

BURKE & WRIGHT.

Refining Oils.

No. 65,999.

Patented June 25, 1867.

Fig. 1.

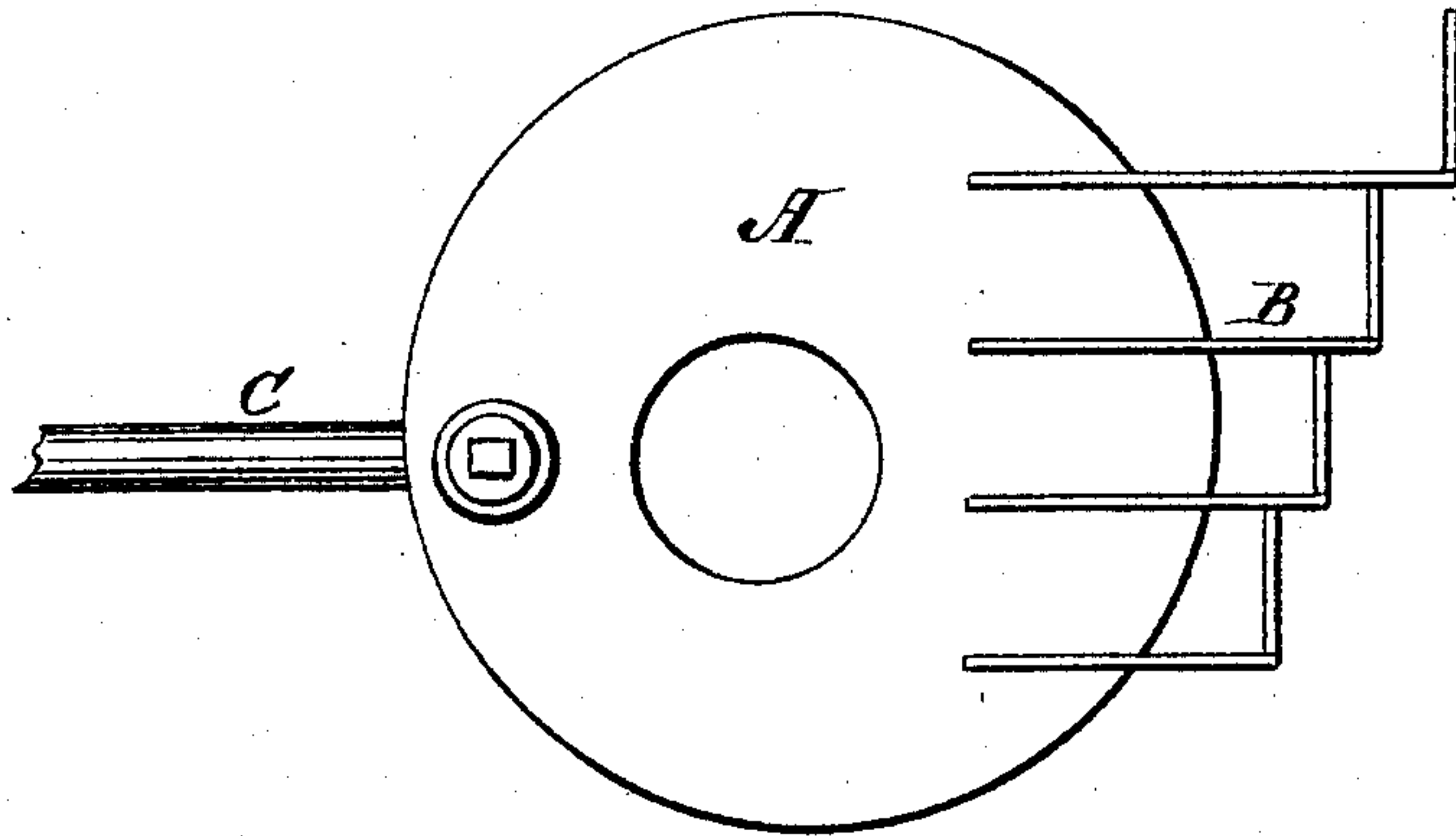
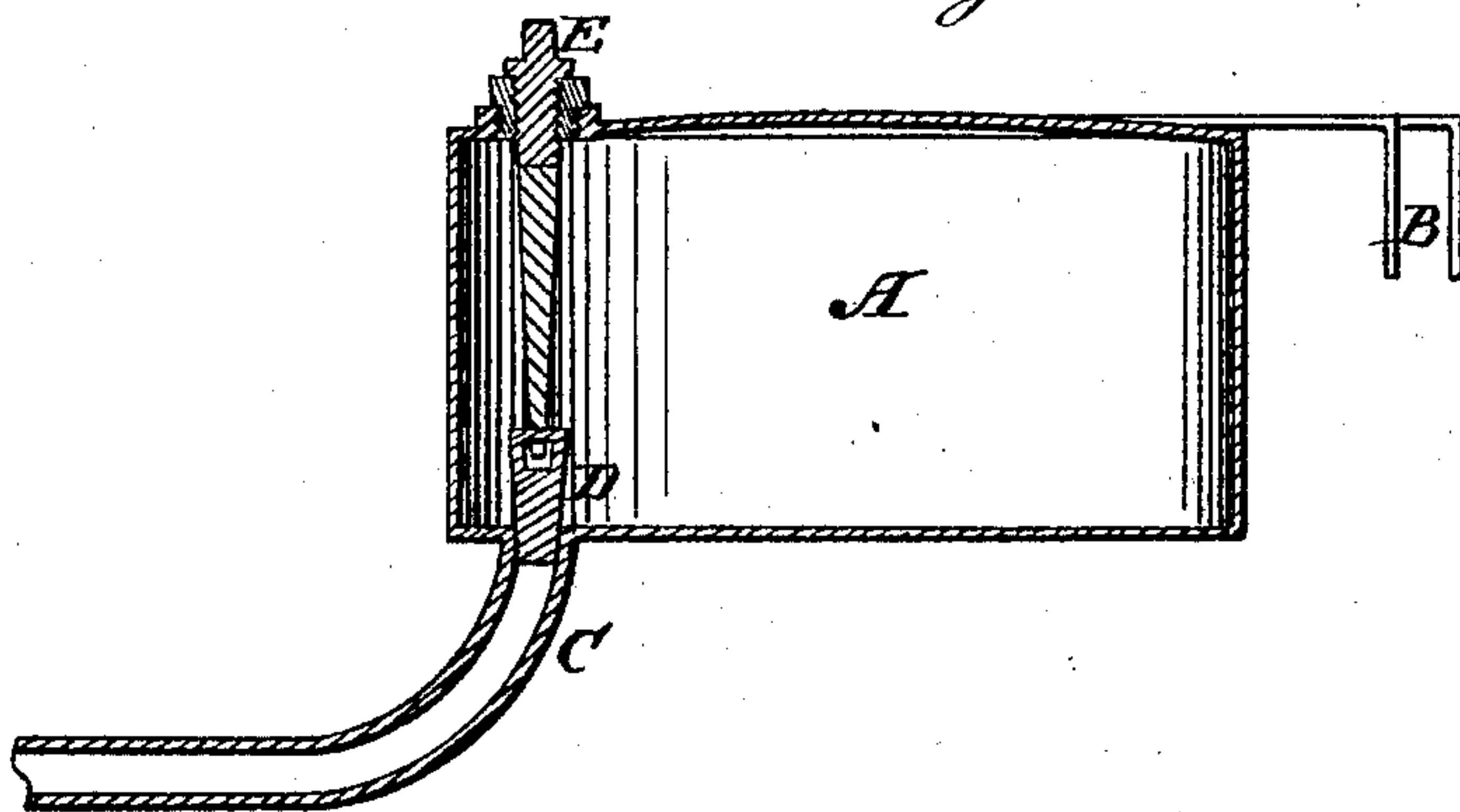


Fig. 2.



Witnesses:

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United States Patent Office.

A. M. BURKE AND STEPHEN WRIGHT, OF CLEVELAND, OHIO.

Letters Patent No. 65,999, dated June 25, 1867.

IMPROVED MODE OF TREATING HYDROCARBON OILS.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that we, A. M. BURKE and S. WRIGHT, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in the Mode of Treating Oils; and we do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view of the still.

Figure 2 is a transverse section.

Like letters of reference refer to like parts in the views.

This invention relates to a process of treating petroleum crude mineral oil, or any of its products or distillates, by means of which it is raised to a fire test of 110° and upwards, the oil at the same time assuming and retaining a light color and freedom from any offensive odor, and which said process is conducted in the manner as follows, viz:

In the still A, fig. 1, which is constructed in the ordinary way, is placed a certain quantity of petroleum or other mineral oil, or their products. To some thirty barrels of this oil are added about nine gallons of caustic soda, of 20° Baumé, and one-fourth gallon aqua ammonia. This mixture is then distilled and run off through the pipes B to an agitator, in which the distillate is again treated as follows, viz: to one barrel of distillate are added about nine and a half pounds sulphuric acid, first by using five and a half pounds and agitating the mass some twenty minutes by an impelled current of air at the bottom of the oil. After being thus agitated, the acid, or as much of it as can be, is then drawn off. Then in fifteen minutes is drawn the balance. At this time is added the balance of the acid, (four pounds,) and the whole is again agitated for about eighteen minutes, which is then allowed to rest and settle for forty-five minutes, drawing acid every fifteen. In order to remove all the acid from the oil it is now treated with water, thus: to some seventy-five barrels of oil six barrels of water, of a temperature of 120° , are added, the whole of which is again agitated fifteen minutes, adding in the mean time six gallons alkali, 20° Baume, which is now allowed to settle thirty minutes and the water then drawn off again. Thirty gallons of alkali, of 20° Baume, and forty-eight gallons of water, of 110° , are now added, and the whole agitated for fifteen minutes, which is then allowed to settle for thirty minutes and then drawn off. For the last washing six or more barrels of water, 110° , are used, and agitated for some twenty minutes, which is then allowed to settle some thirty minutes, and then drawn off, thus completing the process. The oil is now white, clear, and free from any offensive odors, and of a fire test of 110° and upward.

By this process the oil is first treated with alkali and ammonia or with other agents in the still previous to and during distillation, and which is again treated, when run off in the agitator, with acids, alkalis, and washings in the usual way. The result of this treatment of the oil in the still and agitator is a much finer and better article than can be obtained in the usual method—simply treating the oil in the agitator only.

The treating of oil chemically, as herein described, in the two apparatuses, viz, still and agitator, is the distinguishing feature of our improvement. It will be observed that the still is provided with an eduction pipe, C, fig. 2, leading from one side of the bottom, the purpose of which is to draw off the residual products of the distillation. It will be seen that this pipe is furnished with a stop-plug or valve, D, which is closed and opened by the screw E cut upon the upper end of the valve-stem; by thus closing the pipe at its conjunction with the still, prevents the passage of the alkali into the pipe.

It is a well-known fact in chemistry that a solution of potash or soda, when raised to a high temperature under conditions that admit of evaporation, crystallization is the result in solid and compact masses. If this precipitation were allowed to be made in the pipe referred to, it would soon fill up and thereby prevent the residuum from being drawn off from the still. Hence, by thus closing the pipe at its conjunction with the still, the crystallized potash or soda is precipitated on the bottom of the still, from which it can be easily taken up and removed.

What we claim as our improvement, and desire to secure by Letters Patent, is—

1. The herein-described process of consecutively treating oils first by alkali in the still, as specified, and subsequently by the use of acids in the agitator as a continuation of the said process, substantially as set forth.
2. As a means for carrying out the herein-described process, we claim the valve or plug D; provided with suitable devices for operating the same, in combination with the pipe C and still, substantially as described.

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STEPHEN WRIGHT.

Witnesses:

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