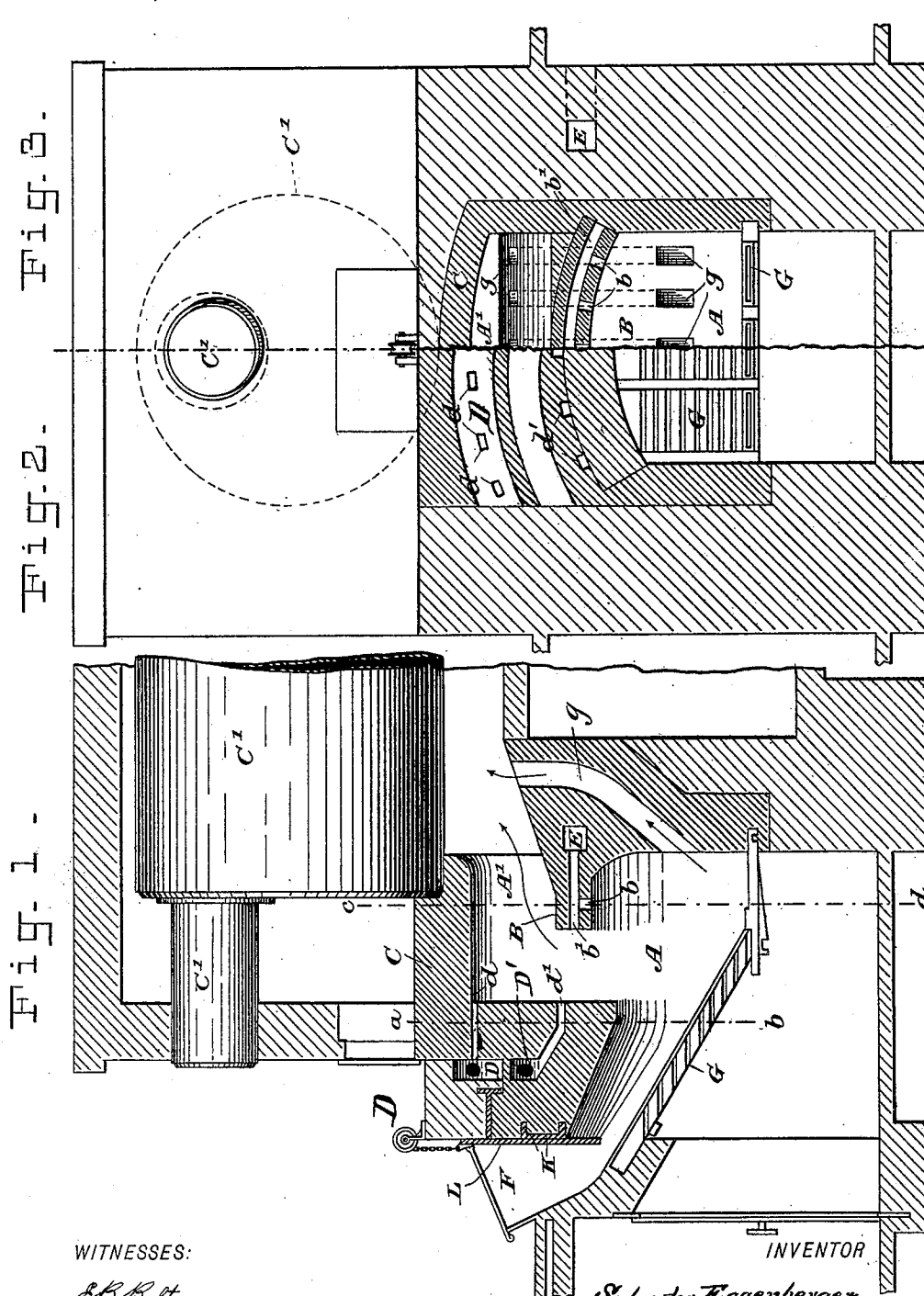


(No Model.)

S. EGGENBERGER.
BOILER FURNACE.

No. 463,829.

Patented Nov. 24, 1891.



WITNESSES:

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SYLVESTER EGGENBERGER, OF BUDA-PESTH, AUSTRIA-HUNGARY.

BOILER-FURNACE.

SPECIFICATION forming part of Letters Patent No. 463,829, dated November 24, 1891.

Application filed September 30, 1890. Serial No. 366,622. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER EGGENBERGER, a subject of the Emperor of Austria, residing at Buda-Pesth, in the Kingdom of Austria-Hungary, have invented certain new and useful Improvements in Boiler-Furnaces; and I declare the following to be a full, clear, and exact description of the same.

The object of the invention is to so construct a furnace as to consume the gases and smoke rising from the fuel, and thus secure more perfect combustion.

To this end the invention consists in details of construction and combinations to be hereinafter fully described, and particularly specified in the claims.

In the accompanying drawings, which illustrate a furnace embodying my improvements, Figure 1 is a longitudinal section. Fig. 2 is a transverse section taken on the broken line *a b* of Fig. 1. Fig. 3 is a transverse section taken on line *c d* of Fig. 1.

The fire-chamber *A* is partly covered at top by the forwardly-extending horizontally-arranged bridge *B* and arch *C*, which latter is so arranged as to form, in connection with the bridge, a mixing-chamber *A'*, through which the gas and smoke rising from the fuel in the fire-chamber *A* must pass on its way to the space beneath the boiler, and so to the chimney.

To supply the gases rising from the fuel with the oxygen necessary to complete combustion, I provide the bridge and arch with air vents or ducts *b b'* and *d d'*, respectively, which connect at their inner ends with open-ended air-passages *D* and *D'* in the arch and *E* in the bridge-wall. These air ducts and passages, by admitting cool air, also serve to prevent the bridge and arch from burning. The fuel is fed from the hopper or chute *F* to the inclined grate *G*, and in case of clogging can be readily freed or loosened by means of a poker. The gas and smoke rising from the fuel in the fire-chamber *A* is thoroughly charged or mixed in its passage to the mixing-chamber *A'*, and so to the boiler, with heated oxygen admitted through the ducts *b*, *d*, and *d'* in the bridge *B* and arch *C*. In the bridge-wall, extending from the fire-chamber

A to a point just in rear of the mixing-chamber *A'*, are passages *g*, designed to conduct a portion of the highly-heated gases from the fire-chamber to the space beneath the boiler, and thus add combustible matter to the volume of combustion passing from the chamber *A'*, thereby obtaining a complete consumption of the products of combustion rising from the fuel and an intense heat beneath the boiler. The front of the arch *C* forms the outlet of the hopper or chute *F*, thus causing the greater part of the fuel to be fed to the center of the grate; and to regulate the quantity of fuel to be fed to the furnace, an iron support *K* is secured to the face of the arch *C*, on which a metal gate *L* is adapted to be adjusted vertically to leave a larger or smaller opening between the hopper or chute *F* and the fire-chamber.

What I claim is—

1. A furnace the fire-chamber of which is provided with a bridge and arch arranged to form a mixing-chamber above the fire-chamber, said bridge and arch being provided with air passages and ducts *b b' d d'*, to inject heated air into the mixing-chamber, and passages *g*, formed in the bridge-wall to discharge products of combustion opposite the exit of the mixing-chamber, substantially as described.

2. In a smoke-consuming furnace, the combination, with the grate, arch, and horizontal bridge, forming fire and mixing chambers, of two air-supply passages formed in the arch with vents arranged to discharge air at the entrance and top of the mixing-chamber, an air-supply passage in the bridge with vents to discharge air at the entrance of the mixing-chamber, and passages leading from the fire-chamber to points opposite the discharge-opening of the mixing-chamber, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SYLVESTER EGGENBERGER.

Witnesses:

HEINRICH GEBHARDT,
EMIL AMSLER.