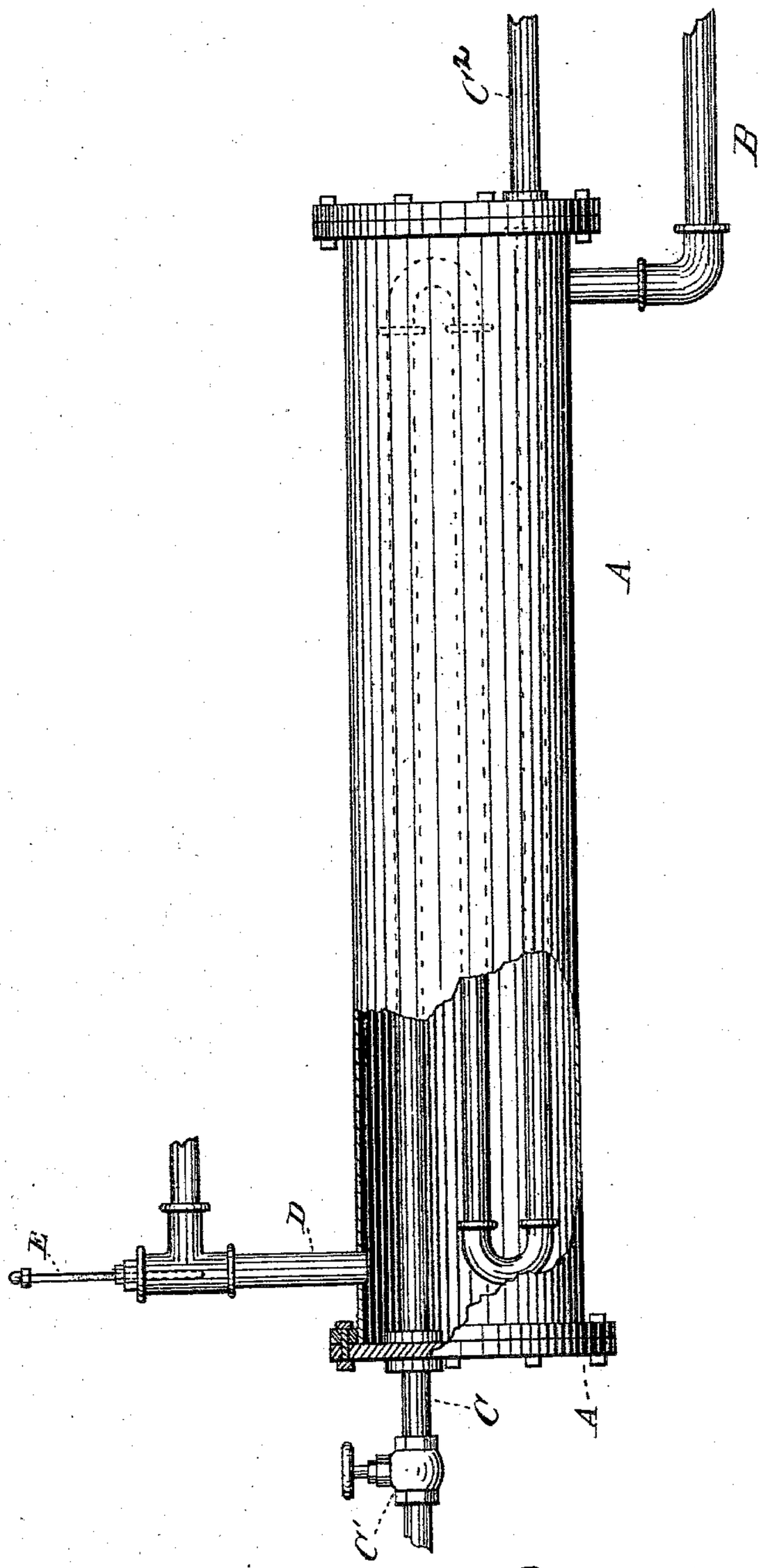
(No Model.)

J. W. EVANS.

EXTRACTION OF OILS FROM VEGETABLE AND ANIMAL MATTER.

No. 281,040. Patented July 10, 1883.



WITNESSES

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EXTRACTION OF OILS FROM VEGETABLE AND ANIMAL MATTER.

SPECIFICATION forming part of Letters Patent No. 281,040, dated July 10, 1883.

Application filed December 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. EVANS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Extraction of Oils from Vegetable and Animal Matter by Means of Naphtha; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improvement in the extraction of oils from vegetable and animal substances by means of heated naphtha or other of the lighter products of petroleum, and in mechanism for heating the naphtha before it is introduced to the seed.

Heretofore it has been the custom in extracting oil from vegetable and animal substances to apply the hydrocarbon at its natural temperature. From experiments I find that the oil is more readily extracted when the hydrocarbon has been subjected to a certain degree of heat below its vaporizing-point. The difficulty has been in using heated hydrocarbon to construct mechanism by means of which the same could be heated to a proper temperature below its vaporizing-point.

The figure in the drawing is a front elevation of a container with portions broken away, showing its interior, that is adapted to heat the hydrocarbon to any desired degree.

In the said drawing, A represents a container, provided with an inlet-pipe, B, through which the naphtha may be forced or pumped into the container A.

C is an inlet steam-pipe, provided with a valve, C′. This pipe may be provided with any number of coils sufficient to supply the heat required for raising the temperature of the hydrocarbon in the container A to the desired point.

C² is the outlet of the steam-pipe.

D is the outlet of the hydrocarbon, and through which it passes to the container, which holds the seed or animal matter upon which the hydrocarbon is to operate.

E is a thermometer, placed with its lower extremity in the pipe D, having its register outside thereof and in view, but so constructed and adapted that it will correctly register the degree of temperature of the hydrocarbon within the pipe D.

The operation of this device is as follows: The hydrocarbon is pumped or forced through the inlet-pipe B into the container A. The valve C′ is opened and steam permitted to pass through the coil within the container A until the thermometer E registers the desired degree of heat, when the valve C′ may be closed and the hydrocarbon within the container A pumped or drawn out through the outlet-pipe D, and used as required; or a sufficient number of coils of pipe may be placed within the container to permit the constant passage of hydrocarbon through the inlet-pipe B and out through the outlet-pipe D, it being heated to a sufficient degree in its passage, this heat being readily regulated by means of the thermometer E and the valve C′, the latter of which regulates the flow of steam.

It is apparent that the operation of this device may be reversed—that is, the naphtha may be allowed to pass through the inlet-pipe C and out through the outlet-pipe C′, and the steam permitted to pass through the inlet-pipe B and out through the outlet-pipe D, in which instance the container A would be filled with hot steam instead of hot naphtha. I prefer the former use of the device.

I am aware that oils and fatty matter have been extracted by means of hydrocarbon at its normal temperature; but I believe I am the first to use it in a heated state below its vaporizing-point.

What I claim is—

1. A process of extracting oils and fatty matters from the substances containing them, consisting in subjecting the said substances to the action of a liquid hydrocarbon solvent, the same being heated before its application to the substances and kept under pressure to prevent vaporization.

2. In an apparatus for heating naphtha or its equivalent under pressure, the combination, with a closed container, of steam-pipes located therein, means to regulate the passage of steam through the said pipes, induction and eduction pipes for the hydrocarbon, and a thermometer located in the said eduction-pipe, and arranged to indicate the temperature of the solvent as it passes through the same, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN W. EVANS.

Witnesses:

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