

J. ROTHWELL.
 APPARATUS FOR SMOKE PREVENTION AND FUEL ECONOMIZING IN CONNECTION WITH
 STEAM GENERATORS.

1,052,518.

APPLICATION FILED JUNE 20, 1912.

Patented Feb. 11, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

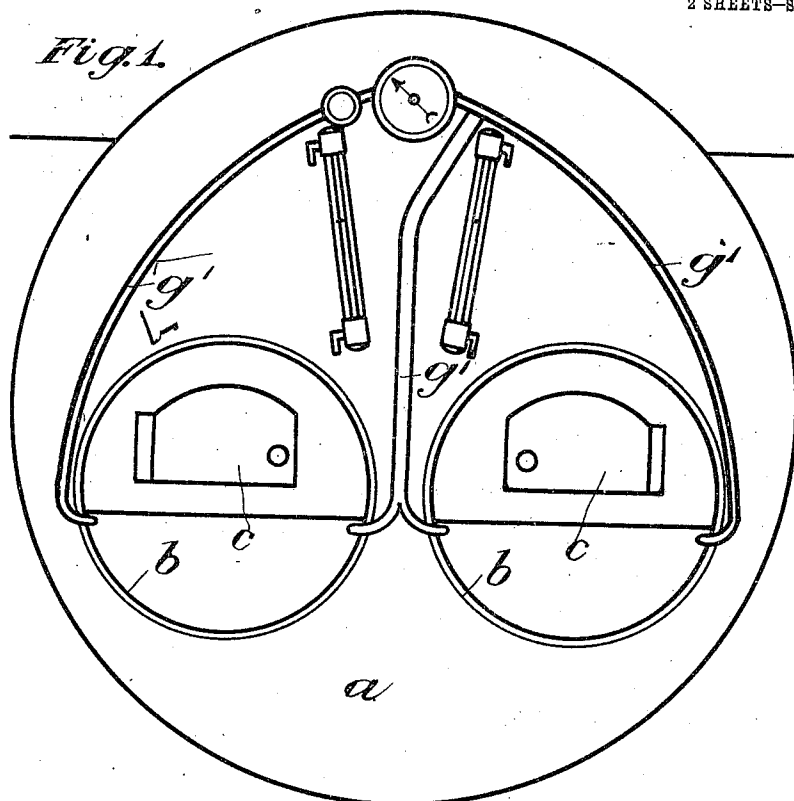
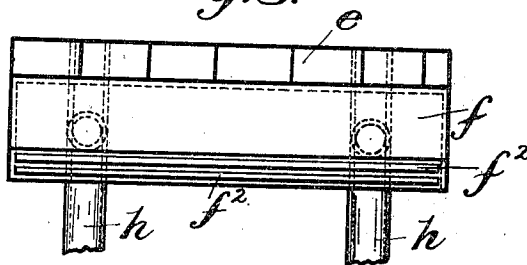


Fig. 3.



Attest:

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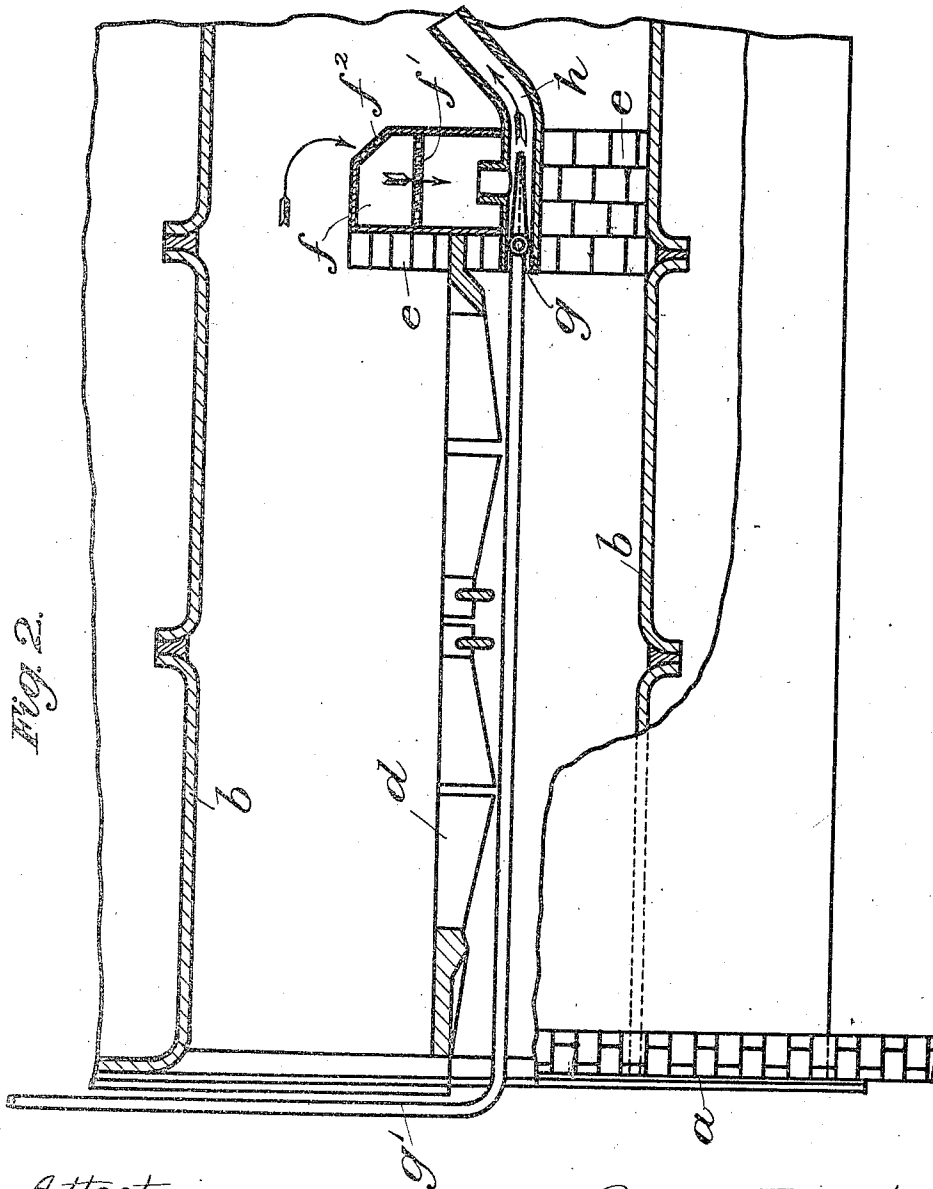


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOSEPH ROTHWELL, OF WALKDEN, NEAR MANCHESTER, ENGLAND.

APPARATUS FOR SMOKE PREVENTION AND FUEL ECONOMIZING IN CONNECTION
WITH STEAM-GENERATORS.

1,052,518.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed June 20, 1912. Serial No. 704,923.

To all whom it may concern:

Be it known that I, JOSEPH ROTHWELL, a subject of the King of Great Britain, residing at Brentwood, Walkden, near Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Apparatus for Smoke Prevention and Fuel Economizing in Connection with Steam-Generators, of which the following is a specification.

My invention relates to improvements in apparatus for smoke prevention and fuel economizing in connection with steam generators.

The improvements consist essentially in the use and application of a cast iron or other suitable metal box or boxes divided into two compartments by a perforated plate, placed preferably at the back of the bridge wall or forming part of the bridge wall and so becoming highly heated by the furnace. In or in connection with this box (or each box) I place a steam injector or equivalent appliance to draw in the gaseous products of combustion from the furnace at or near the top of the box through slots or other suitable apertures and discharge such gaseous products into a second chamber in the same or another box and thence deliver them highly heated, through a slot or pipe into the furnace flue at the back of the bridge wall.

I illustrate an embodiment of my invention in the accompanying sheet of drawings, in which—

Figure 1 is an end elevation of a Lancashire boiler to which my invention is shown applied, and Fig. 2 is a sectional side elevation of one of the flues of the same. Fig. 3 is a sectional plan showing the bridge wall and the attached metal box.

In these views *a* designates the front plate of a Lancashire or two flued boiler; *b* the furnace flues; *c* the fire doors; *d* the fire bars; *e* the bridge wall.

For the purposes of my invention I mount or form on the back of the bridge wall *e*,

a cast iron or other suitable metal box *f* divided into two compartments by a perforated metal plate or diaphragm *f'*. At or near the top of the box slots or openings are provided preferably slots *f*² and through these slots *f*² the gaseous products of combustion are drawn into the box *f* by means of any known and suitable type of injector *g* (or injectors) which is supplied with and rendered operative by steam from the boiler supplied through pipes *g'*. The injectors *g* draw the gaseous products of combustion into the highly heated metal box *f* through the perforations in the plate or diaphragm *f'* and into the delivery pipes *h* which discharge the highly heated gases into the furnace flue at a convenient distance behind the bridge wall *e* and greatly assist in minimizing or reducing smoke by mingling with and effecting more perfect combustion of the gaseous products flowing from the furnace.

What I claim and desire to secure by Letters Patent is:—

In apparatus for smoke prevention and fuel economizing in connection with steam generators, in combination, a bridge wall, a metal box in the furnace flue and positioned at the back of the bridge wall, a perforated plate within said box dividing it into upper and lower compartments, an injector operatively associated with the lower said compartments, the upper of said compartments being provided with slots adjacent its top through which the gaseous products of combustion are adapted to be drawn, and pipes operatively connected to said injector for leading the gases from said lower compartment into the furnace flue at a point in rear of said bridge wall.

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

JOSEPH ROTHWELL.

Witnesses:

HERRERT ROWLAND ABBEY,
JOSEPH BENNETT.