

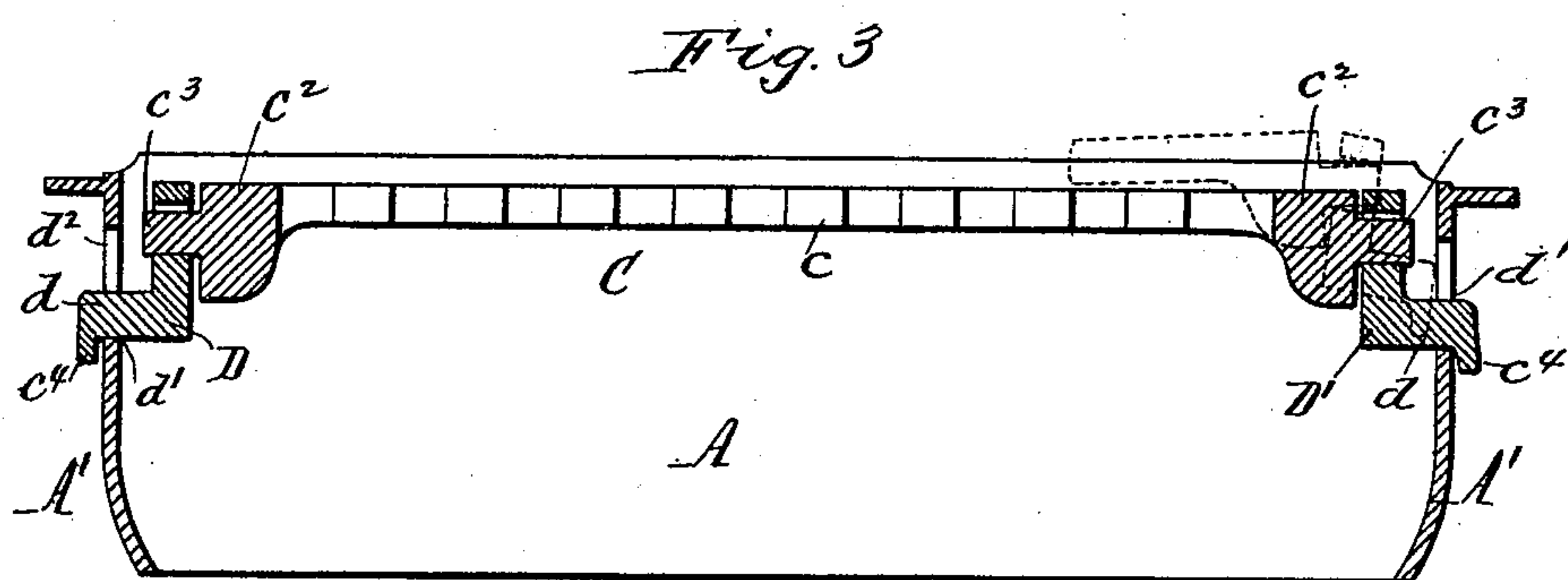
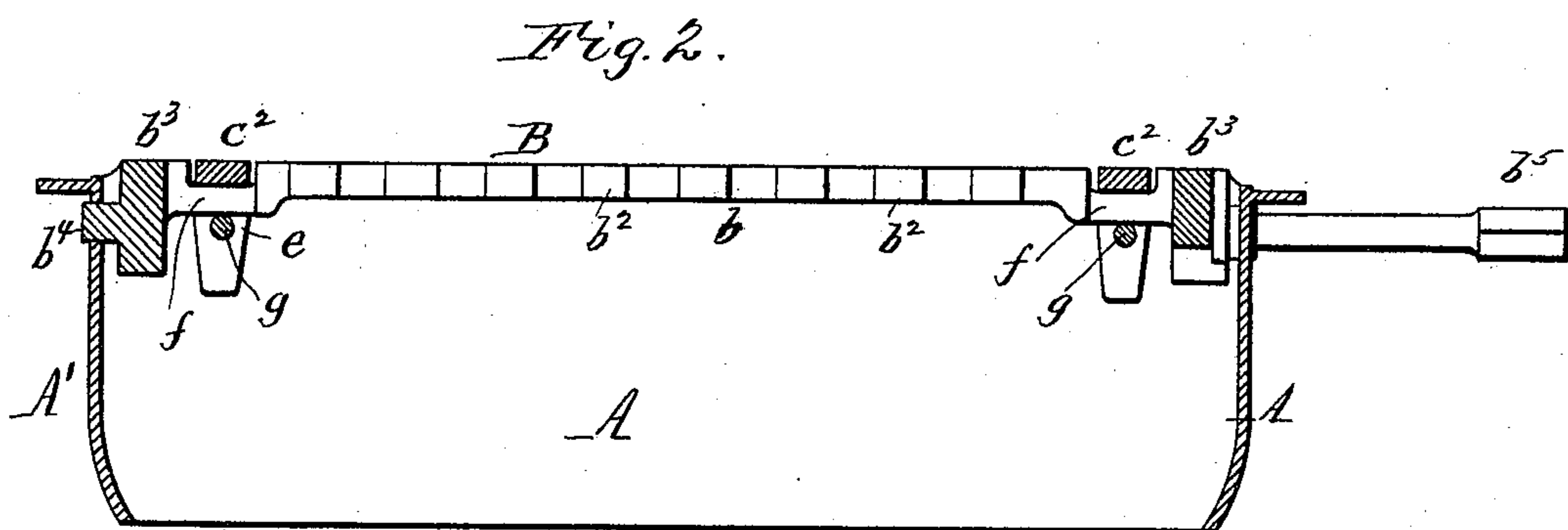
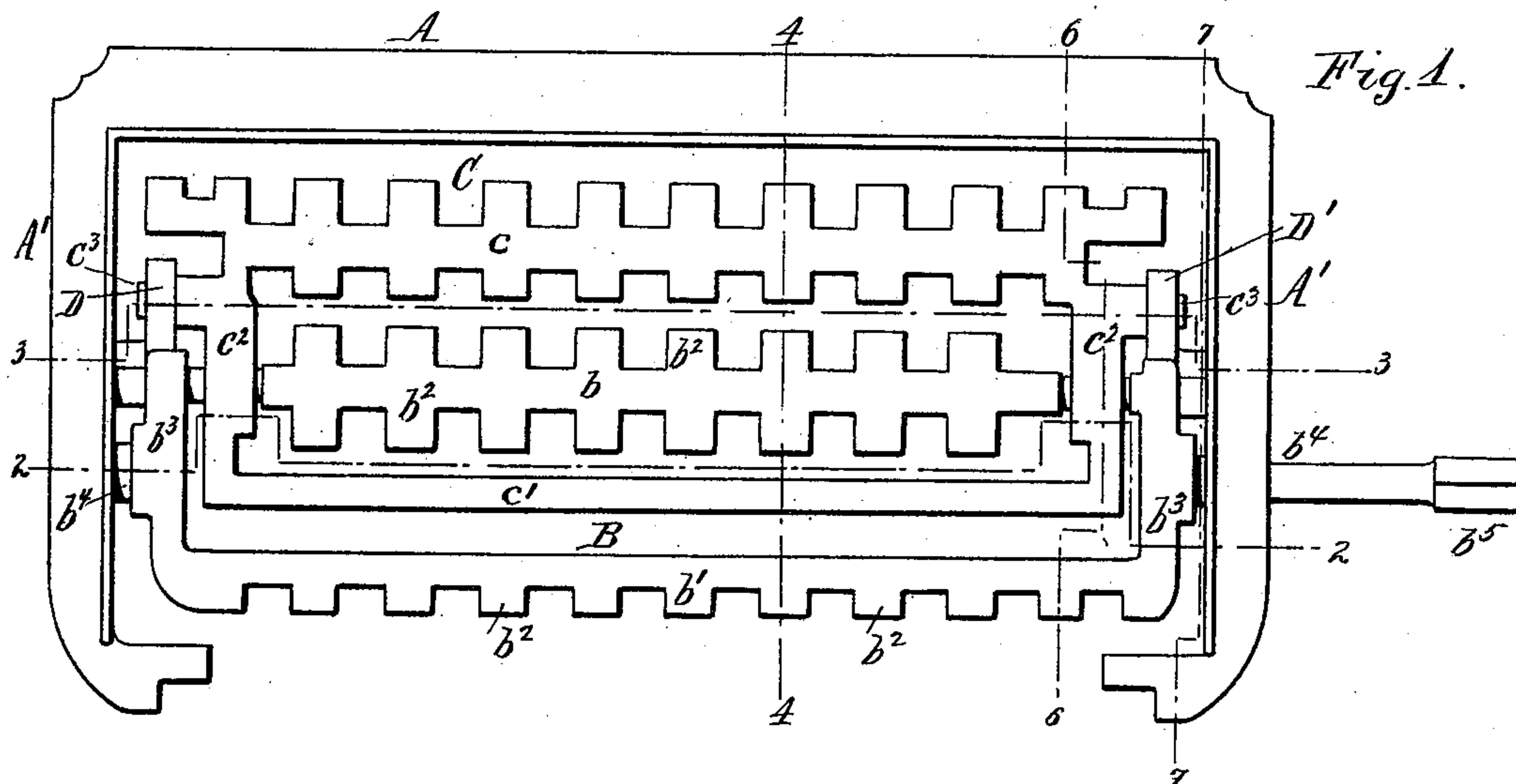
(No Model.)

2 Sheets—Sheet 1.

R. MEYER.
FIRE GRATE.

No. 587,320.

Patented Aug. 3, 1897.



Witnesses:
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By William H. Pomeroy
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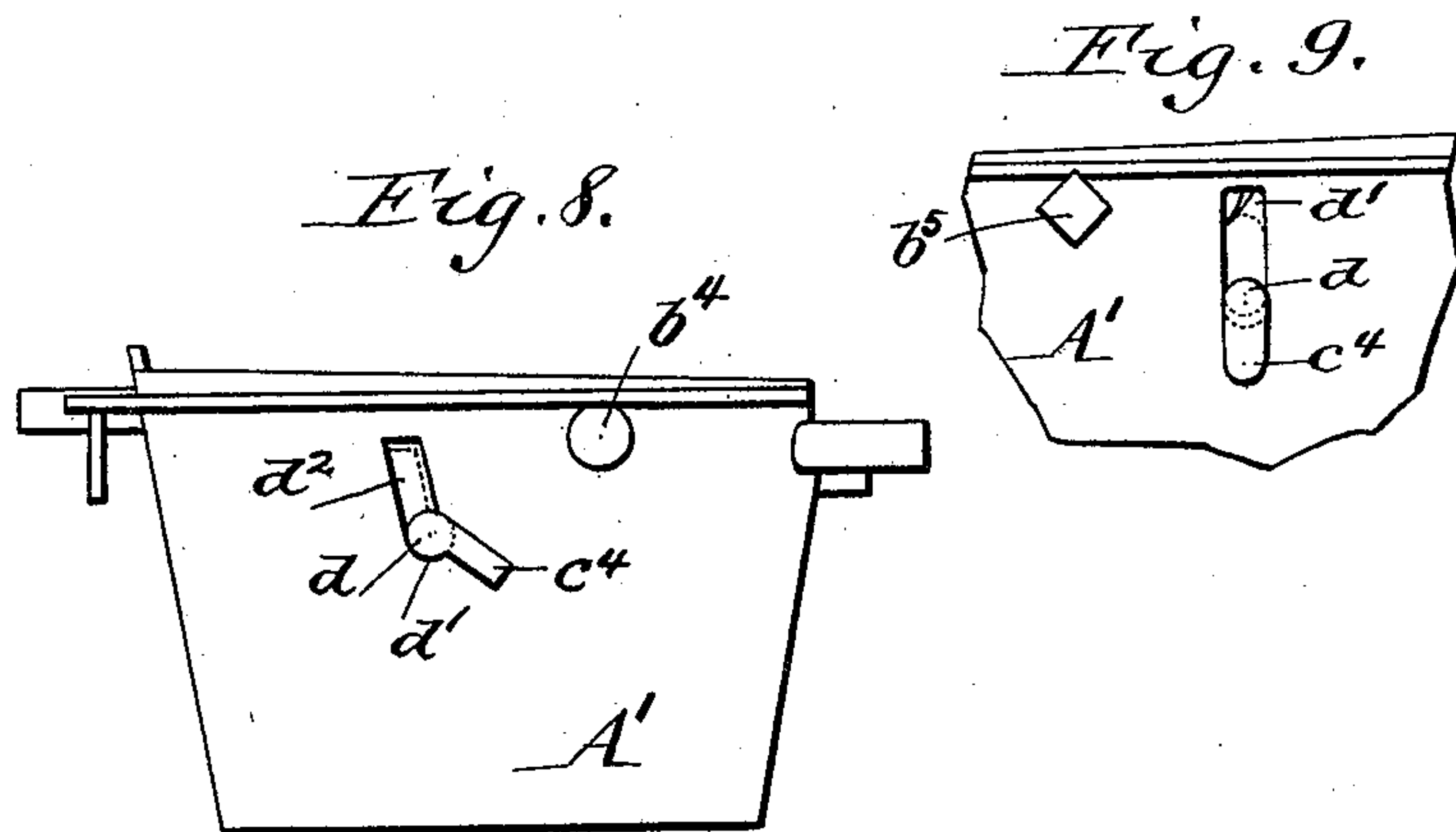
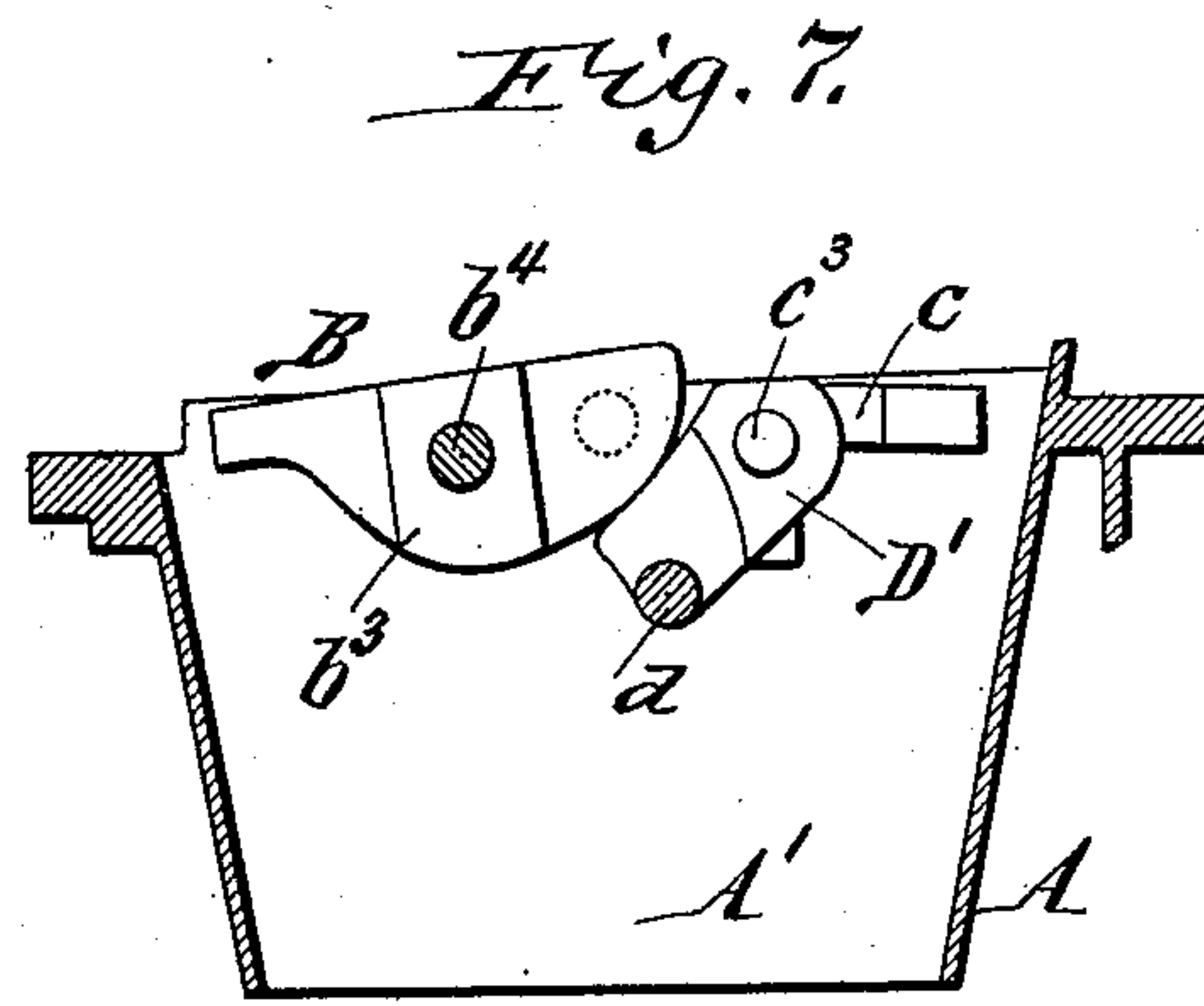
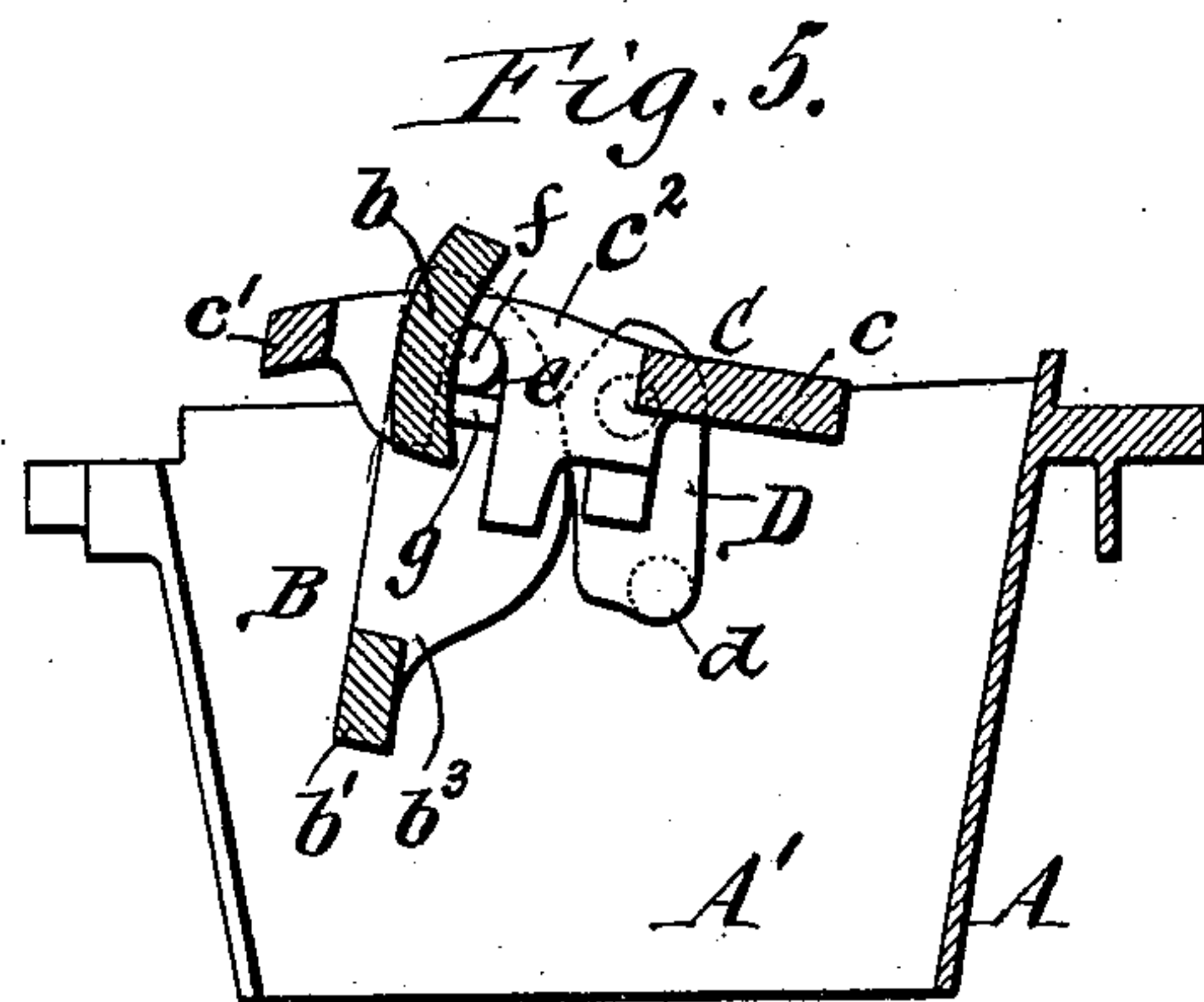
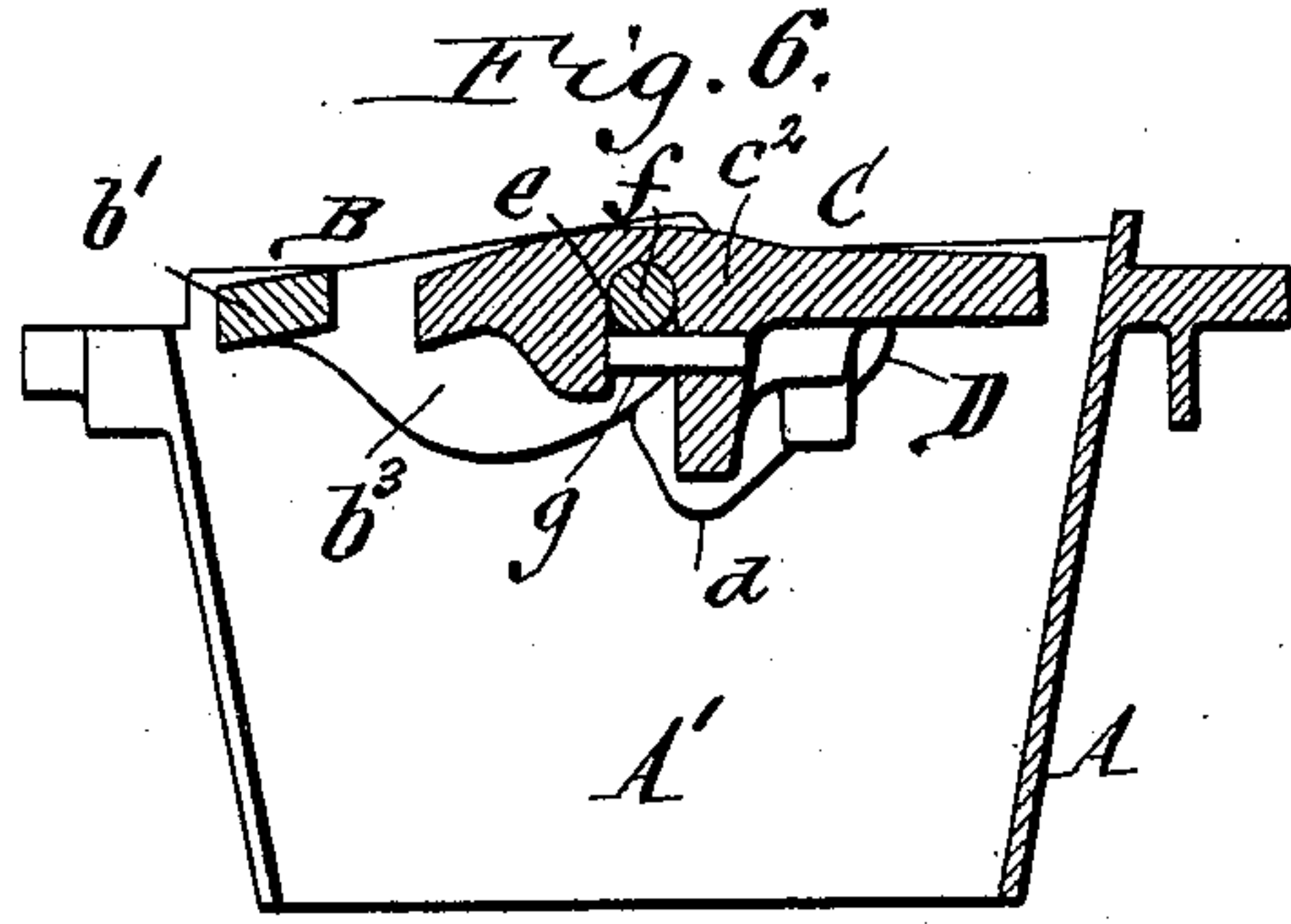
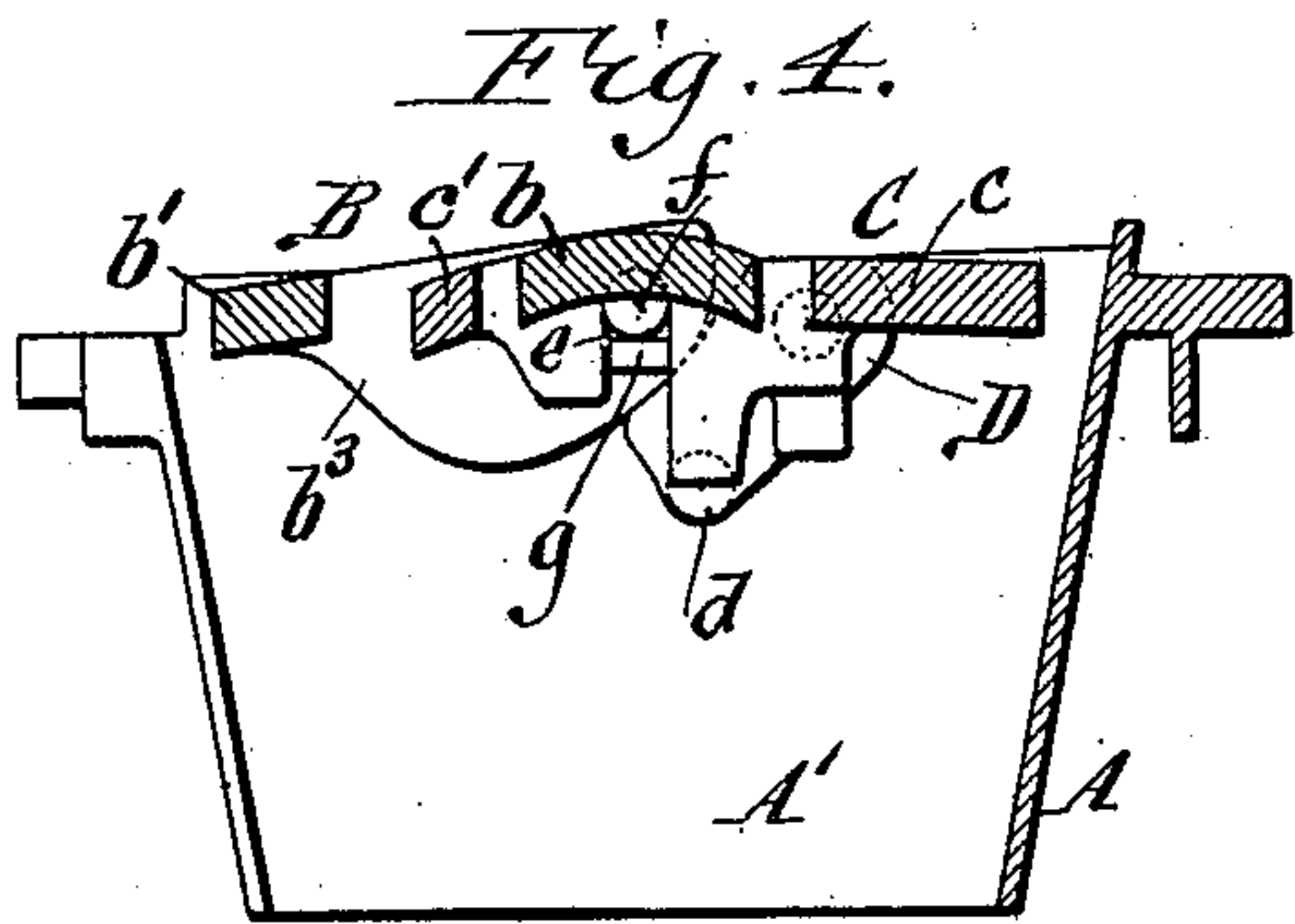
(No Model.)

2 Sheets—Sheet 2.

R. MEYER.
FIRE GRATE.

No. 587,320.

Patented Aug. 3, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT MEYER, OF BUFFALO, NEW YORK.

FIRE-GRATE.

SPECIFICATION forming part of Letters Patent No. 587,320, dated August 3, 1897.

Application filed March 7, 1896. Serial No. 582,258. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MEYER, a citizen of the United States, residing at 17 Cypress street, city of Buffalo, county of Erie, State of New York, have invented a new and useful Improvement in Fire-Grates, of which the following is a specification.

This invention relates to a fire-grate which is designed more especially for ranges or cooking-stoves, but which is equally serviceable for other stoves and furnaces.

My invention has for its principal objects to produce an efficient grate having no gear-wheels or similar engaging parts that are liable to become inoperative by being clogged with ashes, and which while permitting the fire to be dumped enables the ashes or the consumed lower layer of the bed of fuel to be loosened and chafed or scraped off for promoting the draft.

The invention has the further objects to so construct the grate that its sections are not liable to be left in an improper position and to render the sections readily removable from the supporting-frame or fireplace without the necessity of disturbing the fire-bricks.

In the accompanying drawings, consisting of two sheets, Figure 1 is a top plan view of my improved grate. Figs. 2 and 3 are longitudinal sections thereof in lines 2 2 and 3 3, Fig. 1, respectively. Fig. 4 is a vertical cross-section in line 4 4, Fig. 1. Fig. 5 is a similar section showing the grate dumped. Figs. 6 and 7 are vertical cross-sections in lines 6 6 and 7 7, Fig. 1, respectively. Fig. 8 is a view of one end of the supporting-frame of the grate. Fig. 9 is a fragmentary view of the opposite end thereof.

Like letters of reference refer to like parts in the several figures.

The stationary supporting-frame of the grate may be of any ordinary or suitable construction, the frame shown in the drawings consisting of the side wall or bar A and end walls A'.

B is a rocking or dumping grate-section arranged in the supporting-frame near one side thereof and preferably composed of a pair of longitudinal bars b b' , provided with fingers or projections b^2 and connected at their ends by cross-pieces b^3 . These cross-pieces are provided centrally with horizontal journals

or trunnions b^4 , which extend outwardly therefrom and turn in suitable openings or bearings arranged in the end walls of the supporting-frame, as most clearly shown in Fig. 2, so that the grate can be rocked for shaking and dumping the fire. One of these grate-journals is fastened to the end of the rocking grate-section and extends through the adjacent wall of the stove, and the same is provided with a square end b^5 , adapted to receive a suitable handle or wrench for operating the grate-section. The inner bar b of the rocking section is preferably provided with inwardly and outwardly projecting fingers, while its outer bar b' has only outwardly-projecting fingers, as shown in Fig. 1.

C is a laterally-movable grate-section arranged in the supporting-frame adjacent to the rocking grate-section B and preferably composed of side or longitudinal bars c c' and end or connecting bars c^2 . The outer side bar c is preferably provided with inwardly and outwardly projecting fingers, while the inner side bar c' is free from projections. The end bars c^2 are provided between their middle portion and the outer side bar c of the laterally-movable grate-section with outwardly-extending horizontal journals or pivots c^3 , which are supported in the free upper portions of laterally-swinging arms D D', arranged between the ends of said grate-section and the adjacent end walls A' of the supporting-frame. These arms are formed in their free upper portions with openings or bearings for the reception of the grate-journals c^3 and at their lower ends with horizontal trunnions d , which extend through openings or bearings d' , formed in the end walls A', as shown in Fig. 3.

The trunnions d are preferably removable from their openings, and for this purpose each of the same is provided at its projecting outer end with a radial or depending lug c^4 , which retains the same in its opening. One of these openings, preferably the right-hand one, is constructed in the form of an upright slot, as shown in Fig. 9, which slot is of sufficient length and width to permit the passage of the trunnion and its retaining-lug through the same upon raising the trunnion to the upper end of the slot, as shown by dotted lines in the last-mentioned figure. The circular opening or bearing d' of the left-hand trunnion d

is formed with a radial slot d^2 , as shown in Fig. 8, which slot is narrower than said trunnion and which permits the removal of the trunnion from the grate-frame when the lug c^4 of the trunnion is turned into register with said slot, as shown by dotted lines in the last-mentioned figure. The trunnions d lie normally at the lower ends of the slots or bearings d' , and their retaining-lugs c^4 are so arranged that they break register with the slots in both the normal and dumped positions of the grate.

As the laterally-swinging arms are pivoted at their lower ends and carry the grate-section C at their free upper ends, this grate-section is capable of moving laterally or transversely of the grate-supporting frames. This laterally-movable section is operated from the rocking grate-section by being suitably connected therewith.

In the preferred construction (shown in the drawings) the end bars c^2 of the laterally-movable section overlap the inner side bar b of the rocking section and are provided on their under side with downwardly-opening bearings or depressions e , which receive cylindrical portions f , formed on said side bar, as shown in Figs. 4 and 5, these cylindrical portions being confined in the bearings of the laterally-movable grate-section by transverse pins g , arranged in one of the walls of the bearings and extending across the latter below said cylindrical portions, as shown in Figs. 2, 4, and 6. By this coupling or connection between the rocking grate-section and the laterally-movable section the latter is dragged or caused to move bodily inward or laterally to the position shown in Fig. 5 upon rocking or dumping the other grate-section B, this movement of the laterally-movable section being due to the upward and outward movement of the inner bar b of the rocking section, to which it is connected, as will be clearly understood from an inspection of Fig. 5.

Upon returning the rocking grate-section to its normal horizontal position, the laterally-movable section is moved outwardly to the position shown in Figs. 1, 4, 6, and 7, restoring it to its normal position. By this lateral movement of one of the grate-sections the same is caused to chafe or scrape off the ashes or consumed lower layer of the bed of fuel resting on the grate, thereby loosening and opening up the bottom of the fuel-bed and promoting the draft.

As the inner side bar b of the rocking grate-section is located between the side bars of the laterally-movable grate-section, and as said bar when the grate is rocked swings outwardly, it chafes or loosens the middle portion of the bottom layer of ashes, while the side bars of the laterally-movable grate scrape off the remaining portions of the layer. Upon turning the rocking grate-section to the position shown in Fig. 5 ample spaces for the discharge of clinkers are formed between the outer side bar c of the laterally-movable sec-

tion and the adjacent wall of the fireplace and between the opposite wall of the fireplace and the upper surface of the rocking grate-section.

When the grate-sections are in their normal position, the carrying-arms $D D'$ abut against the inner ends of the cross-pieces b^3 of the rocking grate, as shown in Figs. 1 and 7, while when the sections are moved to the other extremity of their movement said carrying-arms abut against the under side of said cross-pieces, as shown in Fig. 5. The grate-sections are thus arrested at both extremities of their movement, and by turning the rocking grate-section until it is arrested all liability of leaving the sections in an intermediate or improper position is obviated.

In my improved grate no gear-wheels or similar parts are employed which are liable to become clogged with ashes, and a proper working of the grate is therefore insured at all times.

My improved compound grate consists of two sections which have essentially different movements—a rocking or dumping section B, which is mounted on pivots or trunnions and is capable of a rocking movement about the same, and a dragging section C, which is moved bodily back and forth as the section B is rocked and which does not materially deviate from a horizontal position in its movements and scrapes off the lowermost layer of ashes during its movement.

I claim as my invention—

1. A compound grate comprising a rocking section which is mounted on pivots and capable of a rocking movement on the same and a dragging section which is capable of a bodily movement toward and from the pivot-line of the rocking section and which is connected with the rocking section and actuated by the same, substantially as set forth.

2. The combination with a supporting-frame, of a compound grate comprising a rocking section which is mounted on pivots and capable of a rocking movement on the same, and a dragging section which is supported at different distances from the pivot-line of the rocking section by connections with the rocking section and by arms which are separate from the dragging section and pivoted to the supporting-frame and permit the dragging section to move bodily to and fro in following the movement of the rocking section, substantially as set forth.

3. The combination with a supporting-frame, of a dumping or rocking grate-section having trunnions journaled in said frame and provided on one side of said trunnions with cylindrical portions or journals, a laterally-movable grate-section provided on its under side with bearings which overlap said cylindrical portions or journals and means for retaining said journals in said bearings, substantially as set forth.

4. The combination with a supporting-frame, of a dumping or rocking grate-section journaled in said frame and having longitu-

dinal bars connected together at their ends and separated by an intervening space, and a laterally-movable grate-section operated from said dumping or rocking section and
5 having a pair of connected longitudinal bars, the inner bar of the rocking section being arranged between the longitudinal bars of the laterally-movable section and the inner bar of the last-mentioned section being arranged
10 between the bars of the rocking section, substantially as set forth.

5. The combination with a supporting-frame, of a dumping or rocking grate-section journaled in said frame, laterally-swinging
15 arms pivoted at the ends of said supporting-frame and provided in their free ends with openings or bearings, and a laterally-movable grate-section provided at its ends with trunnions journaled in the bearings of said arms
20 and connected with said rocking grate-section, substantially as set forth.

6. The combination with a supporting-frame, of a dumping or rocking grate-section journaled in said frame, laterally-swinging

carrying-arms pivoted at the ends of said sup- 25
porting-frame, a laterally-movable grate-section journaled in the free ends of said carrying-arms and having bearings or depressions which overlap the adjacent side bar of the rocking grate-section, and retaining devices 30
which confine said side bar in said overlapping bearings, substantially as set forth.

7. The combination with a supporting-frame, provided in its end walls with upright slots, of a rocking grate-section arranged in 35
said frame, laterally-swinging carrying-arms having trunnions passing loosely through the slots in the end walls of said frame and each provided at its outer end with a radial lug, and a laterally-movable grate-section jour- 40
naled in the free ends of said carrying-arms and connected with the rocking grate-section, substantially as set forth.

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