

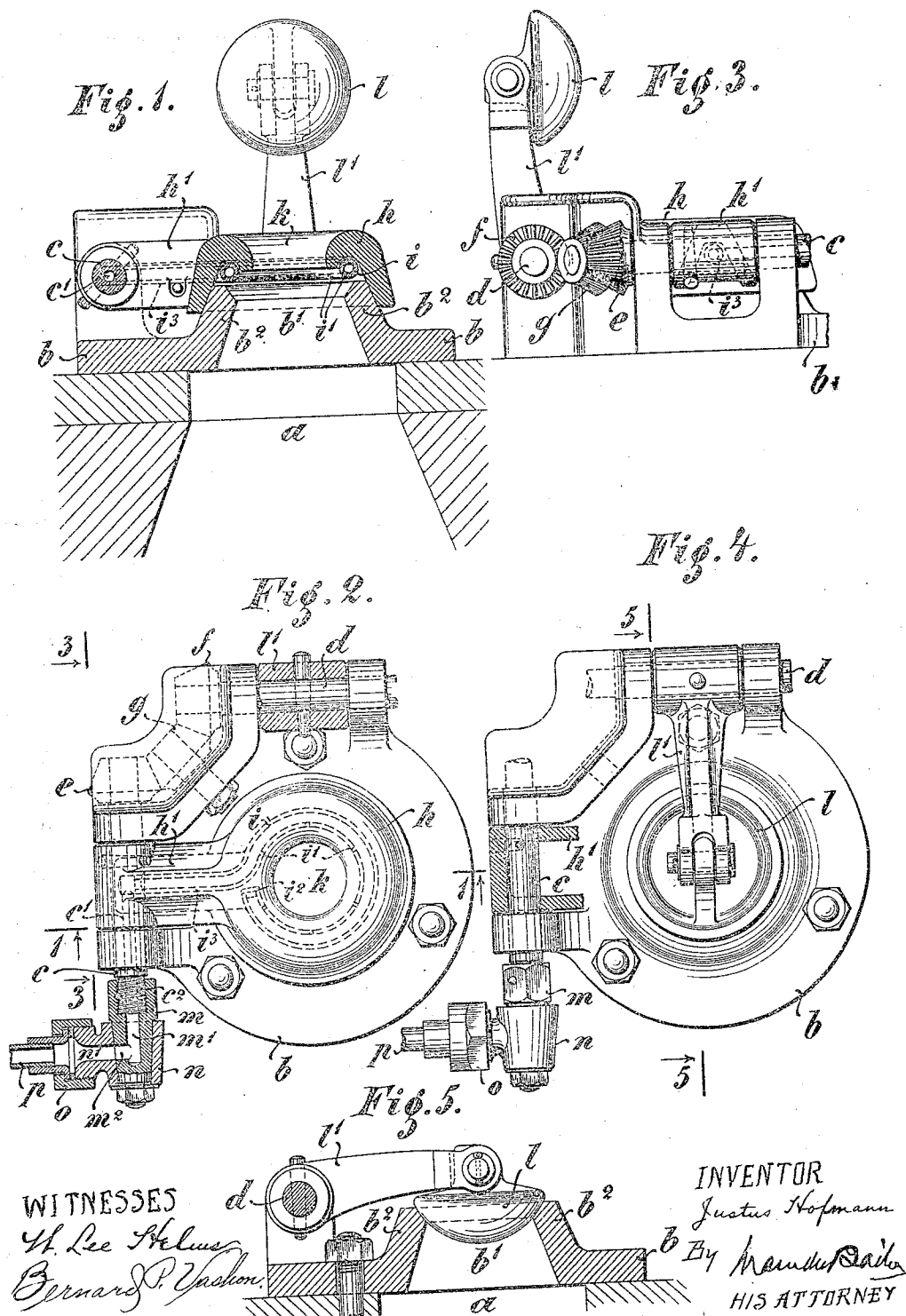
No. 805,295.

PATENTED NOV. 21, 1905.

J. HOFMANN.

APPARATUS FOR PREVENTING THE ESCAPE OF GAS FROM GAS GENERATORS.

APPLICATION FILED AUG. 14, 1905.



UNITED STATES PATENT OFFICE.

JUSTUS HOFMANN, OF WITKOWITZ, AUSTRIA-HUNGARY.

APPARATUS FOR PREVENTING THE ESCAPE OF GAS FROM GAS-GENERATORS.

No. 805,295.

Specification of Letters Patent.

Patented Nov. 21, 1905.

Application filed August 14, 1905. Serial No. 274,152.

To all whom it may concern:

Be it known that I, JUSTUS HOFMANN, a subject of the Emperor of Austria-Hungary, and a resident of Witkowitz, Austria-Hungary, (and whose post-office address is Witkowitz, near Mährisch-Ostrau, Austria-Hungary,) have invented new and useful Improvements in Apparatus for Preventing Escape of Gas from Gas-Generators and the Like During the Stoking Operation, of which the following is a specification.

The present invention relates to improvements in apparatus for preventing the escape of gas from gas-generators and other furnaces through the stoke-hole during the stoking operation by admitting steam into the stoke-hole during the time the lid or cover is opened for giving access to the interior of the generator. In apparatus of this kind the contrivance for admitting and dispersing the steam, which consists in a perforated pipe-coil, is located in a head-piece of the apparatus, secured in front of the stoke-hole to the wall of the generator. Being continually exposed to the heat and to the generated gases, this perforated coil must frequently be cleaned to prevent the perforations from being incrustated by tar and other products of combustion. Moreover, in the known apparatus the lid or fire-door, being so arranged as to slide over the stoke-hole and its operation being thus necessarily attended with considerable friction, requires also to be frequently cleaned in order to prevent the sliding surfaces from baking together. My present invention contemplates providing the said head-piece with a steam-coil carrier and a lid or cover, both of which are adapted to be swung on the stoke-hole or away from the stoke-hole.

By the term "carrier" I intend any suitable mechanical device by which the steam-coil is supported in place on the stoke-hole and is made capable of movement to or away from the stoke-hole, as desired.

In the carrier is arranged the contrivance for admitting steam, and this carrier is so combined with the cock for supplying said contrivance with steam that on being swung down upon the stoke-hole opening in the head-piece it acts to open the steam-cock, and, on the other hand, when it is swung back it acts to close the steam-cock and carry the steam-admitting contrivance out of reach of the heat and gases. The lid or cover serves for tightly closing the stoke-hole opening in the head-piece during the gas-generating period. The

carrier and lid may be so arranged that each can be operated independently of the other; but it is preferred to so combine them that either of them is swung down by the swinging back of the other, and in this case it is preferred to arrange the two at right angles to each other.

My preferred form of the improved apparatus is shown on the annexed drawings, of which—

Figure 1 is a section through the apparatus, the carrier containing the steam-admitting contrivance being in operative position down on the stoke-hole opening. Fig. 2 is a plan of Fig. 1 with some of the parts shown in section. Fig. 3 is a side elevation on the lines 3 3 of Fig. 2. Fig. 4 is a plan showing the carrier for the steam-admitting contrivance swung away from the stoke-hole. Fig. 5 is a section on the lines 5 5 of Fig. 2.

a is the stoke-hole in the generator, and *b* the head-piece secured to the wall of the generator or furnace over the stoke-hole and having in it a stoke-hole opening corresponding to the stoke-hole in the generator. It carries two shafts *c* and *d*, arranged at right angles to each other. The adjacent ends of these shafts are provided with bevel-wheels *e* and *f*, which are in gear with a common bevel-wheel *g*, Fig. 2.

The carrier *h*, containing the contrivance for admitting steam into the stoke-hole, is rigidly attached by arm *h'* to the shaft *c*. It has a cup-shaped opening *k*, corresponding with the stoke-hole opening *b'* in the conical extension *b''* of the head-piece *b*. The cover or lid *l*, which is to close the stoke-hole opening, is by arm *l'* attached to the shaft *d*, Figs. 2, 4, and 5. The steam-coil *i*, provided with perforations *i'*, directed toward the stoke-hole, is arranged inside a circular groove of the carrier *h*. The end *i''* of the coil *i* is closed, and the other end *i'''* opens into an axial bore *c'* of the shaft *c*, to which at *c''* is screwed the plug *m* of the steam-cock, having the steamways *m'* and *m''*, Fig. 2, and which on the shaft being turned turns in the casting *n*. The steam-pipe *p* is by a coupling-nut *o* connected with the steam-cock. The steam-coil *i* is typical of any suitable steam-admitting contrivance, and I desire to be understood as including any such contrivance within my claims.

The operation of the apparatus is as follows: In Figs. 1, 2, and 3 the several parts are shown in a position to give access to the gen-

erator or furnace—that is to say, the cover *l* is moved away from the stoke-hole, and the carrier *h*, containing the contrivance *i* for admitting steam into the stoke-hole *a*, is down on the extension *b*² around the stoke-hole opening of the head-piece *b*. The stoke-hole is free, and steam from the steam-pipe *p* enters through the channel *n*' of the cock-casing *n*, through the ways *m*² and *m*' of the plug of the cock, and through the bore *c*', provided in the shaft *c*, into the coil *i*, and from there through the fine perforations *i*' into the stoke-hole to prevent the escape of gas. When the stoking is finished, the lid or cover *l* is turned down, and in consequence of the described connection of the shafts *c* and *d* by their bevel-wheels *e* and *f* with the common bevel-wheel *g* this movement operates to swing the carrier *h* away from its seat on the head-piece *b*. Figs. 4 and 5 show the lid *l* in its closing position. By the same movement the steam is turned off.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for preventing the escape of gas from gas generators and furnaces during the stoking and like operations, the combination of a lid or cover adapted to close the stoke-hole opening, an annular perforated steam-coil adapted to discharge into the stoke-hole, a carrier for said coil, and means for moving the lid and the carrier to and away from the stoke-hole opening, all substantially as set forth.

2. In an apparatus for preventing the escape of gas from gas generators and furnaces during the stoking and the like operations, the combination of a lid or cover adapted to close the stoke-hole opening, an annular perforated steam-pipe coil adapted to discharge into the stoke-hole, a carrier for said coil movable to and from the stoke-hole, and means connected with the carrier and the lid arranged and operating to move one of the same toward the stoke-hole opening when the other is being moved away from the said opening, all substantially as set forth.

3. In apparatus for preventing the escape

of gas from gas generators and furnaces during the stoking and the like operations, an annular perforated steam-pipe coil adapted to discharge into the stoke-hole opening, a carrier for said coil movable to and from the stoke-hole opening, means for connecting the coil to a source of steam-supply, a cock for controlling the steam-supply, and connections whereby the cock is automatically turned on or off according as the carrier is moved to or from the stoke-hole, all substantially as set forth.

4. In an apparatus for preventing the escape of gas from gas generators and furnaces during the stoking and like operations, the combination of a lid adapted to close the stoke-hole opening, an annular perforated steam-pipe coil arranged to discharge into the stoke-hole, shafts to which said lid and carrier are respectively secured, supported in bearings at right angles to each other, and beveled gearing connecting the adjoining ends of said shafts, all substantially as set forth.

5. In an apparatus for preventing the escape of gas from gas generators and furnaces during the stoking and like operations, comprising a lid adapted to close the stoke-hole opening, a carrier allowing access to the stoke-hole, a perforated steam-pipe coil arranged in said carrier and supporting-shafts for said carrier and lid, connected by beveled gearing whereby when the lid is swung onto its seat over the stoke-hole opening, the carrier is swung away from the stoke-hole, and vice versa, the combination with the shaft of the steam-coil carrier and steam-supply connections for the coil, of a cock for controlling said steam-supply, adapted to be turned on and off by the movement of said shaft, all substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JUSTUS HOFMANN.

Witnesses:

ERNST KATZ,
A. W. MAN.