(No Model.)

# T. KRUSE.

## STOVE AND FURNACE GRATE.

No. 308,176. Patented Nov. 18, 1884.

*Fig. 1.*

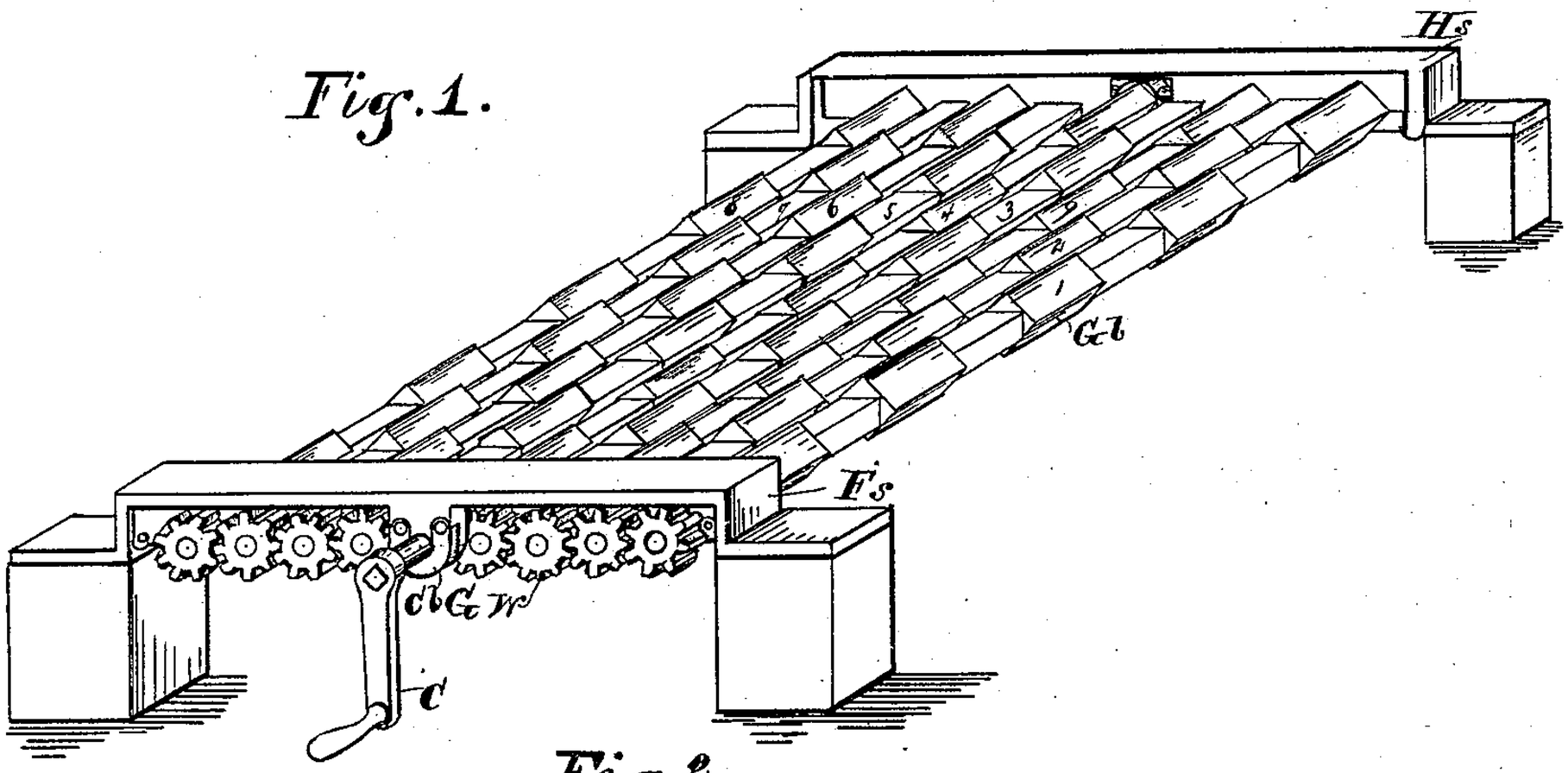


*Fig. 2.*

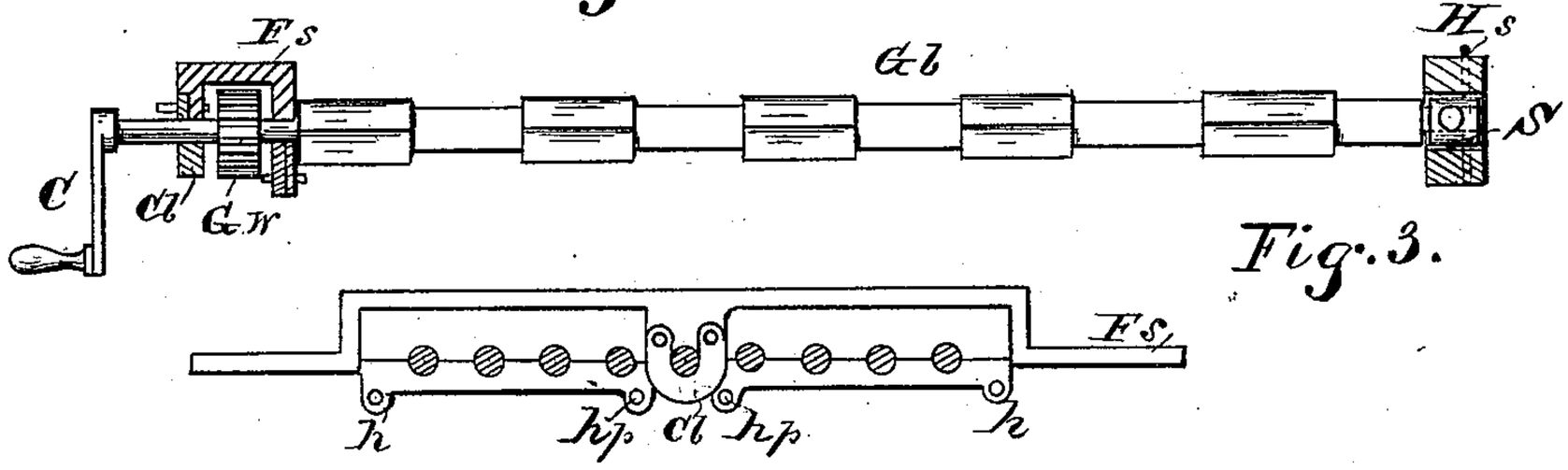


*Fig. 3.*

*Fig. 4.*

*Fig. 5.*

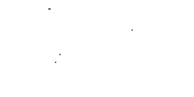

*Fig. 6.*



*WITNESSES.*

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# UNITED STATES PATENT OFFICE.

THEODORE KRUSE, OF LAFAYETTE, INDIANA.

## STOVE AND FURNACE GRATE.

SPECIFICATION forming part of Letters Patent No. 308,176, dated November 18, 1884.

Application filed June 20, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORE KRUSE, of Lafayette, Indiana, have invented a new and useful Improvement in Stove and Furnace Grates, of which the following is a description, reference being made to the accompanying drawings, in the several figures of which like letters indicate like parts.

My invention relates to the arrangement of grate-bars in a frame and the manner of journaling them so they can be revolved, and will be readily understood by those skilled in the art from the specification and drawings.

Figure 1 is a perspective view of my invention. Fig. 2 is a side view of the central grate-bar with vertical section of the boxing at each end, showing also the crank and gear-wheel. Fig. 3 is a view of the front end with the crank and gear-wheels removed, showing the bisected boxing, the under half of which is in two pieces and hinged with pins, so that it can be let down at either end of either piece, showing also the hanging-box of the central grate-bar. Fig. 4 is a rear end view. Figs. 5 and 6 show in cross-section other forms for the grate-bars, which may be used in place of the one shown in Figs. 1 and 2.

In detail *Fs* is the front, and *Hs* the rear, part of the grate-frame, as shown in Fig. 1. *Gb* is a grate-bar consisting of squared sections integral with each other, the flat side of one adjoining the angle or corner of the next. The ends of these bars are journaled in openings in the rear support, *Hs*, as shown in Fig. 4, which is an end view from the rear of the part *Hs*, showing the ends of the grate-bars, the central bar being journaled in a swivel-boxing in order to have it revolve more readily and truly, as its motion sets in motion all the others. The front end of this central bar is journaled in a hanging boxing, *Cb*, and this is hinged with pins, so it may be let down, when desired, either to remove the bar or clean the grate. The other bars are journaled in a boxing made of upper and lower halves, as shown in Fig. 3, and these lower halves are made in two pieces, each of which is hinged and has hinge-pins *h hp* for letting it down to remove any one or more of the grate-bars. On the front ends of all these grate-bars are mounted gear-wheels *Gw*, which mesh into each other. On the central grate-bar is fitted a crank, C, for revolving the bars in their bearings in the front and rear supports. This is accomplished through the several gear-wheels on the ends of the bars. The revolution of the bars, whether they be round, angular, or square, will grind up the cinders and clear the grate very speedily; and, when necessary, any one or more of the bars may be taken out by removing the hinge-pins and letting down the under side of the bisected front boxing shown in Fig. 3.

I believe the peculiar construction of the grate-bar shown in Figs. 1 and 2, consisting of squared integral sections, to be new, as well as the device for revolving the bars themselves; and am not aware that a grate has been known or used in which the bars revolve in the bearings of a frame-work, or front and rear or side supports, before my invention.

If desired for a stove, the bars can be arranged to run the other way and revolve in the side supports or bars of the frame instead of the end; but this would involve only a change in mechanical construction.

What I claim, and desire to secure by Letters Patent, is the following:

1. As an article of manufacture, a grate-bar composed of squared adjacent sections integral with each other and so arranged that the flat surface of one section shall adjoin the corner of the next throughout the length of the bar, substantially as described.

2. A revolving grate composed of a frame-work having bearings in its ends, in which are journaled grate-bars composed of squared integral sections, the flat surface of one section adjoining the corner of the next section throughout the length of the bar, substantially as described.

3. A grate composed of a suitable frame-work in which are journaled the ends of grate-bars having angular sides, the flat surface of one section joining the corners of the next section throughout the length of the bar, the bars adapted to revolve in such bearings, in combination with mechanism for actuating the same, substantially as described.

4. In a furnace-grate, a frame-work, in combination with a series of grate-bars formed of squared integral sections, the flat surface of one

section joining the corner of the next section throughout the length of the bar, the bars adapted to revolve in bearings in the ends or sides of the frame-work and provided with gear-wheels on their outer ends, meshing into each other, the central grate-bar supported at its outer end in a hanging boxing provided with a hinge for dropping the central grate-bar, substantially as described.

5. In a furnace-grate, a frame-work providing bearings for revolving grate-bars, the forward boxing of the journals being bisected, and the lower half hinged to the upper and capable of being lowered at either end for removing a grate-bar, substantially as described.

6. In a furnace-grate, a frame-work providing bearings for grate-bars adapted to revolve therein, the forward boxing bisected and made in two sections, one on each side the central grate-bar, and these lower sections hinged each to the upper half, one on each side the central bar, so that they may be unhinged at either end of either section for the removal of the grate-bars, substantially as described.

7. The front and rear supports, F*s* H*s*, and a series of grate-bars journaled therein, the central bar hung in a swivel-boxing in the rear and a hinged hanging boxing in front, the other bars journaled in a bisected sectional hinged boxing in front, in combination with such hanger and bisected hinged front boxings, swivel-boxing, gear-wheels G*w*, and crank *c*, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand this 7th day of June, 1883.

THEODORE KRUSE.

Witnesses:
C. P. JACOBS,
F. M. CROUSE.