

No. 674,128.

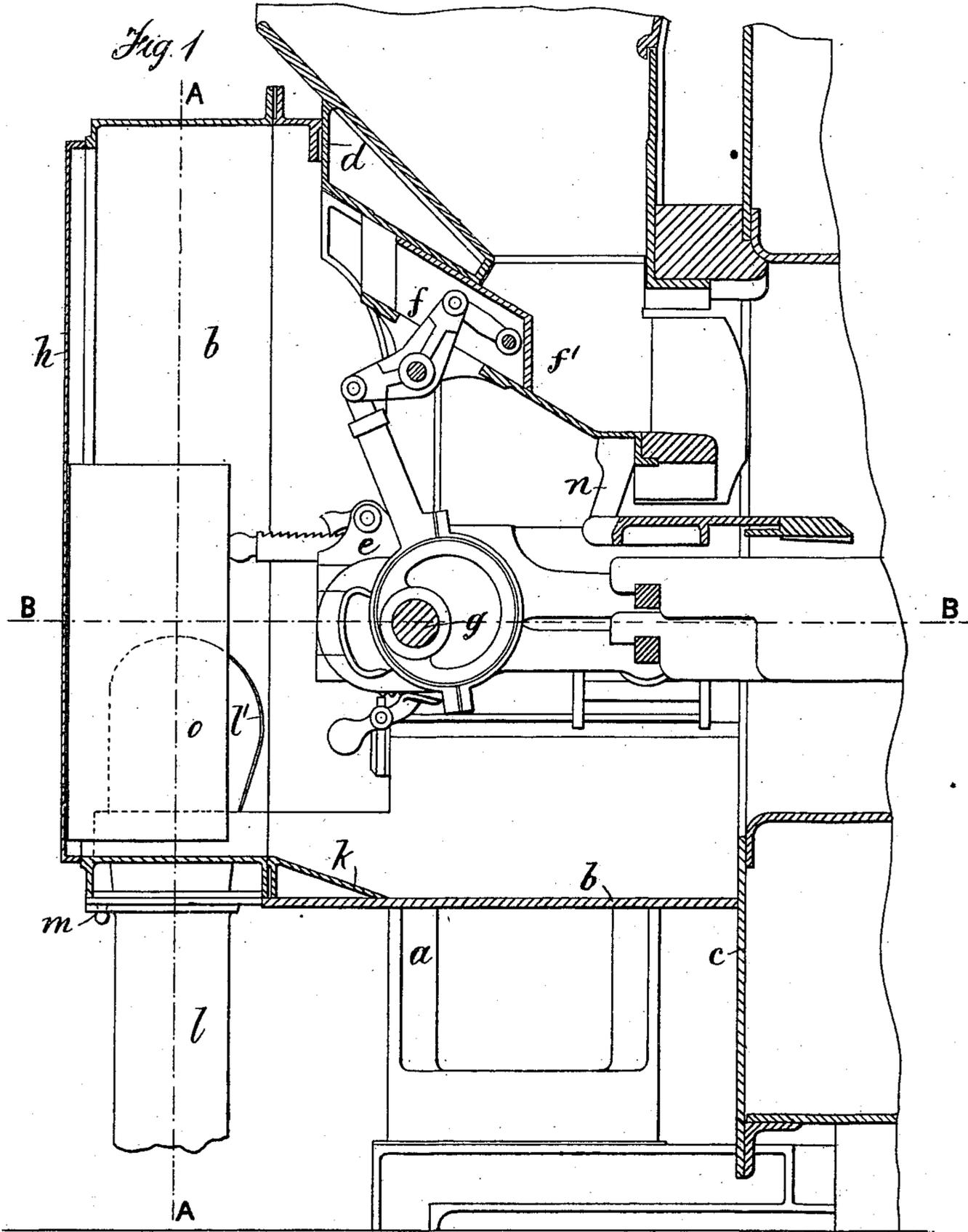
Patented May 14, 1901.

T. & J. VICARS.
FORCED DRAFT MECHANICAL STOKER.

(Application filed June 28, 1900.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses

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Sydney Bourne Scott

Inventors
Thomas Vicars
John Vicars

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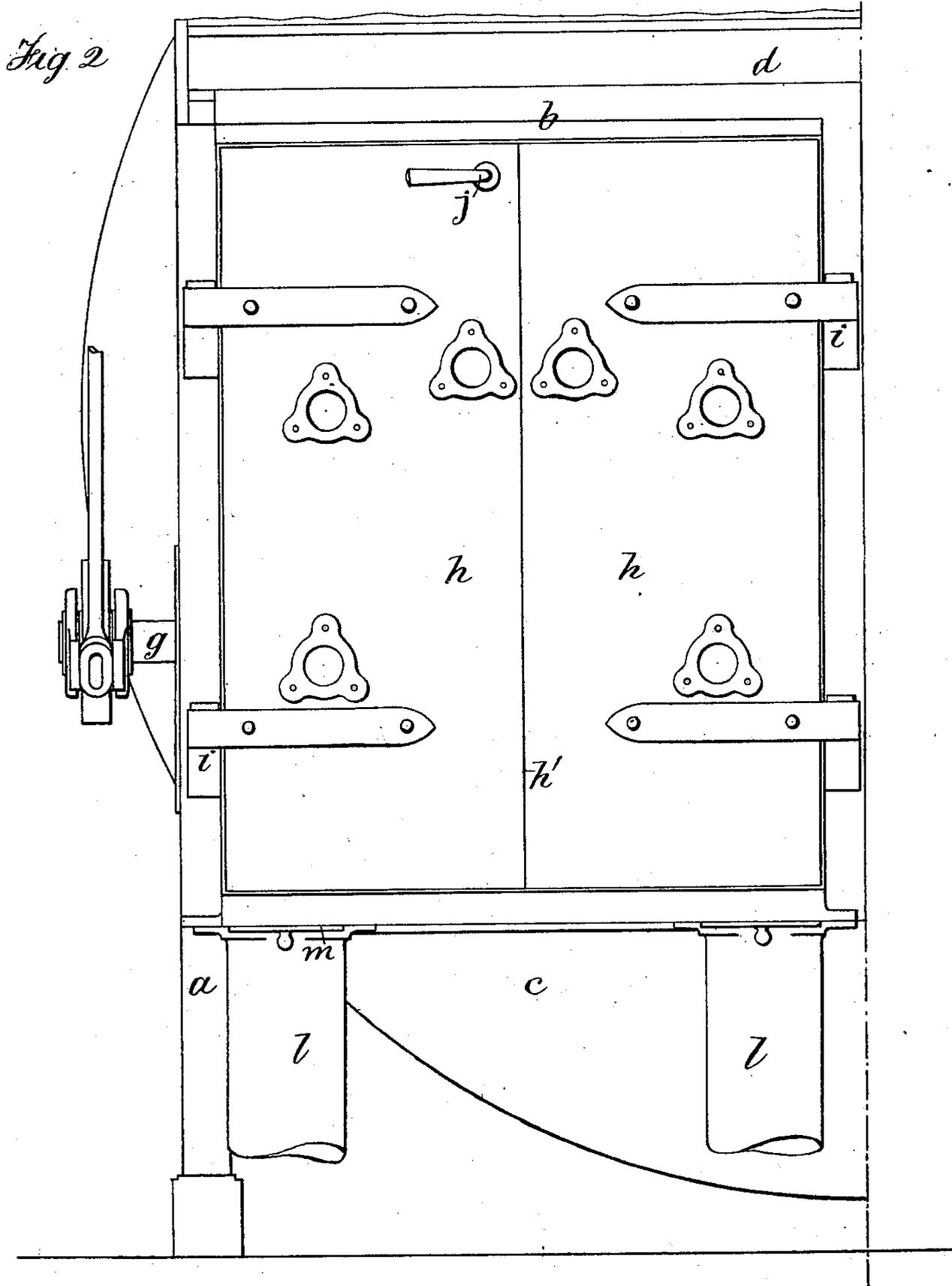
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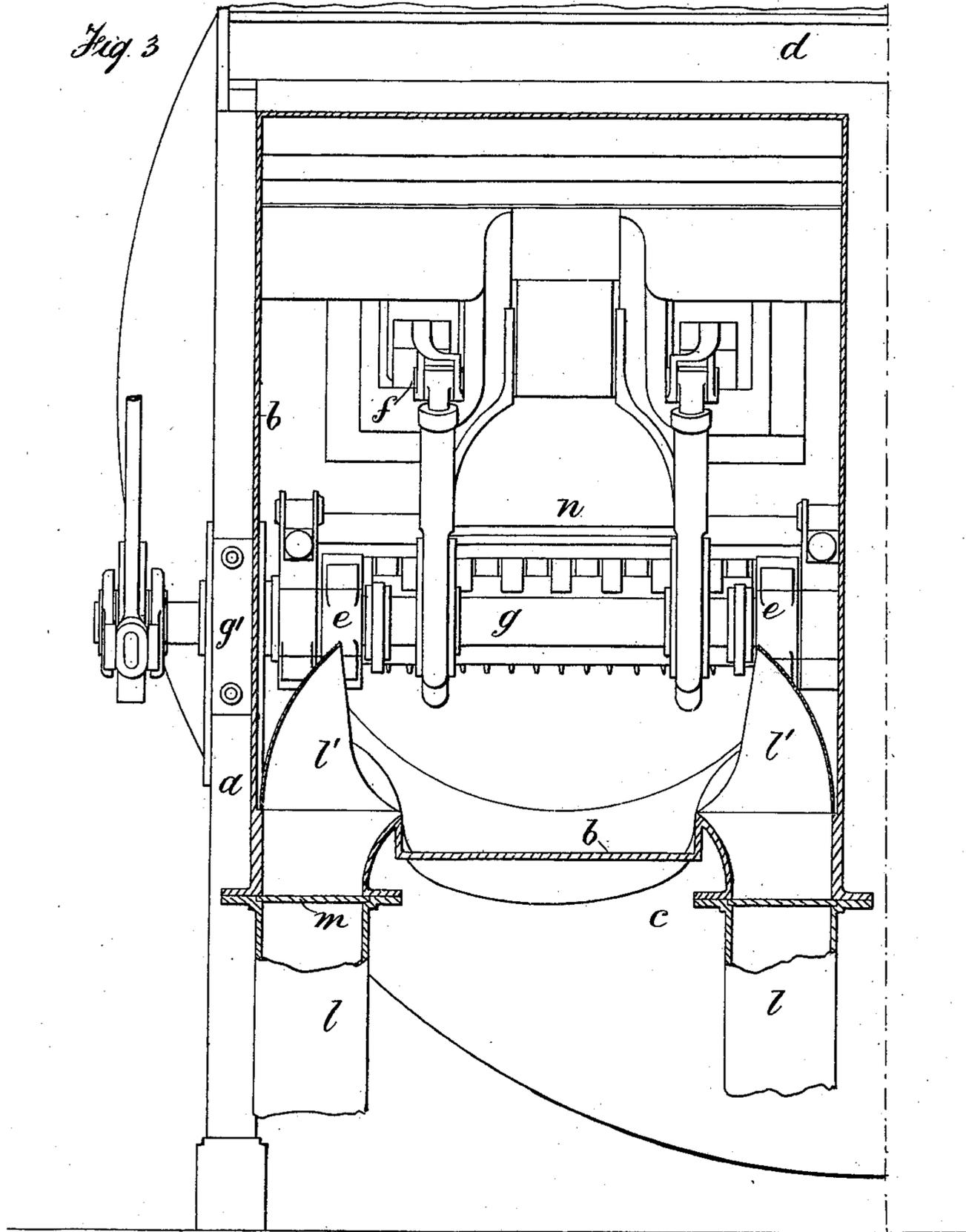
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4 Sheets—Sheet 3.



Witnesses

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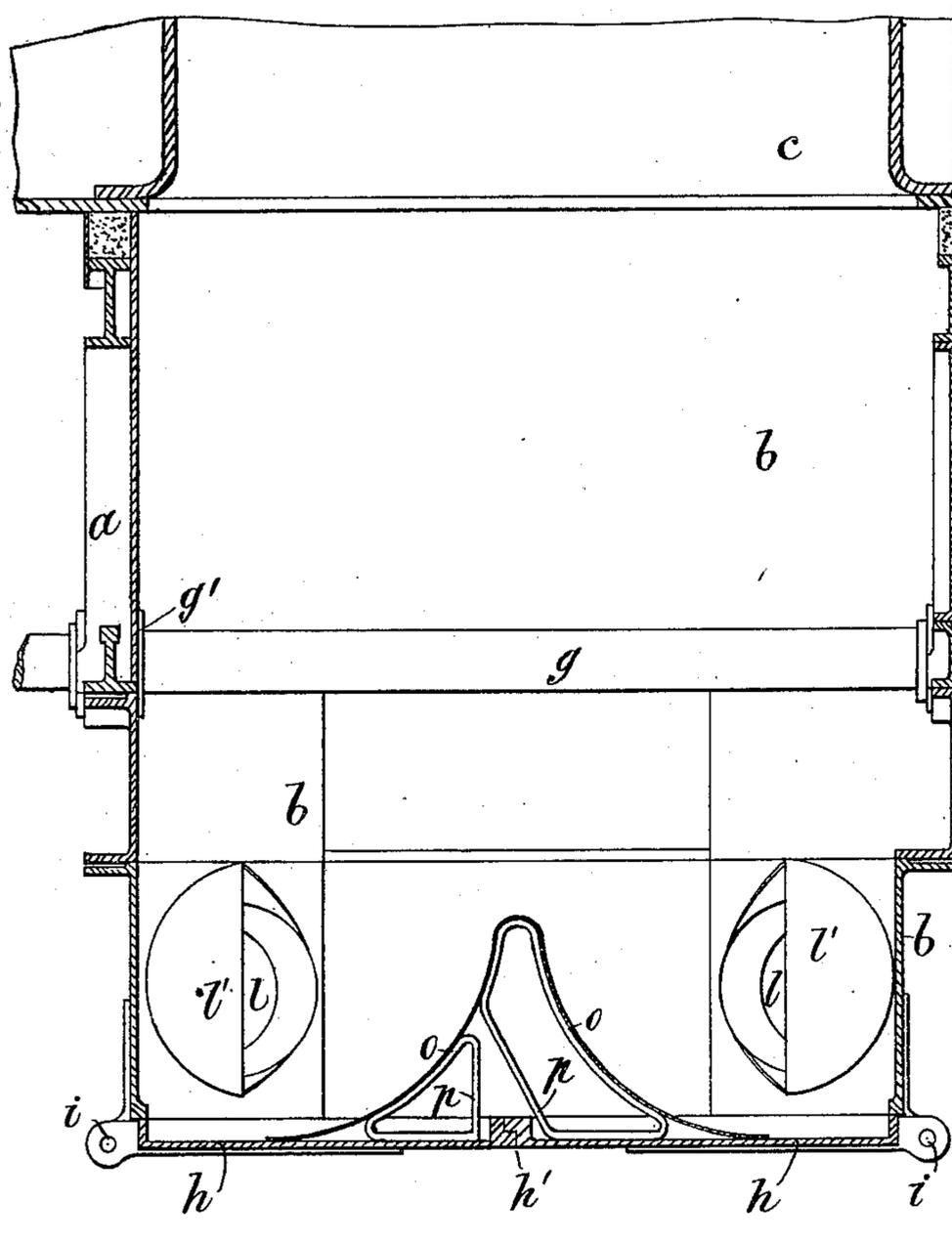
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4 Sheets—Sheet 4.

Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS VICARS AND JOHN VICARS, OF LIVERPOOL, ENGLAND.

FORCED-DRAFT MECHANICAL STOKER.

SPECIFICATION forming part of Letters Patent No. 674,128, dated May 14, 1901.

Application filed June 28, 1900. Serial No. 21,981. (No model.)

To all whom it may concern:

Be it known that we, THOMAS VICARS and JOHN VICARS, subjects of the Queen of Great Britain, residing at Liverpool, in the county of Lancaster, England, have invented new and useful Improvements in Forced-Draft Mechanical Stokers, of which the following is a specification.

The object of this invention is to provide means, in combination with mechanical stoking appliances, whereby forced draft may be used in conjunction with such stoking appliances in such manner that a steady pressure of air may be maintained both above and below the fire-bars with little or no liability to eddy-currents in the furnace and with no liability to blowing back of the flame through any interstices or joints of the working parts. We attain these objects by appliances as are illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section showing our improvements as applied to a stoker of the well-known Vicars type in front of one of the furnaces of a Lancashire boiler. Fig. 2 is a front view. Fig. 3 is a vertical section at the line A A on Fig. 1, and Fig. 4 is a horizontal section at the line B B on Fig. 1.

For effecting the purposes of our invention we form with or attach to the framework *a* of the stoker a casing *b*, fitting against the front of the boiler *c* or furnace and against the feed-hopper *d*, so as to make a tight joint therewith to prevent escape of air. The casing *b* projects in front of the mechanism *e* for operating the reciprocating fire-bars and also in front of the plungers *f* and their operating mechanism for feeding the coal to the furnace. The sides of the casing are closely fitted to the bearings *g'* of the shaft *g*, which drives the fire-bar-operating mechanism when such shaft passes, as shown, outside the casing to prevent escape of air around such bearings. *h* represents doors or covers hung on hinges *i* at the front of the casing and fitted closely thereto. The doors overlap at the center *h'* and are fastened by a catch or bolt *j* of any suitable kind. With the doors thus arranged when they are opened the whole of the working parts of the stoker are freely accessible for examination or other purposes. The furnace also by opening the doors may be used

with natural draft. The bottom of the casing may be flat or arranged with a sloping surface at *k*, so that ashes, &c., may be easily removed from the furnace. Air is forced into the casing by a steam jet or fan in any desired way, but preferably through pipes *l* at each side of the casing. *m* represents valves in the pipes for regulating the air-supply. The air passes from the casing both under the fire-bars and through the fire-door *n* and to some extent through the fuel-feeding openings *f'*.

By the above arrangements a large space is inclosed, so that eddy-currents and variations of pressure in the casing and waste of power by friction of the air in narrow passages are avoided. Also by there being a pressure of air both above and below the fire-bars there is no liability of flame being blown out through the fire-door or fuel-feed openings, which it has hitherto been very liable to do. As further means to prevent eddies in the casing *b* we provide the air-pipes *l* with hoods *l'*, and we arrange at the front of the casing deflectors *o*, against which the air issuing from the hoods *l'* strikes, and its course is thereby diverted into a direct line with the furnace, thus securing great uniformity of supply of air to all parts of the furnace. The deflectors *o* are preferably attached to the doors *h* by brackets *p*, so that they swing out with the doors when opened and do not obstruct access to the working parts.

What we claim is—

1. The combination with the framework of a mechanical stoker of a casing inclosing the fire-bar and feed-plunger operating mechanism and arranged to make a close joint with the front of the furnace and the feed-hopper, covers for the front of the casing, and passages for the supply of air under pressure to the interior of the casing substantially as described.

2. The combination with the framework of a mechanical stoker of a casing inclosing the fire-bar and feed-plunger operating mechanism and arranged to make a close joint with the front of the furnace and the feed-hopper, covers for the front of the casing, passages for the supply of air under pressure to the interior of the casing, deflectors on the air-passages, and deflectors near the front of the casing arranged to divert the air-currents in

a direct line with the furnace substantially as described.

3. The combination with the framework of a mechanical stoker of a casing inclosing the
5 fire-bar and feed-plunger operating mechanism and arranged to make a close joint with the front of the furnace and the feed-hopper, covers for the front of the casing, passages for the supply of air under pressure to the
10 interior of the casing, deflectors on the air-passages, and deflectors attached to the cov-

ers and movable therewith and adapted to divert the air-current in a direct line with the furnace substantially as described.

In testimony whereof we have signed our 15 names to this specification in the presence of two subscribing witnesses.

THOMAS VICARS.
JOHN VICARS.

Witnesses:

GEOFFREY NORRIS,
SYDNEY BONNER SCOTT.