(No Model.)

O. REILLY.

GRATE BAR.

No. 390,902. Patented Oct. 9, 1888.

Fig. 1

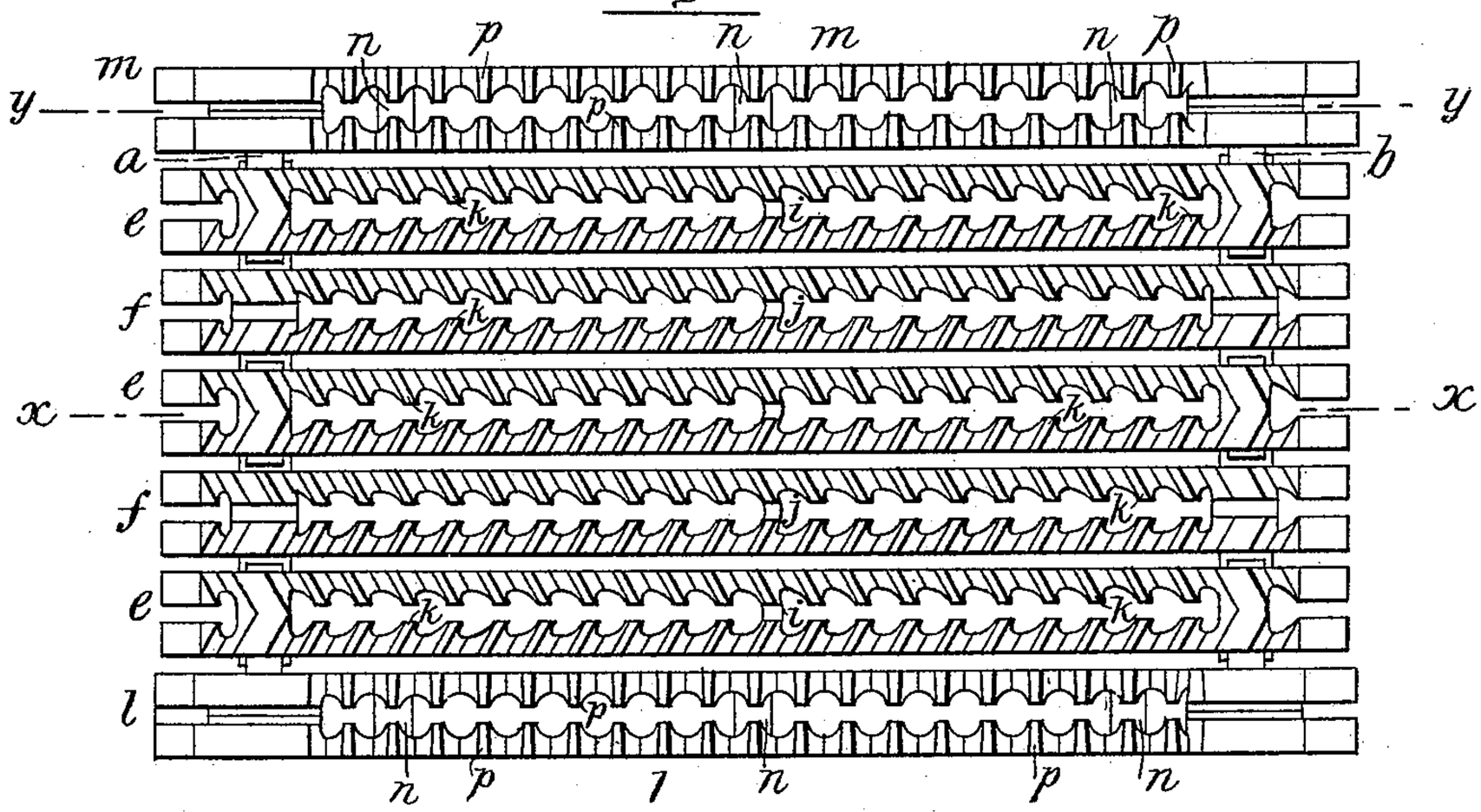


Fig. 2

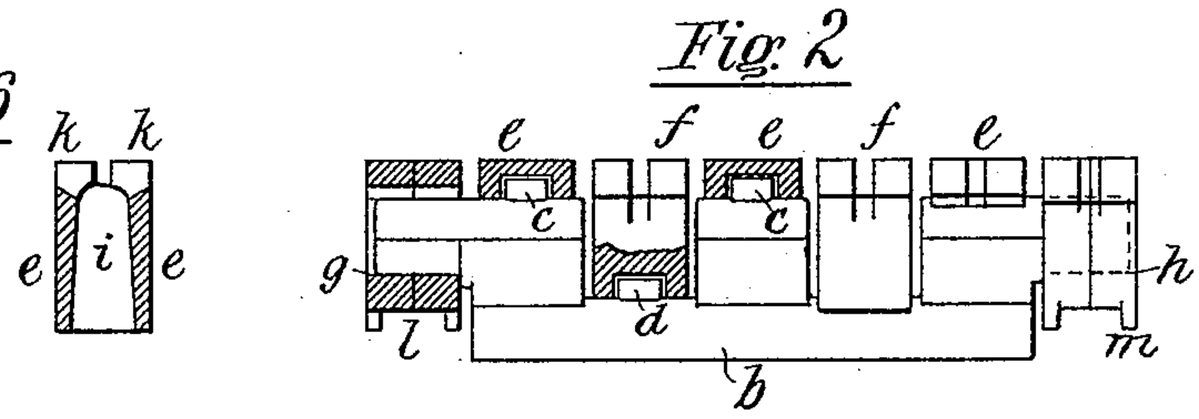


Fig. 6

Fig. 5

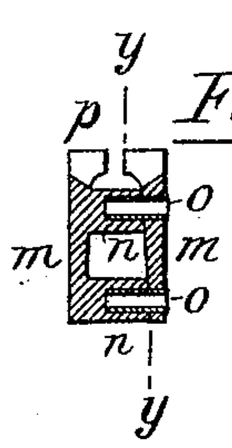


Fig. 3

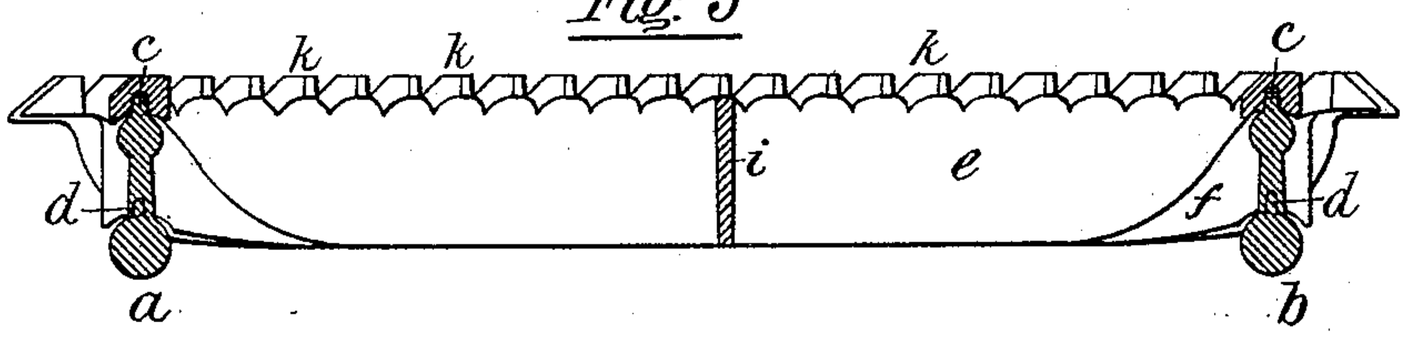
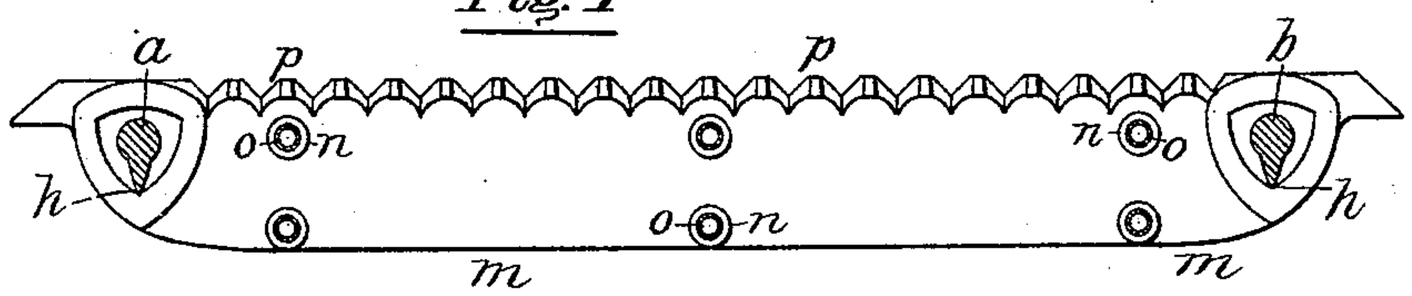


Fig. 4



Witnesses.

H. D. Williams

A. G. Holcombe

Owen Reilly -

Inventor

per Alfred Shedlock

Atty.

UNITED STATES PATENT OFFICE.

OWEN REILLY, OF NEW YORK, ASSIGNOR TO GEORGE H. CLARKE, OF BROOKLYN, NEW YORK.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 390,902, dated October 9, 1888.

Application filed December 22, 1887. Serial No. 258,657. (No model.)

To all whom it may concern:

Be it known that I, OWEN REILLY, a citizen of the United States, residing at New York, county and State of New York, have invented certain new and useful Improvements in Grate-Bars, of which the following is a specification.

This invention relates to shaking-grates, such as is shown in the United States Letters Patent No. 126,060, dated April 23, 1872, in which the grate-bars are supported on transverse crank-bearing bars in such a manner that when one of said bearing-bars is rocked the alternate grate-bars are caused to move in opposite directions.

This invention embraces improvements in the grate-bars and in the transverse crank-bearing bars, whereby the grate-bars are less liable to warp and are held in operative position without any parts of the adjacent bars touching, as will be hereinafter fully described, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a furnace-grate embodying my invention. Fig. 2 is an end view of the same with some of the grate-bars partly broken away. Fig. 3 is a longitudinal section on the line *x x*, Fig. 1. Fig. 4 is a longitudinal section on the line *y y*, Figs. 1 and 5. Fig. 5 is a transverse section of one of the outside bearing grate-bars, and Fig. 6 is a transverse section of one of the shaking grate-bars.

The transverse crank-bearing bars *a* and *b* are in their general construction similar to those shown and described in the before-mentioned Letters Patent, their novelty consisting in the teeth *c* and *d*, cast integral therewith, arranged in the center of the bearing-surfaces which support the shaking grate-bars *e* and *f*.

The curved bearing-surfaces of the shaking bars *e* and *f*, which rest on the crank-bearing surfaces of the transverse bars *a* and *b*, are provided with recesses to receive the teeth *d* and *c* of the transverse bars *a* and *b*, whereby the said bars *e* and *f* are controlled and moved longitudinally by the bars *a* and *b*, when one or both of them is or are caused to rock on the edges *g* and *h*, and the bars *e* and *f* are laterally held in position, so as to maintain uniform spaces between them, thereby avoiding the necessity of using spacing-lugs on their sides and allowing them free scope of action without any side friction, even though they should warp considerably in a lateral direction.

To prevent as much as possible the side warping of the grate-bars, I make the said bars *e* and *f* double, with their outside walls straight and without any lugs or projections whatever, and connect the two parts of the bars together at their ends where they rest on the rocking bars *a* and *b*, and at their central parts at one or more places, according to the length of the bars, as shown, by connecting-pieces *i* and *j*, which, with the end connections, are cast integral with the two longitudinal parts of the bars. The upper edges of the two longitudinal parts of the bars *e* and *f* are provided with teeth *k k*, angularly arranged on their top surfaces relatively to the length of the bars. These teeth *k k* project over the air-space between the two longitudinal parts of the bars, and their sides are inclined and meet on a line at an angle to the vertical walls of the bars, thus forming between them angular inclined grooves, as clearly shown at Figs. 3 and 6.

The supporting grate-bars *l* and *m* are provided with openings at their ends, in which the rocking edges of the bearing-bars *a* and *b* rest in the usual manner. These bars *l* and *m*, to facilitate casting, I make in two parts, and cast in lugs *n n* on one of the parts short pieces of wrought-iron pipe *o o*, and in the other parts cast corresponding holes. After these parts have been placed together, the ends of the wrought-iron pipes are set or riveted over, as shown at Fig. 5. This method of connecting the two parts of the bars together is very efficacious, and embraces simple, cheap, and strong means for the purpose. The teeth *p p* on the tops of the bars *l* and *m* are in their general construction similar to the teeth on the bars *e* and *f*; but they are set squarely on the bars.

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

1. In a shaking-grate, transverse crank-bearing bars provided with teeth in the central

parts of the crank-bearing surfaces, in combination with grate bars having recesses formed in their curved bearing-surfaces, substantially as and for the purposes set forth.

2. In a shaking-grate, in combination, the supporting grate-bars *l* and *m*, the crank-bearing bars *a* and *b*, provided with the teeth *c* and *d* on their crank-bearing surfaces, and the shaking grate-bars *e* and *f*, provided with recesses in their curved bearing-surfaces, substantially as set forth.

In witness whereof I have hereunto set my hand, at New York, county and State of New York, this 20th day of December, 1887.

OWEN REILLY.

Witnesses:
H. D. WILLIAMS,
BENJAMIN F. PEIXOTTO.