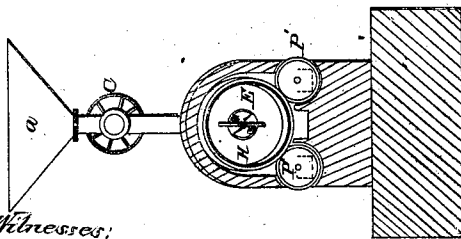
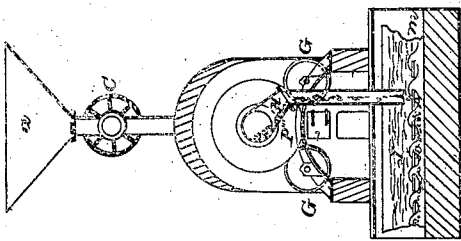
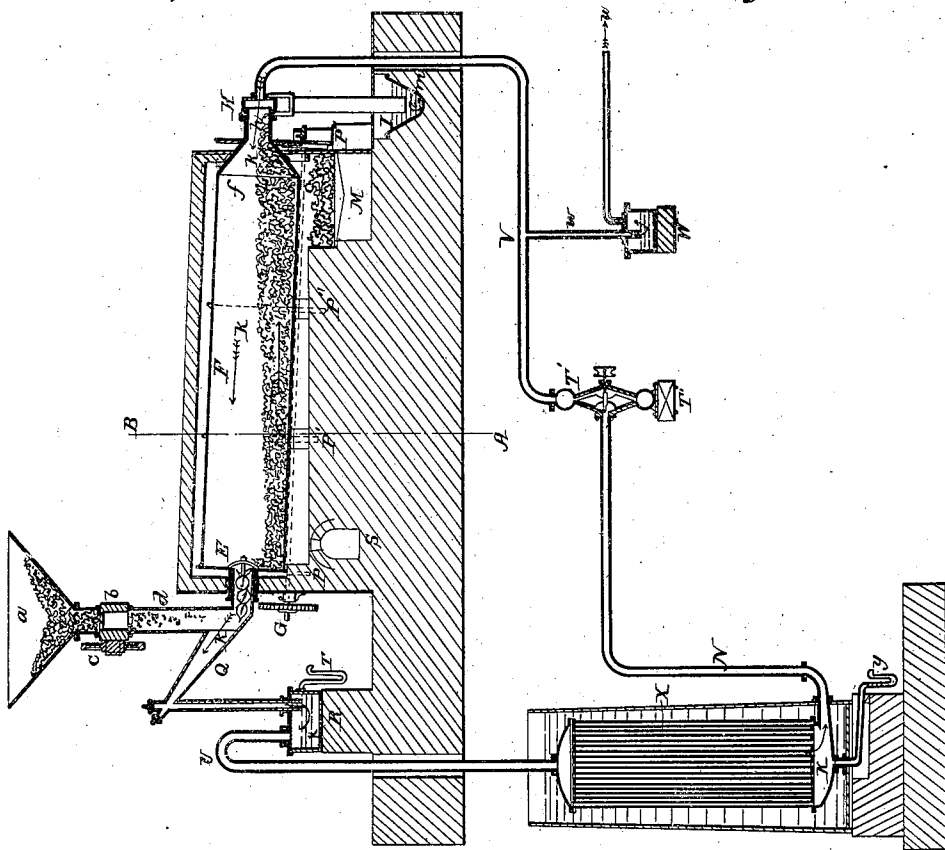


H. P. Geyenbroe.

Oil Still.

Nº 26,109.

Patented Aug. 16, 1859.



Section A-A

*Witnesses:
J. S. Kimball
Henry Walden*

Inventor:

H. P. Geyenbroe

UNITED STATES PATENT OFFICE.

H. P. GENGEMBRE, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN MANUFACTURE OF COAL-OILS.

Specification forming part of Letters Patent No. 25,109, dated August 16, 1859.

To all whom it may concern:

Be it known that I, H. P. GENGEMBRE, of the city and county of Allegheny, in the State of Pennsylvania, have invented a new and useful improvement in the extraction of liquid products from coal or other bitumeniferous substances by the process of distillation; and I hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of a new and improved process of distillation whereby I obtain a better quality of tar by a more perfect process of distillation of coal or other bitumeniferous substances by a continual, gradual, and progressive destructive distillation, by means or use of an apparatus hereinafter described.

To enable any one skilled in the art to make and use my invention, I will proceed to describe the construction and operation of the apparatus whereby I obtain the result claimed in my application.

a is a hopper to receive the coal or other bitumeniferous substances to be distilled.

C is a feeding-box, operated by the wheel *c* so as to introduce periodically a certain portion of the coal or other substances into the pipe *d* without admitting any atmospheric air.

E is a screw drawing off the coal from the pipe *d* into the retort *F*.

F is a cylindrical or polygonal retort movable around its axis, and kept continually or occasionally rotating. It is set slightly inclined, having the end *f* lower than the end *E*, so that the rotation or oscillation of the retort will cause the coal or other substance under treatment to travel toward the end *f*—a result which may also be obtained by having the retort horizontal, but furnished internally with ribs set at an angle with the transverse section of the retort, in both cases the movement of the coal or other substance from *E* toward *f* being caused by the motion of the retort. The retort in the accompanying drawings is represented as resting on a set of wheels or pulleys, *P' P'' P''' P''''*, which are driven by a shaft or wheels, *G*, so that if said wheels are made to rotate the retort will revolve on its own axis.

H is a box receiving the coke or residuum of substances submitted for distillation.

I is a water-trough, into which the coke is received.

S is the flue to the stack, and *M* is the fire-place.

Q is the outlet-pipe for the oleaginous vapors and permanent gases.

R is a tank or main to receive the heavier products of distillation, which are drawn off by the goose-neck pipe *T*.

U is a pipe to carry off the lighter oleaginous vapors and permanent gases to the refrigerator.

X is a refrigerator or worm immersed in cold water, where all the lighter oleaginous vapors are condensed into liquids and drawn off through the goose-neck pipe *y*, while the permanent gases are drawn up the pipe *N* by the force-pump or exhauster *T*, which creates a current through the whole apparatus.

V is a pipe through which the permanent gases are forced back again through the retort in the direction of the arrows *K K K*.

W is a safety water-valve to allow the escape of the excess of permanent gases through the pipes *w w*.

Presuming that the other parts of the apparatus are sufficiently explained by the drawings, I will proceed to explain the working of my apparatus. The retort is so placed in the furnace as to keep it constantly and regularly heated at different degrees of temperature throughout its length, from the end *E* to the end *f*, the end *E* being kept at the low temperature of 600° or 700° Fahrenheit, and the temperature gradually increasing until it attains a decided red heat at the end *f*. The coal or other material to be treated, being previously broken, is thrown in the hopper *a*, and the machinery being put in motion, the feeding-box *C* will introduce at regular and periodical intervals a certain portion of coal into the retort. The coal or substance under treatment will first be exposed to a low temperature by falling into the retort at *E*, and the volatile products which can be evolved at the temperature of that part of the retort will be vaporized and driven away through the pipe *Q* by the current of gas in the retort without being allowed to lull or remain in the retort. The coal will soon cease to evolve any more of these first and most volatile vapors, but by the rotation of the retort will

be propelled forward to a point more heated, where a second emission of less volatile oleaginous and aqueous vapors will take place and be carried away like the first by the current of gas. This process will be repeated without interruption and until the coal is exhausted of all its volatile matters and converted into coke. The residuum of the substance undergoing distillation will reach the end *f*, where it will fall through the pipe *h* and spout *H* as fast as the coal or other substance to be treated is fed at the end *E*, hereby obtaining the result aimed at—viz., a continual, gradual, and progressive distillation of the substance under treatment. The aqueous and oleaginous vapors, as the permanent gases, are drawn off through the pipe *Q*, the main *R*, the pipe *U*, worm or refrigerator *X*, where all the condensable vapors are condensed into liquids and drawn off at the places already alluded to as constructed for that purpose, and the permanent gases are drawn up the pipe *N* by the fan, exhauster, or pump *T* and driven through the pipe *V* into the retort at *H*, hereby maintaining a constant circulation of gas in opposite direction to the motion and through the substance undergoing treatment, as before stated.

I do not claim, broadly, the idea of a retort for the distillation of coal constructed so as to charge and discharge itself during the process of distillation, as I am aware this is done in the English Webb retort; nor the use of a cylindrical metallic retort rotating or otherwise movable on its axis for the purpose of agitating its contents; nor yet do I claim the introduction of steam or gas into the retort during the process of distillation when otherwise applied and for a different use, and introduced for purposes other than the one specified in my invention; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The continual, progressive, and gradual destructive distillation of coal or other bitumeniferous substance for the purpose of obtaining therefrom the different products of distillation by means and with the use of the apparatus herein described, or other equivalent.

H. P. GENGEMBRE.

Witnesses:

MOSES KELLY,
JOS. C. KENNEDY.