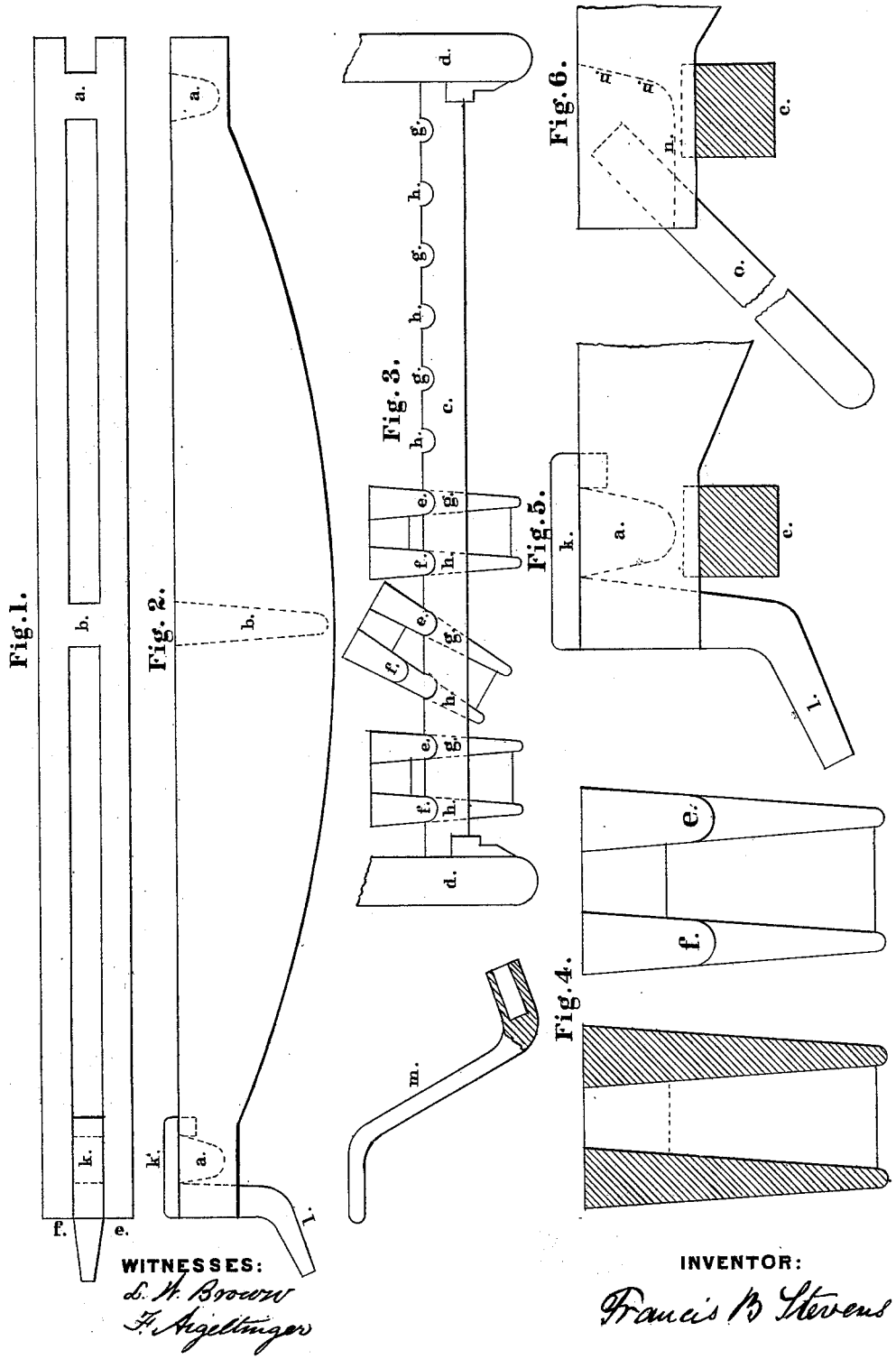
F. B. STEVENS.

Rocking-Grate Bars.

No. 221,430. Patented Nov. 11, 1879.



WITNESSES:

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FRANCIS B. STEVENS, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN ROCKING GRATE-BARS.

Specification forming part of Letters Patent No. **221,430**, dated November 11, 1879; application filed April 1, 1878.

To all whom it may concern:

Be it known that I, FRANCIS B. STEVENS, of Hoboken, State of New Jersey, have invented a Rocking Grate-Bar, of which the following is a specification.

My invention relates to the kind of grate-bars that are made to rock for the purpose of cleaning the fire and freeing it from ashes; and it consists in forming two projections or journal-bearings on each of the lower ends of the ordinary fish-bellied or other grate-bar, that fit into and rest in two corresponding rounded socket-bearings in the bearer-bar, the grate-bar being made to move from this position and to rock in each of these two sockets to the right and left alternately, so that the upper part of the grate-bar, when this bar is rocked to the right hand, overhangs the right-hand socket, in which the bar rests and turns, and so that the upper part of the grate-bar, when this bar is rocked to the left-hand, overhangs the left-hand socket, in which the bar rests and turns.

I form two projections on the lower side of each end of each bar, and make these projections rest in corresponding sockets made in the bearers, on which the bars rest at their two ends, so that these projections and sockets will act like the double hinge of a door that can be opened from either direction.

Figure 1 is a horizontal view of a double grate-bar with the projections cast thereon. Fig. 2, on the same scale as Fig. 1, is a lateral view of the same bar. Fig. 3, on the same scale as Fig. 1, is a front view of three of these bars, and shows, also, the bearer at the front of the furnace on which these grate-bars rest.

a a are cross-pieces connecting the two bars that form the double grate-bar at the ends. *b* is a cross-piece connecting them in the middle. *c* is the bearer in front of the furnace, on which the grate-bars rest. *d d* are the boiler-legs at the side of the furnace. *e* and *f* are the circular projections forming the bearings on the lower ends of the grate-bars. *g* and *h* are the corresponding sockets or journal-bearings in the bearer. *k* is a piece of iron fitted over the cross-piece *a*, on the end *l* of which the rocking-handle *m* fits.

The operation is as follows: When the grate-bar rests in its level position both projections *e* and *f* rest in their sockets *g* and *h*, and thus keep the bar at its proper distance from the adjacent bars, as shown in the two outside bars in Fig. 3. When the bar is rocked or tilted by the rocking-handle it can take the position shown in Fig. 3 by the middle bar, where the projection *f* is lifted out of its socket *h*, and where the projection *e* remains in its socket *g*, and forms a hinge or center, on which the bar turns until the upper part of the bar overhangs the center *e* and is brought in contact with the adjacent bar. When the bar is allowed to fall from this tilted position it will regain its original level position.

If the bar should be tilted in the other direction from that shown, the projection *e* will leave the socket *g*, and the projection *f* will rest in the socket *h*. The grate-bar can thus be made to turn or rock in each of the two sockets as centers of rotation alternately, and the ashes will be disturbed and fall.

Fig. 4 (original drawings) is on a scale of half the actual size, and is a cross-section and view of the same bar shown in Fig. 1. Fig. 5, on the same scale as Fig. 4, is a side view of the same bar. Fig. 6, on the same scale as Fig. 4, shows a different method of attaching the rocking-handle. Here the cross-piece *a* extends to the end of the two bars, as shown by the dotted line *n n n*, so that a hole can be put in to receive the handle *o*, by which the bar can be rocked.

I am aware that many forms of grate-bars arranged to rock on a center have been patented.

I am also aware that grate-bars have been patented in which the flat ends were confined in rectangular recesses made in the bearer in such manner that each side of these flat ends could be alternately lifted and lowered; but this grate bar could not be made to rock so that the upper part of the grate-bar would overhang the center on which it turned.

I claim—

In combination with a rocking grate-bar, two projections or journal-bearings on the lower edge of the end, the bar fitting into and resting in two corresponding rounded socket-bearings in the bearer-bar, and forming two points on which the bar is made to rock, substantially as described.

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Witnesses:

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