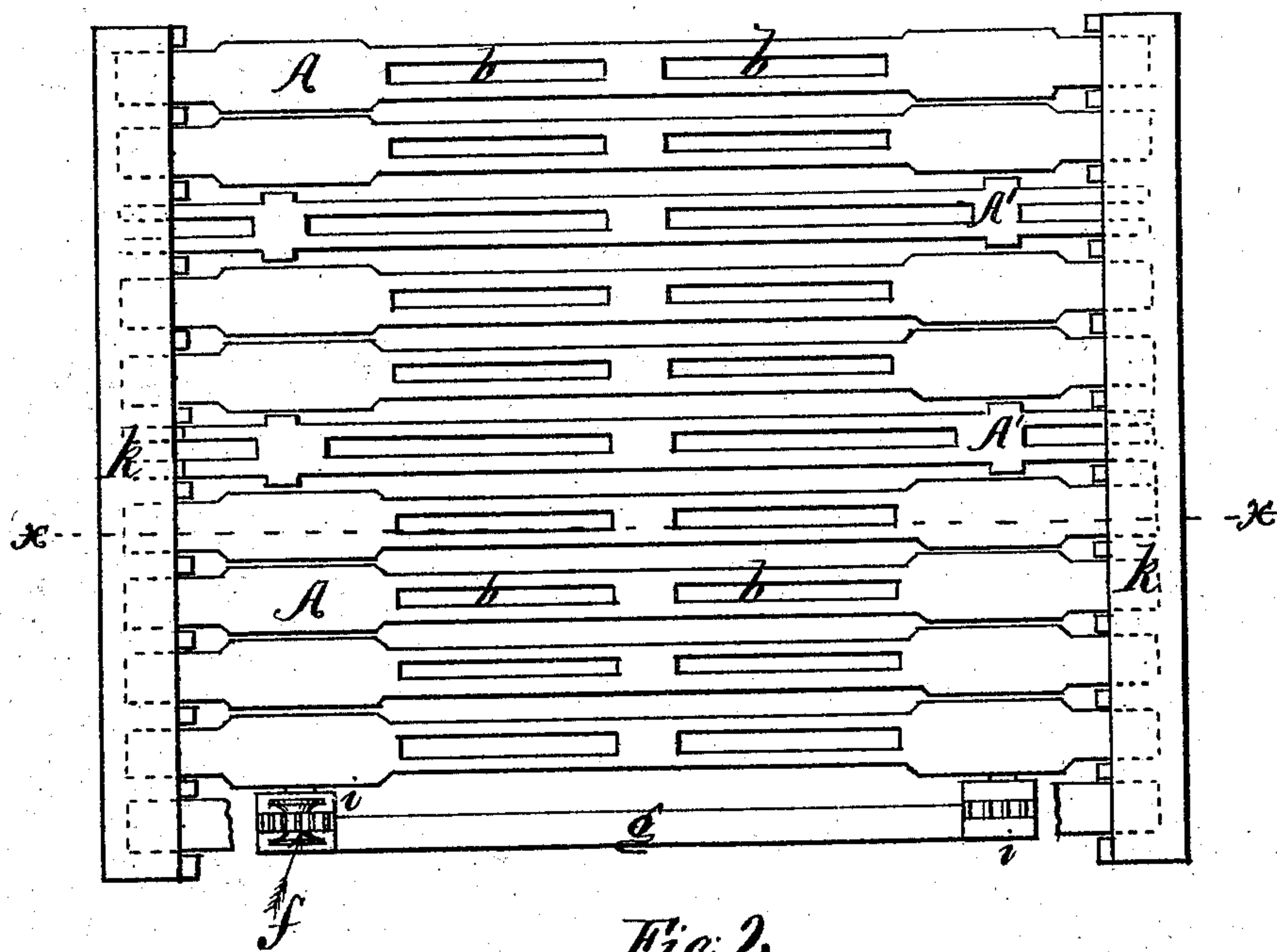


**W. RYDER.**  
**Rocking Grate-Bars.**

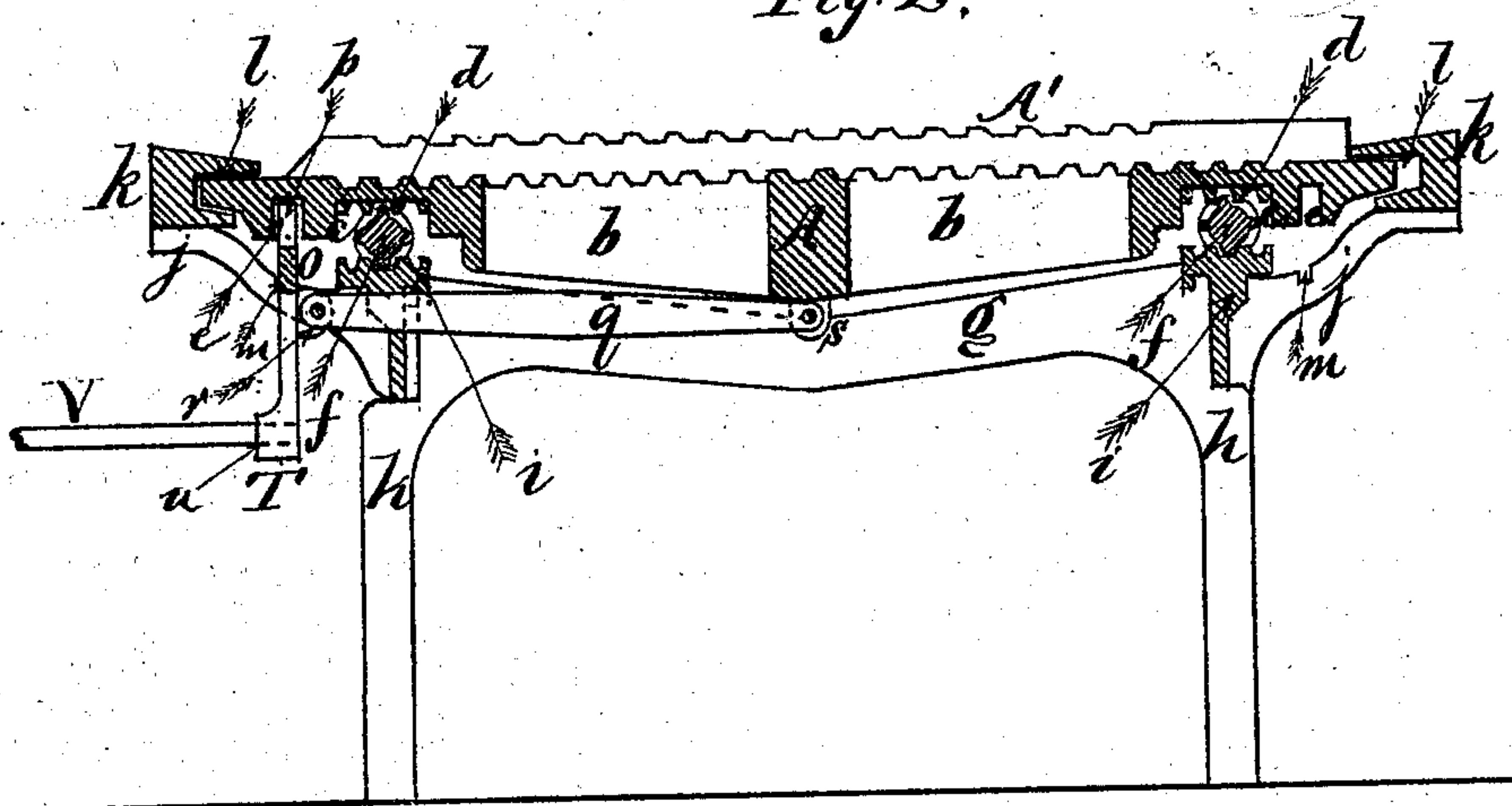
No. 150,435.

Patented May 5, 1874.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*  
Richard Gerner  
Franklin Barlett.

*Inventor:*  
Watson Ryder.  
*Per:* Henry Gerner.  
Atty.

# UNITED STATES PATENT OFFICE

WATSON RYDER, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENT, TO ELIZABETH S. RYDER, OF SAME PLACE.

## IMPROVEMENT IN ROCKING GRATE-BARS.

Specification forming part of Letters Patent No. **150,435**, dated May 5, 1874; application filed March 30, 1874.

*To all whom it may concern:*

Be it known that I, WATSON RYDER, of Brooklyn, Kings county, State of New York, have invented certain Improvements in Grate-bars, of which the following is a specification:

The object of my invention is to provide for rocking grate-bars for furnaces, which are so arranged that the bars can be rocked alternately in an opposite direction, whereby the cinders and clinkers are broken and fall down together with the ashes into the ash-pit.

My invention consists in constructing grate-bars, cast together in pairs, and corrugated or notched on the top. At both ends, underneath, a recess is made, provided with cogs, and into the extreme ends of the grate-bars, also underneath, a groove is cut. These bars are placed on a frame supported on four legs, or the end pieces of the frame running across the furnace may be made of sufficient length to be laid into the wall or fastened to the same. On the top of these end pieces are also cut cogs, just underneath each pair of grate-bars. Between the end piece and the grate-bars, fitting into the cogs of both, is a friction cog-roller. To the end pieces, extending outward, are fastened brackets, which serve to support cross-pieces on each end, provided with sockets cut into their inner sides, and in which the ends of the grate-bars fit. These cross-pieces serve to prevent the fuel and refuse from lodging between the ends of the bars and the furnace, which would prevent these from being rocked. In the top of the front brackets are cut notches, in which is laid a bar with arms or levers extending upward, and fitting into the grooves in the ends of the bars, each arm alternately fitting into a bar-groove, the other bars between being rocked by connecting-rods placed between arms or levers in the lower part of the bar, and pivoted to the center of the grate-bars. An arm or lever extending

downward from the center of the bar serves to hold a rod, by aid of which the grate-bars are rocked.

In order to more fully describe my invention, I refer to the accompanying drawing forming a part of this specification.

Figure I represents a plan view of a set of grate-bars embodying my invention. Fig. II is a sectional view through line *x x*, Fig. I.

A is a pair of grate-bars, with openings *b b* between, and corrugated at the top. *c c* are the grooves, with cogs *d d*. *e e* are the outside grooves. *f f* are the friction cog-wheels. *g g* are the sides of the frame. *h h* are the legs. *i i* are the end pieces with brackets *j j*, holding the cross-pieces *k k* with sockets *l l*. *m m* are the notches in the brackets, in which lies the bar O, provided with arms or levers *p p*, extending upward and fitting into the grooves *e e*. *q q* are the connecting-rods pivoted to the arms or levers *r r*, extending downward from the bar, and pivoted at the other end to the grate-bars at *s s*. T is the arm or lever extending downward, with socket *u*, in which is inserted a rod, *v*, for rocking the bars. The grate-bars A' are made deeper, so that their surfaces are elevated above the other grate-bars when wood chips or shavings are used as fuel, and are made stationary.

Having thus described my invention, I desire to claim—

The bar O, with arms *p p*, friction cog-rollers *f f*, and connecting-rods *q q*, in combination with grate-bars A, with grooves *c c* and *e e*, cogs *d d*, brackets *j j*, and grate-bar A', substantially as and for the purpose hereinbefore set forth.

WATSON RYDER.

Witnesses:

ANTON C. CRONDAL,  
FRANKLIN BARRITT.