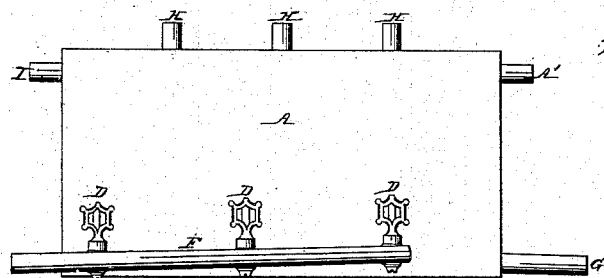
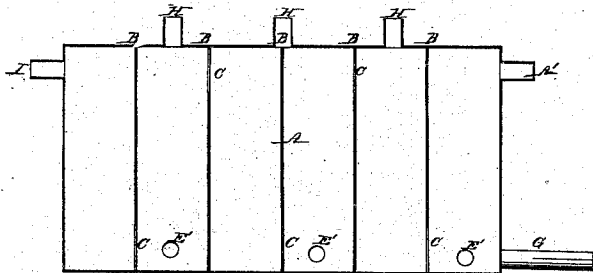
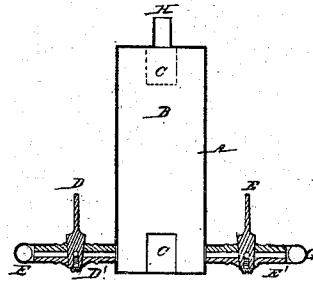
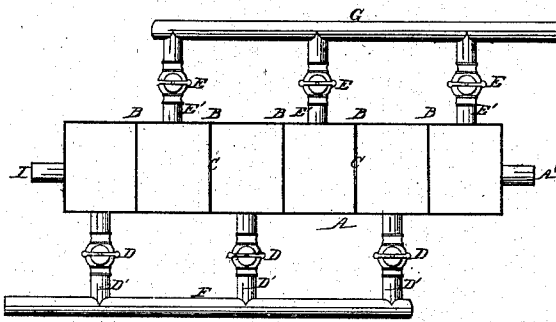


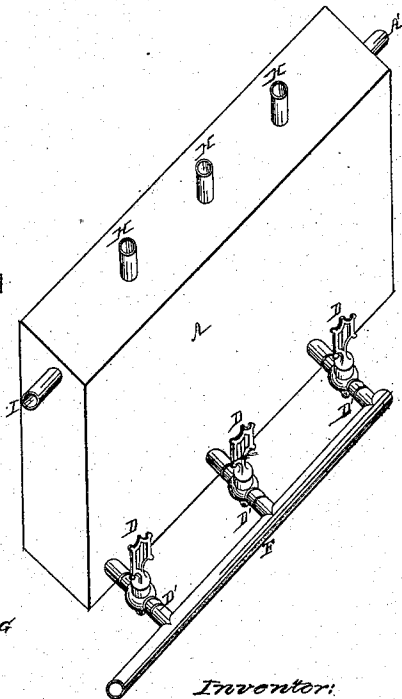
C. MORFIT.  
CONDENSER FOR STILLLS.

No. 66,243.

Patented July 2, 1867.



Witnesses:  
Henry Adams  
Mr. J. Garnett



Inventor:  
Clarence Morfit.

# United States Patent Office.

CLARENCE MORFIT, OF BALTIMORE, MARYLAND.

*Letters Patent No. 66,243, dated July 2, 1867.*

## IMPROVEMENT IN CONDENSERS FOR STILLs.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO WHOM IT MAY CONCERN:

Be it known that I, CLARENCE MORFIT, of the city and county of Baltimore, and State of Maryland, have invented an Improved Condenser; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view of the condenser detached from a still.

Figure 2 is a longitudinal central section taken in a vertical plane through the condenser.

Figure 3 is an elevation of one side of the same.

Figure 4 is a vertical transverse section.

Figure 5 is a perspective view.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists in the application to a horizontal chamber adapted for the condensation of the vapors of oils, liquids, alcohol, and other substances vaporized in a still, of two series of conduits so arranged that by one series communications can be made at pleasure between any one or all of the chambers of the condenser with the still, and by the other series communications can be made between any one or all of the chambers of the condenser and a receiver, thereby admitting of the products of distillation, having different boiling points, being drawn back into the still for redistillation or separated and carried off to a receiver, as though they were subjected to distinct distillation for that purpose, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents a condenser, which may be made of any convenient form and capacity, and constructed of any metal or other suitable material. B B are diaphragms or subdivisions arranged in vertical planes at proper distances apart, and constructed of metal, mineral, fibrous material or materials, separately or in combination. Every alternate division B, beginning at the one nearest the still or inlet pipe A', has an opening, C, through it at the bottom, and the intervening partitions have openings at the top, as shown in the sectional view, fig. 2, so that vapors flowing from the still will be brought in contact with all the walls of the first compartment, and the uncondensed portion pass down through the bottom aperture into the second compartment, and so on the vapors pass alternately under and over the several divisions until the distillate is finally delivered at the point desired. From one side of the condenser branch pipes E' proceed and communicate with a long pipe, G, which leads back to the still. The branch pipes E' are provided with valves or cocks E, which, when opened, will allow liquid from any one or all of the chambers in the condenser to be carried back and delivered into the still. On the opposite side of the condenser branch pipes D', which are provided with valves or cocks D, form communications between the several chambers of this condenser and a pipe, F, which may lead off to a suitable receiver. By means of this latter arrangement the liquids from any one or all of the chambers can be carried off and separated. The condenser is surrounded with a vessel, which can be used solely for refrigeration by cold water, or it may be filled with water, oil, or anything else used for the purpose of forming a bath, so that all the more volatile distillates are allowed to pass over, and those condensing below the temperature of the bath returned to the still or drawn off at pleasure. The bath can then be emptied and filled with water to be used for condensing in the ordinary way, thus affording the advantage of continuing the distillation until the still is emptied of its charge or contents. In distilling alcohol or whisky the chambers nearest the still contain distillates of the lowest proof. As a doubler, the apparatus is used in series and the first condenser left surrounded with hot water, so that the heat of the vapors in passing through it will carry forward the greater part of the liquor first condensed, thus securing a rectification of the first distillates, which will give alcohol and liquors of higher proof. In distilling petroleum, the condenser is first surrounded by water, which is allowed to become warm by the heat of the condensing light oils until it reaches the temperature of 212° Fahrenheit, after which the water is cooled and refrigeration kept up in the usual manner, thereby permitting the complete separation of those highly volatile oils which make the petroleum illuminating oils so dangerous; or the apparatus may be used in series, and the water surrounding the first condenser kept warm all the time, and the lighter oils condensed and separated in the other condensers in the series which are cooled. In this case all the distillates having a boiling point above 212° Fahrenheit would condense in the first condenser and the more volatile would be carried forward. During these several processes the least

volatile vapors, or those of distillates having the highest boiling points condensing first and falling into the several compartments, can be drawn into receivers or run back into the still.

It will be seen that my condensers can be used either singly or in series, and in series they at once become a substitute for the "doubler" and "worm" used in ordinary distillation. If it is found necessary to increase the condensing surface it may be increased indefinitely by the interposition of tubes arranged in the condenser in any suitable manner without interfering with the operation above described. A vacuum in the condenser may be prevented by the application of properly constructed valves in the top at H H. I am aware that in several apparatus in use for distillation vertical chambers are used containing divisions or apartments with communications between the several apartments, and that in such arrangements the apartments communicate with a vertical pipe by means of branch pipes having cocks applied to them. In none of these condensers are means employed by which the distillates can be separated and at the same time revaporized or drawn off or run back into the still at pleasure, as I have described.

What I claim, is—

A condenser, which is adapted for use in conjunction with a still, and which is divided into a number of chambers communicating with each other and provided with two series of pipes or conduits, so arranged as to admit of the separation and revaporization of the distillates and their return to the still, substantially as described.

CLARENCE MORFIT.

Witnesses:

HENRY H. LEWIS,  
WM. HAMILTON.