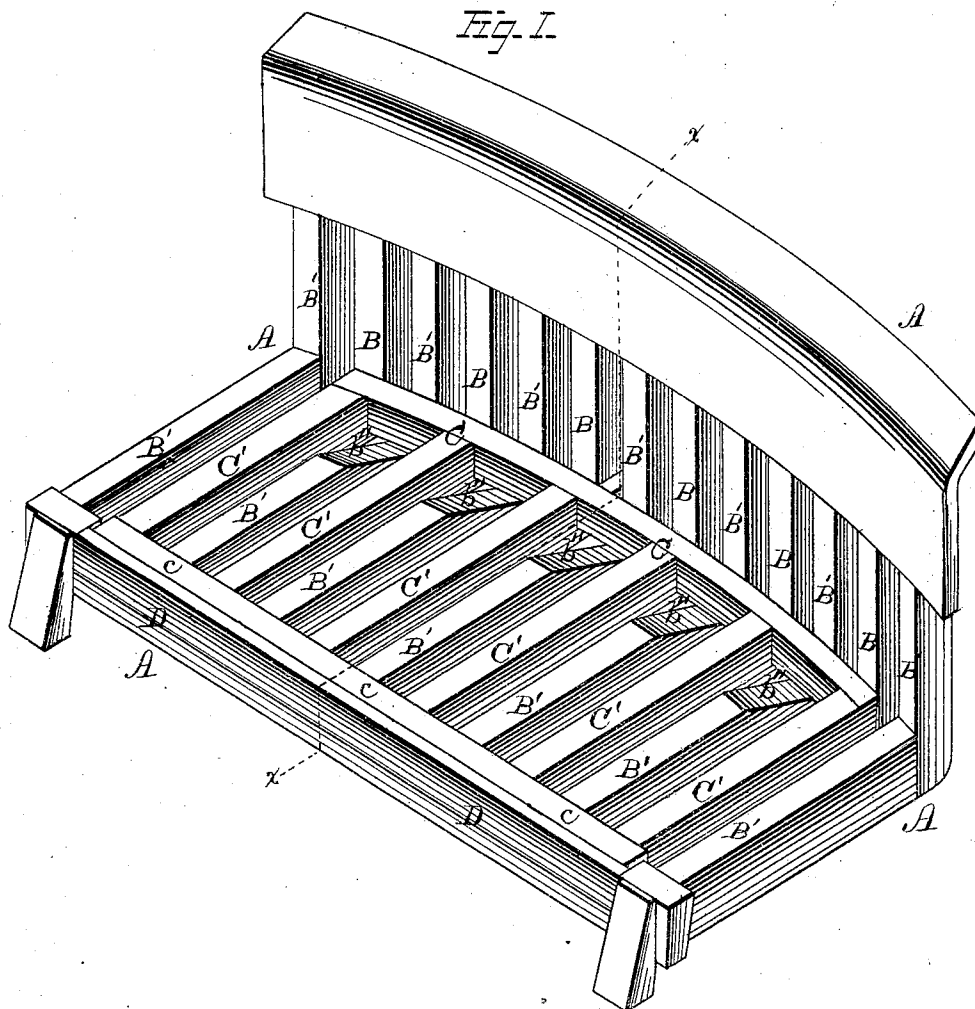


3 Sheets--Sheet 1.

S. KEPNER.
Grates.

No. 145,212.

Patented Dec. 2, 1873.



WITNESSES-

INVENTOR.

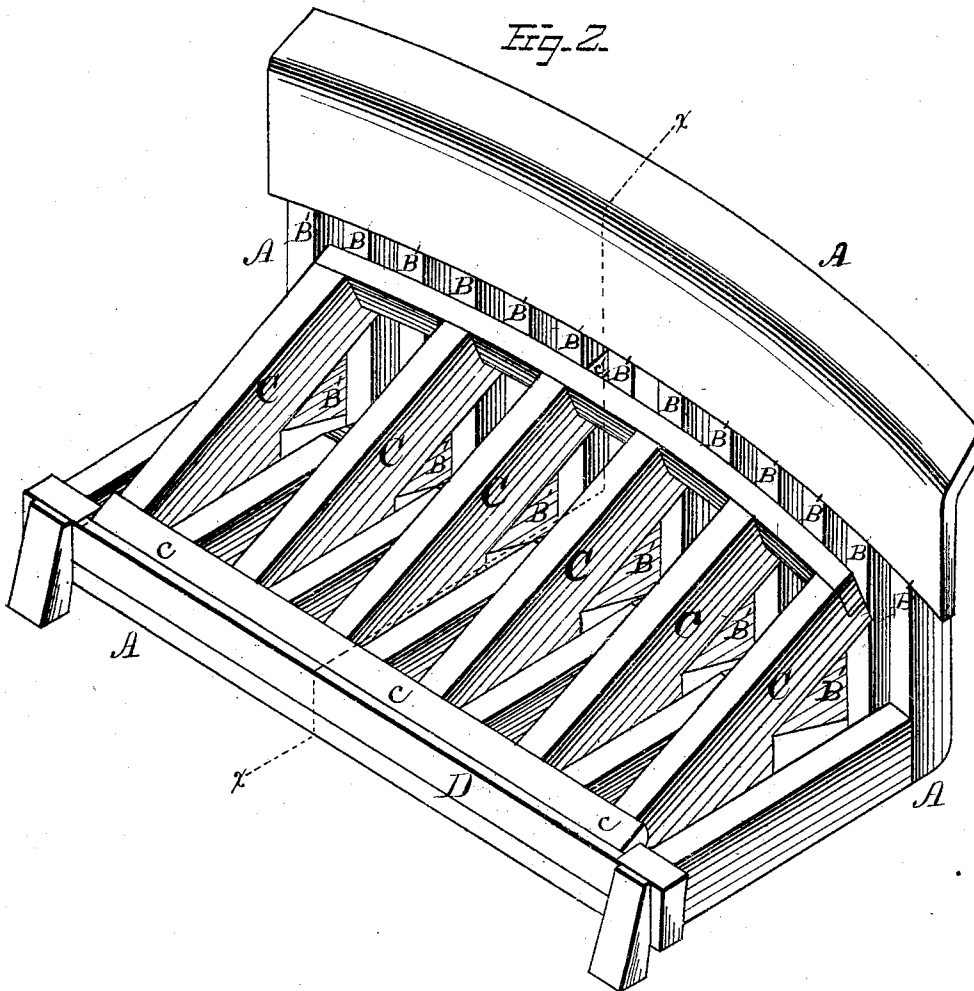
*Jas. E. Hutchinson
 John R. Young*

*Solomon Kepner, by
 Orindle and Deane, his Attys*

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WITNESSES-

Jas. E. Hutchinson
 John R. Young

INVENTOR.

Solomon Kepner, by
 Orindle and Crane, his Attys

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No. 145,212.

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Fig. 3.

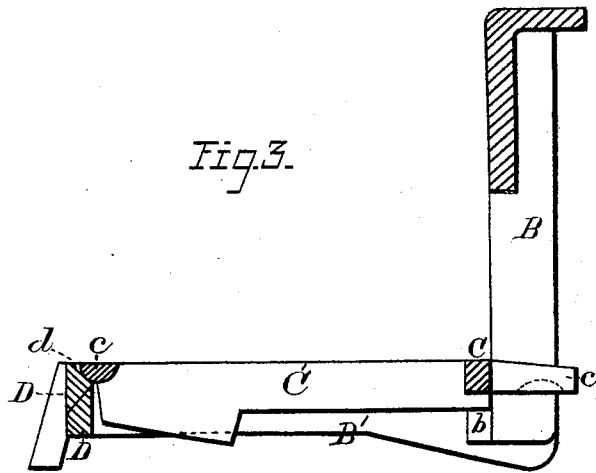


Fig. 5.

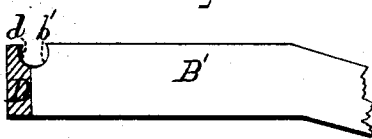
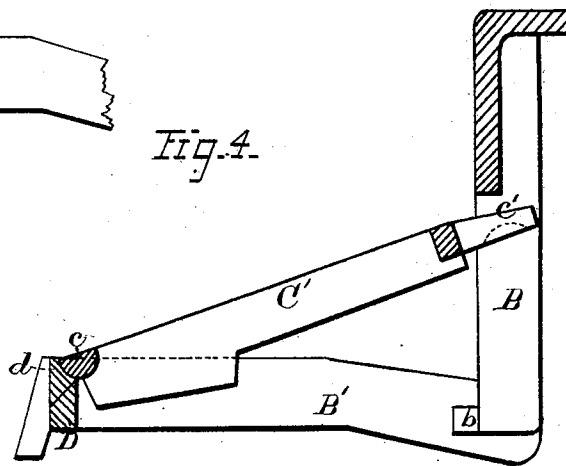


Fig. 4.



WITNESSES.

Jas. E. Hutchinson
 John R. Young

INVENTOR.

Solomon Kepner, by
 Orindle and Beane, his Attys

UNITED STATES PATENT OFFICE.

SOLOMON KEPNER, OF POTTSTOWN, PENNSYLVANIA.

IMPROVEMENT IN GRATES.

Specification forming part of Letters Patent No. **145,212**, dated December 2, 1873; application filed October 25, 1873.

To all whom it may concern:

Be it known that I, SOLOMON KEPNER, of Pottstown, in the county of Montgomery and in the State of Pennsylvania, have invented certain new and useful Improvements in Grates; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view of the grate from the inner side, with its rocking portion occupying its usual position. Fig. 2 is a like view of the same with said rocking portion raised; and Figs. 3 and 4 are vertical sections upon lines passing from front to rear in Figs. 1 and 2, respectively. Fig. 5 is a detail, showing a portion of one of the fixed bars, with the notch in its upper face at the rear end.

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

The object of my invention is to provide a grate that can be easily freed or cleared of the clinkers and refuse material which gather in the bottom or lower part of the fire space or chamber of a grate; and to this end it consists of a grate having a removable or hinged bottom, which can be raised in front so as to afford a space between it and the main grate below, whence slag, clinkers, and the unburned material which has gathered in the bottom of the fire-chamber may be easily removed while the burning fuel rests upon its surface. It consists, further, in a grate the bottom bars of which are so made that one portion are fixed firmly in and to the grate-frame and the other portion (each bar of which falls alternately between the said fixed bars) is attached to a movable frame or piece which can be raised on its rear bar by applying a proper utensil to a lip or projection on its front edge.

In the annexed drawing, A represents the grate, which is designed to be set in a fireplace or stove in any usual or ordinary manner, and, in general construction and appearance, is like the ordinary open fire-grate in common use. It has the usual front horizontal top bar and the rear horizontal bar D. All the fire-bars B and B' are attached, at their upper ends, to said top bar. The bars B' are also attached, at their other ends, to the rear horizontal bar D. Every other one of the front bars B, extending from

the front top bar only down to the lower edge of the grate, projects so far back in a horizontal line, as at *b*, as to afford, in part, a rest or support for the front edge or bar of the removable or tilting bottom-piece C. It will be seen from the foregoing that the bottom of this grate is made in two parts. The bars B', which are fixed at their ends to the top and rear bars, are here set apart double the ordinary distance, so that, before the supplemental or movable bottom-piece C is put in, there is not the usual surface afforded for the coals to rest upon. In the front face of the upper edge of the rear bar D is a groove or offset, *d*, and likewise a portion of the rear top edge of each of the bars B' is cut out, as at *b'*. Thus there is afforded a seat or resting-place for the rear bar *c* of the movable piece C. This bar is rounded on its under surface, and thus fits smoothly into, and moves easily in, the seat or rest formed, as above, by the offset in the rear bar and the notches *b'* in the bottom bars B'. The tops of the front of the horizontal part of the bars B' are chamfered off, so as to allow the front bar of the supplemental piece C to rest down upon them, and thus the upper surfaces of the bars C' of the supplemental piece come flush with those of the bars B' in the bottom of the fire-chamber. In like manner as the bars B' are set apart double the usual distance, so the bars C' of the supplemental piece are set apart, and thus, when this supplemental piece C is set in place, as above described, there will be in the grate-bottom the usual number of bars and the usual openings, since the bars C' alternate with the bars B'. To the front bar of this supplemental piece or bottom C is fixed a projection, *c'*, which comes out between the front bars far enough to admit its being reached by a poker or any suitable implement. By means of this the supplemental grated bottom-piece C may be lifted up in front, its rear end being practically journaled by the means and in the manner hereinbefore described.

When there is a fire in the grate and the piece C is thus lifted, the clinkers, stone, and unconsumed refuse of the fuel will fall through the wide spaces between its bars and will drop into the ash-pit, or can be easily pulled out by a poker. This clearing process can be carried on completely without putting out the fire in the

coals above, and, when once the unconsumable refuse is thus taken away and the supplemental bottom dropped back to its seat, the fire will burn up freely and briskly. The clinkers, &c., can not only be removed thus while there is fire in the grate, but, when it is necessary to clean out the grate entirely, after the fire has gone out, the operation is very much easier than in the old style of grate, where the coals, refuse, &c., have to be picked out by hand. The ashes are easily removed at any time by a quick up-and-down movement of the supplemental piece.

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

1. The movable or tilting bottom-piece C, combined with the rear bar D having an offset or groove, *d*, and with the bars B' having

notches *b'*, in the manner and for the purposes set forth.

2. The combination of the bars B and B' with the tilting grate C having the projection *c'*, in the manner set forth.

3. The grate A having the long and bent bars B', the short front bars B provided with projections *b*, and the tilting bottom C constructed and hinged as described, the several parts combined in the manner and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of October, 1873.

SOLOMON KEPNER.

Witnesses:

D. F. REINERT,
L. L. BECHTEL.