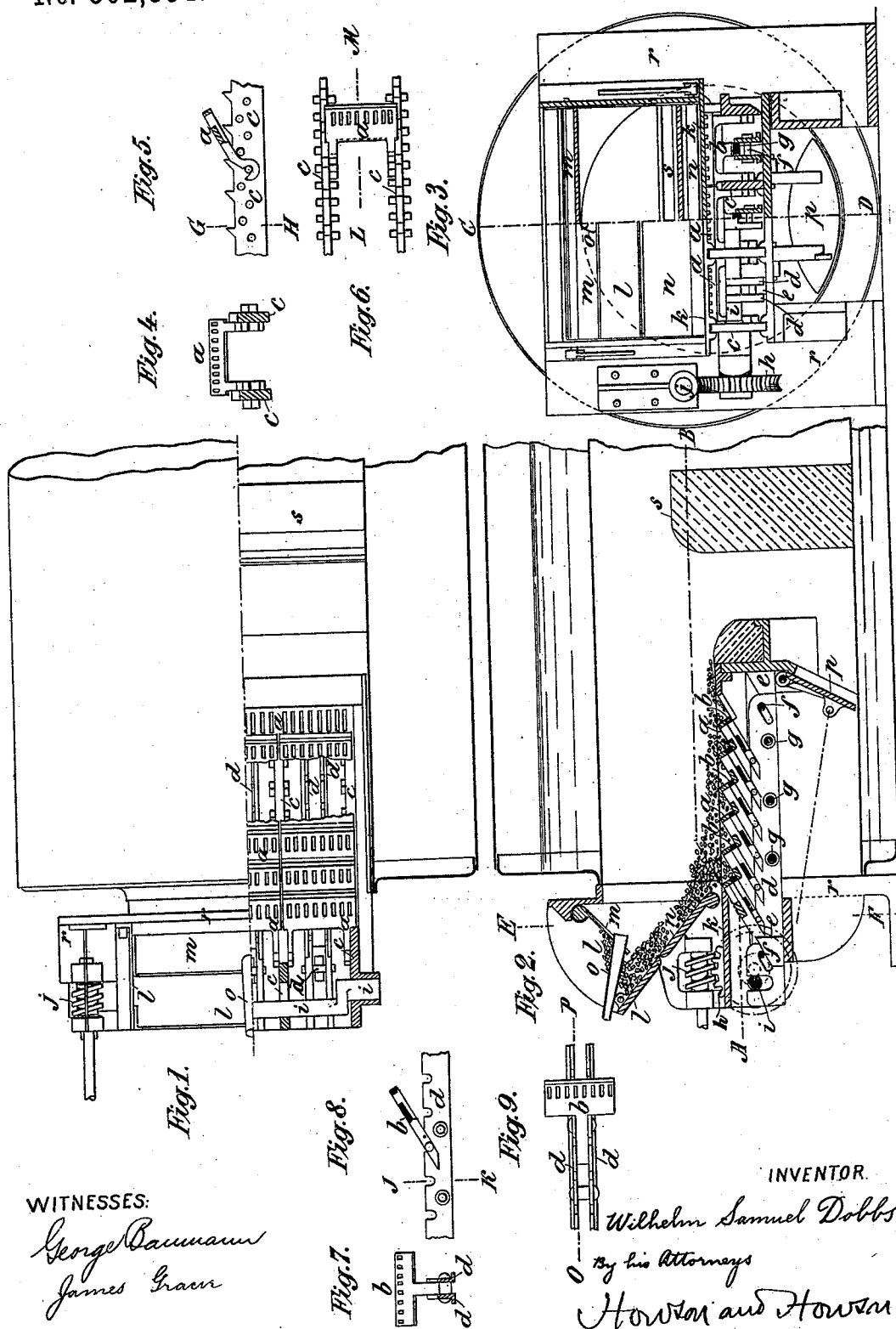


(No Model.)

W. S. DOBBS.
GRATE.

No. 502,554.

Patented Aug. 1, 1893.



WITNESSES:

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WILHELM SAMUEL DOBBS, OF VIENNA, AUSTRIA-HUNGARY.

GRATE.

SPECIFICATION forming part of Letters Patent No. 502,554, dated August 1, 1893.

Application filed October 18, 1892. Serial No. 449,225. (No model.)

To all whom it may concern:

Be it known that I, WILHELM SAMUEL DOBBS, a subject of the Queen of England, and a resident of Vienna, in the Empire of Austria-Hungary, have invented a novel Fire-Grate, of which the following is a specification.

My invention relates to an improved construction of furnace grate wherein the forward feed of the fuel on the grate, as also the clearing of the latter and the removal of ashes and clinkers therefrom is effected by means of a sliding grate in combination with a fixed step grate, which may be arranged either with or without means for cooling.

I will describe the said invention with reference to the accompanying drawings, in which—

Figure 1 shows a plan partly in section on line A B Fig. 2. Fig. 2 is a section on line C D, Fig. 3. Fig. 3 is a front elevation partly in section on line E F, Fig. 2. Figs. 4 to 9 show detached details of the grates. Fig. 4 is a section on line G H, Fig. 5. Fig. 5 is a section on line L M, Fig. 6. Fig. 6 is a plan of the fixed grate *a*. Fig. 7 is a section on line J K, Fig. 8. Fig. 8 is a section on line O P, Fig. 9. Fig. 9 is a plan of the movable grate *b*.

The same letters indicate the same parts in all the figures.

a is the fixed step grate.

b is the sliding grate, and *c* the bearers of the fixed step grate.

d are the guide rails in which the bars of the sliding grate *b* are mounted.

e are the inclined planes on which the guide rails *d* together with the sliding grate slide to and fro.

f are antifriction rollers between the guide rails *d* and the inclined planes *e*.

g are the distance bolts between the guide rails *d*.

h is the worm wheel for actuating the crank shaft.

i is the crank shaft for directly actuating the sliding grate.

j is the worm for driving the worm wheel *h*.

k is the cover plate; *l* the feed hopper; *m* the upper flap; *n*, Fig. 2, the lower flap; *o* the sight hole; *p* the clearing door; *q* the front plate; *s* the fire-bridge.

The main grate consists of the fixed step

bars *a* which are secured in step form upon the bearers *c*. Between these fixed step bars *a* slide backward and forward the movable grate bars *b* which are mounted in the guide bars *d* the motion being limited to the width of the fixed grate bars *a*. The movement of the bars *b* may either take place continuously or at intervals according to requirements. By means of this motion the coal is fed forward, the grate is cleared, and the clinkers and ashes are pushed over the inner end of the grate. The motion of the guide rail *d* is effected by means of the crank shaft *i*. On lighting the fire the flap *m* is turned into the vertical position, the lower flap *n* serving as door. When the fire is lighted, the flaps are turned into the positions shown at Fig. 2 and coal is filled into the feeding hopper and the sliding grate is then set in motion.

The actuating of the sliding grate may be effected either by a motor engine or otherwise, according to circumstances, and the mechanism for this purpose may be arranged in any convenient manner.

When using lignite in large pieces as fuel, the grate should be inclined backward, and the sliding grate should be placed in a lower position, in order that slits may be formed between the fixed bars *a* and the sliding bars *b* for the admission of air.

I claim as my invention—

1. In a horizontal furnace grate, the combination with fixed step grate bars, having spaces between them, of sliding bars located in said spaces, and means for moving said sliding bars in both horizontal and vertical planes, whereby the fuel may be fed forward and the grate cleaned, substantially as set forth.

2. In a horizontal furnace grate, the combination of the fixed bars *a*, the sliding bars *b*, mounted in the guide rails *d*, and the inclined planes *e*, with means for reciprocating said bars and rails upon the inclined planes, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM SAMUEL DOBBS.

Witnesses:

E. Z. F. MOELLER,
FERDINAND SAILZL.