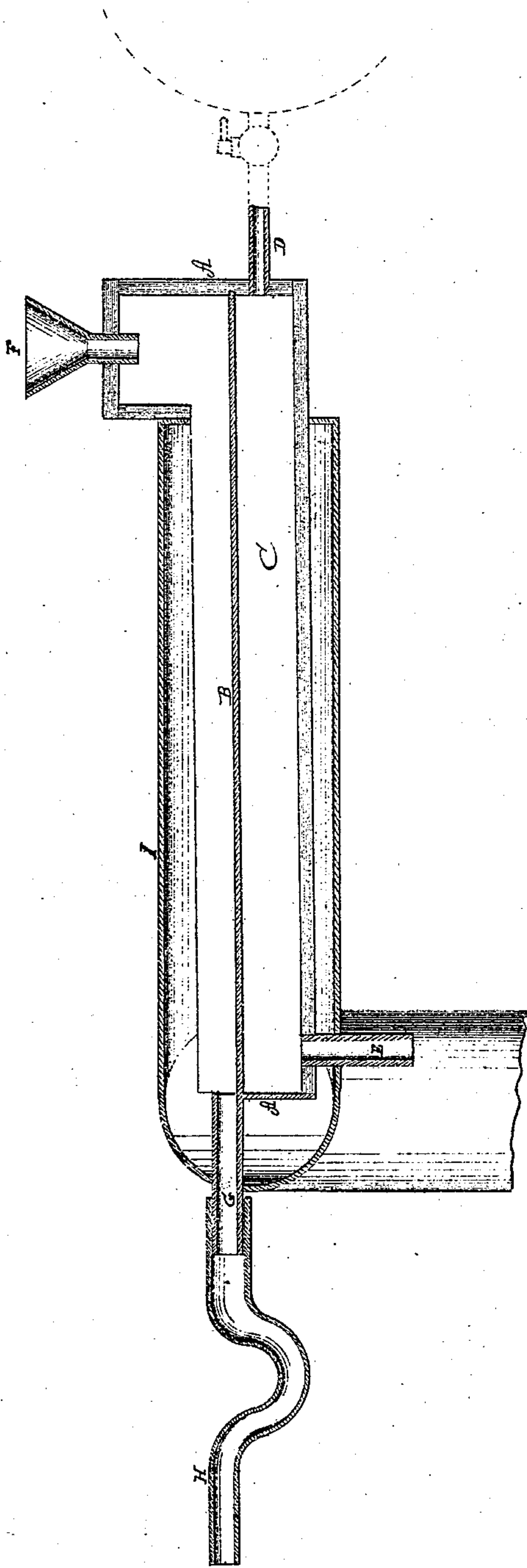


*H. J. Berg,*  
*Refining Oils.*

*No. 93,952.*

*Patented Aug. 24, 1869*



**Witnesses:**

*Geo. W. Mabee*  
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*H. J. Berg*  
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# United States Patent Office.

H. J. BERG, OF BUTLER, PENNSYLVANIA.

Letters Patent No. 93,952, dated August 24, 1869.

## IMPROVED APPARATUS FOR REMOVING BENZINE FROM HYDROCARBONS.

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

*To all whom it may concern:*

Be it known that I, H. J. BERG, of Butler, in the county of Butler, and State of Pennsylvania, have invented a new and useful Improvement in Preparing Petroleum; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and useful improvement in preparing petroleum for market, and consists in separating from it the lighter and more volatile substances, as benzine and naphtha, which are combined with or held in suspension by the crude petroleum, as it is taken from the wells.

The accompanying drawing represents an apparatus by means of which I carry out my invention, it being a longitudinal vertical section showing the method of separation.

Similar letters of reference indicate corresponding parts.

A is a box, made of wood or other suitable material.

B is a metallic plate, or cover, which is fitted steam-tight into the box, forming a tight compartment beneath it, represented by C, into which steam is introduced by means of the pipe D, from a steam boiler or the exhaust-pipe of a steam-engine.

The water of condensation and the uncondensed steam escape through the pipe E.

The crude petroleum is introduced through the funnel F. It is allowed to spread in a thin sheet over the cover B, and escapes through the spout G into the tube H, which tube conveys it into barrels or tanks.

While passing over the metallic plate, or cover B, its temperature is raised by the steam contained in C to such a degree that the benzine and other volatile substances, which were combined with the petroleum, escape in the form of vapor.

I represents a tube, or casing, which encloses the box A, as seen in the drawing, which confines the vapor, and conducts it off where it is condensed and deposited in the proper receptacle.

When it is not desired to save the benzine or lighter substances, they may be allowed to escape into the atmosphere, and the casing I may in that case be dispensed with.

The temperature to which the crude petroleum is raised while passing over the plate B is regulated by a cock in the steam-pipe D.

The quantity of the volatile liquids thus extracted will depend upon the temperature of the steam in the

chamber C, and upon the quantity of the petroleum which is allowed to pass over the plate B.

The quantity may be increased or diminished by varying the supply to the funnel, and the velocity in passing over the plate may be varied by inclining the box more or less.

By this arrangement the crude petroleum is separated from its more inflammable and dangerous properties, and while it is thus rendered safe to handle, it is much more readily confined in barrels or vessels, as its volatile properties have always been the cause of the serious losses heretofore occasioned in storing and transporting it.

It is designed to subject the crude petroleum at the "wells" to this process, so that dealers and shippers may pursue their business with a greater degree of safety than they have done heretofore.

This improvement is also designed to enable the refiner to refine the same quantity in far less time, and to produce a superior article.

It is also intended to convert crude petroleum into a condition to be used at once as a lubricator, which is an important point, as the chief value of a lubricator depends upon its non-evaporative qualities, and by this method the volatile properties of the crude petroleum may be removed to any extent.

I am aware that the application of steam to refine petroleum, or for any other useful purpose, is not patentable, even though it had never been done before, but only some particular method of application; also, that coiled pipes have been used to accomplish this object; but I do not claim either of these.

What I do claim, and seek to protect by Letters Patent, is—

1. The method herein described for removing the benzine and other volatile matters from crude petroleum, that is to say, by causing the crude oil to flow gradually in a thin stream over a heated plate, whereby the volatile principles will all be evaporated with great certainty and rapidity.

2. The improved machine above described for carrying out my process, consisting of vessel A, provided with inlet for the crude oil, and steam-chamber C, having steam-induction and eduction pipes, in combination with intermediate plate B, which subjects the crude oil to a temperature to evaporate the volatile parts, and conducts the refined oil into its proper receptacle, all as shown and described.

Witnesses:

WM. S. ZIEGLER,  
S. BREDIN.

H. J. BERG.