JAMES JONES.

Improvement in Rocking Grate-Bars.

No. 115,482. Patented May 30, 1871.

Fig. 1.

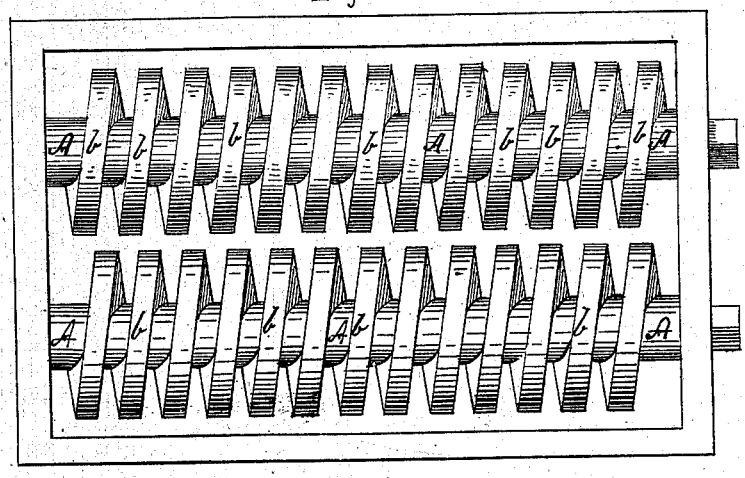


Fig. 2.

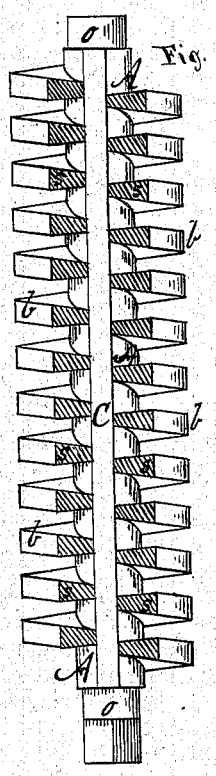


Fig. 3.

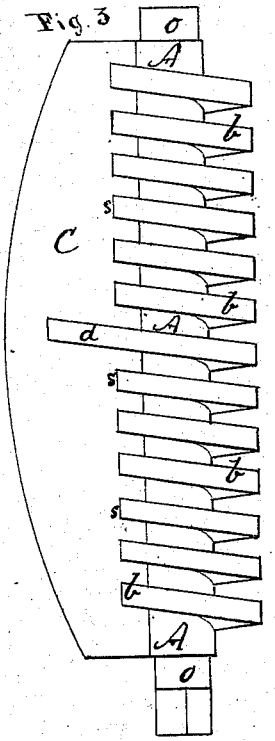
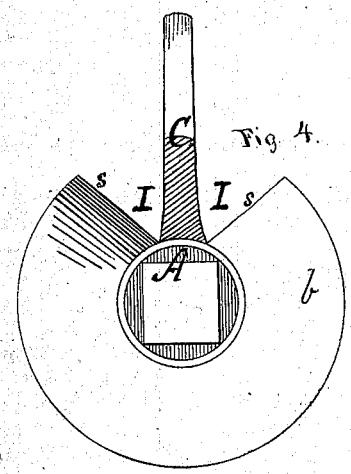


Fig. 4.



Witnesses.
W. R. Peck
A. L. Peck

James Jones
Inventor

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JAMES JONES, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN ROCKING-GRATE BARS.

Specification forming part of Letters Patent No. 115,482, dated May 30, 1871.

To all whom it may concern:

Be it known that I, JAMES JONES, of the city of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Grate-Bars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Figure 1 represents a top view of two of my improved grate-bars journaled in a frame in proper relation to each other for use. Fig. 2 represents the under side of one grate-bar without the braces. Fig. 3 represents a side view of the grate-bar, exhibiting its truss and one brace. Fig. 4 represents a transverse section of Fig. 2.

The object of my invention is to produce a grate-bar equally well adapted for burning fine or coarse fuel, and which may be used in furnaces for burning coal-dust, screenings, and other similar fine fuel, as well as for the ordinary lump-coal.

I will describe the several distinguishing features in the construction of my grate-bar with reference to the accompanying drawing.

The central longitudinal shaft or axle A is provided with journal *o* at each end, which will support it in suitable bearings in the grate-frame of a furnace. The shaft A is cast with segmental spiral flanges *b b*, and with the longitudinal truss C and lateral braces *d*. The segmental flanges constitute sections of a screw-thread, which terminate at *s s* at each side of the truss C. The truss C serves as a support to prevent the grate-bar from deflecting out of line; and between it and the ends *s s* of the flanges *b b* two V-shaped recesses are formed at the under side of the bar, denoted by the letter I in Fig. 4, to admit the discharge of ashes or cinders, and for the free communication of air with the central shaft A throughout its length. The segmental spiral flanges *b b* are made thicker at their peripheries than they are where joined with the shaft A, and the spaces between them increase in width and capacity from the periphery of the grate-bar to the shaft, as is represented in Fig. 2 of the drawing. Forming these spaces between the spiral flanges in this manner, with enlarged dimensions at the intersection of the flanges with the axle A, prevents the lodgment of cinders or ashes between them, and consequently avoids all liability of clogging the grate and burning it out, and also insures free access of air to all the surfaces of the grate-bar excepting the peripheries of the flanges *b b*, upon which the fuel rests. The truss C is of sufficient width, radially, to the shaft A to serve as a stop, which will strike against the adjacent grate-bars and limit the extent of movement when the grate-bar is oscillated upon its journals to discharge ashes and open the fuel in the furnace. The trusses C of several grate-bars may be connected by a pivoted bar or rod, so that the oscillating motion of one grate-bar will be communicated to all the others so connected together. The truss is supported centrally by braces *d*, (one on each side,) which are continuations of one of the central spiral flanges *b*.

The action of the spiral flanges on the mass of charred fine fuel to agitate it is not violent when the grate is oscillated, like the effect produced by bars having an irregular surface, and consequently they will not greatly derange or disturb the burning fuel and cause it to fall through the grate; but these spiral flanges act longitudinally upon the mass, causing seams or crevices to be opened in the charred mass of fine fuel, through which air will be drawn or forced to promote the combustion.

My grate-bars can be successfully used for burning mixed fuels, coarse and fine screenings of coal with sawdust, and either of these kinds of fuel, separately, may be burned upon my grate-bars by the use of a blower without subjecting the bars to undue heat.

The spaces between the spiral segmental flanges being of the form described, any substance of a size which would enter between the flanges at their peripheries would be readily discharged by the gentlest oscillation of the grate-bars.

Having fully described my improved grate-bar, I claim and desire to secure by Letters Patent as my invention—

1. The combination, in a grate-bar, of the segmental spiral flanges *b b* with the axle A, substantially as and for the purpose described.

2. The arrangement of the truss C in rela-

tion to the ends *s s* of the flanges *b b* so as to form the two draft and discharge spaces I I, in the manner and for the purpose described.

3. The grate-bar in which the axle A, flanges *b b*, truss C, and braces *d* are employed in combination, substantially as described, for the purpose specified.

In testimony hereof I have hereunto set my hand this 16th day of March, A. D. 1871.

JAMES JONES.

Witnesses:
H. P. K. PECK,
A. L. PECK.