

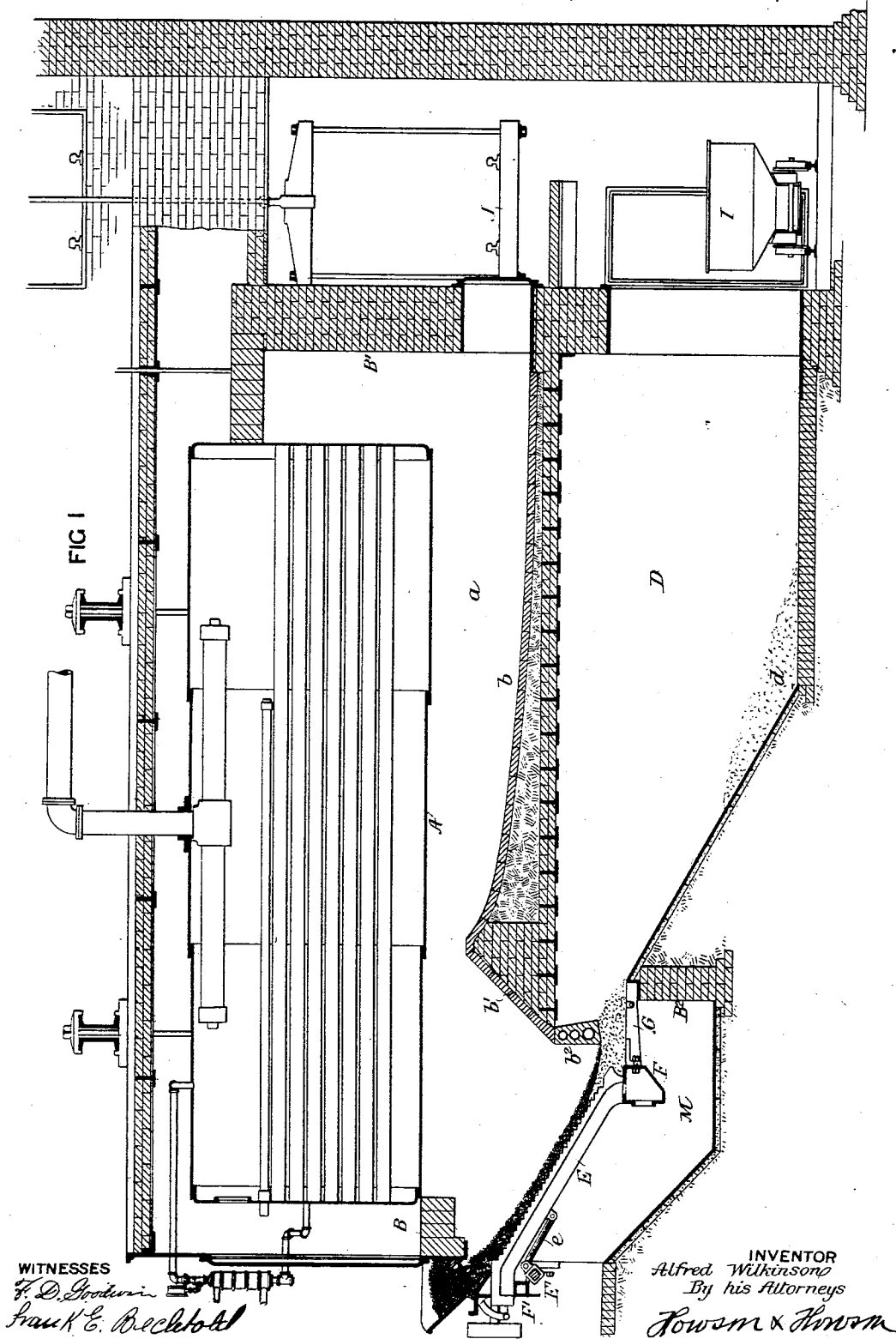
(No Model.)

2 Sheets—Sheet 1.

A. WILKINSON.
STEAM BOILER FURNACE.

No. 541,405.

Patented June 18, 1895.



(No Model.)

2 Sheets—Sheet 2.

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FIG 2

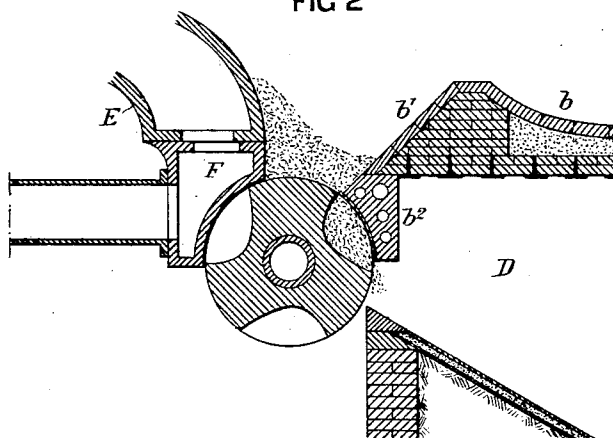
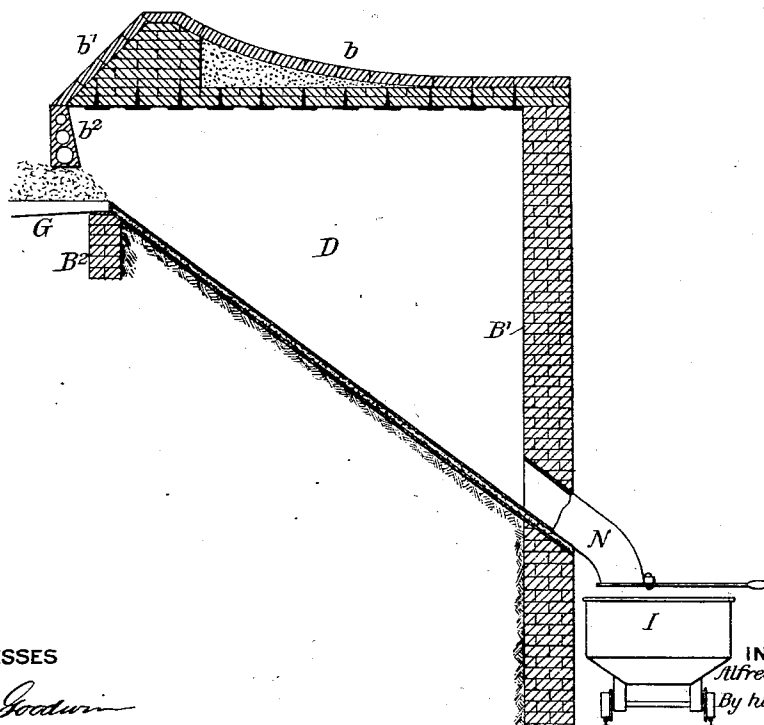


FIG 3



WITNESSES

F. D. Goodwin
Frank E. Bechtold

INVENTOR

Alfred Wilkinson
By his Attorneys

Hewson & Hewson

UNITED STATES PATENT OFFICE.

ALFRED WILKINSON, OF BRIDGEPORT, PENNSYLVANIA, ASSIGNOR TO THE
WILKINSON MANUFACTURING COMPANY, OF SAME PLACE.

STEAM-BOILER FURNACE.

SPECIFICATION forming part of Letters Patent No. 541,405, dated June 18, 1895.

Application filed April 28, 1894. Serial No. 509,365. (No model.)

To all whom it may concern:

Be it known that I, ALFRED WILKINSON, a citizen of the United States, and a resident of Bridgeport, Montgomery county, Pennsylvania, have invented certain Improvements in Steam-Boiler Furnaces, of which the following is a specification.

My invention relates especially to that class of furnaces, which are provided with automatic stokers, the object of my invention being to prevent the annoyance and inconvenience ordinarily caused by the removal of the ashes from the ash pit below the grate, for in this case the ashes must be loaded into barrows or cars in the boiler room, which might otherwise be kept perfectly clean, owing to the mechanical means employed for feeding the fuel to the furnace. I therefore provide in the rear of the grate an ash vault in which the ashes can be automatically deposited as fast as they accumulate at the base of the grate, the capacity of this vault being such that the ashes need only be removed therefrom at comparatively long intervals.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a steam-boiler setting with ash-vault and accessories in accordance with my invention, and Figs. 2 and 3 are views illustrating modifications of the invention.

A is the boiler.

B is the front wall of the furnace, and B' the rear wall which extends considerably below the combustion chamber *a* and forms the rear wall of the ash vault D, which is separated from the combustion chamber by a floor *b* made of bricks and earth filling supported upon transverse T-bars, the front portion of this floor forming the bridge wall *b'*.

The furnace is similar in general construction to that forming the subject of my Letters Patent No. 480,538, dated August 9, 1892, E being the inclined hollow grate bars which communicate at their lower ends with the blast box F, which also supports said lower ends of the bars, the upper portions of the same being supported by a saddle F'. A rock shaft E' is connected to the grate bars by the rods *e*, so that when said shaft is vibrated the bars have a reciprocating motion toward and from the bridge wall. Extending from the

rear of the blast box F is a fixed grate G made up in the present instance of a series of sections bolted together, the rear end of this grate being supported on a wall B². From the rear edge of the grate G extends the ash vault D, the floor of the vault being inclined from the grate to the point *d* so that as the ashes leave the grate G they will slide down the inclined floor and accumulate in the vault.

The bridge wall *b'* has a portion *b*² which extends down to a point directly above the extension grate so as to prevent any inflow of cold air to the combustion chamber from the ash vault, said depending portion *b*² of the bridge wall being preferably provided with pipes for the circulation of water, so as to prevent it from being burned out by the hot ashes.

The ash vault doorway is formed in the rear wall B' so that a car I can be loaded from the ash vault and run onto an elevator J by which it can be raised to the street level.

Some fine ashes may pass through the grate, G, into the usual ash pit M beneath the grate, but the quantity will be so small that the accumulation will be very slow, and removal of the ashes at long intervals only will be necessary.

It will be understood that as the grate bars E reciprocate they will push the ashes rearward on the grate G so that the ashes will be discharged from the end of the grate, the delivery of ashes to the vault D being wholly automatic.

Various forms of ash discharging devices at the base of the inclined grate may be used without departing from my invention. For instance, a rotary ash discharger such as that shown in my former patent may be employed, such modification being illustrated in Fig. 2, and if desired the bottom of the ash vault D may be inclined throughout, as shown in Fig. 3, so as to provide for the automatic discharge of the ashes into the car I, through a valved spout N.

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

1. The combination of the inclined grate, an automatic ash discharger at the base, with an ash storage vault located in the rear of

and below the base of the grate, said vault being independent of the usual ash pit below the grate, and being adapted to receive the ashes from the ash discharger, substantially

5 as specified.

2. The combination of the inclined grate, an automatic ash discharger at the base, with an ash storage vault located in the rear of and below the base of the grate, said vault
10 having an inclined bottom which receives the ashes from the ash discharger, substantially as specified.

3. The combination of the inclined grate, an automatic ash discharger grate at the base,
15 with an ash storage vault in the rear of and below the base of the ash discharging grate, and a bridge wall having a portion above said ash discharging grate, whereby the ashes on the grate form a seal to prevent access of air
20 to the furnace from the ash vault, substantially as specified.

4. The combination of the inclined reciprocating grate bars, a bearing for said bars at

the base of the grate, a fixed grate projecting from said bearing, and an ash storage vault 25 in the rear of and below said fixed grate, substantially as specified.

5. The combination of the furnace grate having an automatic ash discharger at the base, with the ash vault extending in the rear 30 of and below said grate, and having a discharge opening at the rear, substantially as specified.

6. The combination of the furnace grate, an automatic ash discharger at the base, the ash 35 vault located in the rear of and below said grate and having a discharge opening at the rear, the ash receiving car and the elevator, substantially as specified.

In testimony whereof I have signed my 40 name to this specification in the presence of two subscribing witnesses.

ALFRED WILKINSON.

Witnesses:

FRANK E. BECHTOLD,
JOSEPH H. KLEIN.