S. G. CLARK.

Oil Still.

No. 34,816. Patented Apr. 1. 1862.

Fig. 2.

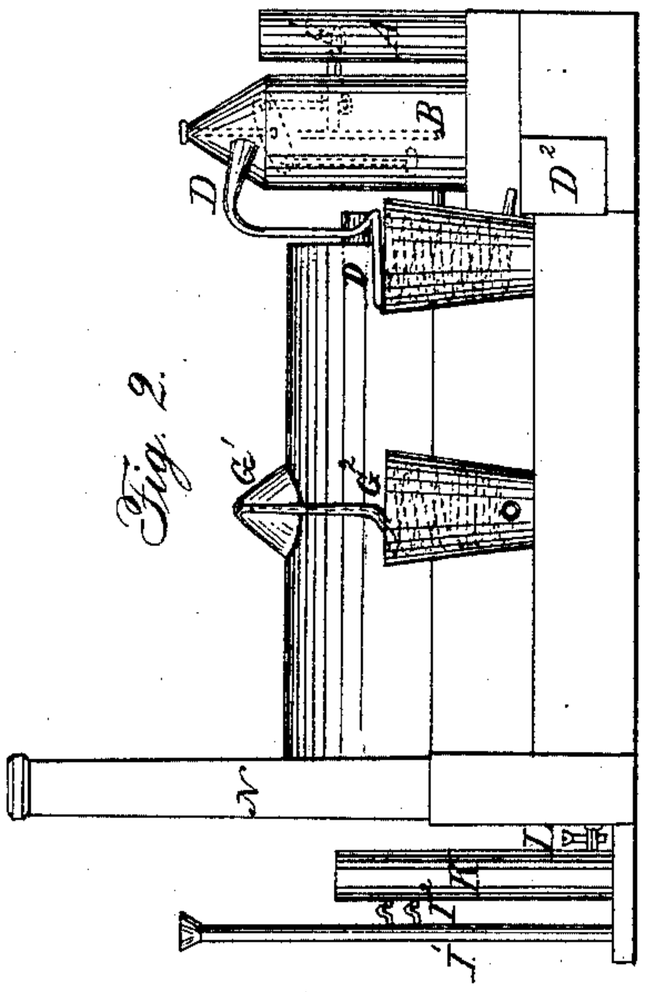


Fig. 3.

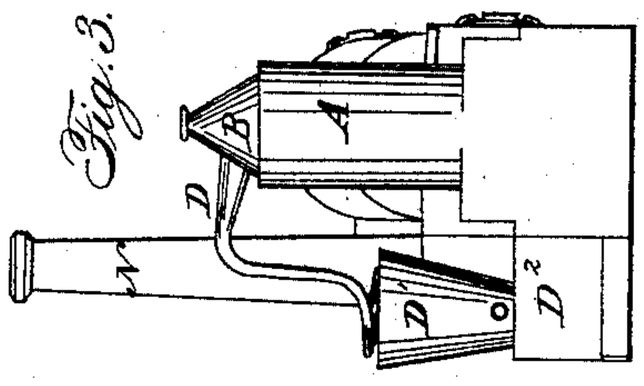


Fig. 1.

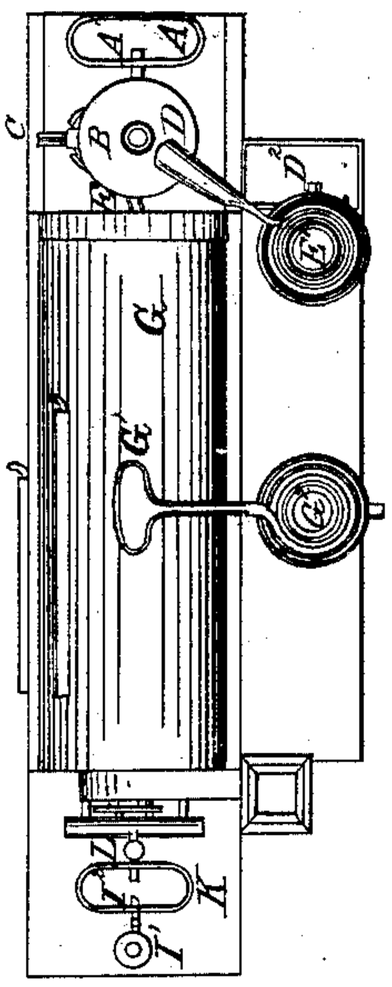
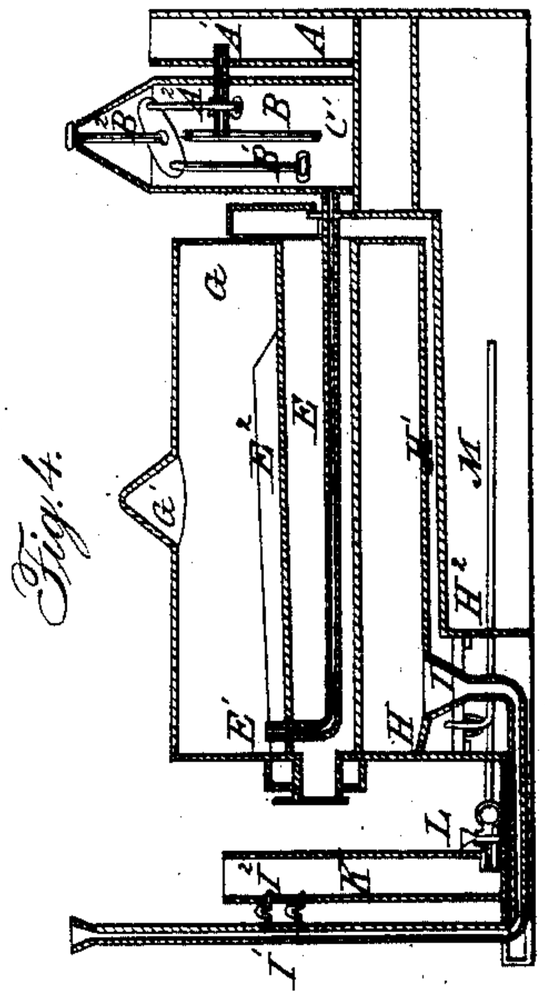


Fig. 4.



Witnesses:

W. H. Burridge

Henry. Voth.

Inventor:

S. G. Clark

UNITED STATES PATENT OFFICE.

S. G. CLARK, OF CLEVELAND, OHIO.

IMPROVEMENT IN STILLS FOR COAL-OILS.

Specification forming part of Letters Patent No. **34,816,** dated April 1, 1862.

To all whom it may concern:

Be it known that I, S. G. CLARK, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Oil-Stills; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view. Fig. 2 is a side view. Fig. 3 is an end view, and Fig. 4 is a longitudinal vertical section.

Like letters refer to like parts in the several views.

The nature of my invention relates to such a construction of apparatus that the lighter products of mineral or hydrocarbon oils may be first separated; second, the separation of the more dense or less volatile oils; and, third, in devices for using the residue for fuel during the process, and all without the necessity of handling any of the products during the process of distillation, the same being continuous during the pleasure of the operator.

The crude oil to be operated upon is first placed in the tank A, from whence it flows through the pipe A′ into the retort B. This flow is regulated by means of a valve, A^2, which is operated by the float B′ and the beam B^2, thus always insuring a uniform quantity of oil in the retort B. It is in this retort that the first distillation takes place, and this is accomplished by means of steam, which is introduced into the retort through the pipe C C′ and discharged directly into the crude oil. The lighter portions of the oil are here volatilized and pass off with the steam through the beak D, and are condensed in the condensing-pipe D′ and collected in the tank D^2, where the oil and water separate by means of their different specific gravities. The oil remaining in the retort, or that which is not volatilized by the action of the steam, flows through the pipe E, which runs horizontally through the flue F into the retort G, which is constructed in a manner similar to a single flue steam-boiler. The pipe E turns upward and discharges at E′ into the trough E^2, placed upon the top of the flue F, consequently the oil supplied to the retort G by passing through the pipe E within the flue F acquires a temperature nearly or quite equal to that contained in the retort G. The beak of the retort G is represented at G′, and which leads to the condensing-worm G^2, where the condensation of the second distillation takes place.

H is the fire-box, and H′ is the passage or flue for the flame and heat beneath the retort G to the flue F. The fire-box H is provided with concave or trough-like grates H^2, which are supplied with the distillate or heavy oil which flows out from the retort at I up the pipe I′ and through passages I^2 into the tank K, whence it flows into the grates H^2, the flow being regulated by means of the stop-cock L. As the residuum will not burn until it has been elevated to a certain degree of temperature, I provide for starting the fire in the fire-box by means of the light and inflammable oil conveyed thither from the tank D^2 through a series of tubes, M, and, if desirable, a portion of this light oil can be constantly burned with the residue from the tank K. The smoke and gases from the burning oil are carried off by the stack N.

By means of the herein-described arrangement of the several parts a continuous process of distillation can be pursued without the necessity for stopping in order to remove the residue from the retort G, for this is continually accomplished by the means before described, and by increasing or diminishing the flow of oil through the still the quantity and quality of the product can be regulated.

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

1. The herein-described combination of the steam-retort B with the fire-heat retort G, arranged and operating as and for the purpose specified.

2. The herein-described devices for the continuous discharge of the residuum and the burning of the same, as and for the purpose herein set forth.

S. G. CLARK.

Witnesses:
W. H. BURRIDGE,
HENRY VOTH.