

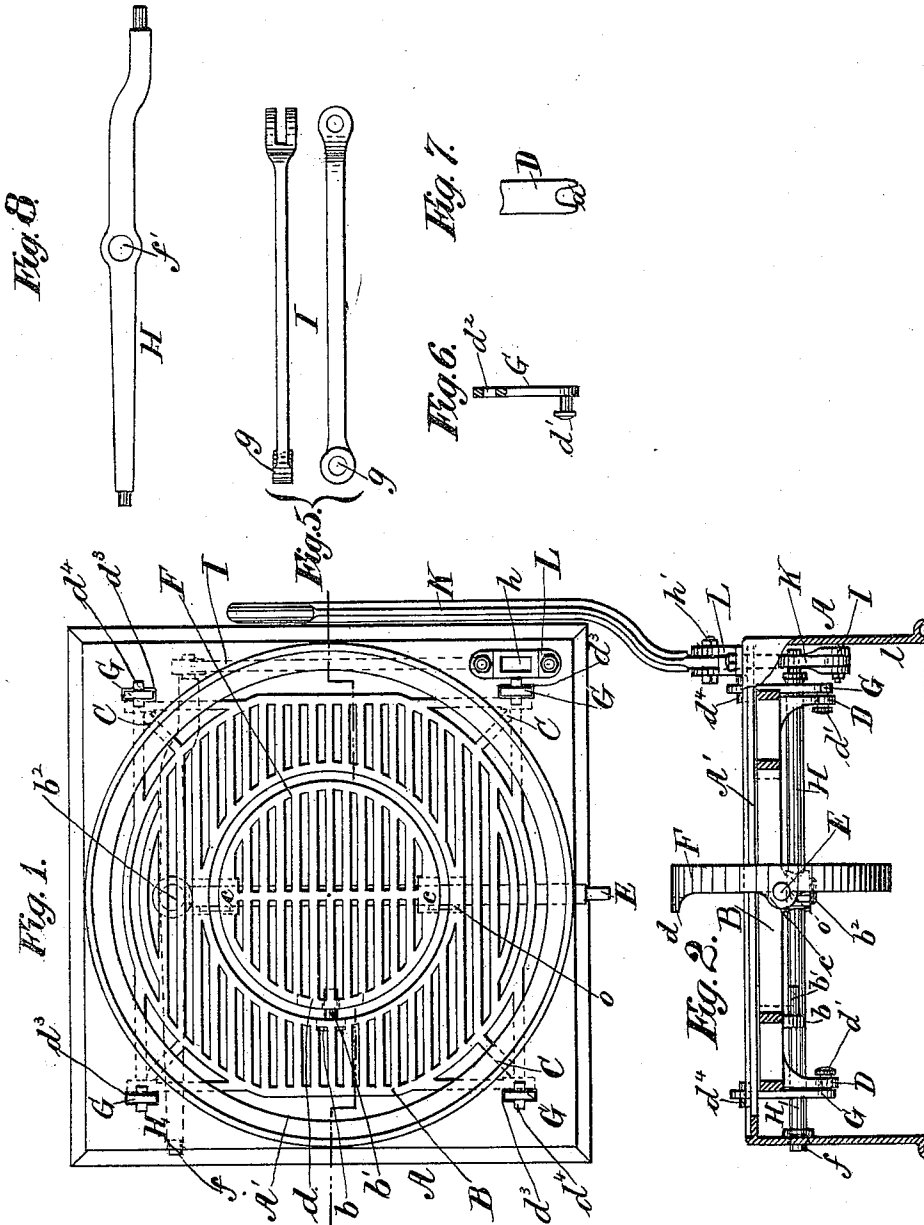
(No Model.)

2 Sheets—Sheet 1.

S. FISKE.
FURNACE GRATE.

No. 466,050.

Patented Dec. 29, 1891.



WITNESSES:
Edmond F. Trintellotto.
Charles H. May.

INVENTOR
Samuel Fiske.
BY
Isaac S. Stone,
ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

S. FISKE.
FURNACE GRATE.

No. 466,050.

Patented Dec. 29, 1891.

Fig. 3

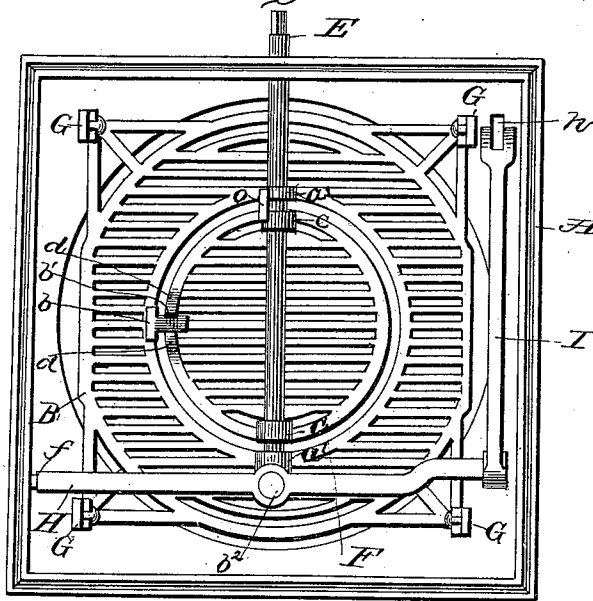
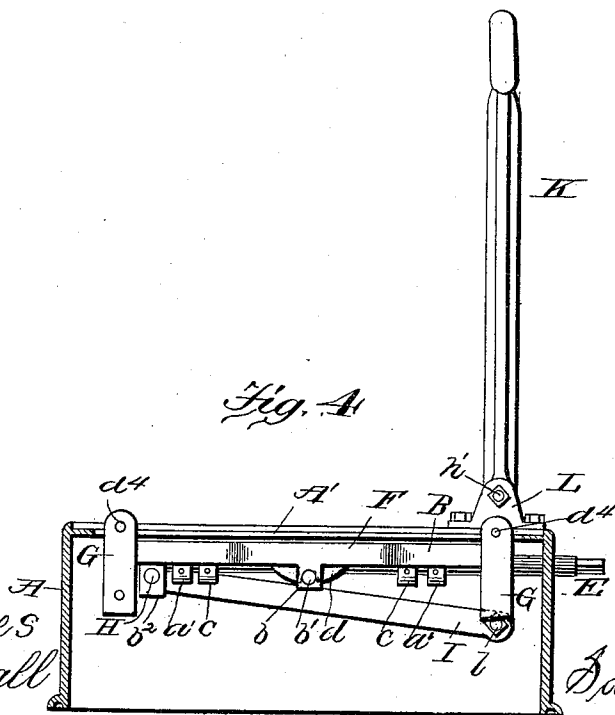


Fig. 4



Witnesses
F. H. Cornwall

Albert Pophins.

Inventor
Samuel Fiske

by *Chas. J. Stockman*
Ass. Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL FISKE, OF NEW YORK, N. Y.

FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 466,050, dated December 29, 1891.

Application filed December 18, 1889. Renewed September 22, 1891. Serial No. 406,447. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL FISKE, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 Furnace-grates of the usual construction must be partially rotated—reciprocated in an arc of a circle—for the removal of ashes, cinders, &c., from the furnace-fire, and with grates so constructed and operated the center of the grate has but little motion, while the periphery has more motion than is requisite for the removal of the ashes, &c. Hence the great mass of fuel resting on the center of the grate is but very slightly agitated by the shaking, and consequently the cleaning of the fire is but imperfectly accomplished.

20 The object of this invention is to provide an improved furnace-grate so constructed and arranged that when shaken every part of it will be moved alike, so that the ashes, &c., will be removed from the center of the grate or fire as thoroughly as from the sides thereof.

25 The invention consists of a grate supported on swinging or vibrating links and provided with a central dumping-section operative from the outside of the base or ash-pit of the furnace, and the invention embraces novel devices for mounting and operating the grate, all of which will be hereinafter fully set forth.

30 Reference is to be had to the accompanying drawings, forming part of the specification, in which similar letters of reference indicate corresponding parts in all the figures.

35 Figure 1 is a plan of my improved grate in position in a furnace-base. Fig. 2 is a front elevation of the same with most of the front plate of the furnace-base broken away, showing dumping-section open. Fig. 3 is a bottom view of the same. Fig. 4 is a side elevation of the same with side base-plate removed. Fig. 5 shows a plan and a side elevation, respectively, of the bar connecting the shaking-lever and shaking-bar. Fig. 6 is an edge elevation of a slotted depending grate-lug. Fig. 7 is a face elevation of a swinging link. Fig. 8 is a plan of the shaking-bar.

In the drawings, A represents the base of

a furnace, with a circular opening A' in the top thereof. The grate B may be circular, or, as shown in the drawings, with straight sides and rounded front and rear, and it is provided with triangular corner-wings C on the same plane as the body of the grate and integral therewith, which are preferably composed of two or three bars, as shown in Fig. 1. Depending from the extremity of each of these four wings C and integral therewith is a strong lug D, having an open slot *a* in its lower end. Other lugs *a'* are cast on the under side of the grate-body to receive the dumping-shaft E and also a lug *b*, that carries a strong pin *b'*, which extends horizontally to support the dumping-section of the grate, and a strong stud *b''*, the purpose of which will be hereinafter set forth, depends from the under side of the rear portion of the grate.

In the central circular opening of the grate is the circular dumping-section F thereof provided with lugs *c* for embracing the dumping-shaft E, and with a side forked lug *d* to engage on the supporting-pin *b'*. Broad links G, provided with strong-headed studs *d'* projecting at right angles from their faces near their lower ends and having bolt-holes *d''* in their upper ends, are inserted up through corresponding slots *d'''* in the base-top and held in position, so that they may swing by bolts *d''* driven through their bolt-holes and resting on the base-top. The grate is then fixed in position by engaging its slotted lugs D over the link-studs *d'*, and is thus free to swing forward and back.

The device for shaking the grate consists of the shaking-bar H, (best shown in Figs. 3 and 8,) which is located beneath the grate in the rear part of the furnace-base parallel with the rear face thereof and has one end held in a corresponding socket *f* in a side of said base. In about the center of this bar H is an eye *f'*, in which the grate-stud *b''* engages, and the other end of said bar is designed to be engaged in the terminal eye *g* of the bar I, whose other and forked end extends toward the base-front and connects with the shaking-lever K.

Firmly secured on the top of the furnace-base over an opening *h* is a standard L, in which the shaking-lever K is pivoted on a nutted bolt *h'*, and said lever extends down

through said standard and the opening *h*, and has its lower end held in the fork of the bar *I* by a nutted bolt *l*, as shown.

When the operator taking hold of the upward-projecting handle of the lever *K* reciprocates it back and forth, it results that because of the engagement of the grate-stud *b*² in the shaking-bar eye *f*' and the location of the pivotal point of said bar—that is to say, at one side of the base, as described—the grate is shaken back and forth with a slight lateral movement, all parts thereof moving with nearly equal speed and over nearly equal space, and as the said lever-handle is moved from its upright position to an inclined position it is evident that the grate is thereby moved up and down because of the swinging of the links *G* in arcs of a circle. Hence the grate has a compound horizontal and vertical reciprocating motion.

On applying a handle (not shown) to the outer end of the dumping-shaft *E* the grate-dumping section may be rotated to the vertical position shown in Fig. 2, in which position it engages against a stop-pin *o*, that projects from the grate-body near the shaft *E* and prevents its further rotation.

It will be seen that with a grate of this construction the ash-pit is free from obstruction, so that an ash-pan can conveniently be used therein.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a furnace-base and a swinging grate therein having a stud *b*², of a shaking-bar pivoted at one side, hav-

ing an eye engaged by said stud, a shaking-lever, and a bar connecting said shaking-bar and shaking-lever, all substantially as described, whereby the grate is given a compound horizontal and vertical reciprocating motion, as specified.

2. The combination, with the furnace-base *A* and grate *B*, provided with depending lugs *D* and stud *b*², of links *G*, shaking-bar *H*, pivoted at one end and provided with a central eye, connecting-bar *I*, and shaking-lever *K*, all constructed, arranged, and operated substantially as herein shown and described.

3. The combination, with the furnace-base and links depending from the same and having inwardly-projecting headed studs, of a grate having depending lugs formed with slots engaging said studs, and means for operating said grate, substantially as shown and described.

4. The combination, with the furnace-base and links depending from the same and having inwardly-projecting headed studs, of a grate having depending lugs engaging said stud and also having a stud *b*², a shaking-bar pivoted at one end and having an eye engaged by said stud *b*², a shaking-lever, and a bar connecting said shaking-bar and shaking-lever, all substantially as described, and for the purposes specified.

In testimony that I claim the foregoing I have hereunto set my hand, in the presence of two witnesses, this 7th day of November, 1889.

SAMUEL FISKE.

Witnesses:

JACOB I. STORER,
CHAS. H. LOTT.