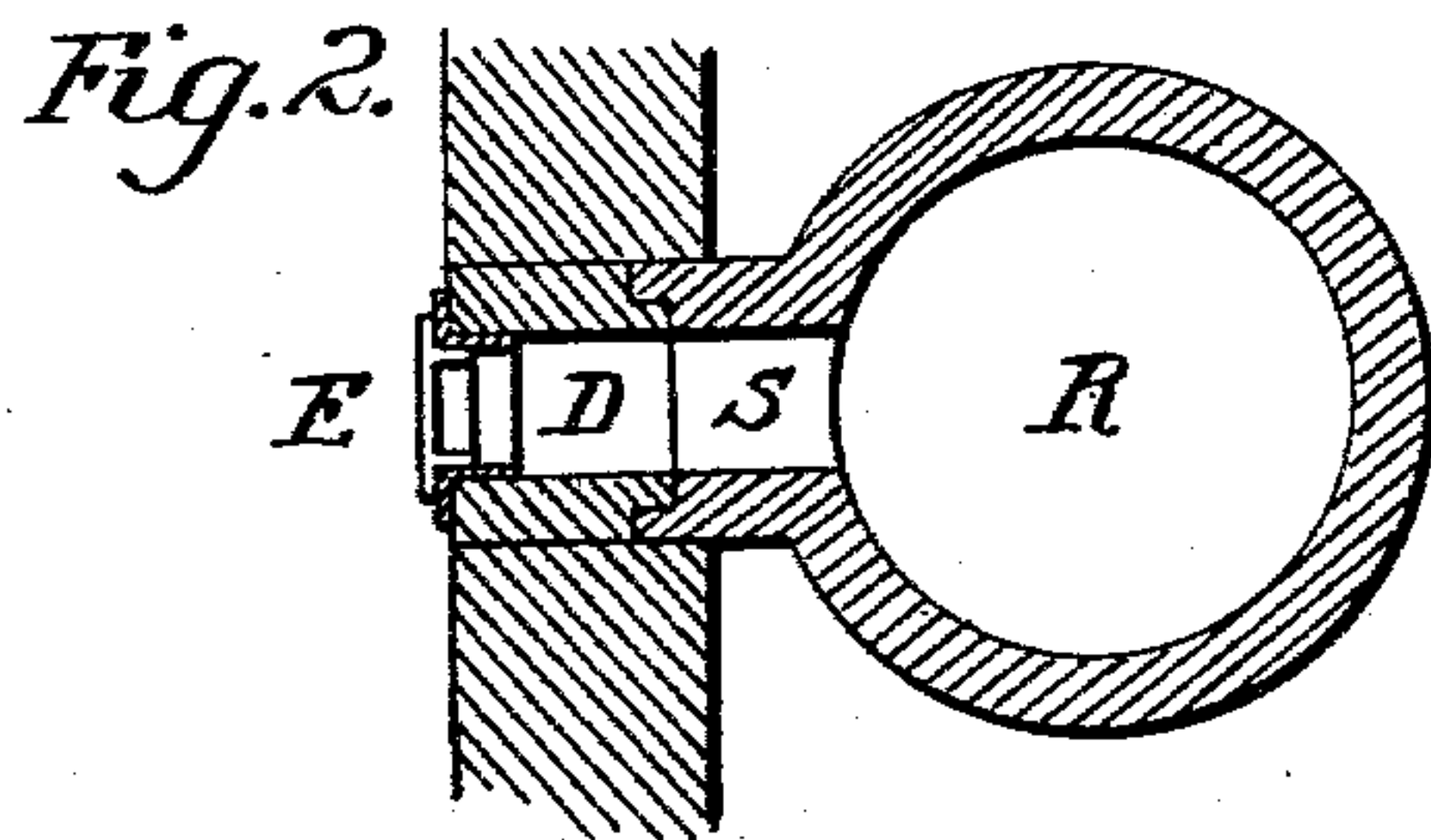
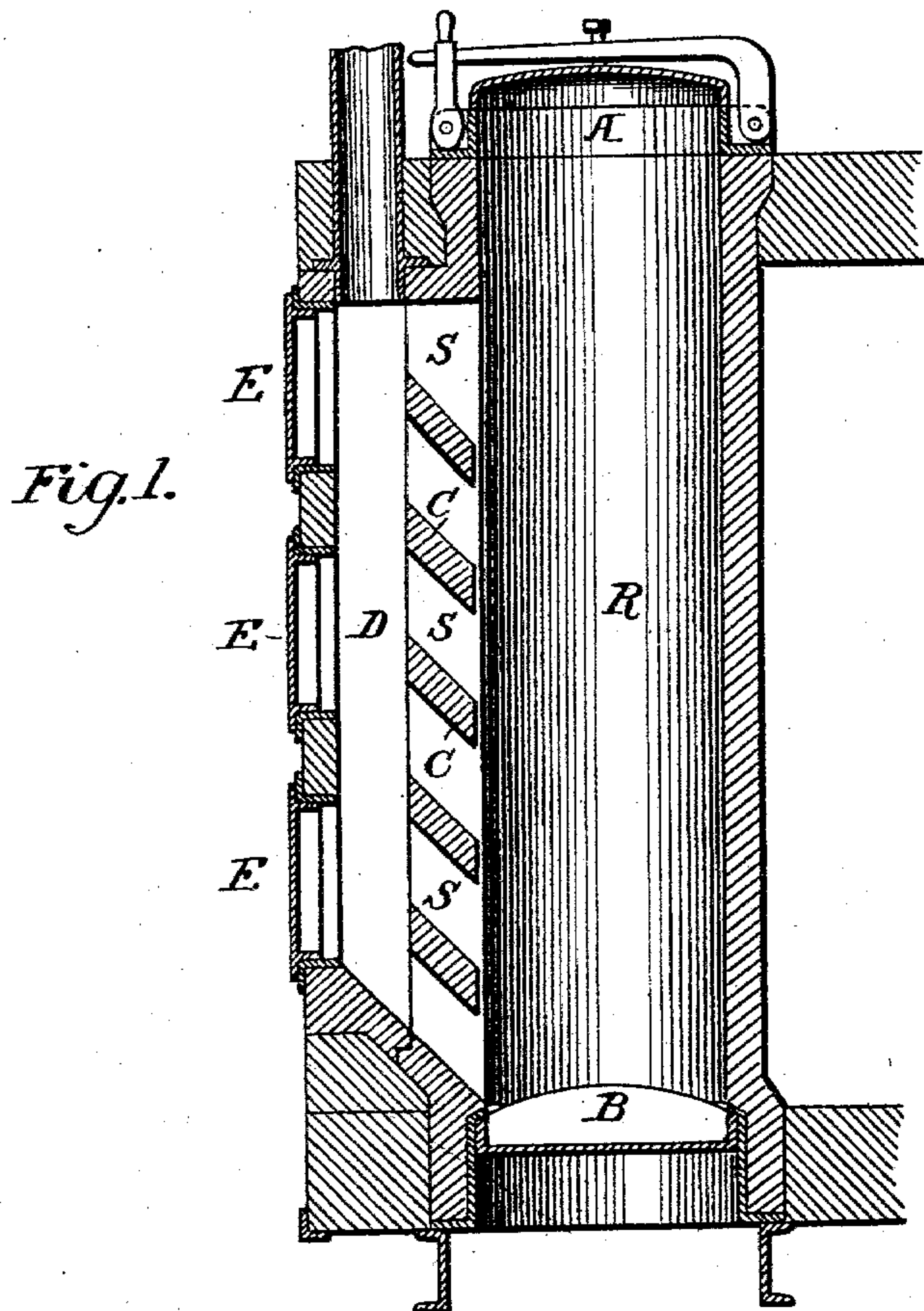


No. 720,780.

PATENTED FEB. 17, 1903.

J. BUEB.
GAS RETORT.
APPLICATION FILED JUNE 2, 1902.

NO MODEL.



Witnesses
J. G. Hinkel
Wm. Gillman, Jr.

By

Inventor
Julius Bueb
Forrest Freeman
Attorneys

UNITED STATES PATENT OFFICE.

JULIUS BUEB, OF DESSAU, GERMANY.

GAS-RETORT.

SPECIFICATION forming part of Letters Patent No. 720,780, dated February 17, 1903.

Application filed June 2, 1902. Serial No. 109,992. (No model.)

To all whom it may concern:

Be it known that I, JULIUS BUEB, a subject of the Emperor of Germany, and a resident of Dessau, Germany, have invented certain new and useful Improvements in the Manufacture of Lighting or Illuminating Gas, of which the following is a specification.

The manufacture of lighting and heating gas by the dry distillation of coal or other carbonaceous substances capable of yielding such gas is at the present time effected in horizontal or inclined retorts. The gasification in vertical retorts, which was tried and even practiced in the early days of gas manufacture, was given up on account of the disadvantages which it presented, one of the most serious of these disadvantages being the poor quality of the gas obtained. In all such vertical retorts the gas left the retorts only at the upper part, usually through a side outlet thereat, and the gas produced at the lower part of the retort had to pass through the whole of the column of incandescent charge before it could escape, and consequently the highly-valuable lighting and heating hydrocarbons first evolved were decomposed into hydrocarbons of lesser value, owing to prolonged contact with the incandescent fuel, while a troublesome formation of graphite took place and interfered with the process. These disadvantages led to the now almost universal use of horizontal retorts, into which the charge is placed in thin layers; but even in horizontal or inclined retorts the highly-valuable hydrocarbons must come in contact with the overheated walls of the retorts before they reach the ascension-pipes, and therefore undergo in the retort an undesirable decomposition, although this is much less than that taking place in vertical retorts. With the abandonment of vertical retorts a great advantage was, however, given up—namely, the easy and cheap charging and discharging of the retorts. This advantage has increased, owing to the increased cost of labor or the cost of mechanical charging and discharging devices for horizontal retorts.

This invention has for its object to provide means whereby the great advantage of the vertical retorts is secured and their disadvantages are practically done away with. This is effected by providing a vertical retort

such that the removal of the gas does not take place through a lateral outlet at the top of the retort, but through an outlet or outlets extending throughout or practically throughout the length of the retort, the said outlet or outlets being in communication with a passage which is not in direct contact with the furnace by which the retort is heated. The gas that is evolved from the lowermost layers of the charge can therefore escape rapidly sidewise without having to traverse a high column of incandescent charge or come in contact with extensive and highly-heated surfaces. It is thus possible to use vertical retorts of any desired height without the disadvantages that have hitherto attended the use of vertical retorts. The said improved vertical retorts have also the advantage over horizontal retorts that the interior of the retort can be entirely filled with the charge, whereas horizontal retorts must not be more than half full, so that a sufficient space is left above the charge for the escape of the evolved gas. By the arrangement according to this invention therefore a much greater production of gas is obtained than is possible with horizontal retorts of the same capacity.

In carrying out this invention the construction may be as follows and as represented in the accompanying drawings, in which—

Figure 1 is a vertical and Fig. 2 a cross section.

The vertical retort R may be made of fire-proof bricks or other suitable material whose external surface is in contact with the fire. The retort protrudes beyond the roof of the furnace and is provided at top with a cover A, the lower part resting on girders and being fitted with a closing device B, which on being opened allows the solid residue resulting from the distillation dropping from the retort. The retort along the greater part of its height (a part equal or about equal to that exposed to the fire) is provided on one side with an outlet S in the form of a slit in direct communication with a collecting-passage D, formed in the furnace-wall, and thereby protected against the direct action of the fire. In order to prevent the charge from falling into the collecting-passage through the said slit when the retort is being charged,

the said slit is provided with partitions C, inclined downward toward the inside of the retort. The aforesaid collecting-passage D is connected with the hydraulic main and is
 5 provided on the side opposite to the slit with openings and removable covers E to enable the collecting-passage and the slit to be cleaned.

The cross-section of the retort may be of
 10 circular, elliptical, or any other suitable shape. The retort (especially if small) may be made in one piece, but if large may consist of several lengths secured together. Several such retorts may be placed in the same
 15 furnace. The vertical lateral slit may be replaced by side openings, arranged one above another, and be of any convenient form; but in all cases the gas evolved from greater part of the charge and especially from the lower
 20 layers of the charge escapes readily and by a very short part from the vertical retort into a collecting-passage protected against the direct action of the fire and connected to the hydraulic main.

I claim—

1. The herein-described apparatus for making illuminating or heating gas, which consists of a furnace for heating the retort, a collecting-passage which is not in direct contact with the furnace, and a retort which is
 25 provided with a lateral slit or slits communicating with the collecting-passage, substantially as and for the purpose set forth. 30

2. The herein-described apparatus for making illuminating or heating gas, which consists in a furnace for heating the retort, a collecting-passage which is not in direct contact with the furnace, and a vertical retort provided with a lateral slit or slits communicating with the connecting-passage, substantially as and for the purpose set forth. 35 40

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

JULIUS BUEB.

Witnesses:

RUDOLPH FRICKE,
 B. H. WARNER, Jr.