

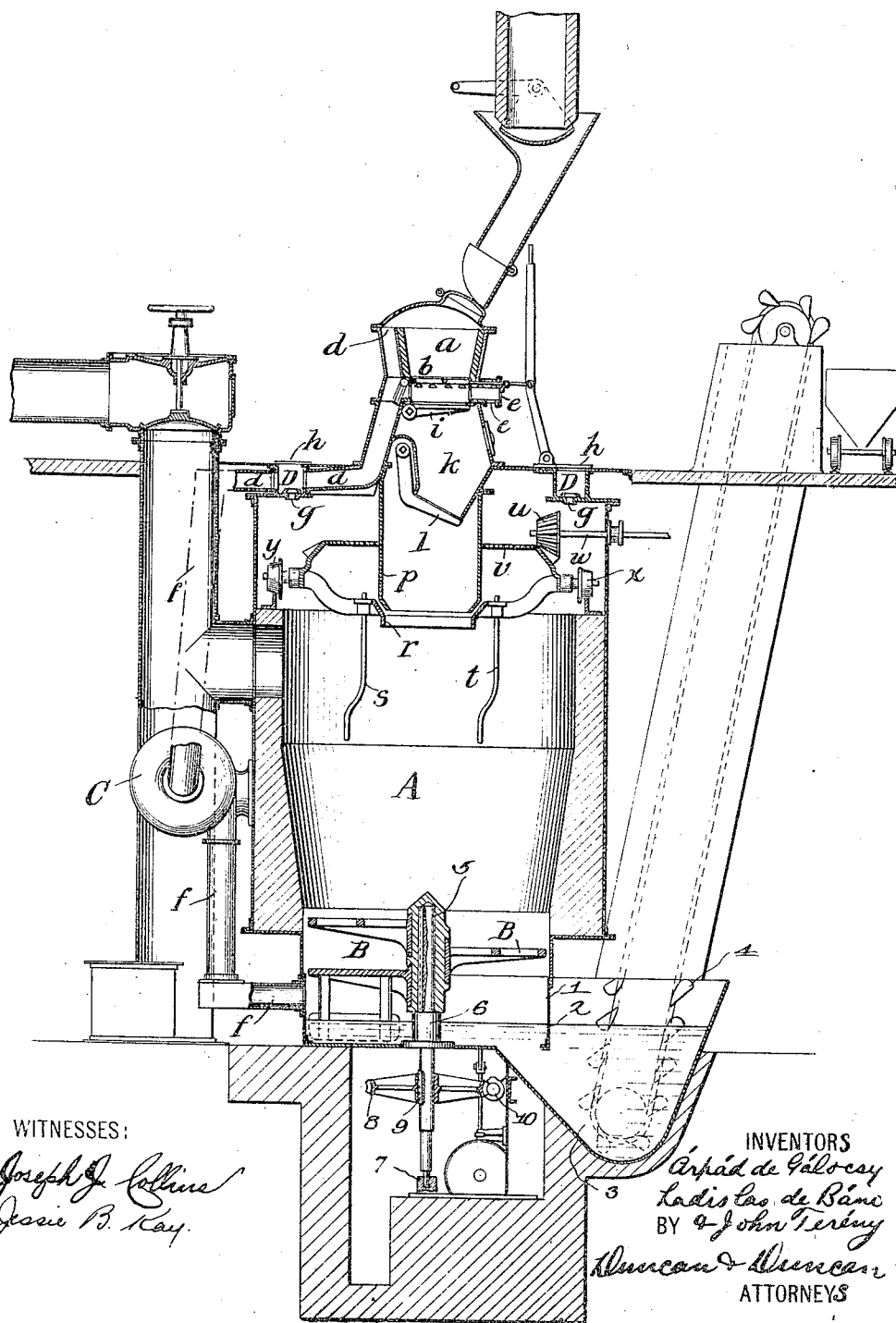
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Á. DE GÁLOCSY, L. DE BÁNÓ & J. TERÉNY.

GAS PRODUCER.

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ÁRPÁD DE GÁLOCSY, LADISLAS DE BÁNÓ, AND JOHN TERÉNY, OF BUDAPEST,
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GAS-PRODUCER.

No. 855,845.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ÁRPÁD DE GÁLOCSY, metallurgical and civil engineer, LADISLAS DE BÁNÓ, mechanical and civil engineer, and JOHN TERÉNY, metallurgical and Hungarian state engineer, of Budapest, Austria-Hungary, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to gas producers and relates especially to gas producers in which a distillation chamber is employed for preliminary treatment of the fresh coal fed to the producer.

The accompanying drawing illustrates an embodiment of this invention in vertical section.

In the illustrated embodiment of this invention, the main generator chamber A of the gas producer is mounted on an iron or steel ring 1 which is so shaped as to serve as a water seal 2 for the generator. A suitable discharge basin 3 is formed on one side of the water seal to receive the slag and ashes and a suitable bucket elevator 4 working in this basin operates in an obvious manner to continuously remove this waste material and load it on cars as indicated. The helical grate B is keyed to the vertical shaft 5 indicated, this shaft passing through a stuffing box 6 in the water seal and being supported on a step bearing 7 beneath. This grate may be rotated in either direction by the worm wheel 8 indicated as being keyed at 9 on the vertical shaft 5 and cooperating with the worm 10 shown. This worm may be operated by any suitable power.

Above the main generator chamber A a suitable coal receiver or distillation chamber *a* is arranged and provided with the grate *b* which may be drawn out for dumping the charge in the chamber by means of the lever mechanism 11 indicated. A suitable trap door *i* is arranged under this distillation chamber and a similar swinging door *l* closes the lower end of the intermediate feeding or receiving chamber *k*. These doors *i* and *l* are maintained in a closed position and opened to dump a charge by any suitable means. When the distillation chamber is charged fresh coal is supplied upon the layer of live

coals which is normally kept on the grate *b*. Thereupon the suction fan C is operated and air is drawn in through the openings *e*, the door *i* being closed, as indicated, and this air passing up through the grate *b* promotes the combustion of the ignited members on the grate and this causes the distillation of the fresh coal above. The gases evolved are drawn through the pipe *d*, are mingled with a large addition of air which is admitted through the adjustable openings *h* formed in the ring pipe D and closed by suitable covers to the extent desired. The gases then pass through the pipe *f*, are acted upon by the fan C and are forced under the helical grate and through the bed of fuel lying thereon in the main generator chamber. By passing through this bed of ignited fuel the gases of distillation are fixed and combined with the steam evolved from the water beneath the grate so as to form carbon monoxid, hydrogen and lighter hydrocarbons, as is well known in this art. These gases passing through the outlet in the side of the generator chamber are carried through the valved gas main for use in gas engines or other apparatus. The tar and other objectionable products are in this way completely removed and converted into the lighter fixed hydrocarbons.

When the charge by the lever mechanism 11 of coal in the chamber *a* is completely coked the grate *b* may be pulled out, the trap door *i* opened and the completely distilled or coked material dropped into the receiving chamber *k*, although a quantity of the glowing or ignited coal should be left in the distillation chamber to ignite the next charge of fresh coal supplied thereto. When the distillation chamber *a* has received another charge of fresh coal through the doors and conveying apparatus indicated, the ignited coal may be dropped from the receiving chamber *k* by opening the door *l* so that the material will descend through the passage *p* into the main generator chamber. This main generator chamber is charged with ignited fuel by the same dropping at regulated intervals from the receiving chamber *k* upon the helical grate B.

As is indicated, the air ring D is provided with a series of holes *g* which are furnished with suitable valves or covers and are located beneath the openings *h* in the top of the air

ring. In this way, stirring rods or pokers can be inserted through these alined holes and any undesirable caking or coking action of the coal in the main generator chamber
 5 broken up to the extent desired. At the same time the suction of air into all the openings *h* caused by the action of the fan *C* prevents any of the gas that may issue through the openings *g* from escaping into the outer
 10 air and becoming offensive.

In some cases where a coal is used which cokes to a considerable extent, a rotary stirrer may be employed as is described in our Hungarian patent 30,496, of July 8, 1904.
 15 For this purpose, a disk frame, *r* may be mounted on the wheels *x y* which run on a suitable circular track near the top of the generator chamber and which may be rotated by any desired means, such as the bevel gear *u*
 20 on the shaft *w* which meshes with a corresponding bevel gear *z* on the rotary stirrer carrying the stirring rods *s t* of any desired shape. The agitation of the coal can also be promoted by running the helical grate *B* in
 25 such a direction that the coal is not discharged from the bottom of the chamber, but is merely given an intermittent vertical movement which is quite effective in breaking up objectionable coking. When the helical
 30 grate is rotated in the usual discharge direction, the material is regularly discharged from the lower end of the generator chamber and since the grate must make a complete revolution before the material first separated
 35 from the bottom of the coal bed is discharged from the grate sufficient time elapses for its complete combustion and the coal is thus absolutely burned out before the slag and
 40 ashes drop into the water seal where they serve to generate steam to a considerable extent.

Without limiting ourselves to the exact details of the disclosure in this case, what we claim as our invention is:

45 1. In gas producers, a main generator chamber, a helical grate and water seal at the bottom of said generator chamber, a rotary stirrer within said generator chamber, a distillation chamber having a movable grate
 50 above said generator chamber, a door below said distillation chamber, air inlets between said door and said grate, a receiving chamber below said distillation chamber provided with a movable door, a fan connected to said
 55 distillation chamber and main generator chamber by a pipe having openings and supplying gases from said distillation chamber below said helical grate to convert and fix the distillation gases of the fuel.

60 2. In gas producers, a generator chamber, a helical grate, and water seal below said chamber, a distillation chamber having a movable grate above said generator chamber, a fan connected with said distillation chamber
 65 and generator chamber through a pipe

having adjustable inlets and discharging the gases of distillation below the helical grate of said generator chamber.

3. In gas producers, a main generator chamber, a distillation chamber above said generator chamber, means to intermittingly feed the coked fuel from the distillation chamber to the main generator chamber means to admit air to the distillation chamber and means to exhaust the gases from said distillation chamber and pass them through the main generator chamber to convert and fix the distillation gases.

4. In gas producers, a generator chamber, a distillation chamber having a grate and air inlets below said grate, means to cause a circulation of distillation gases from said distillation chamber through said generator chamber and means to discharge the coked fuel from said distillation chamber into said generator chamber.

5. In gas producers, a distillation chamber, a generator chamber, a fan to supply air to the said generator chamber, a suction pipe for said fan located adjacent said generator chamber and connecting the distillation chamber with the generating chamber, valved alined holes through said pipe and into said generator chamber to allow the insertion of operating tools through said holes into said chamber without permitting the escape of gas from said chamber into the outer air.

6. In gas producers, a generator chamber, a separate distillation chamber, means to cause a circulation of distillation gases from said distillation chamber through said generator chamber, means to discharge the coke fuel from said distillation chamber into said generator chamber, a rotary grate, and means to rotate the same in either direction.

7. In gas producers, a generator chamber, a distillation chamber, means to cause a circulation of distillation gases from said distillation chamber through said generator chamber, means to discharge the coke fuel from said distillation chamber into said generator chamber, a rotary grate, a water seal, a basin, means for automatically allowing the ashes and clinkers to fall into the basin and a conveyer for removing the same.

8. In gas producers, a generator chamber, a distillation chamber, means to cause a circulation of distillation gases from said distillation chamber through said generator chamber, separate means to discharge the coke fuel from said distillation chamber into said generator chamber, and means for stirring the charge within the main generator chamber.

9. In gas producers, a generator chamber, a distillation chamber, means to cause a circulation of distillation gases from said

distillation chamber through said generator chamber, means to discharge the coke fuel from said distillation chamber into said generator chamber, means for stirring the charge within the main generator chamber and a helical grate and means to rotate the same.

10. In gas producers, a generator chamber, a separate distillation chamber, means to cause a circulation of distillation gases from said distillation chamber through said generator chamber and means to discharge the coked fuel from said distillation chamber into said generator chamber.

11. In gas producers, a generator chamber, a separate distillation chamber, means to separate the distillation chamber from the main generator chamber, means to

cause a circulation of distillation gases from said distillation chamber through said generator chamber and means to discharge the coked fuel from said distillation chamber into said generator chamber.

12. In gas producers, a generator chamber, a distillation chamber, means to discharge the coked fuel from the said distillation chamber in the said generator chamber, a helical grate and means to rotate the same.

In witness whereof we have hereunto set our hands in presence of two witnesses.

ÁRPÁD DE GÁLOCSY.

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Witnesses:

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