

M. P. EWING.
Oil Still.

No. 58,020.

Patented Sept. 11, 1866.

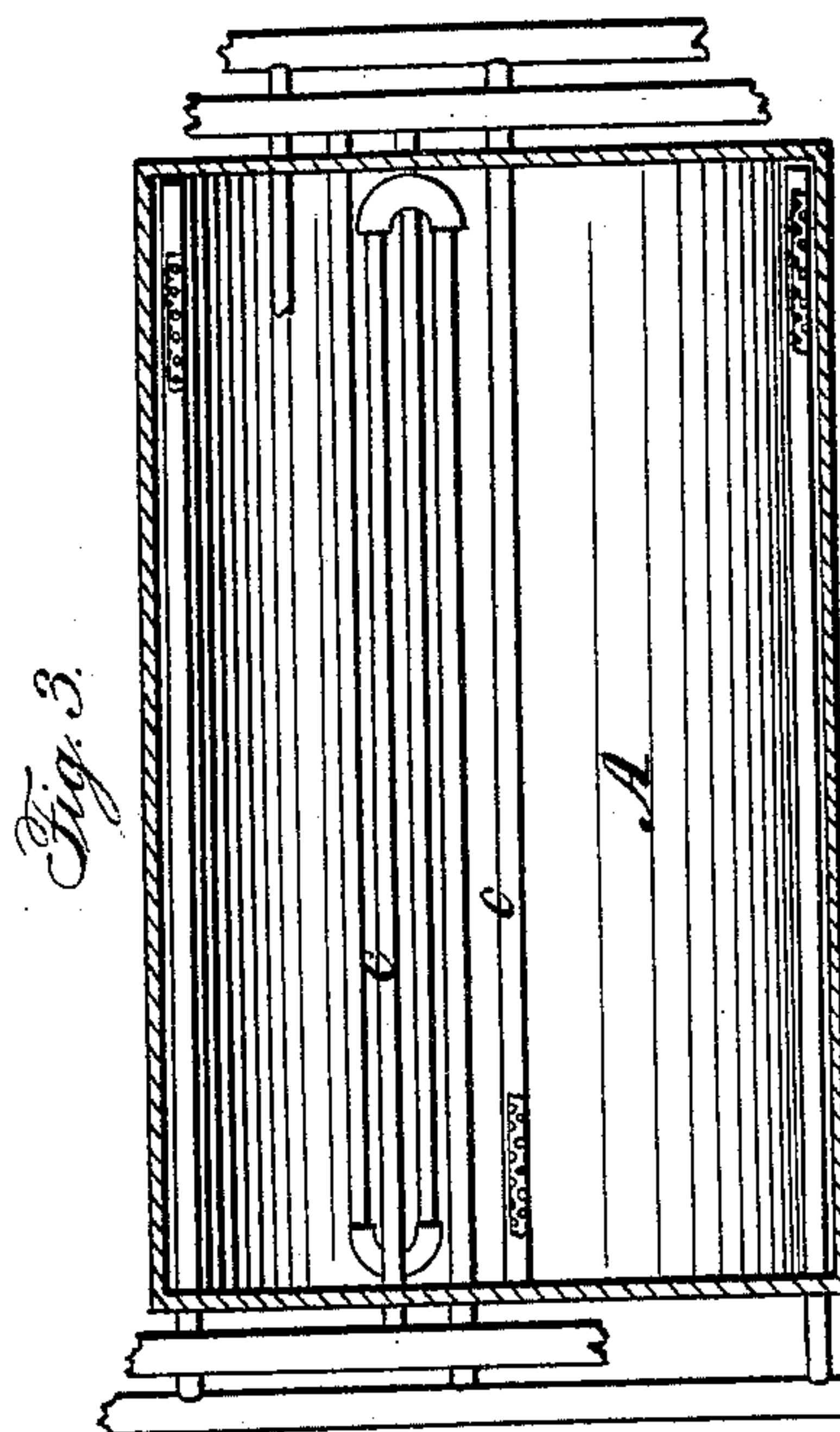
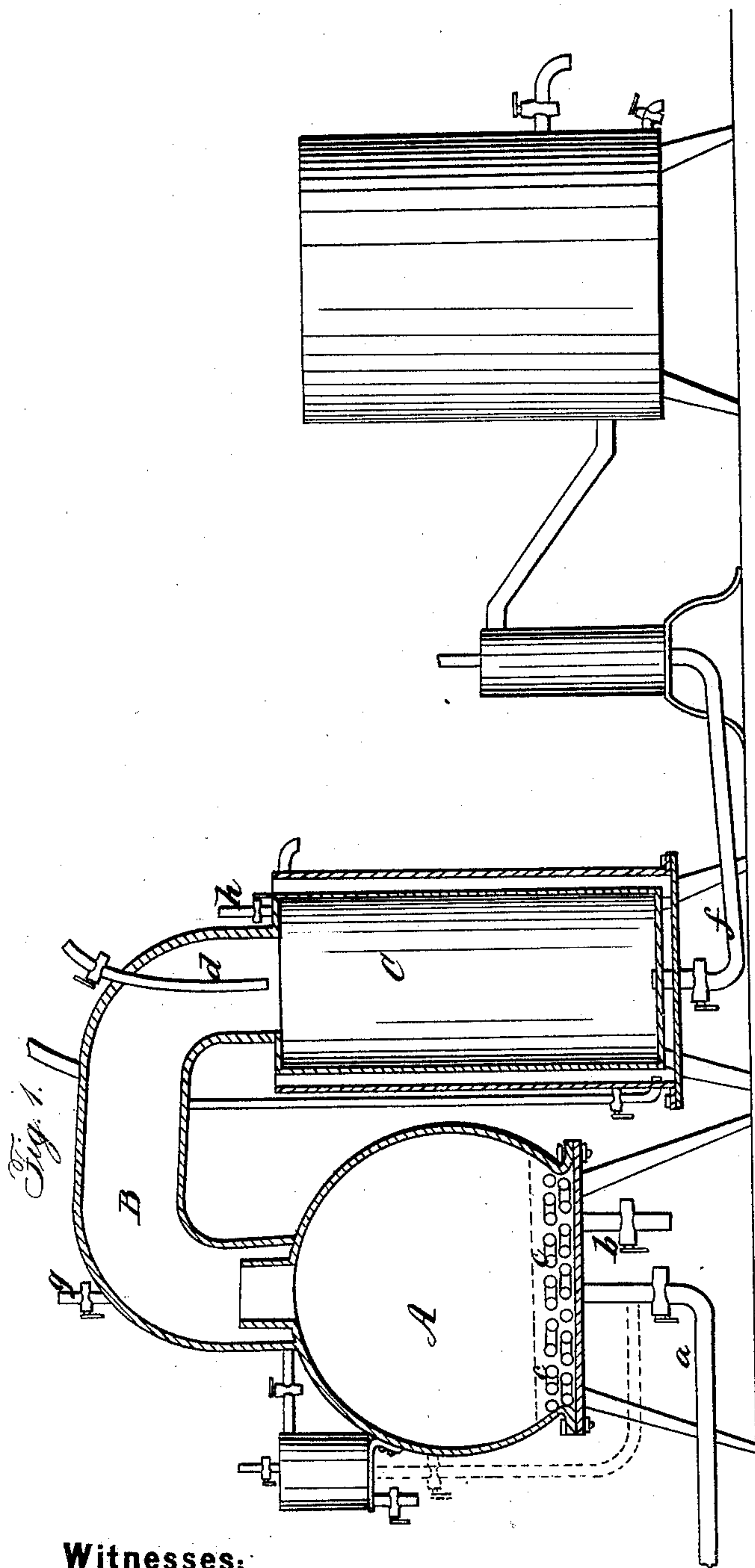
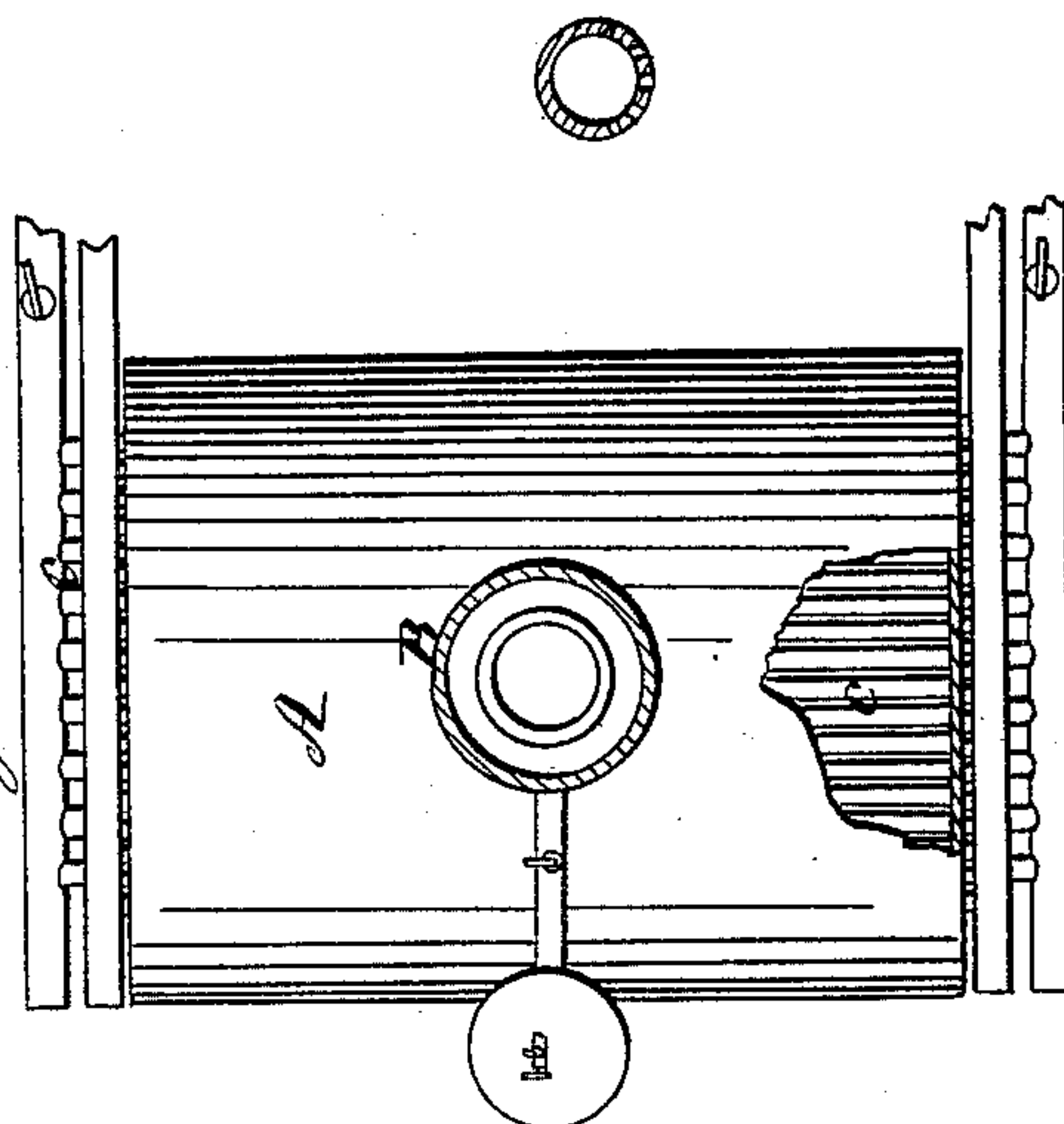


Fig. 2.



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UNITED STATES PATENT OFFICE

M. P. EWING, OF ROCHESTER, NEW YORK, ASSIGNOR TO H. B. EVEREST
AND GEO. P. EWING.

IMPROVED MATERIAL FOR LUBRICATING AND OTHER PURPOSES.

Specification forming part of Letters Patent No. 58,020, dated September 11, 1866.

To all whom it may concern:

Be it known that I, M. P. EWING, of Rochester, in the county of Monroe and State of New York, have invented a new and Improved Product from Petroleum for Lubricating, Currying, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings.

Figure 1 is a central vertical section of a vacuum-still for producing the oil; Fig. 2, a plan of the retort; Fig. 3, a diagram, showing the steam-pipe coils.

Like letters of reference indicate corresponding parts in all the figures.

A patent has recently been allowed me for improvement in vacuum-stills for petroleum, one essential novelty consisting in the combination of a continuous feed with the vacuum-retort, by which I am enabled to maintain about the same level of the oil in the retort at all times, and by the removal of atmospheric pressure raise the vapor by steam at a comparatively low temperature without the direct application of fire, and thereby avoid burning.

In addition to the production of a refined quality of volatile oil, I also produce as a residuum a material that possesses superior qualities over other similar products for lubricating, currying, and other purposes, and which may be burned in an ordinary sperm-oil lamp without danger.

The drawings represent an apparatus for distilling, substantially the same in principle as that covered by the aforementioned patent recently granted me.

A is a retort, into which the crude oil is continuously fed by a pipe, *a*, and from which the residuum is discharged by pipe *b*. In the bottom of the retort are situated coils of steam-pipe *c* for heating the oil.

A neck or tube, B, connects the retort with a condenser, C, into which the oil-vapor is carried, and this vapor is condensed by a constant jet of water entering from pipe *d*. From the condenser the oil and water are drawn by a pipe, *f*, connecting with a suitable pump, which also serves to exhaust the air from the apparatus; or, if desired, the air may be ex-

hausted by a Torricellian tube, or by admitting steam, or any other desired method.

Air is admitted to the retort or condenser at any time by means of cocks *g h*. These constitute the general features of the apparatus by which I am enabled to produce a residuum or product from the distillation of a very superior character, and possessing qualities that, so far as I am aware, were never known prior to my invention.

The crude or natural petroleum of heavy gravity, with but little or no treatment, has been used to some extent for lubricating purposes. The light or volatile elements, which always accompany it in its crude state, have been a source of great annoyance, from the fact that they develop themselves into offensive odors when in use, and also from the fact that in most crude oils there is combined so large a proportion of these volatile elements as to render them of too light a gravity for lubricating purposes. These volatile portions also contain acid properties, which act with damaging effect upon most kinds of machinery.

The light hydrocarbon oils, so injurious to petroleum as a lubricator, comprise from fifteen to twenty per cent. in oils of heaviest gravity, and from thirty to sixty per cent. in oils of lighter gravity, as produced from the well. No successful method of separating these volatile and injurious portions, to any great extent, from petroleum, without injury to its heavier or oleaginous portions, has been known or practiced up to the time of my invention, to the best of my knowledge or belief.

Again, the residuum or black-oil, produced by distillation of the lighter portions from crude petroleum under atmospheric pressure, which contains burnt paraffine matters and emits offensive odors, has been used for machinery, both separately and combined with unctuous oils. Its impurities and offensive odors have kept it from being extensively used; also, a heavy paraffine-oil, the last product of destructive distillation, is in limited use; but, being a distilled product, it evaporates again, and whether used as a lubricating-oil or as a currier's oil, it readily passes off by evaporation, which is a source of difficulty.

My invention consists in the production from the natural petroleum of an oil of heavy gravity, free from offensive odors, containing all the oleaginous and paraffine portions unburned, and having all, or nearly all, the hydrocarbon and acid properties removed, so that it will not evaporate when used as a carrier's oil, and is superior to all other petroleum-oils as a lubricator, and will stand the proper fire-test, and burns with success and safety in a common sperm-oil lamp.

The above beneficial results are produced and valuable oil obtained by the employment of an apparatus, as herein described, whereby the oil-product in the retort is reduced to the

lowest possible gravity without burning by the evaporation of the volatile portions *in vacuo*, and by the use of steam or its equivalent.

I claim—

As a new manufacture, an oil-product, as above described, when produced from crude petroleum by the evaporation therefrom of the lighter hydrocarbons in *vacuo* by the use of steam or its equivalent, to prevent burning, substantially as herein set forth.

M. P. EWING.

Witnesses:

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