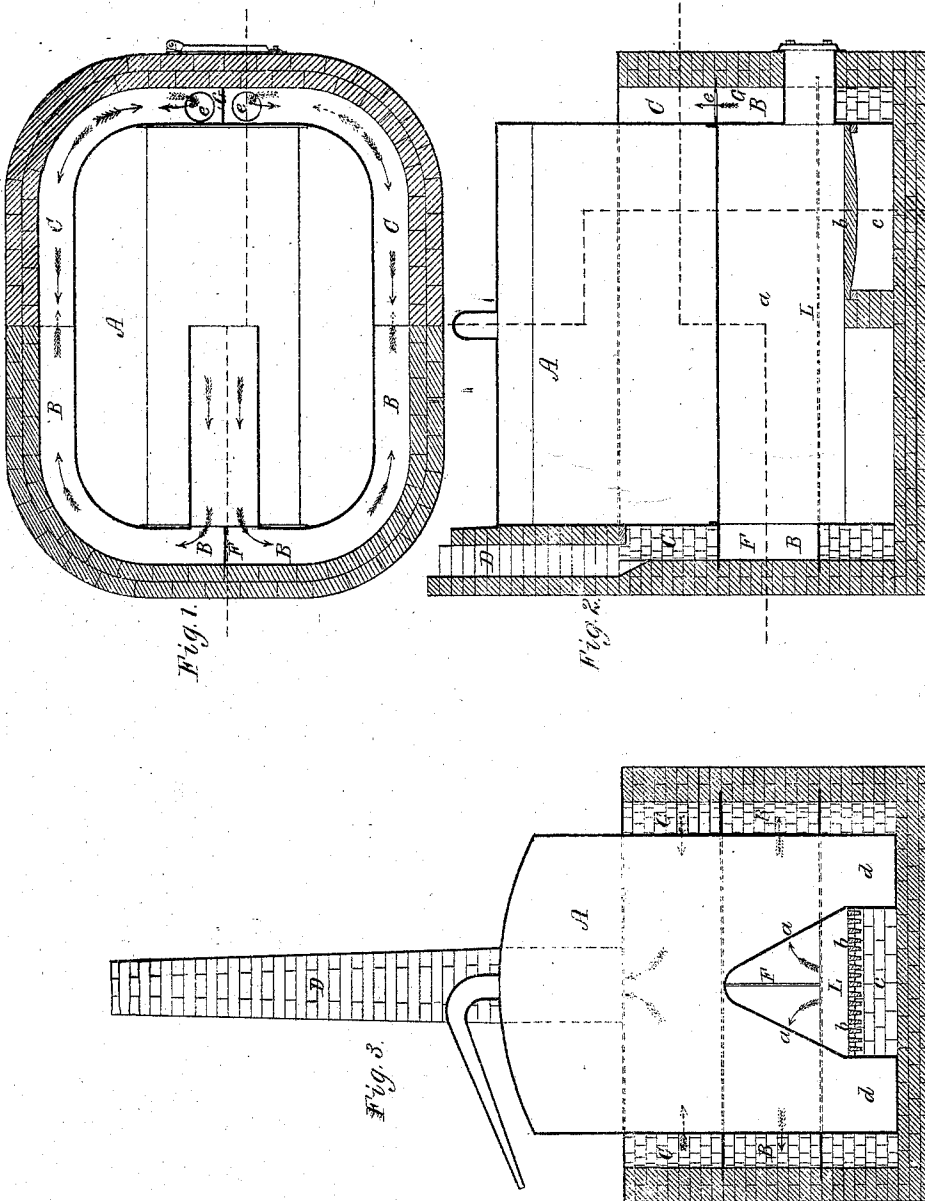


H. RYDER.

Apparatus for Distilling Heavy Oils.

No. 142,515.

Patented September 2, 1873.



Witnesses.

S. N. Piper.

L. N. Möller.

Henry Ryder

by his attorney,

R. H. Ledy

UNITED STATES PATENT OFFICE.

HENRY RYDER, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR DISTILLING HEAVY OILS.

Specification forming part of Letters Patent No. **142,515**, dated September 2, 1873; application filed January 24, 1873.

To all whom it may concern:

Be it known that I, HENRY RYDER, of Somerville, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Apparatus for the Distillation of Heavy Oils, particularly coal-oil; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a horizontal section, Fig. 2 a vertical and longitudinal section, and Fig. 3 a vertical and transverse section, of such apparatus.

The main purpose of my improvement is to prevent, in a still, the collecting of carbonaceous or other heavy deposits on the surface directly over that exposed to the direct action of the flame of the fuel in the furnace.

It is frequently the case, with coal-oil stills of ordinary construction, that the deposits on their bottoms are so great and become so hard and thick as not only to become a means of preventing the heat of the furnace from being absorbed by the contents of the still, but of so insulating the bottom of the still from the oily contents as to enable such bottom soon to be burned through or injured more or less by the fire.

In carrying out my invention, as I believe, to the best advantage, I arrange within a still, A, a fire-chamber or furnace, L, having sloping sides *a a* above its grate *b*; and I extend the still, on opposite sides of the furnace, down below the fuel-chamber of the latter, or down alongside of the ash-pit *c*, in manner as shown at *d d* in Fig. 3.

Under these circumstances, the deposits falling upon the sloping sides of the furnace, immediately over the surface or surfaces exposed to the flame, will, by gravity, be caused to fall down such sides into the receiving-spaces *d d*, and collect in such spaces, instead of gathering on the top of the fuel-chamber, to the detriment thereof.

Furthermore, at the back of the still, and extending around its sides and front, I arrange a horizontal flue, B, to open at the front, as shown at *e e*, into another such flue, C, going also around the still, and leading, at its

rear, into the chimney D. In the posterior part of the lower flue is a vertical partition, F, the object of which is to divide the current of smoke passing out of the furnace, and to cause such to rush, in two separate currents, through the flue B and on opposite sides of the still, as indicated by arrows in Fig. 1. At its front there is another such partition in the flue B, it being shown at G as arranged between the holes *e e*. The two currents, after having passed up through the said holes, will, in going through the flue C, pass around against opposite sides of the still, and, at its rear, will escape into the chimney. Thus, with the exception of the portions *d d*, all that part of the still designed to hold the oil or liquid matter to be distilled will be exposed to the circulation of the heat from the furnace. The still may be provided with ports, through which, when uncovered, the heavy deposits may be removed from the receiving-spaces *d d*. The inclined sides of the fire-place at their junction may make an angle with each other, or the fire-place may be rounded a little at top, in manner as shown in Fig. 3.

I am aware that the bottom of a still has been crowned, or made concavo-convex, and therefore I make no claim to such; but I am not aware that prior to my invention a still has been made or provided with one or more spaces arranged below the fire place or chamber, and out of influence of its fuel or fire, and to receive the deposits of the liquid of the still and insulate them from the fire or flame.

I claim as my invention as follows, viz:

1. The still or oil-evaporating vessel A, provided with the deposit-receiving spaces *d d*, arranged with the fire-place L and ash-pit *c*, as described, and the fire-place inclined at its opposite sides, *a a*, with reference to such spaces *d d*, all as specified.

2. The partitions F G and the flues B C, the fire-place L, ash-pit *c*, and the still or oil-evaporating vessel A, arranged and combined substantially as explained.

HENRY RYDER.

Witnesses:

R. H. EDDY,
J. R. SNOW.