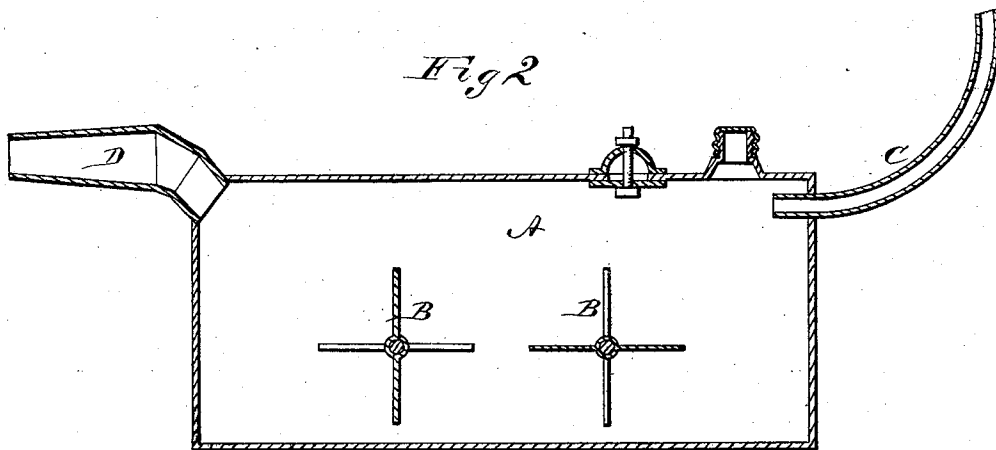
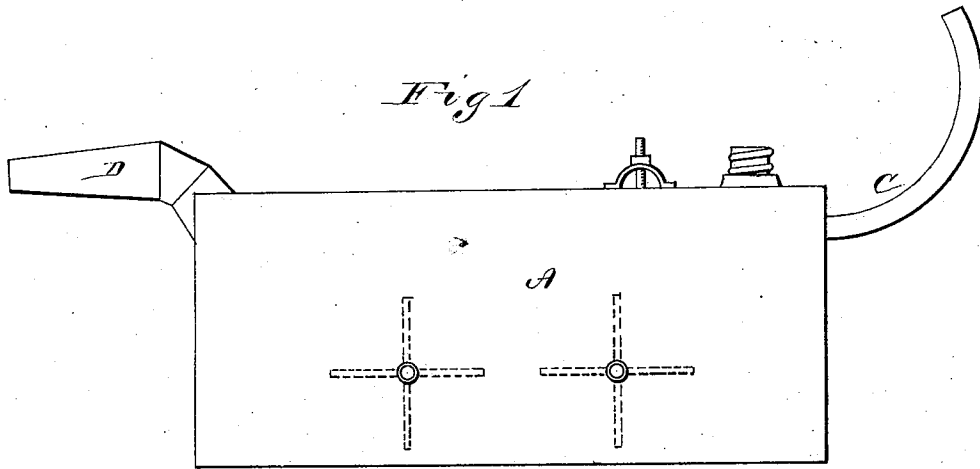


V. G. BLOEDE.
Treating Oils.

No. 159,887.

Patented Feb. 16, 1875.



WITNESSES
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VICTOR G. BLOEDE, OF PARKERSBURG, WEST VIRGINIA.

IMPROVEMENT IN TREATING OILS.

Specification forming part of Letters Patent No. 159,887, dated February 16, 1875; application filed December 28, 1874.

To all whom it may concern:

Be it known that I, VICTOR G. BLOEDE, of Parkersburg, in the county of Wood and in the State of West Virginia, have invented certain new and useful Improvements in the Manufacture of Lubricating Oils; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention consists in a new process for reducing, distilling, or concentrating the crude natural oils of West Virginia and other States for the manufacture of lubricating and other oils.

The present mode of reducing these oils to heavy gravities is to place them in a still and to apply fire until the light hydrocarbons are driven over, and the residuum has reached a density of about 28° Baumé. To effect this concentration or reduction by present methods a very high heat is required—a temperature ranging from 600° to 850° or 900° Fahrenheit—which chars and blackens the oil to such extent as to greatly impair its value as a lubricator.

By experiments I have found that the application of a high heat is not at all essential to produce a heavy oil; but that a temperature but little in excess of boiling water, if long continued, is sufficient to reduce most all of the natural (heavy) oils to a density sufficient for a lubricant. As water evaporates, although more slowly, at all temperatures below its boiling-point, so will the light hydrocarbons evaporate at a comparatively low temperature. All these oils containing in their crude or natural state the base for a good lubricator are comparatively thick and viscid, and hence when heated they circulate and conduct the heat but very indifferently. So much is this the case that I have found in practice that when the bottom or fire surface of the still is so hot that it chars and destroys the oil in immediate contact with it the top and middle layers of the oil are comparatively cold. This is due to the lack of circulation in the oil after it reaches a certain temperature, and as it naturally chars where it comes in contact with the iron directly exposed to the fire, the layer

of non-conducting coke or carbon thus produced adds greatly to the evil; and it is on this account that in practice it is found necessary toward the end of operation to apply a red heat to the bottom of the still. The result of this heavy firing is to destroy to a great extent the valuable lubricants contained in crude oil—the paraffinous and fatty matters—besides which it causes a considerable loss in actual volume of the oil, and a heavy expense in wear and tear of still-bottom. The product of this process, even when the best oils have been used, and the utmost care in management has been given, is a heavy, black, tarry mass, full of carbon and mechanical impurities, and possessing but very indifferent lubricating properties.

The nature of my invention consists in producing a thorough circulation and agitation in the body of the oil, in connection with a low temperature, and also in the injection of air or dry steam above the surface of the oil to more rapidly carry off the vapor.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe my process, as well as the construction of the still, whereby the same is carried out, referring to the annexed drawing, in which—

Figure 1 is a side elevation, and Fig. 2 a longitudinal vertical section, of a still arranged for carrying out my invention.

By practical experiments I have found that with a thorough circulation and agitation in the body of the oil a very moderate temperature, ranging according to the nature of the oil from 212° minimum to 500° Fahrenheit maximum, is sufficient to quickly, efficiently, and economically reduce oils of this nature by bringing every portion of the oil in contact with the heating-surface, and thus equalizing the temperature. In my experiments I have never exceeded a temperature of 300° Fahrenheit, and the result is a very superior oil, free from every trace of carbon or tarry matter, and possessing at least double the virtue of oils made by the old methods. The agitation or circulation of the heated oil is readily accomplished by placing in the body of the still A a paddle or series of paddles, B B, or a dasher or series of dashers, operated by suitable me-

chanical appliances. By these means the light hydrocarbons are not only vaporized, but the draft occasioned by the working of the paddle or dasher rapidly forces the gases through the condenser, while the agitation of the oil insures an equalization of the temperature throughout its mass. The heat may be applied to the still in any suitable manner, either by direct careful firing by means of a steam-jacket around the still, or by steam pipes or coils inserted into the mass of oil itself. When fire is applied directly to the still the agitation should be more rapid to prevent charring, which cannot take place where steam under ordinary pressure is used.

The distillate obtained from the heavy oils by my agitation process, owing to the absence of all products of destructive distillation, is of a very superior quality, and can be made into a prime white burning-oil with one-half expense incurred under the old process.

For the purpose of more rapidly carrying the vapors from the still to the condenser, I

inject hot or cold air or very dry steam into the still at any point above the surface of the oil. The air or dry steam forced into the still mixes mechanically with the vapor, and carries it rapidly to the condenser. C is the pipe through which the air or dry steam is injected into the pipe, and D is the goose-neck pipe conveying the vapors to the condenser.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The process for reducing, distilling, or concentrating crude oils consisting of heating the oil from 212° to 500° Fahrenheit temperature, thoroughly agitating the same at such temperature, and injecting air or dry steam over the surface of the oil, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

VICTOR G. BLOEDE.

Witnesses:

W. W. SAFFORD,

C. M. SHREWSBURY.