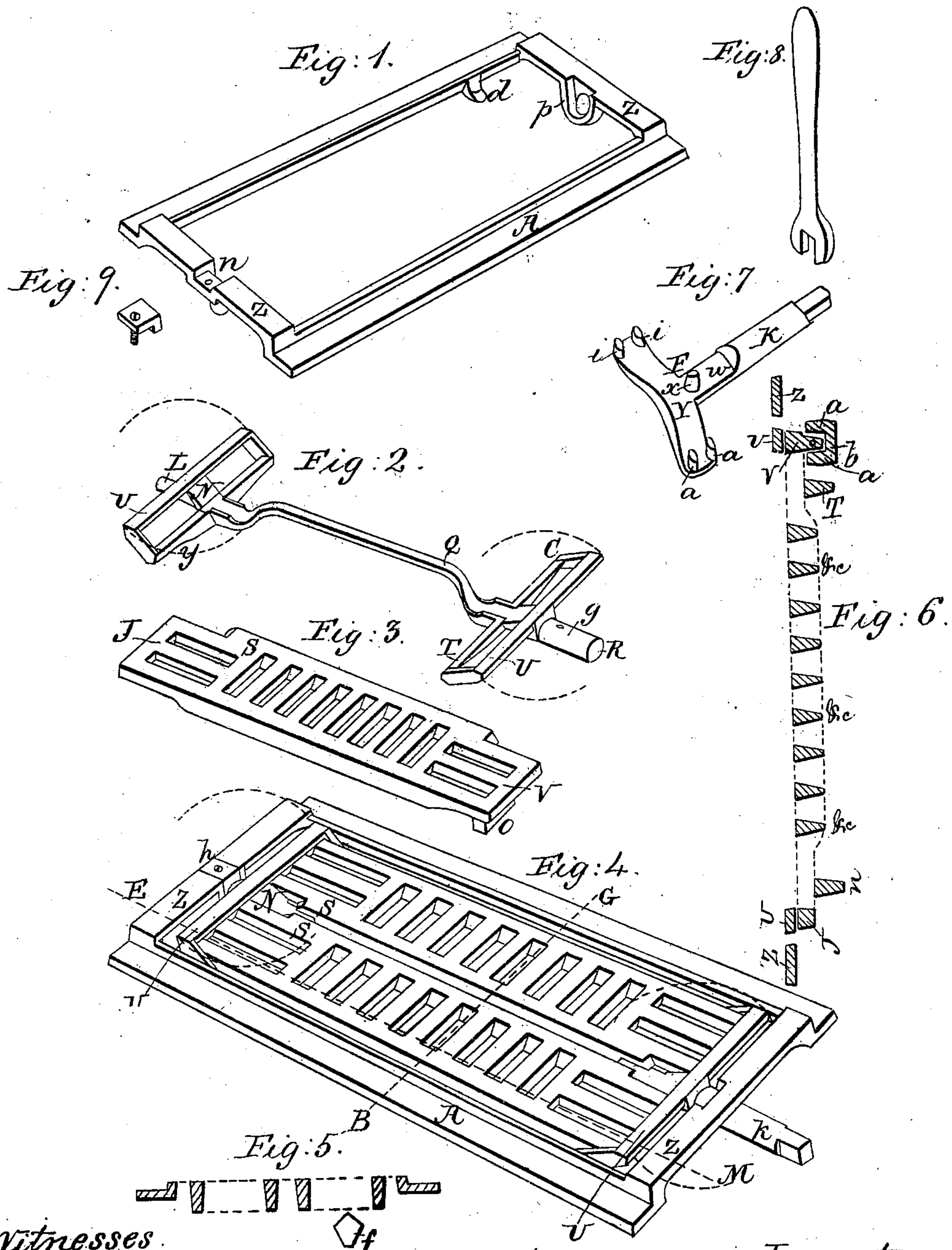


D. HATHAWAY.

Stove Grate.

No. 44,188.

Patented Sept. 13, 1864.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN STOVE-GRATES.

Specification forming part of Letters Patent No. 44,188, dated September 13, 1864.

*To all whom it may concern:*

Be it known that I, DAVID HATHAWAY, of the city of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Stove-Grates, the same being illustrated and explained in the following specification, reference being made to the accompanying drawings.

A, Figure 1, represents the stationary frame, which may be placed in the fire-chamber of stoves, furnaces, &c., and secured in a horizontal position in the usual manner.

N, Fig. 2, is a tilting frame revolving on the journals L and R in the stationary frame, Fig. 1, the journal R passing through the loop P, the journal L resting in the socket *n*, the corner *c* resting on the step *d*. The bar Q is deflected so that its weight may cause the tilting frame to rest firmly on the said step, preventing the frame from tilting at improper times.

S, Fig. 3, is one of two similar sliding pieces or system of bars which constitute the bed of the grate, upon which fuel is to be placed. These sliding bars are to be placed and operated in the tilting frame, as hereinafter described.

Fig. 4 is a general presentation of the several parts in their relative position, no attempt being made to exhibit the under parts, which might be partially seen through the interstices, said parts being properly delineated elsewhere. Fig. 5 is a transverse section on the line B C, Fig. 4, *f* being a section through the bar Q, Fig. 2. Fig. 6 is a longitudinal section on the line E M, Fig. 4. *b* is a section through the key F at the part having the studs *a a* upon it, showing the position of the studs in relation to the ledge *o*, which is more clearly shown at *o*, Fig. 3. *y T* are sections through the bearing-arms *y T* of the tilting frame N, Fig. 2. *U U* are sections through the caps *U U* of said tilting frame. *J V* are sections through the end bars, *J V*, of the sliding bed S, Fig. 3. *Z Z* are sections through the ends *Z Z* of the stationary frame. & &, &c., are sections through the transverse bars of the sliding bed S.

F, Fig. 7, is a key by which the grate is operated, consisting of the cylindrical part K, the semicylindrical part W, (the cylinder being divided by a horizontal plane through its

axis,) the cross-head Y, the pivot X, and the studs *a a i i*. On the under side of the key, near the cross-head, is a knob (not seen in the drawings) acting against the loop P, Fig. 1, preventing the key from working too far through the loop.

Fig. 8 is a wrench, which, by being placed on the flattened projecting end of the key in a horizontal position, the bed of the grate may be made to vibrate in such a manner as to sift the ashes from burning fuel. By placing the wrench on the key in a vertical position the bed of the grate may be tilted so as to discharge the remains of exhausted fuel.

In order to place the several parts in their operative position, put the sliding piece S, Fig. 3, into the tilting frame by placing the end J upon the bearing-arm *y* and sliding it under the cap U far enough to admit of the other end falling upon the bearing-arm T, sliding it back so that the ends may be about even with the outer edges of the caps U U, as shown in Fig. 6. Place the other sliding piece into the tilting frame in the same way. The journal R of the tilting frame is semicylindrical, of the same diameter as that part of the key marked W, Fig. 7. Place the key in connection with the tilting frame by placing the pivot X into the socket *g*, which will bring the studs *a a* one on each side of the ledge *o*, as shown at Fig. 6. While the sliding bed is being actuated for the purpose of sifting ashes from burning fuel, the studs have a sliding motion along the sides of the ledge *o*. The ends of the key, which carry the studs, also the two sliding pieces, marked S, are counterparts.

Having arranged the sliding bed, the tilting frame, and the key in their relative positions, place the whole into the stationary frame A, Fig. 1, by placing that part of the key marked K through the loop P, so that the journal L of the tilting frame shall fall into the socket *n*, securing the same in its place by the cap and screw, Fig. 9, as at *h*, Fig. 4.

If the key be made to oscillate on its pivot X, a sliding reciprocating motion in the direction of their length will be given to the sliding bed-pieces S by means of the studs *a a i i* acting on the ledges *o o*. While this operation is being performed the ends of the cross-head of the key strike alternately against the bearing-arm T, Fig. 2, preventing the sliding

parts from being moved far enough to be displaced from the tilting frame, which is at rest during this operation.

In Fig. 4 the axis of the key is represented as being in the axis of the tilting frame. The grate may be best tilted when in this position, but may be done when the key is in any other position, sufficient room being made for that purpose in the loop P, Fig. 1.

The grate is tilted by revolving the key on its axis in the loop P, which carries the tilting frame and sliding bed with it in the direction

indicated by the curved broken lines, Figs. 2 and 4.

In this arrangement for a stove-grate, what I claim as my invention is—

The combination of the revolving oscillatory key F with the tilting frame N, as held in connection by the loop P, constructed and arranged as described and represented, for the purpose set forth.

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