

H. C. KERSTINE.

Grate-Bars.

No. 143,079.

Patented September 23, 1873.

Fig. 1.

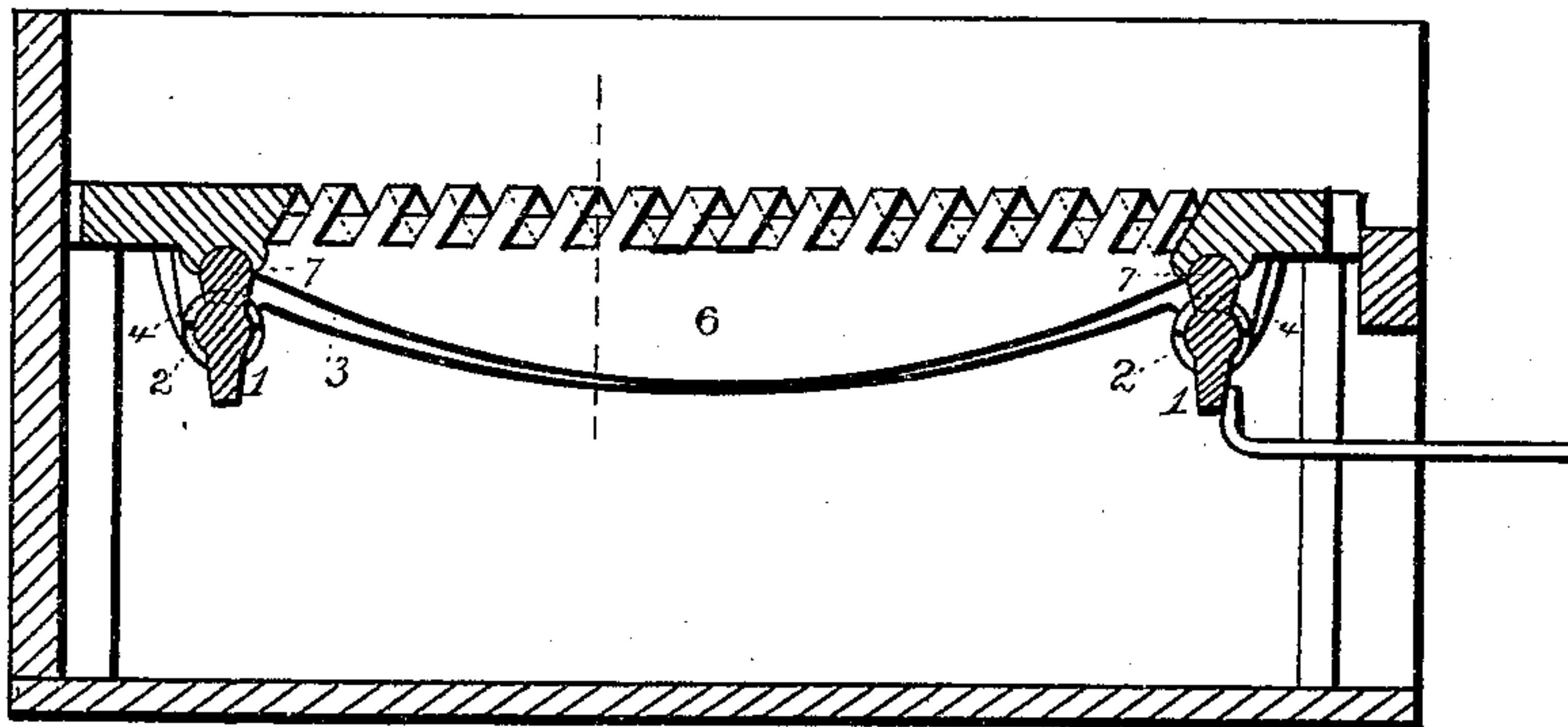


Fig. 4.



Fig. 2.

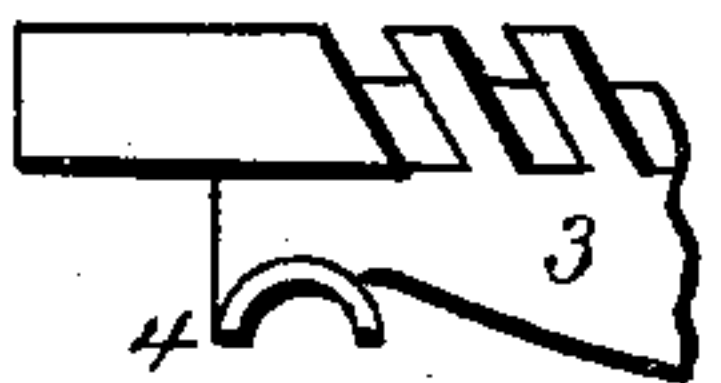
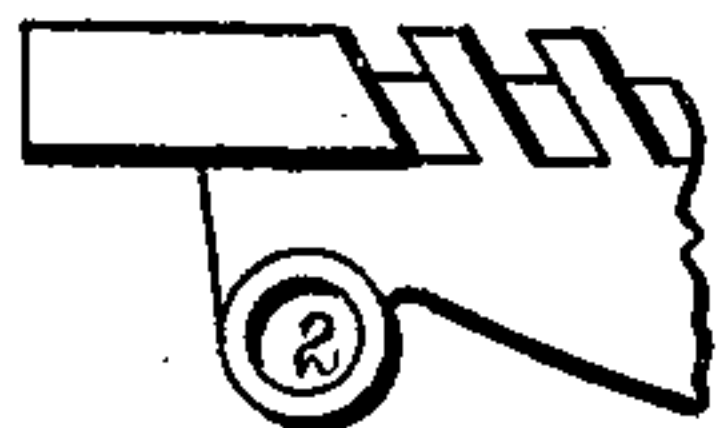
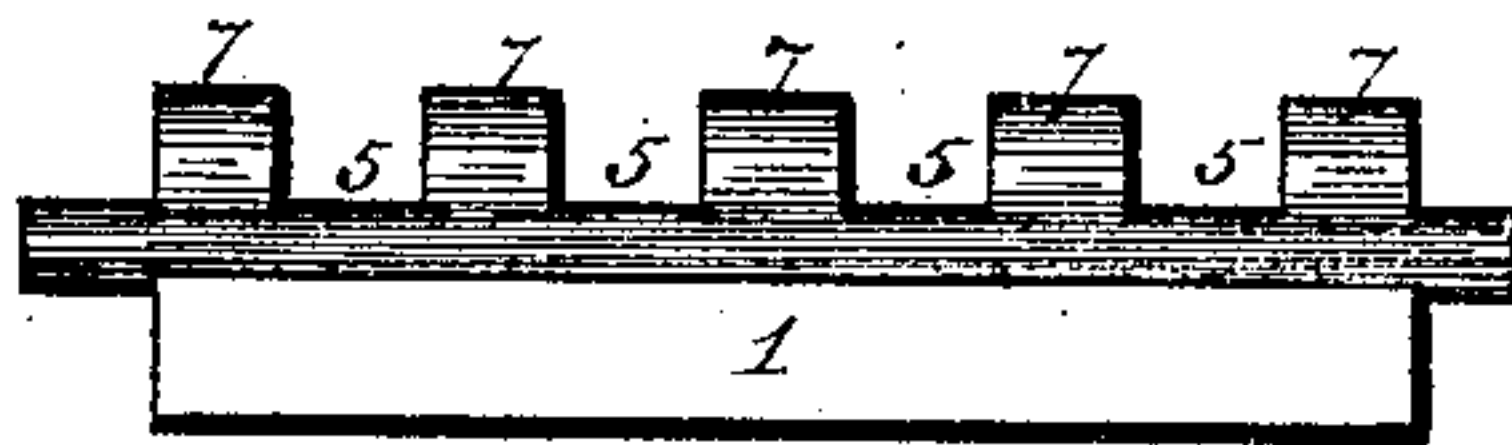


Fig. 3.



WITNESSES.

H. A. Adams
W. S. Hendley.

INVENTOR.

H. C. Kerstine
per
F. A. Lehmann, Atty
Washington, D. C.

UNITED STATES PATENT OFFICE.

HENRY C. KERSTINE, OF CLEVELAND, OHIO.

IMPROVEMENT IN GRATE-BARS.

Specification forming part of Letters Patent No. **143,079**, dated September 23, 1873; application filed June 13, 1873.

To all whom it may concern:

Be it known that I, HENRY C. KERSTINE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Grate-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

The nature of my invention relates to an improvement in grate-bars; and it consists in cogs or projections placed slantingly upon the tops of the bars, and arranged in relation to each other so as to work in opposite directions, all of which will be more fully set forth hereafter.

Figure 1 is a longitudinal section of my grate. Fig. 2 shows the end of one of each of the sets of bars. Fig. 3 is a side view of one of the pivots; Fig. 4, a section of one of the bars.

The bars which constitute the grate rest upon the two pivots 1, which are supported in ears 2 of a stationary bar arranged upon each side of the fire-box or furnace. These bars are divided into sets, one of which moves back and forth, and the other remains always stationary. The stationary set 3 are provided with bearing-surfaces 4, which project downward a sufficient distance to rest in the spaces 5 formed in the pivots 1, and yet raise them to a level with the movable set 6, which rest upon the raised portions 7. The top of the bearing in the spaces 5 is on a level with the center of motion, so that when the pivots are

rocked back and forth the motion will not affect the bars 3 at all; but the bearings or raised portions 7 being at a distance from the center of motion, as soon as the pivots are turned these bearings act as a lever to move the bars 6 back and forth. Thus every alternate bar will move, while the others remain stationary. Upon the top of each bar are formed a number of slanting cogs or projections, which are arranged in the grate in opposite directions to each other, so that when the grate is shaken any clinkers or other substances resting upon it will be ground to pieces, so as to readily fall through the openings in the bars into the ash-pit beneath.

By having one set of bars move and the other remain stationary but one-half of the labor is required to shake the grate that is necessary when both sets move.

I am aware that a grate composed of a stationary and a movable set of bars is not new, and I do not therefore claim such; but

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A grate composed of a stationary and a movable set of bars, and which have teeth arranged in opposite directions upon their tops, so as to break and grind the clinkers, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 6th day of June, 1873.

HENRY C. KERSTINE. [L. S.]

Witnesses:

JACOB SCHROEDER,
M. REINHARD.