a transverse agitating-bar adapted to impart a reciprocating motion thereto, and a tilting frame pivoted upon the main or bearing frame, whereby a dumping as well as an agitating grate adapted for use in open fire-places is obtained.

I will now proceed to describe my invention more specifically, so that others skilled in the art to which it appertains may apply the same.

A indicates the main or fixed frame which supports the grate, and, of course, will vary according to the class of grates to which the invention is applied, in some instances being a casting, as shown, and in others brick or tile, as the case may be. In any case, however, bearings *a* will be provided for the reception

of trunnions or journals on the independent portable dumping-frame B.

B represents an independent or portable frame, which carries or supports the bars constituting the grate-bottom. This frame is provided with trunnions or journals *b*, which are adapted to fit in the bearings *a* of the main or fixed support, so that the frame B can be swung or tilted at will. By preference the journals and bearings *a b* are shaped so as to limit the tilting movement of frame B.

Upon the portable tilting frame B, I arrange the bars C, constituting the grate-bottom, and said bars, though capable of a sliding or horizontal reciprocating motion, are prevented by any suitable means from becoming displaced or detached from the frame B when the latter is tilted or dumped. In the present instance I have shown what I deem the most desirable devices for the purpose—that is, the covering-bars D, (fully described in my former patent, No. 155,283, September 22, 1874;) but any mechanical equivalent may be employed—as, for instance, slotting the ends of the frame B and passing the ends of the bars C through said slots. The bars C used to constitute the grate-bottom are preferably of two forms, the one (see Fig. 5) having notches *c*, which engage with lugs or projections *e'* of the oscillating or agitating bar E, (or crank-shaft,) and the other having notched lugs *c'*, which rest upon the agitating-bar E between the lugs or projections *e'*.

E indicates the agitating-bar, (or crank-shaft,) which has bearings *e e* on the independent tilting frame B, and is provided with a series of lugs or projections, *e'*, which engage with notches *c* on the under surface of alternate grate-bars. Owing to the construction specified—viz., the alternate bars having their bearings one above and the other below the center of motion of the agitating-bar E—the alternate bars will reciprocate or slide in opposite directions, thus effecting a thorough agitation of the superimposed fuel.

The construction being substantially as specified, the fuel upon the grate may be thoroughly agitated from the front of the grate for the removal of dust by means of the agitating-bar E, which, upon being oscillated, will impart a hori-

zontal sliding or reciprocating motion to the bars, and at any time the contents of the grate may be dumped by tilting the independent portable frame B, the grate-bars being held in place by the covering-bars D or equivalent devices, as before specified.

The advantages of my invention are, that I am enabled to obtain all the advantages of the reciprocating or sliding-bar grates for open fire-places, stoves, ranges, &c., of that class operated from the front without sacrificing any of the advantages pertaining to dumping-grates.

I am aware that a tilting or dumping frame has heretofore been provided with longitudinally sliding or reciprocating grate-bars operated by a key or end bar which formed a part of one the journals, and do not claim the same for the reason that such a construction is lim-

ited in its application to places where the end of the grate is accessible, and cannot be used in open-fire-place grates and similar places.

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

The combination, with a grate, of a transverse agitating-bar for imparting a reciprocating motion thereto from the front of the grate and an independent tilting frame pivoted on the fixed support or bearing-frame of the grate, whereby the grate may be tilted or dumped, substantially as specified.

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

FRANK S. BISSELL.

Witnesses:

E. A. MONTTOOTH,
B. MCKENNA.