(No Model.)

# L. BANNISTER.

## GRATE.

No. 272,515. Patented Feb. 20, 1883.

Fig. 1.

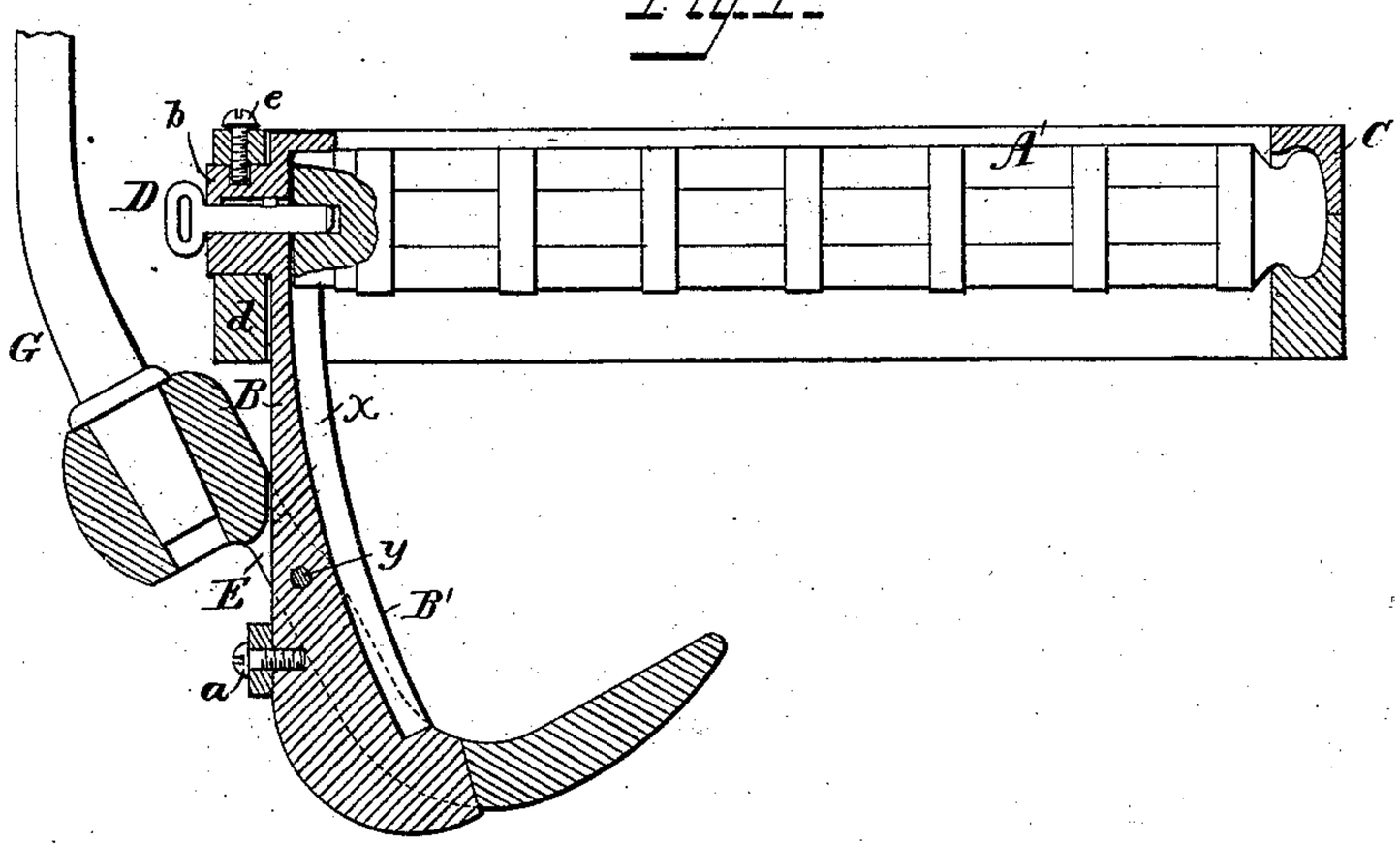



Fig. 2.

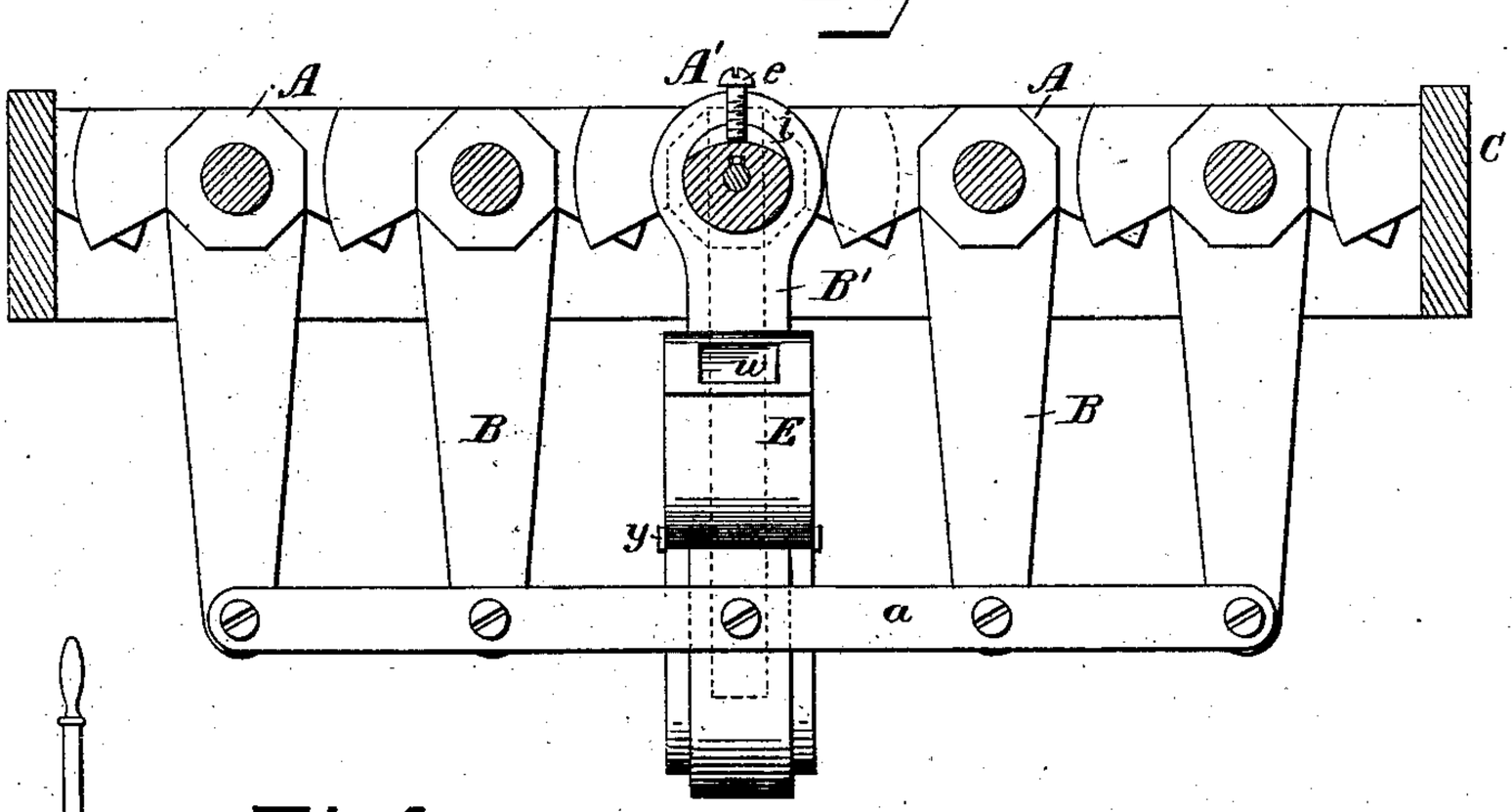



Fig. 4.

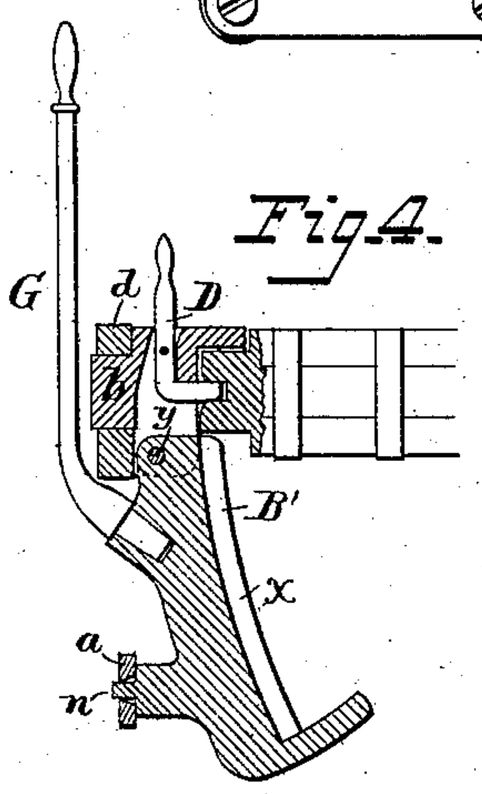
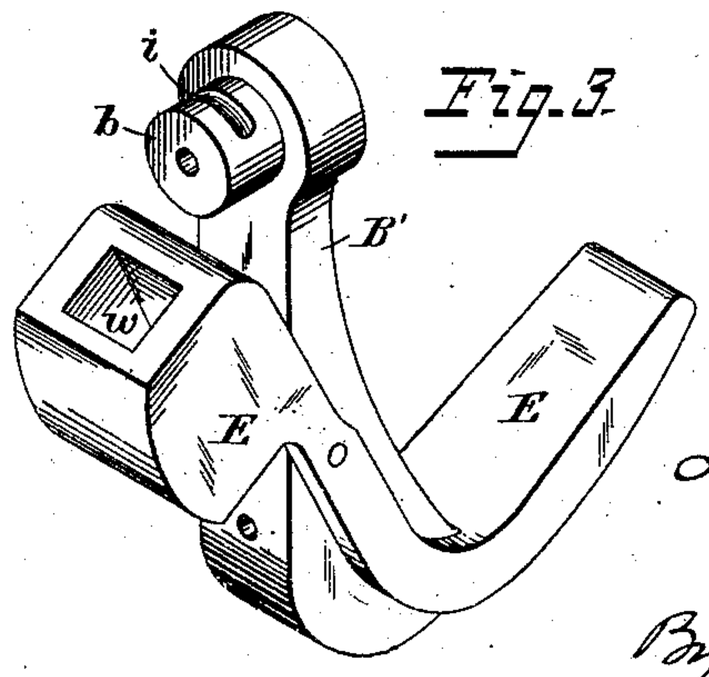



Fig. 3.




Attest:
Courtlandt Cooper
H. E. Hansmann

Inventor:
L. Bannister
By Charles E. Foster
Attorney

# UNITED STATES PATENT OFFICE.

LEMUEL BANNISTER, OF PHILADELPHIA, PENNSYLVANIA.

## GRATE.

SPECIFICATION forming part of Letters Patent No. 272,515, dated February 20, 1883.

Application filed December 28, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, LEMUEL BANNISTER, of the city and county of Philadelphia, State of Pennsylvania, have invented Improvements in Grates, of which the following is a specification.

My invention relates to that class of grates in which one or more bars are dumped or dropped to permit the discharge of the contents of the fire-pot; and my invention consists in means for guiding and elevating the dropping bars.

The invention also embraces a construction of devices specially applicable to grates having rocking bars.

In the drawings, Figure 1 is a sectional elevation of a rocking-bar grate, showing my invention. Fig. 2 is a front elevation in part section. Fig. 3 is a perspective view of part of the device, and Fig. 4 is a modification.

Ordinarily, when a bar or section of a grate is allowed to drop to discharge the ashes from the fire-pot, it is common to permit such section or bar to fall until it strikes the bottom of the ash-pit or the ashes therein. This is liable to result in injury to the bars or ash-pan, and in the case of rocking-bar grates the turning of the other bars sometimes interferes with the raising or lowering of the dropping bars. To avoid these objections I provide a guide or guides, whereby the falling end of the dropping bar or section is so limited in its movements that it cannot pass below the proper point, and is maintained at all times in proper position relative to the other bars. The arrangement of this guide will depend somewhat upon the character of the grate. As shown in the drawings, it is adapted for a grate having rocking bars A A′, the central bar, A′, being a dumping-bar, with pendent arms B B′, connected by a cross-bar, *a*, so that all the arms may be vibrated and all the bars rocked together. The bars have their rear bearings in sockets in the frame C, the journal of the central dropping bar, A′, being enlarged to form a sort of ball-and-socket connection, so that the bar is swiveled at this end, and may be lifted and depressed at the front without being detached from its swivel-bearing. Each arm B has a trunnion or journal, *b*, adapted to a bearing in the front bar, *d*, of the frame A, a pin, *e*, entering a slot, *i*, in said journal, and preventing its withdrawal from its socket without interfering with its rocking movement.

The dropping bar A′ is socketed at the front end to receive the end of a catch device, D—for instance, a sliding pin, D—which will sustain the bar in its horizontal position until the pin is withdrawn, when the bar is permitted to fall. An equivalent of such pin is a catch, (Shown in Fig. 4.) The guide in this case is the central arm, B′, the rear end of which has a groove, *x*, to guide the end of the bar when it falls, and is curved to correspond to a circle having the rear trunnion of the bar as its center. When therefore the pin D is drawn out and the end of the bar falls, it is guided by the groove *x* and its movement limited by the length of the groove, and is retained in contact with the arm B′, so that whatever may be the position of the bars and arms the bar A′ will be retained in relative position to the others, while the dropping of the bar does not prevent the rocking of the other bars of the grate or disarrange the parts.

It will be apparent that the end of the bar A′ may be recessed to receive a rib or guide on the arm B′, instead of making the latter with a groove. The bar may be drawn up into place by means of a chain; but I prefer to use an elevating-lever, E, hung to the arm B′, so that when turned upon its pivot *y* its end is brought against the bar A′, and raises the latter to a horizontal position. This lever may have a socket, *w*, to receive the end of a bar, G, which facilitates the moving of the lever and lifting of the bar A′, and also serves to vibrate the arms B B′ and rock the grate-bars. The lever, instead of being pivoted to the arm B′, as shown in Figs. 1 to 3, may form a part of the latter, as shown in Fig. 4, where the arm consists of a rocking upper section and a pivoted and slotted lower section, the latter receiving and guiding the end of the bar A′, and also serving to raise the latter when said section is swung on its pivot by the bar G, introduced into the socket *w*. In this case the stud *n* on the arm B′ enters freely a hole in the connecting cross-bar *a*.

I am aware that grates have been made with bars all arranged to drop, and with lever ap-

pliances for raising the entire grate or an entire section thereof. My device differs from these in means for guiding a single dropping bar which would otherwise be liable to swing laterally.

Without limiting myself to the precise construction of parts described, I claim—

1. A grate provided with one or more independent dumping or falling bars, and with a guide constructed to receive the end of the falling bar and to limit the movement thereof, substantially as set forth.

2. The combination, in a grate, of rocking bars, one or more swiveled at the rear, a catch for retaining the front end of such swiveled bar, and a guide constructed to receive the front end of said bar and hung to vibrate with the bar, substantially as set forth.

3. The combination, in a grate, of rocking bars and arms B, connected to said bars and to each other, one of said arms having a recess or guide to direct the end of one of the bars when the latter is dumped, substantially as set forth.

4. The combination, with a grate having a bar or bars swiveled at one end, of a lever constructed and arranged to guide and lift the said bar to a horizontal position, substantially as set forth.

5. The combination of the rocking bars, one or more swiveled to fall at one end, arms B, and a lever connected to or forming part of one of said arms and serving to lift the falling bar, substantially as set forth.

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

LEMUEL BANNISTER.

Witnesses:
CHARLES E. HENRY,
HERBERT I. LLOYD.