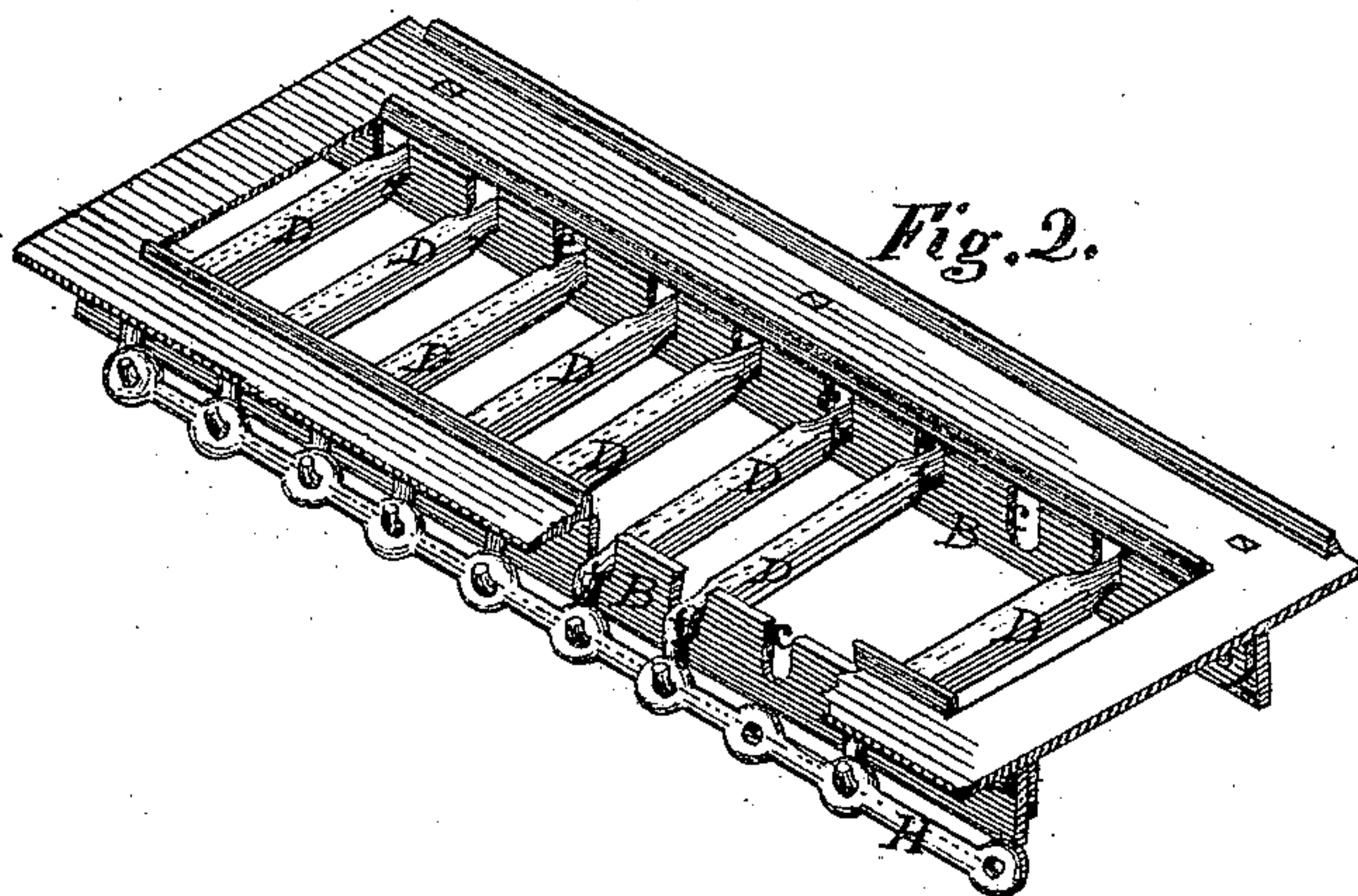
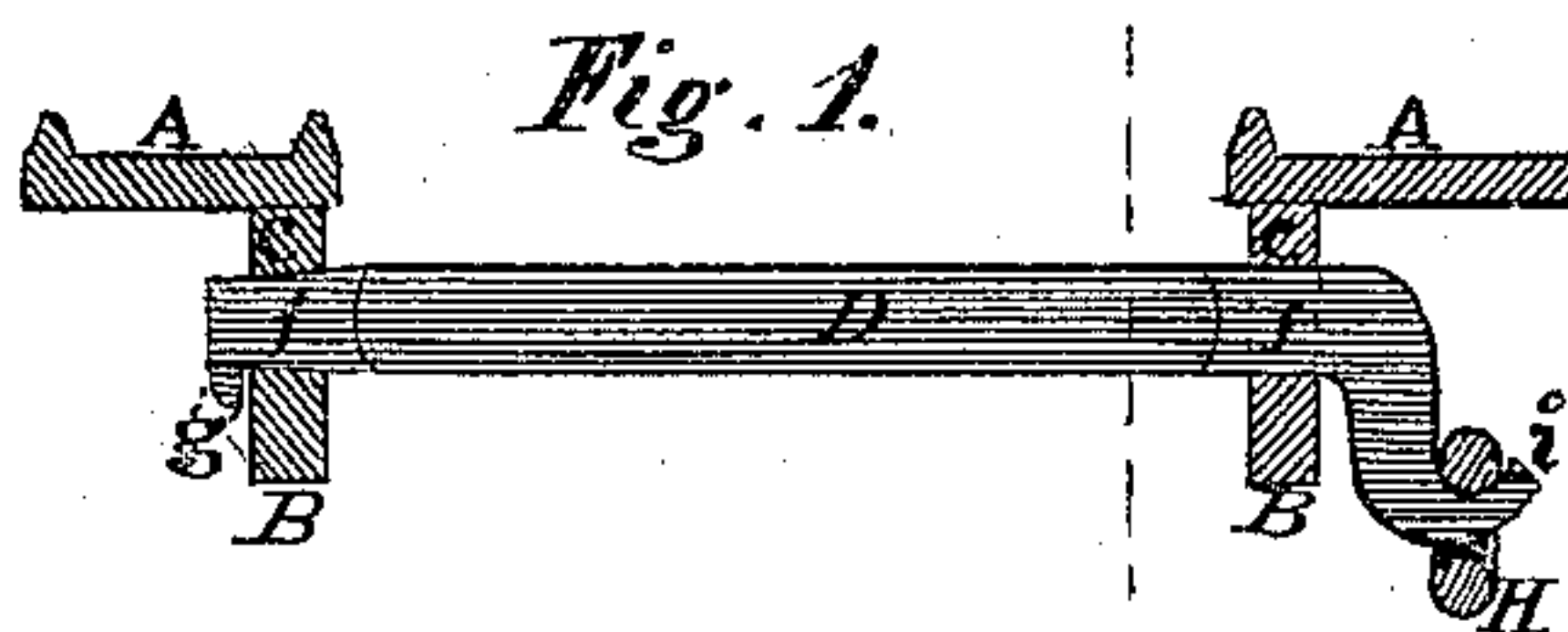


A. WINTERBURN.
STOVE GRATE.

No. 104,242.

Patented June 14, 1870.



A. Winterburn
Inventor

Witnesses { *Alex. Selkirk*
Chas. Selkirk.

United States Patent Office.

ANDREW WINTERBURN, OF ALBANY, NEW YORK.

Letters Patent No. 104,242, dated June 14, 1870.

STOVE-GRATE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ANDREW WINTERBURN, of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Grates for Cooking-Stoves, Cooking-Ranges, and Furnaces; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a perspective view of my invention, with portions of the bed-plate of the same broken away, illustrating the manner in which the grate-bars are set therein.

Figure 2 is a cross-section, on an enlarged scale, (than the perspective,) of a section of the grate, taken at right angles with the grate-bars comprising the same, and illustrating the several bars as being oscillated.

Figure 3 is a longitudinal view, on the same scale, of a grate-bar, and a cross-section of the bed-plate of the same, and the connecting-rod used to operate this invention.

The same letters indicate like parts.

The bed-plate, which is to hold and carry the several parts of this invention, consists of the plate A, constructed with any suitable modification of form that would be required to adapt this invention to the style of cooking-stove, range, or furnace with which it is to be used.

To the said bed-plate A are cast or attached securely the vertical flanges B B, which flanges are each furnished with U-shaped bearings, c, in number to correspond with the grate-bars to be used. The said bed-plate, consisting of the plate A and flanges B, is to be placed in the bottom of the fire-box of the stove, range, or furnace, and may be constructed to maintain one position, or be arranged to be capable of being swung or dumped, if desired, by making, with each end of the said bed-plate, a rounded spindle or journal, which would work in proper bearings in the fire-box or sides of the stoves, or equivalents.

The grate consists of several bars, D, made of a length of body proportionate with the stove, range, or furnace they are to be applied to.

The said bars D are provided at each end of bodies with journals, f f, figs. 1 and 3, which journals are to work into the U-shaped bearings c c.

One end of each of the said bars D is provided with a hooked crank, i. The said bars are so arranged that the said cranks i of the several bars will all range on one and the same side of the bed-plate, as shown in fig. 1; and, when the said bars are thus arranged, each bar D will be capable of being oscillated or rolled in such a manner that their upper surfaces can be

turned from a horizontal plane to that of an incline, as shown in fig. 2, and to the reverse.

To operate the several grate-bars D simultaneously, and impart to the same the oscillating movement described above, I use a connecting-rod, H, which rod is provided with a number of eyes, shown in fig. 1, and by dotted lines in fig. 2, corresponding with the number of bars D used. Each eye of the said rod H is to receive a crank-end, i, of the said bars, as shown in the several figures.

The said connecting-bar H is also provided with a handle on one end, by which the said bar can be operated in a reciprocating manner, so as to impart the desired oscillating movement to each and every bar D. Should the bed-plate be made fixed in the fire-box of the stove, or equivalent, this invention is to be used with, I would permit the handle end to work through any suitable hole or slot in the side of the said stove. But, if it is intended to have the said bed-plate swing so as to be capable of being dumped, I would form the said handle end of the connecting-rod H so as to turn down to an angle, so that the said handle would not present itself as an obstacle against such swinging or dumping of the whole.

I also make on the journal end of each grate-bar D, and on the lower sides of the same, projecting lips, g, (or its equivalent, a partial flange,) which will be capable of preventing the said journal ends of the said bars being drawn out of their bearings c, and in the direction of the crank ends i. And while the said lips g (or their partially flanged equivalents) prevent the said bars being displaced by a longitudinal movement, in a direction toward the crank side of the grate, the cranks i will, on their part, prevent the said bars being moved in a direction opposite or toward the lipped journal side of the grate; thus, by both the lips g and cranks i, the said grate-bars D will be retained in their proper position against any accidental displacement from their places in the bed-plate.

In practical use, the several parts of this invention operate as follows:

The body of fuel, with ashes and cinders intermixed, is supported by the several grate-bars D. When the ashes and cinders are to be removed from the body of fuel in the fire-box, the operator, either by his hand or with a suitable hooked instrument entering the eye of the handle, grasps the handle of the connecting-rod H, and, by pulling the said rod in a horizontal direction, will, by the eyes of the said rod, carry the cranks i in the direction the said rod H was drawn, and will cause the bodies of the said bars D to roll on their journals f f, and cause the top surfaces of the said bars to turn out from a horizontal line to that of an inclined position, as shown in fig. 2. The ashes

and cinders being softer and more easily broken than the coal, will, in being crushed, drop down in the trough formed by the incline given to the top surfaces and the sides of each contiguous bar. When the said connecting-bar is pushed back past its normal position to a distance equal to that it was first drawn, the inclination of the tops of the several bars will be reversed, and the depressed top corners of the several bars D, when being thrown up, will throw the ashes and cinders lying on them upward against the body of the fuel, and carry said ashes, &c., to an inclination to fall in a second series of troughs in the reverse from the first.

The operation being continued, the several throws of the many grate-bars will continually change the positions of their top surfaces, and reverse, alternately, the forms of the several troughs, and effectually agitate, crush, and work out the ashes and cinders from the more solid and unconsumed coal.

It is to be understood that the bed-plate, consisting of the plate A and flanges B are (in any of the modified forms it may be made) to be considered as a part of the stove, range, or furnace this invention

is to be used with, if the grate, as a whole, is to be fixed in a horizontal position; but, if the grate was to be constructed to swing or dump, as intimated, the said bed-plate would be considered as properly belonging to the grate and forming a part of the same, and would be subject for another patent.

Having described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. A grate for a cooking-stove, cooking-range, or furnace, consisting of the several bars D, formed with journals *f f*, rolling in bearings *c c*, and provided with crank ends *i*, in combination with the connecting-rod H, when all are constructed and arranged to operate substantially in the manner set forth, for the purpose specified.

2. The combination of the lip *g* and crank ends *i*, with the grate-bar D, substantially as and for the purpose set forth.

A. WINTERBURN.

Witnesses:

J. A. BUCKBEE,
ALEX. SELKIRK.