(No Model.)

C. W. ECKERSON.

FURNACE GRATE.

No. 367,378. Patented Aug. 2, 1887.

Fig. 1.

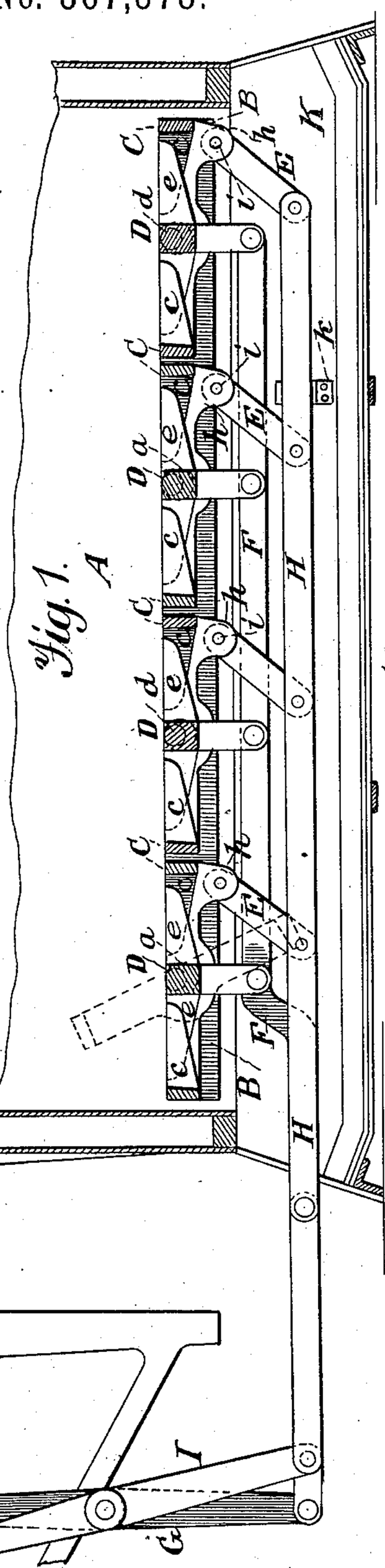

Fig. 2.

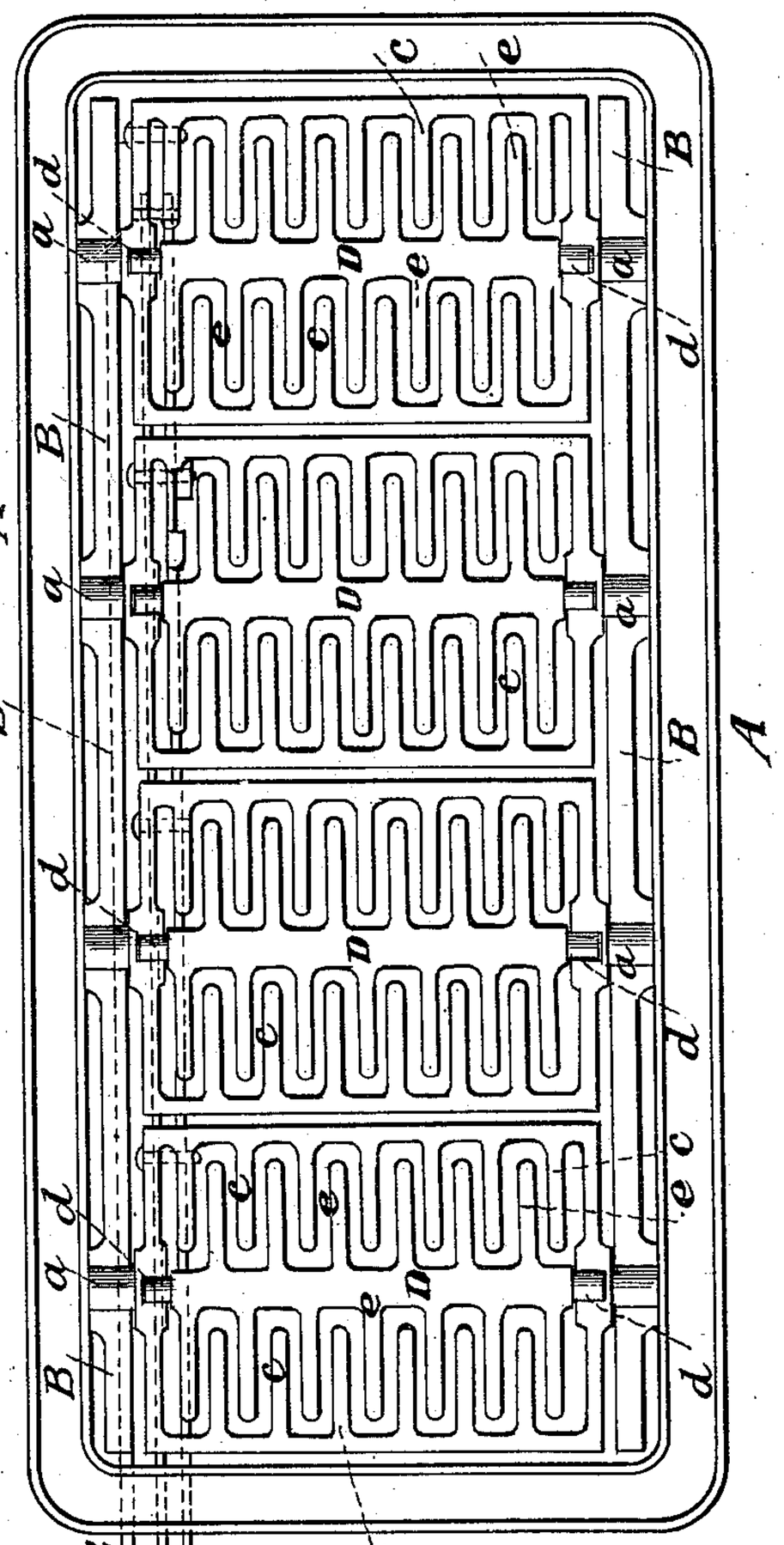

Fig. 3.

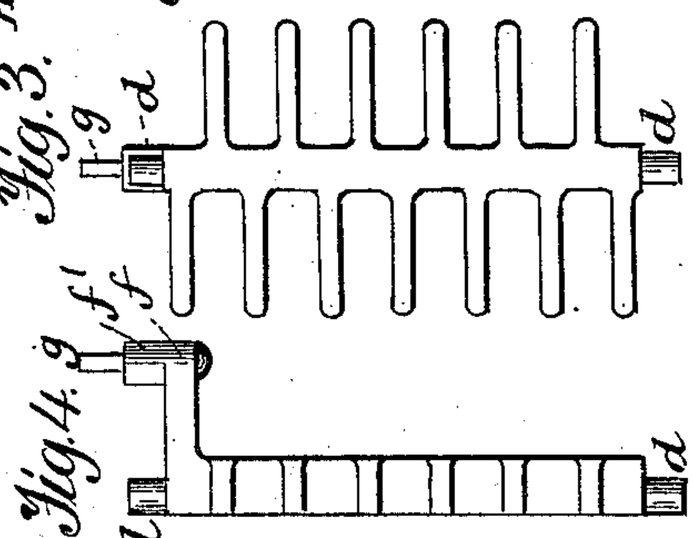

Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES W. ECKERSON, OF CRESTON, IOWA.

FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 367,378, dated August 2, 1887.

Application filed April 19, 1887. Serial No. 235,365. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. ECKERSON, of Creston, in the county of Union and State of Iowa, have invented certain new and useful improvements in furnace-grates, applicable to the boilers of locomotive, marine, and stationary engines, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to a combined dumping and rocking grate, the sections of the dumping-grate being adapted to be swung into a slanting position, and thus dump the fire into the ash pan or pit below, and the sections of the rocking grate being pivoted so as to work within the sections of the dumping-grate, the rocking and dumping sections being worked by a system of rods and levers, or by other means, and capable of independent or joint operation.

In the accompanying drawings, Figure 1 is a longitudinal section of the invention as applied to the furnace of a locomotive-boiler. Fig. 2 is a plan view of the same. Figs. 3 and 4 represent, respectively, a top and a side view of the rocking grate detached.

Similar letters of reference indicate similar parts in the respective figures.

A is the fire-box.

B B are side bars bolted to the respective sides of the fire-box.

C C are the sections of the dumping grate, which are mounted on journals *a* in the bars B. The dumping-grate sections C are exteriorly of rectangular shape, as shown in Fig. 2, and provided with fingers *c*, projecting inward, as shown.

D D are the rocking-grate sections provided with journals *d*, which rest in suitable bearings formed in the respective dumping-grate sections, as shown in Fig. 2. The rocking-grate sections consist, principally, of a central bar, from which project fingers *e*, fitting between the fingers *c* of the dumping-grate sections. It will thus be seen that the rocking and dumping grate sections have independent movements upon their journals.

The rocking-grate sections D, shown detached in Figs. 3 and 4, are each provided with an arm, *f*, having a boss, *f'*, at its lower end, through which boss passes a bolt or pin, *g*. Each section C of the dumping-grate is furnished with a lug, *h*, to which is attached by a pin, *i*, a link, E. To the pins *g* of the arms *f* of the rocking-grate sections a rod, F, is attached, which may be connected directly or through the intervention of a link with a lever, G, while the links E of the sections C of the dumping-grate are connected by a rod or rods, H, leading to the lever I.

The ash-pan is shown by K, to which one or more brackets or guides, *k*, are attached for the purpose of guiding the rod or rods H.

The operation of the invention will be readily understood. When it is desired to dump the fire, the sections C of the dumping-grate are, by means of the lever I, brought to a slanting position, as shown in dotted lines in Fig. 1, it being understood that the rocking-grate sections D are also worked or dumped at the same time by means of the lever G. When the fire is to be shaken, the dumping-grate sections C may be kept stationary and the rocking-grate sections D only moved. By connecting one half of the dumping and rocking grate sections with rods and levers, as shown, and the other half with another set of rods and levers, one-half of the fire can be dumped and better facilities for cleaning the rest of the fire obtained.

The grates may be worked by a rack-and-pinion movement, or by steam or air.

This invention provides simple and effective means of dumping or cleaning fires.

Having described my invention, I claim—

The fire-box A, interior side bars, B, dumping sections C, journaled in the side bars, each section having a lug, *h*, and the rocking sections D, journaled in the dumping sections C, each having an arm, *f*, and a pin, *g*, combined with the rods F and H and levers G and I, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal.

CHARLES W. ECKERSON. [L. S.]

Witnesses:
ROBT. BISSET,
WM. YOUNGQUIN.