

No. 860,504.

PATENTED JULY 16, 1907.

F. TREIBEL.
FIREPLACE FOR BOILERS.
APPLICATION FILED APR. 8, 1907.

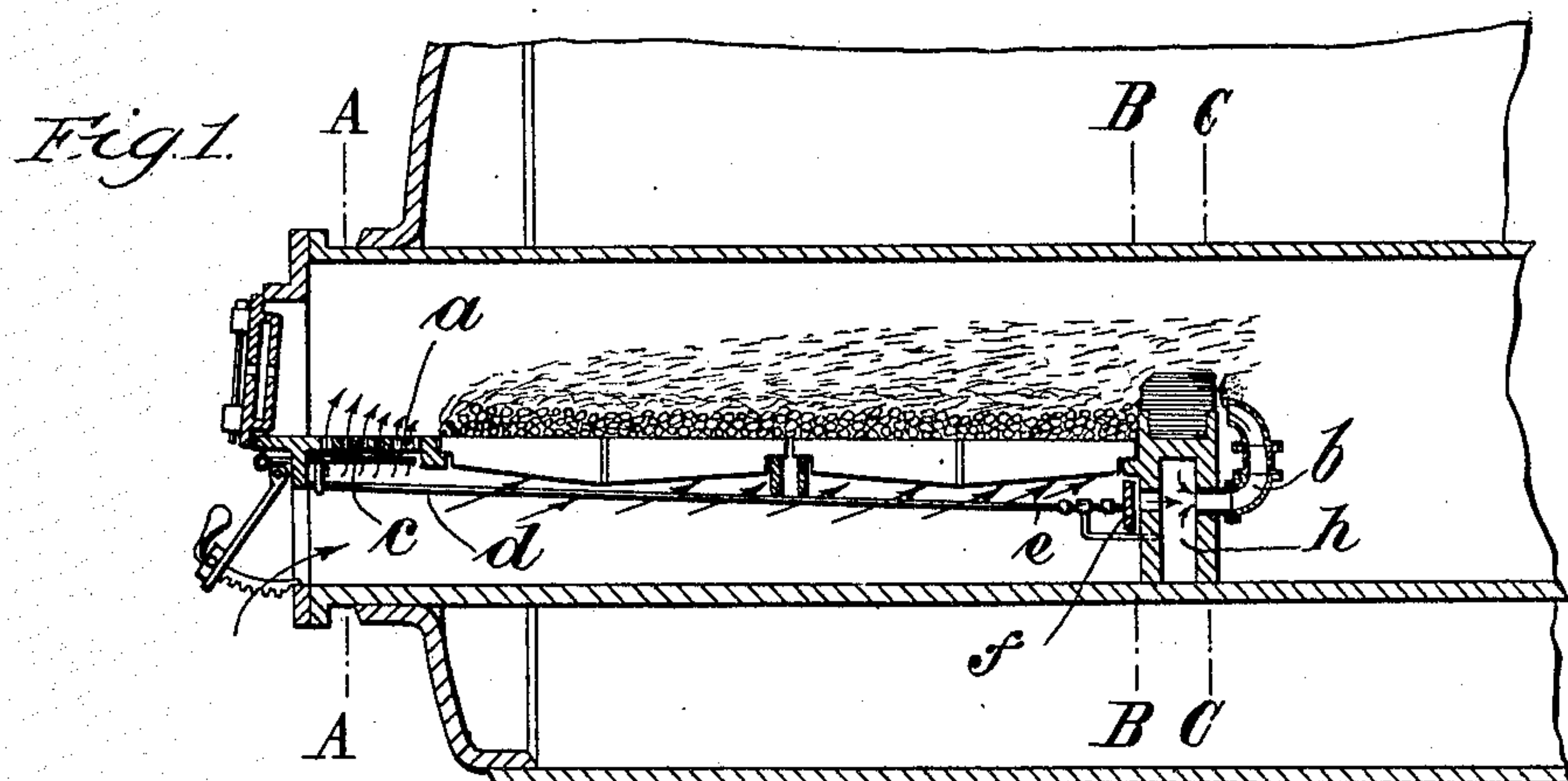


Fig. 2.

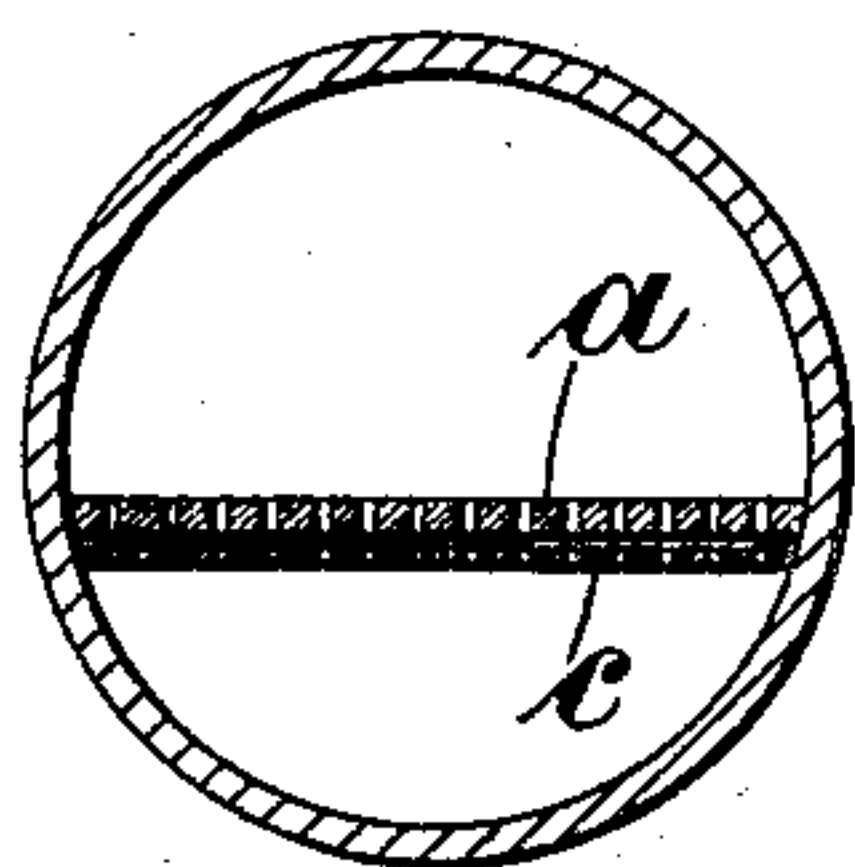


Fig. 3.

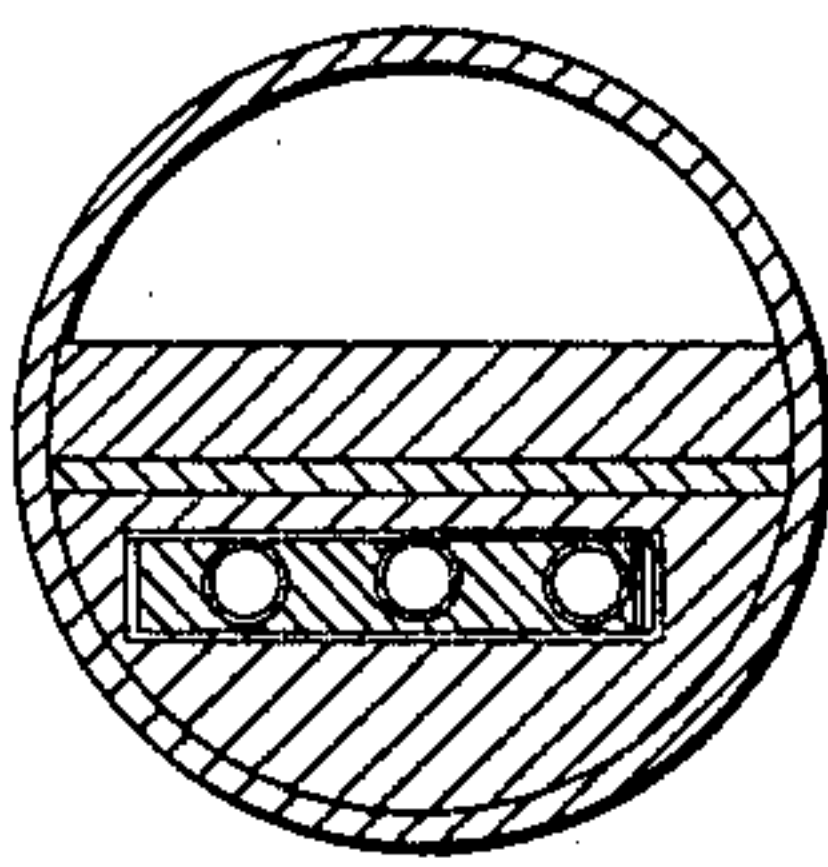


Fig. 4.

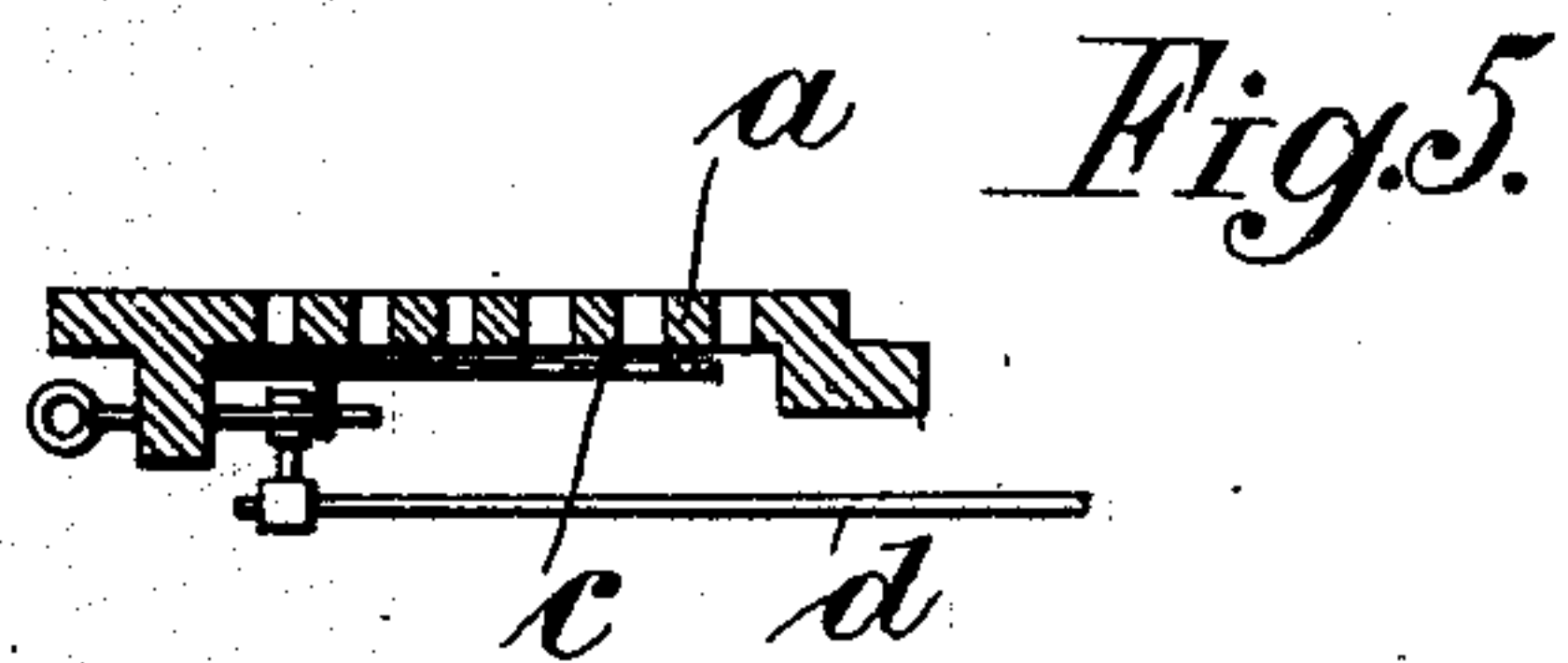
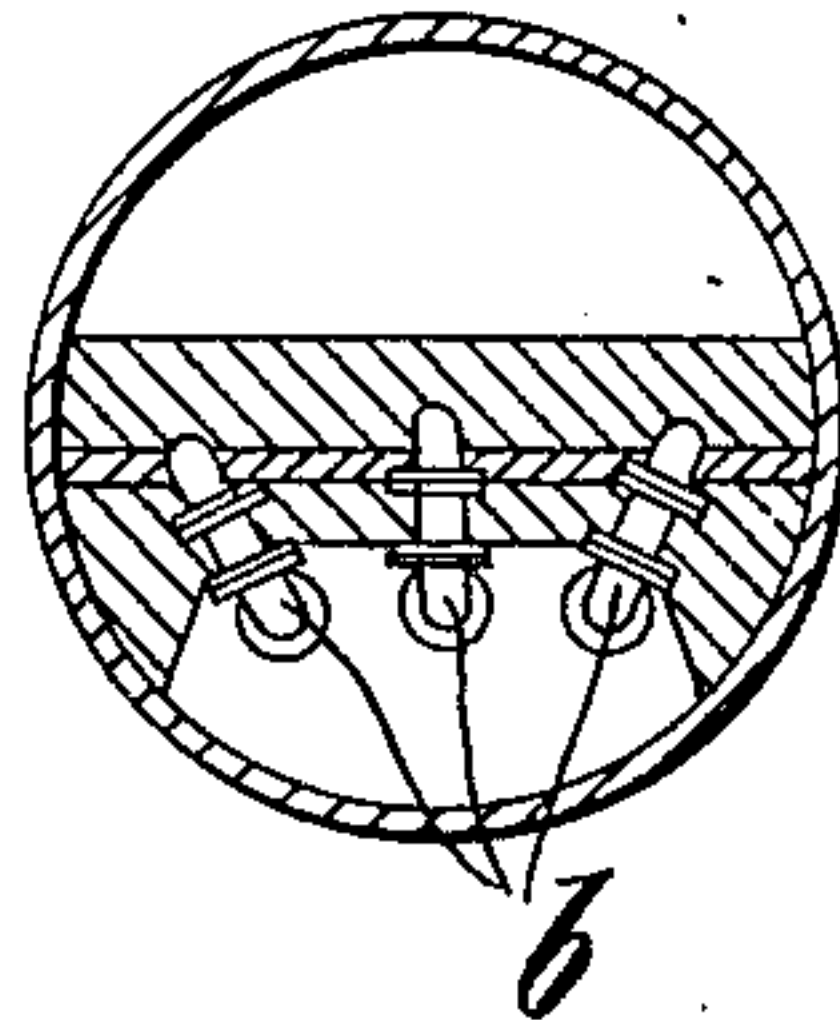
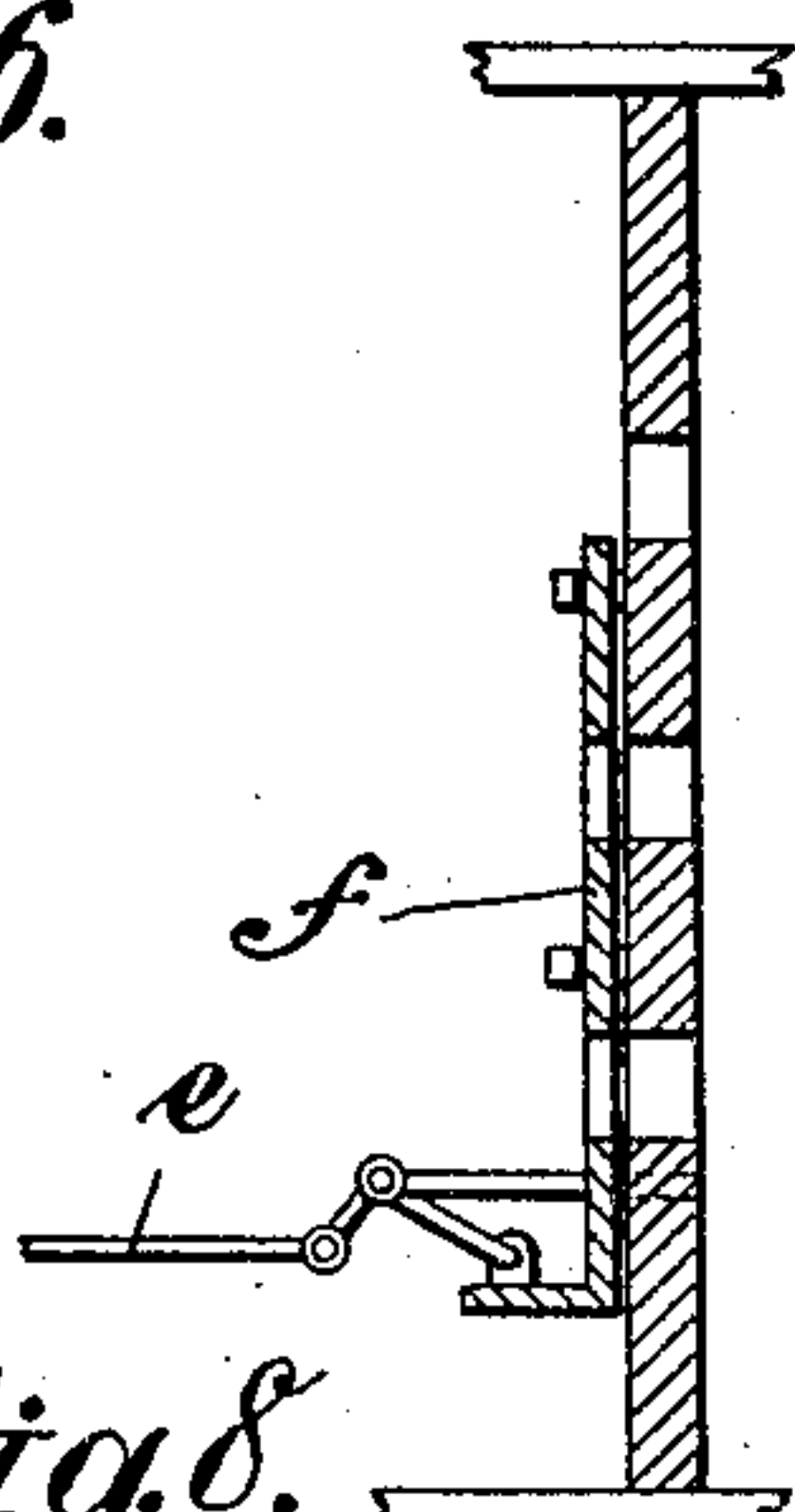
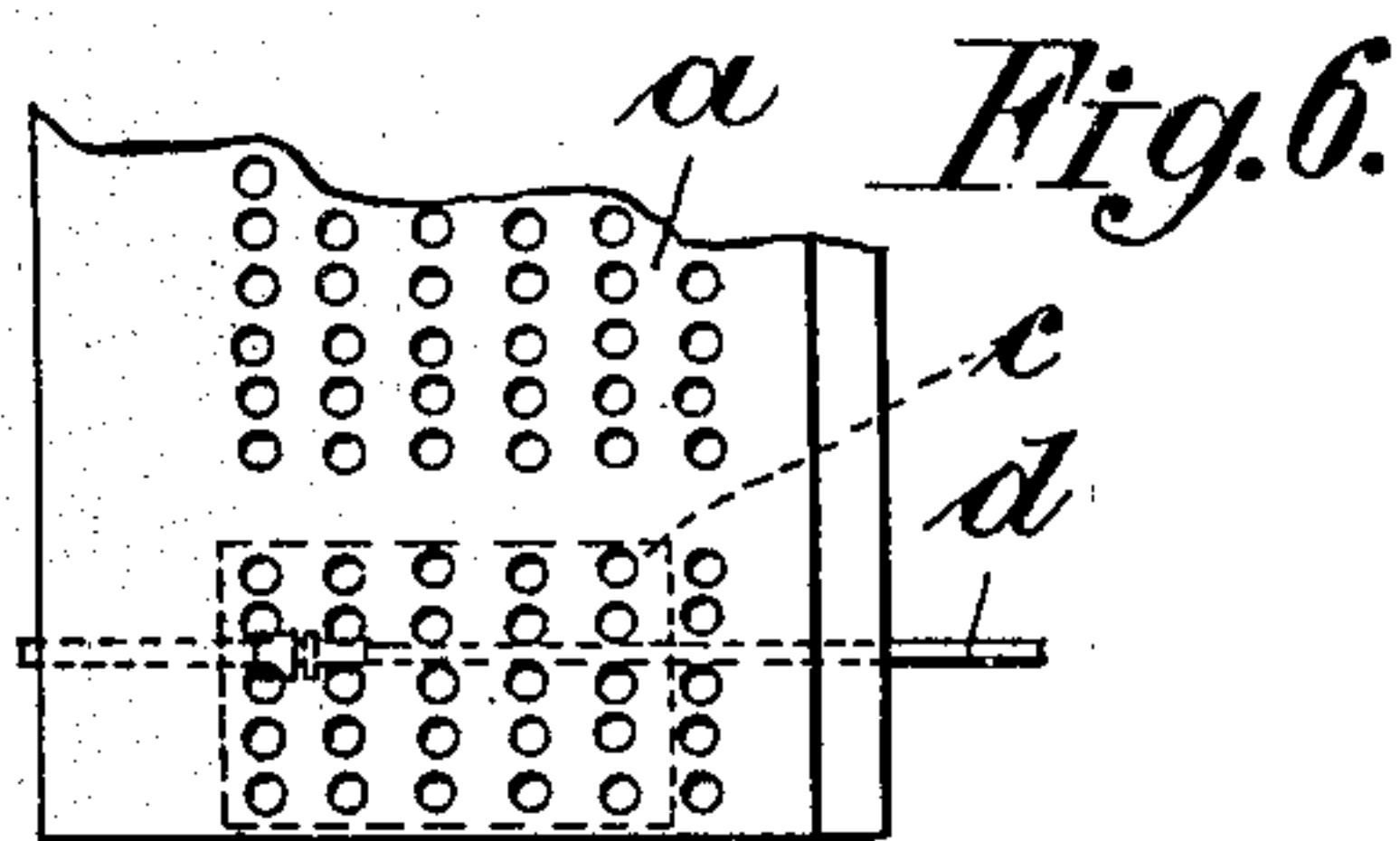
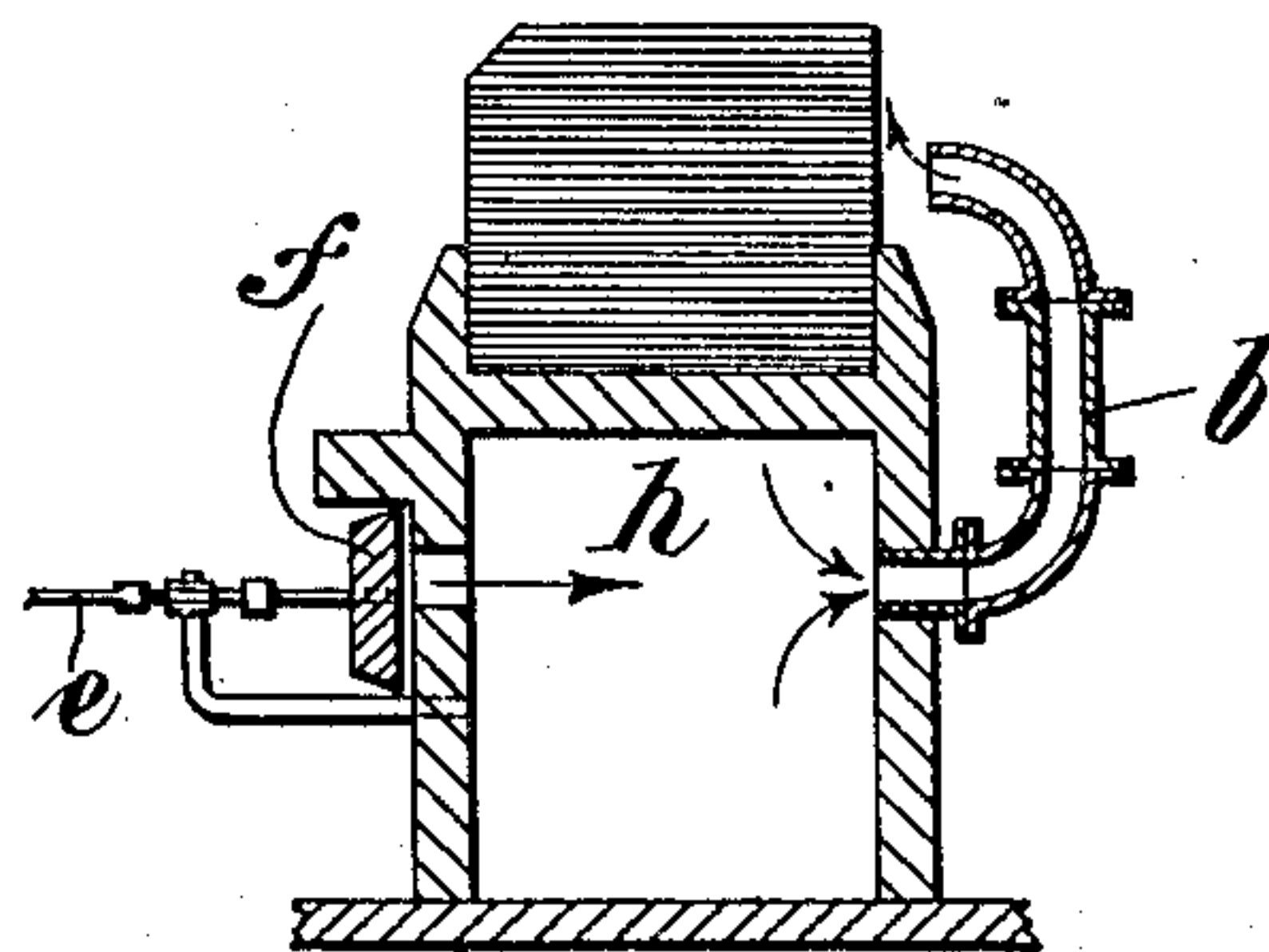


Fig. 7.



Witnesses:
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Fig. 8.

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UNITED STATES PATENT OFFICE.

FRIEDRICH TREIBEL, OF BERLIN, GERMANY.

FIREPLACE FOR BOILERS.

No. 860,504.

Specification of Letters Patent.

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Application filed April 8, 1907. Serial No. 367,057.

To all whom it may concern:

Be it known that I, FRIEDRICH TREIBEL, machinist, a subject of the German Emperor, residing at 55 Wiesenstrasse, in Berlin, Germany, have invented certain new and useful Improvements in Steam-Boiler Furnaces, of which the following is a specification.

The invention relates to that class of steam-boiler furnaces in which air is fed to the interior of the furnace in rear of the bridge-wall, and the invention consists primarily in so disposing the mouths of the air conduits that the air is directed against the rear face of the wall adjacent the top thereof.

The objects of this construction are to produce more perfect combustion, to cause the air to spread out somewhat in the nature of a sheet in order to become thoroughly mixed with the flames and products of combustion flowing over the top of the bridge-wall, to protect the mouths of the conduits from becoming choked with soot and the like, and to reduce the temperature of the bridge-wall.

The invention also includes the provision of a perforated horizontal plate disposed in front of the grate bars, or at the forward part of the furnace, for the purpose of feeding air to the front of the fire. Preferably, both of the air-feeding means are provided with regulating devices, or dampers, and, as shown, these regulating devices may advantageously be connected together for simultaneous operation.

It will thus be seen that the general object of the invention is to promote combustion by feeding air to the furnace in a novel manner and by regulating the quantity of air supplied.

In the drawings: Figure 1 is a vertical longitudinal section through a steam-boiler furnace embodying my improvements; Figs. 2, 3 and 4 are transverse sectional views, referred to the lines A—A, B—B, and C—C, Fig. 1, respectively; Fig. 5 is a vertical longitudinal section taken through the horizontal perforated plate; Fig. 6 is a fragmentary plan thereof; Fig. 7 shows a vertical longitudinal section through the bridge-wall and one of the air-conduits; and Fig. 8 is a horizontal section through the forward portion of the bridge-wall.

Referring to these drawings: *h* indicates the bridge-wall, with its lower or body portion preferably constructed in the form of a hollow shell. Leading rearward through the back of this hollow shell, and thence upward behind the bridge-wall are one or more air-conduits, or pipes, *b*, the upper ends of which are directed forward and terminate slightly in rear of the

back of the solid top portion of the bridge-wall and adjacent the top thereof. The front of the hollow portion of the bridge-wall is perforated to provide draft openings leading from the ash-pit to the interior of the wall; and these openings are controlled by a sliding damper *f*, as more clearly shown in Fig. 8.

a indicates a horizontal perforated plate located at the front of the furnace, in advance of the grate bars. The openings in this plate conduct air from the ash-pit door to the front of the combustion chamber, and are controlled by a forward- and rearward-sliding damper *c*, which preferably underlies the plate. Fig. 5 indicates that this damper is to be operated by means projecting through the front of the furnace, and it is obvious that such operating means may be of any desired description. I regard it as desirable to connect this longitudinally sliding damper and the transversely sliding damper *f* for simultaneous actuation, and have shown a rod or link connection *d e* for this purpose, the rear end of the rod being illustrated in Fig. 8 as connecting with the damper *f* by means of a bell-crank lever.

In operation, it will be seen that air is drawn from the ash-pit into the interior of the bridge-wall, and thence through the conduits, and discharged against the rear side of the solid portion of the wall, where it is spread out and diffused and becomes intimately mingled with the flame and products of combustion flowing over the top of the wall. By this arrangement, the temperature of the portion of the bridge-wall directly exposed to the fire is materially reduced, and the mouths of the conduits are effectually guarded from soot, cinders and the like. The supply of air which is thus delivered to the rear of the bridge-wall may be regulated or cut off by means of the damper *f*; and the connection between this damper and the damper *c* enables the supply of air both at front and rear of the fire-box to be controlled simultaneously.

While I have described one embodiment of my invention, I recognize that various changes might be made within the scope of the appended claims, and all such I regard as falling within my invention.

Having thus described my invention, what I claim as new is:

1. In a steam boiler furnace, the combination of a bridge-wall, and conduits drawing air through said wall and projecting therebehind with their ends returned into close proximity with the upper part of the rear face of said wall, the conduit-mouths being disposed to cause the outflowing air to impinge directly upon said face.

2. In a steam-boiler furnace, the combination of a

bridge-wall, and air conduits projecting rearward therefrom with their ends returned and mouthed against the rear face of said wall.

- 5 3. In a steam-boiler furnace, the combination with the firebox and bridge-wall, of conduits drawing air through said wall and projecting rearward therefrom with their ends returned and mouthed against the rear face of the wall, a horizontal perforated plate disposed at the front of the firebox and designed to supply air in front of the

fire, dampers cooperating with said conduits and with said plate, and connection between the two sets of dampers whereby they may be operated simultaneously. 10

In testimony whereof I affix my signature in presence of two witnesses.

FRIEDRICH TREIBEL.

Witnesses:

WOLDEMAR HAUPT,
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