O. P. JACKSON.
Shaking-Grates.

No. 199,552. Patented Jan. 22, 1878.

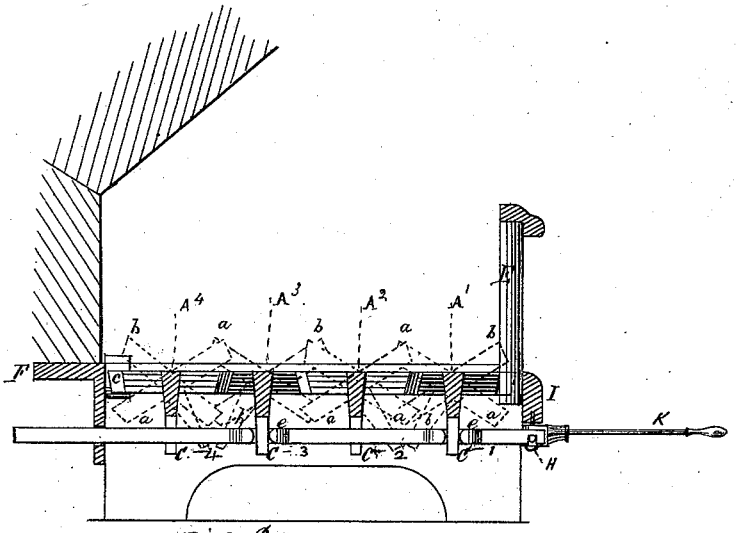

Fig. 2.

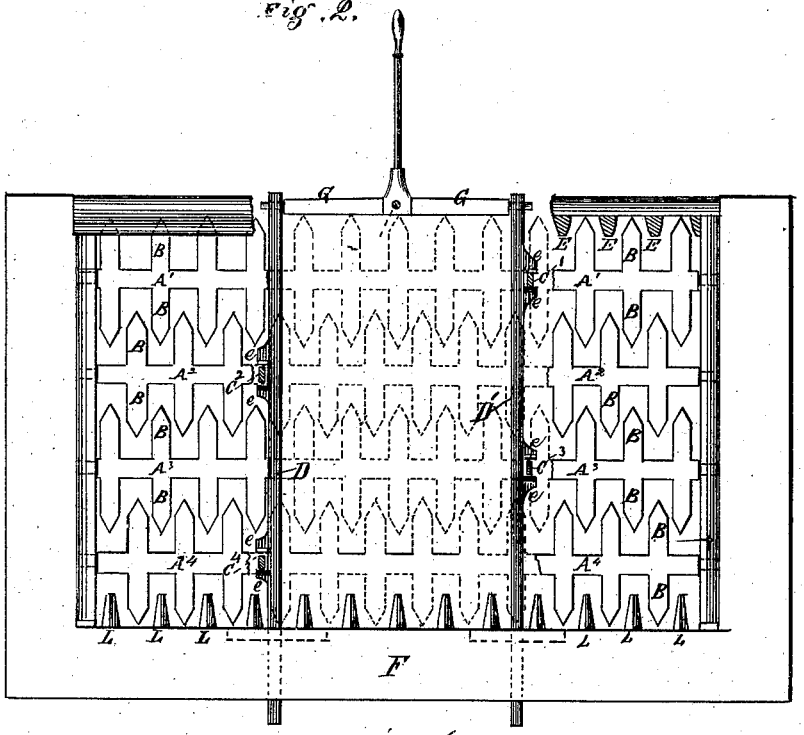

Fig 1

Witnesses

James McEvoy
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UNITED STATES PATENT OFFICE.

OLIVER P. JACKSON, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN SHAKING-GRATES.

Specification forming part of Letters Patent No. **199,552**, dated January 22, 1878; application filed January 22, 1877.

To all whom it may concern:

Be it known that I, OLIVER P. JACKSON, of the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Shaking-Grates, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a plan view of my invention, the central portion of the bars being removed, as is shown by the dotted lines. Fig. 2 is a transverse vertical section.

The object of my invention is a grate the bottom of which can be changed from a plain to a series of ridges and hollows alternately, whereby the fire is loosened up and elevated, the ashes shaken out, and the air-surface increased or diminished at pleasure.

This I accomplish by the combination of two or more rocking bars, provided with short lateral bars on each side, having free ends, an arm or lever projecting down from the under side of each rock-bar, two actuating-rods provided with pairs of lugs, a two-way lever pivoted to and under the front rail, and provided with a socket or similar device for actuating it, and series of stationary bars, which project between the front and back lateral bars.

A^1 A^2 A^3 A^4 are the rock-bars, journaled at each end in suitable bearings. Projecting from each side of them are the short horizontal bars B, the ends of which are free. Said lateral bars on the one rock-bar alternate with and interlap those of the adjoining rock-bar, or, if at the front or back, with stationary bars.

C^1 C^2 C^3 C^4 are lever-arms, fast on the rock shafts or bars, and projecting downward, one from each shaft, as shown in the drawing. I is a rail across the front, from which project the vertical bars E, which are arranged thereon so that the ends of the front row of lateral bars B freely enter between them at their base. Attached to the under side of said rail by a pivot, which forms its fulcrum, is the swinging two-way lever G, provided on its front with a socket for the reception of a shaker.

Connected to each end of lever G, by pivots or similar device, are the actuating-rods D D′, which extend from front to the back under the bars A, and pass through guide-holes in the back plate F.

Pairs of lugs, *e e*, are mounted on rod D′ directly under bars A^1 A^3, and receive the ends of the lever-arms C^1 C^3. Similar lugs are mounted on rod D, but directly under bars A^2 A^4, and receive the ends of arms C^2 C^4.

L is a series of short horizontal stationary bars, which are arranged to alternate with and interlap the last row of lateral bars B.

Operation: The bars being all horizontal, the shaker (or a poker) is inserted in the socket of the lever G and moved right and left alternately, causing the rods D and D′ to move back and forth, but reversely one to the other, and the lugs to impinge the ends of the lever-arms C^1 C^2 C^3 C^4, and through them impart a rocking motion to the bars A^1 A^2 A^3 A^4, but in direction opposite each to the adjoining one, thereby raising the free ends of the lateral bars B on the one side of bars A, and depressing those on the other side, each series of interlapping bars B moving together in the same direction, up or down.

When the lateral bars are changed from the horizontal position, they, in a manner, separate, thereby enlarging the under air-surface, which is again decreased by a return to the horizontal position.

I do not wish to be understood as limiting myself to any particular number of rocking bars, or to placing them longitudinally of the grate, as their number will depend upon the amount of heating-surface required; and under some circumstances it may be found best to place them transversely in the grate, with the swinging lever at the side and the actuating-rods longitudinally. Nor do I wish to confine myself to a vertical position of the front bars E, as in some cases some other position, as an inclined one, might be found best.

For purpose of full description of the invention, I have shown four rock-bars. Some grates, however, may require but two.

It is evident that A^3 and A^4 are but duplicates of A^1 and A^2.

Having thus described my invention and its operation, what I claim, and desire Letters Patent for, is—

1. Two or more rock-bars provided with lever-arms, and on each side with a series of

short projecting horizontal bars, arranged to alternate with and interlap those of the next adjoining rock-bar, or with a series of short stationary bars, in combination with a two-arm lever and actuating-rods, all arranged and operating as described, and for the purpose set forth.

2. The two-arm lever G, rods D and D′, and lever-arms C, all combined and operating to impart a rocking motion to bars A, and as described, for the object as specified.

3. The combination, in a fire-grate, of the bars A B, lever-arms C, rods D, lever G, vertical bars E, and stationary bars L, all arranged and operating as described, and for the object as specified.

OLIVER P. JACKSON.

Witnesses:
J. E. BRUNER,
WM. M. CUTHBERT.