

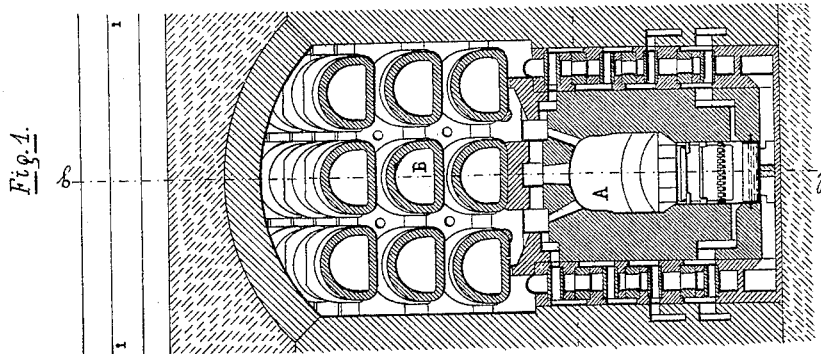
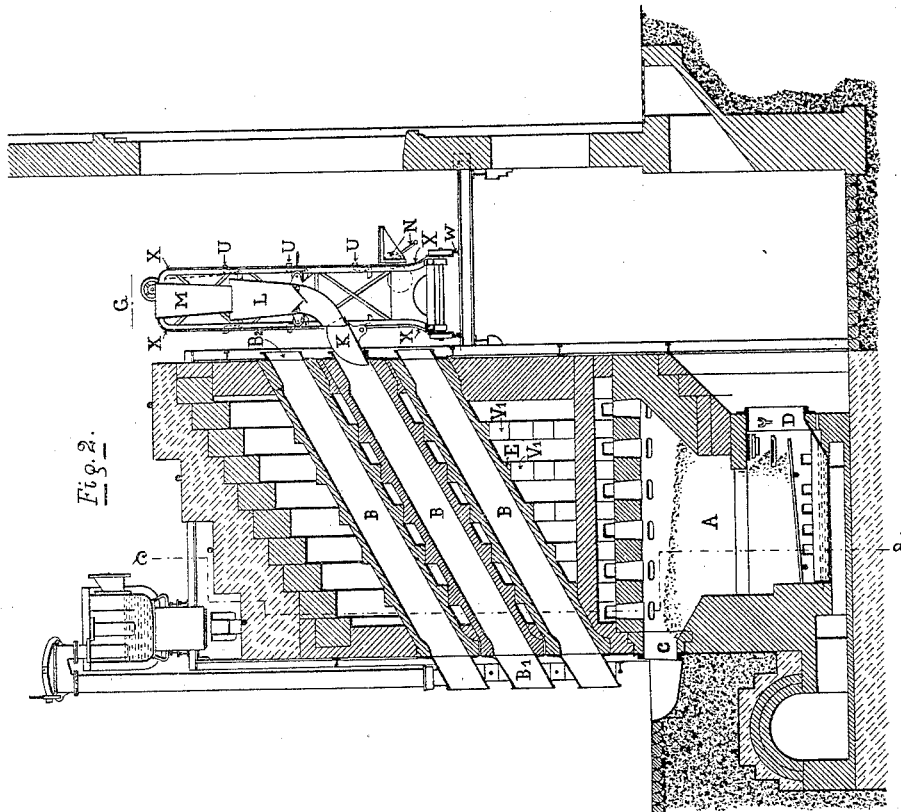
(No Model.)

2 Sheets—Sheet 1

F. BREDEL.  
GAS RETORT.

No. 454,514.

Patented June 23, 1891.



WITNESSES:

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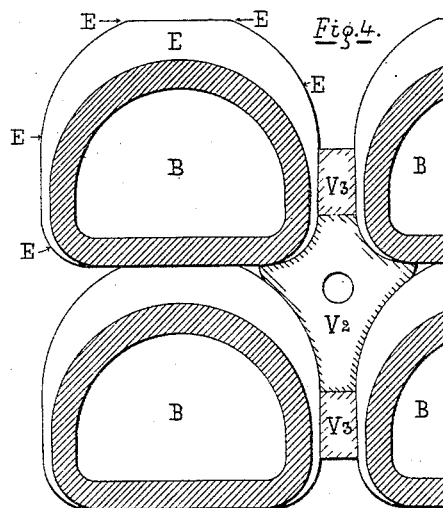
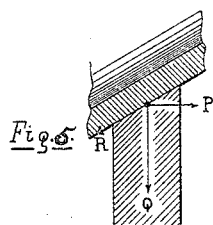
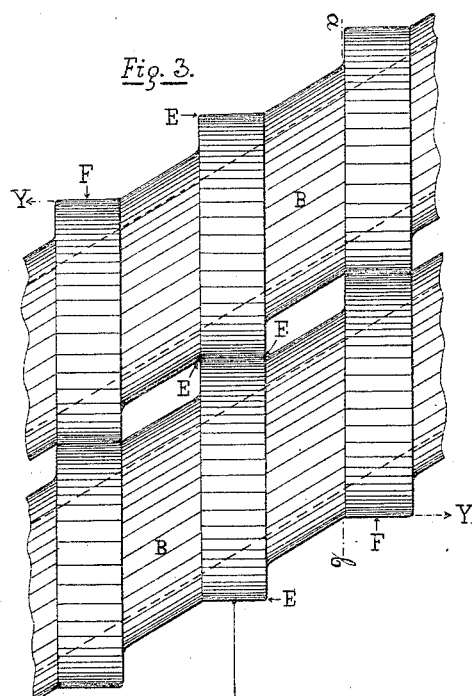
(No Model.)

2 Sheets—Sheet 2.

F. BREDEL.  
GAS RETORT.

No. 454,514.

Patented June 23, 1891.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FREDERICK BREDEL, OF NEW YORK, N. Y.

## GAS-RETORT.

SPECIFICATION forming part of Letters Patent No. 454,514, dated June 23, 1891.

Application filed April 9, 1890. Serial No. 347,235. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK BREDEL, a subject of the German Emperor, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Retorts; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 This invention relates to an improved setting of gas-retorts used in the dry distillation of coal and other materials.

The invention consists in retorts which are set upon an angle to the horizontal line.

20 In the accompanying drawings, Figure 1 represents a vertical transverse view on the line *c d*, Fig. 2, of a retort-furnace embodying my invention. Fig. 2 represents a vertical transverse section on line *f g* of Fig. 1. Figs. 3 and 4 are detail views and section of supporting of retorts. Fig. 5 is an explanatory diagram.

If reference is made to front of the bench, it all times designates side on which the discharging mouth-pieces lie. The opposite side is called the "back" of benches.

30 A designates a generator or fire-place with suitable grate lying partly or wholly beneath the retort-setting, filled with combustible material, such as coke, coal, or other fuel, for the purpose of heating retorts B. The fuel is supplied to the furnace through filling-door C, which lies on the front side of the retort-bench. The clinkering-door D lies on the opposite back side of the retort-bench.

40 The object of this improvement is to do away with an excavation or elevated stage-floor on the discharging or front side of the retort-bench, which would otherwise be necessary, in front of the bench, so as to enable the clinkering and cleaning of the fire and grate, and furnishing a suitable level to discharge the retorts.

50 E and V' designate a new and improved way of supporting retorts laid under an angle to the horizontal level, or commonly called "inclined" retorts, which is shown detailed

in Figs. 3 and 4. Reference is also made to Fig. 5.

It has been customary in setting inclined retorts to support said retorts by blocks, tiles, or other suitable refractory material fitting the inclined angle of the retorts, Fig. 5, which has the disadvantage to prevent a substantial support of said retorts, for the reason that in this case, where the angle of supports fits the angle of inclined retorts, the weight of retorts will be diverted, as shown in Fig 5, which shows plainly that the retort has the tendency to drive the supporting-walls out of its vertical position in the direction of P and gives the retort a tendency of sliding downward in the direction of R. To obviate this I construct the retort wherever the same is supported by piers V' and V<sup>2</sup>, which are on both sides exposed to the heat of the fire, with a circumferential ring E, which is made out of one piece and forms part of the retort B, and having a supporting-surface F, horizontal in the direction of Y, or, in other words, to the longitudinal section of the retort, when the said retort lies on the supports, thereby giving a substantial support, preventing all sliding tendency and side pressure against supports, as force Q' cannot be diverted. A general idea of supports as arranged between retorts is shown in Fig. 4 by supports V<sup>2</sup> and V<sup>3</sup>.

The improvement in charging inclined retorts consists in a particular construction of charging-machine G. Heretofore great difficulty has been encountered in charging materials of different angles of repose in an inclined retort, such as naturally would be the case if, for instance, lump or fine coal have to be charged alternately in inclined retorts.

90 Lump-coal would naturally roll off more easily than coal in a pulverized state. The result would be that lump-coal would be heaped up in the lower part of the inclined retort toward the discharging mouth-piece B', Fig. 2, while fine and moist matter would naturally not roll down as easily and thereby heap up on the charging end. This can be obviated by giving the different matters to be charged a different moment of inertia, providing all the time the retorts are laid under an angle suitable for the charging of the finest

material under the highest moment of inertia to be obtained by the foregoing charging apparatus.

- The charging-machine is supplied with the to-be-charged material by suitable means from above. To prevent waste of material in filling the charger L, a funnel M is put in such a way that it will not interfere with the charger L when the upper retorts are charged.
- If lower retorts are to be charged, the material can either drop from funnel M into charger L, or a telescoping arrangement can be made which will prevent the dust from flying around. The charger L can be raised or lowered by a hoisting arrangement N, constructed suitable for this purpose. A frame X and automatic catchers U are provided to keep the charger L and chute K in their respective positions to the height of charging mouth-piece B<sup>2</sup>. Chute K is movable around point T, enabling thus to throw the chute K toward the charger L, thereby allowing the charging-machine to move freely on rails W in front of and longitudinal to charging mouth-pieces B<sup>2</sup>. The charging-machine G can be arranged to hold one or more chargers L, and one or more retorts can thus be charged at the same time. The gates H and I can be made each of one or more pieces.
- No claim is made herein to the retort-charging devices herein shown and described, as the same forms the subject-mat-

ter of a separate application, filed as a division of this application.

It is deemed of special importance that the bearings be flat, and that they be distributed throughout the length of the retort, as shown, whereby endwise movement of the retort, when placed in an inclined position, is entirely obviated. A single flat bearing, and that at the end of the retort, has practically no effect for this purpose.

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

A plurality of inclined non-rotatable retorts, each having a plurality of peripheral flat bearing-surfaces, arranged at intervals throughout its length at an angle to the retort, said retorts being supported one on the other with said bearing-surfaces in contact, and columns or supports for the lowermost retort of gradually-diminishing heights, and having their upper ends horizontal to correspond with and receive the bearing-surfaces of the lowermost retort, substantially as described, and for the purpose specified.

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

FREDERICK BREDEL.

Witnesses:

JULIUS BUSS,  
THEODORE KRAUSE.