

No. 644,829.

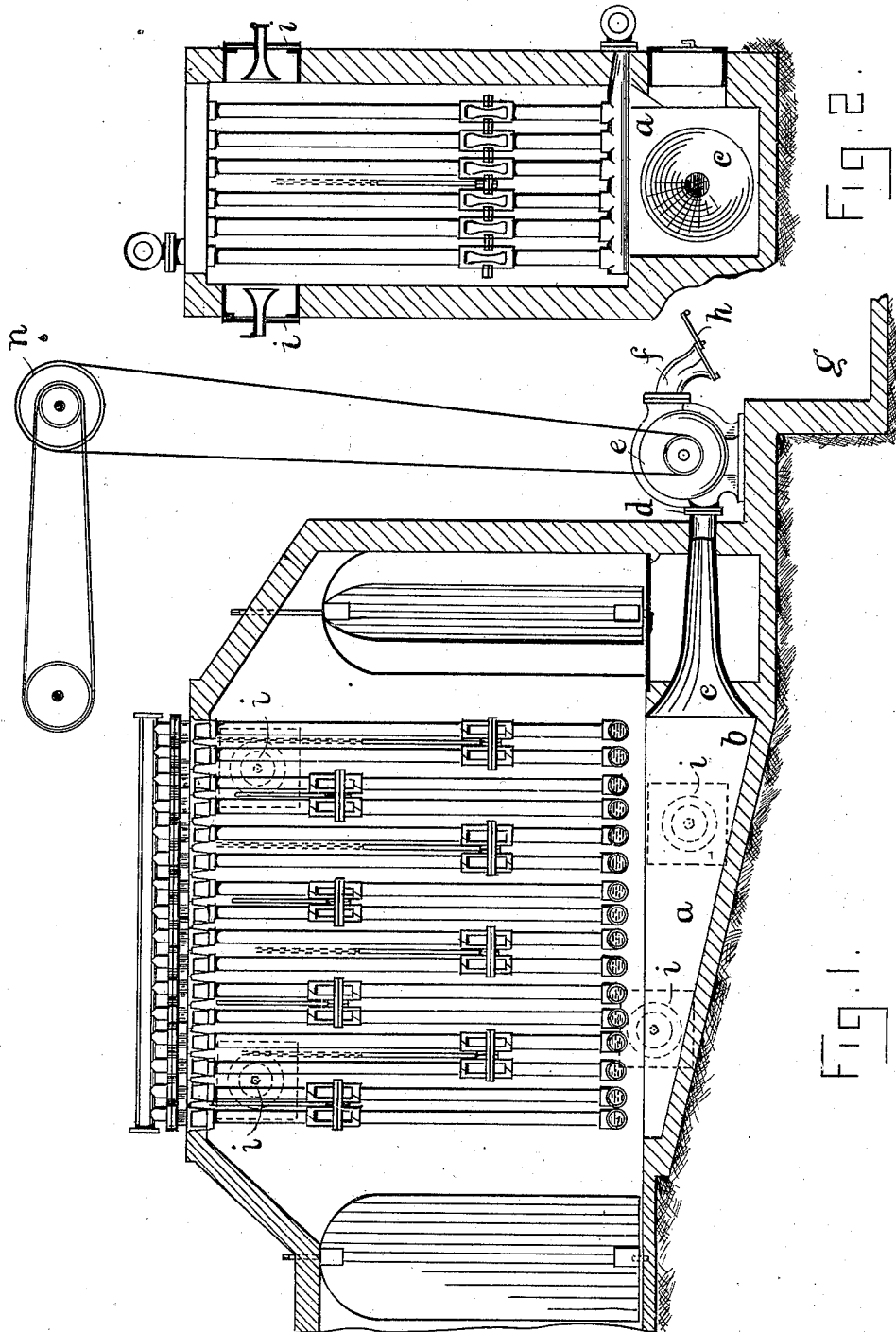
Patented Mar. 6, 1900.

D. RUSHWORTH.
FUEL ECONOMIZER.

(Application filed Dec. 21, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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Inventor
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By his Attorney
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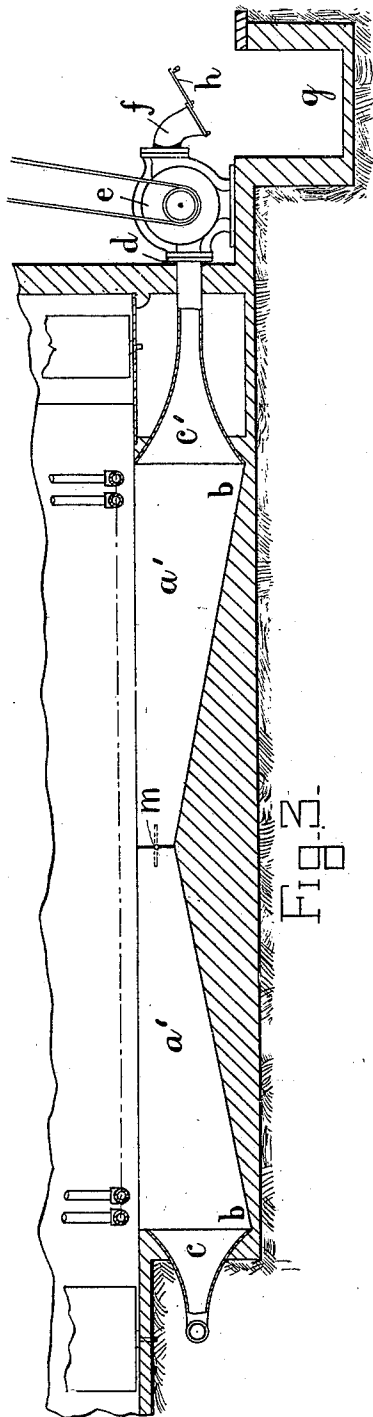
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2 Sheets—Sheet 2



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UNITED STATES PATENT OFFICE.

DAVID RUSHWORTH, OF CLAY CROSS, ENGLAND, ASSIGNOR TO THE CLAY CROSS COAL, LIME AND IRON WORKS, OF SAME PLACE.

FUEL-ECONOMIZER.

SPECIFICATION forming part of Letters Patent No. 644,829, dated March 6, 1900.

Application filed December 21, 1897. Serial No. 662,924. (No model.)

To all whom it may concern:

Be it known that I, DAVID RUSHWORTH, a subject of the Queen of Great Britain, residing at Clay Cross, in the county of Derby, England, have invented certain new and useful Improvements in Fuel-Economizers, (for which I have received Letters Patent in England, dated May 14, 1896, No. 10,294,) of which the following is a specification.

This invention has reference to the apparatus for heating the feed-water of steam-boilers by means of the waste heat from the furnace, commonly called "fuel-economizers." In this apparatus it is customary to provide appliances termed "scrapers," which traverse the pipes for the purpose of removing any soot or the like deposited thereon, the soot as it is removed falling into the soot-chamber below.

The object of this invention is to provide mechanism or appliances for mechanically and effectually extracting the soot from the soot-chamber and also assist in promoting a more thorough removal of the same from the pipes and other parts of the economizer.

With this object in view the invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a view principally in longitudinal vertical section, illustrating mechanism embodying my invention. Fig. 2 is a transverse vertical sectional view. Fig. 3 is a partial longitudinal sectional view illustrating a modified form of apparatus.

In carrying out the invention the soot-chamber *a* of the economizer will preferably be constructed with inwardly sloping or inclined sides and with the bottom inclined downward toward the delivery end *b*, as shown, or in the direction of the exterior of the economizer. At the delivery end of the soot-chamber a pipe or trunk *c* or the like, with gradually-constricted orifice or opening, if preferred, passing through the wall of the economizer, will establish communication between the soot-chamber *a* and the exterior. This pipe or trunk on the outside will preferably

be constructed with a flanged opening *d*, to which the inlet branch of a fan or blower *e* of any suitable construction or design will be coupled up or attached. The fan or blower will be provided with an arm or branch *f*, attached to the outlet, for delivering the soot into a pit *g* or the like, from which it may be removed by hand or elevator, conveyer, or in any other convenient manner. This delivery branch will be provided with an airtight cover or valve *h* to prevent the entrance therethrough of cold air to the economizer when the apparatus is not at work. The soot-chamber or other part of the economizer will also be provided with one or more suitable inlet valves, pipes, or openings *i* to regulate the admission of air when the fan or blower is running.

In large economizers two or more fans or blowers may be employed and the soot-chamber *a'* inclined in each direction from the center, as shown in Fig. 3 of the drawings, being provided at the center with a swiveling damper or valve *m* to effectively direct the current through the economizer.

The blower or fan may be driven from a pulley *n* on the shaft, provided for driving the scrapers, or motion may be imparted to it in any other suitable or convenient manner.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An apparatus comprising a series of vertically-arranged pipes, vertically-reciprocating scrapers in contact therewith, a casing inclosing said pipes and scrapers, said casing provided with a longitudinally-inclined bottom, a trunk or pipe having an inwardly-opening flaring mouth at the lower end of said inclined bottom, and a suction-fan at the outer end of said trunk, substantially as described.

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

DAVID RUSHWORTH.

Witnesses:

G. C. DYMOND,
W. H. BEESTON.