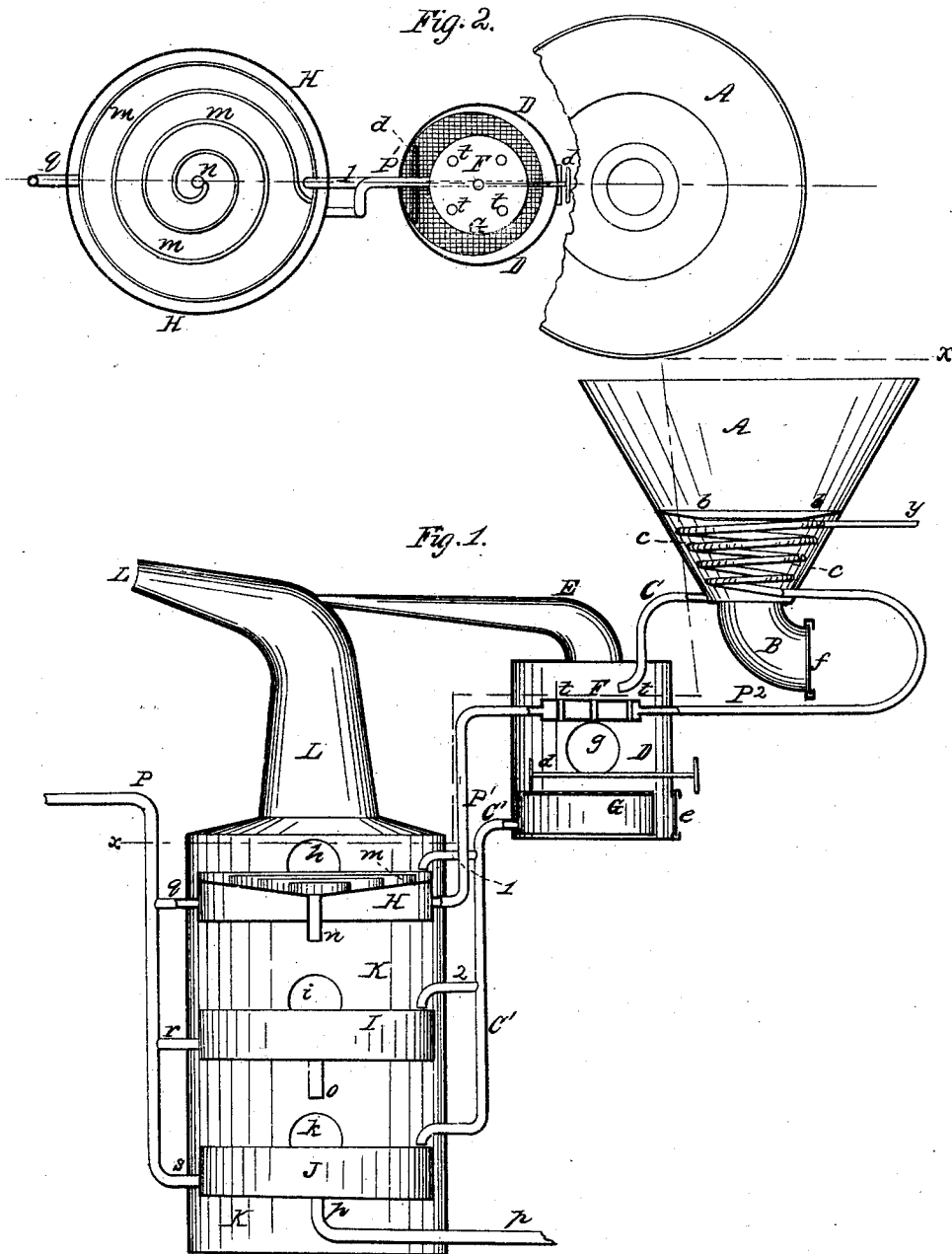


# GRIFFEN & WINANTS.

## Turpentine Still.

No. 65,147.

Patented May 28, 1867.



Witnesses:  
*Charles Spear*  
*A. Smith*

Inventors:  
*Griffen & Winants,*  
*by atty.*  
*J. C. Smith*

# United States Patent Office.

J. E. WINANTS AND JOHN F. GRIFFEN, OF NEW YORK, N. Y.

Letters Patent No. 65,147, dated May 28, 1867.

## IMPROVED APPARATUS FOR DISTILLING TURPENTINE.

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, J. E. WINANTS and J. F. GRIFFEN, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Apparatus for Distilling Turpentine; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

Our invention relates to certain new and useful improvements in apparatus for the production, from crude turpentine, of spirits of turpentine and rosin.

Previous to our invention numerous methods of and apparatus for distilling turpentine have been suggested and employed, all of which are, however, subject in practice to numerous objections. Our invention has for its objects a simple, economic, and effective method of producing spirits of turpentine and pure rosin, from the crude material by means of an apparatus or machine, in which the straining and distilling processes are carried on continuously and automatically, and in which the several branches of the continuous process may be observed and manipulated readily by the operator or attendant; and to these ends our invention consists in an organized machine or apparatus, substantially such as hereinafter described, in which the crude material is received into a supply hopper, from whence it is automatically fed, as it is melted, strained, and distilled; the products of distillation passing off in one direction to constitute spirits of turpentine, and the residuum or rosin passing off in another direction, all as hereinafter more fully explained.

To enable those skilled in the art to make and use our invention, we will proceed to describe it more particularly, referring by letters to the accompanying drawings, in which—

Figure 1 is a vertical central section of an apparatus constructed to operate according to our invention.

Figure 2 is a horizontal section at the line *x x*, fig. 1.

In the several figures the same letters indicate the same parts of the apparatus.

A is a hopper, which is kept supplied, or filled, with the "crude turpentine." In the lower part of this hopper A is located a steam coil, *c*, or worm, and over the top edge of this steam worm or basket *c* is arranged an inclined annular flange or rim, *b*, projecting from the inner face of the hopper A, as shown, in such a manner as to induce the contents of the hopper to descend into the interior of the steam coil or basket *c*. From the extreme bottom of the hopper A extends a neck-piece, B, into which fall and collect sticks or other foreign matter, and which is cleaned out at pleasure through the door or slide *f*; and from near the bottom of said hopper, at one side, extends a tube, *c'*, through which the melted material passes from said hopper to a strainer-chamber, D. This chamber is a simple case or box, of any desirable shape; it is kept heated, as will be presently explained, and is provided with an outlet pipe at E, which connects with the pipe L of the still. In this strainer-chamber D are arranged a steam-heated strainer, F, and one or more other strainers, such as seen at G. The melted material from tube *c'* is discharged into the steamer drum F, which is a hollow disk, steam-heated, and formed with perforations *t t*, through which the material passes down to the next strainer *d*, from which extends a pipe, *c'*, through which the material is conducted to the still. *d* is a scraper or clearer for cleaning off the top of strainer G whenever it gets clogged up with dirt, and *e* is a door or trap through which the foreign matter scraped off of G is removed from the chamber. In the sides of chamber D are windows or openings covered with glass or other transparent material, so that although the chamber D is heat-tight the operator can observe the condition of the strainers, and see to keep them clear. K is the still proper, in which are located the evaporators H I J. These evaporators are simple steam drums, which may be made circular in their contour, as shown, and with concave tops; they are supplied with superheated steam through tubes *q r s*, from a supply steam pipe, P, and each one is formed or supplied with a helically-arranged rib or flange, *m*, in such a manner that the liquid discharged into its upper surface near its periphery must run round and round downward and to the centre, as indicated by the at fig. 2, before it can escape through its centre hole or outlet, seen at *n o p*. 1, 2, 3, are supply tubes, leading from the main pipe *c'*, through which the evaporators are supplied with the material for distillation, and *p* is the discharge pipe, through which the liquid rosin or residuum passes off to any suitable receptacle. In the sides of the still K we propose to have several windows *h i k*, through which the operator can clearly view the evaporators and their operation. In lieu of having the liquid material pass from the upper evaporator through the tube *n*, down into the next, from thence through *o*, to the lower

one, and then off through the tube *p*, there may be a separate discharge tube leading from each evaporator to a separate receptacle for the collection of rosin.

Although we have shown only one strainer, *G*, besides the steam strainer *F*, there may be others located between *F* and *G*; and if deemed expedient there may be a scraper similar to *d* applied to each one of all the strainers used.

The operation of the whole apparatus, the several parts of which I have described, may be thus explained: The "crude turpentine," as it comes from the trees, is supplied to the hopper *A*; the lower portion of the mass of crude material resting within the steam-heated coil or worm *c*. The material is there melted, only, and the melted material flows down through the tube *c* into the steamer chamber, wherein it is discharged into the steam-heated strainer *F*. The coil *c* is hot enough to properly perform the melting operation, but is not so hot as either the steam strainer *F* or the evaporators, because the superheated steam is supplied first to the evaporators, which are required to be very hot; it then passes into the steam strainer *F*, which is not made so hot, and thence into the coil *c*, which is cooler still, and from which the steam is exhausted through the exhaust pipe *y*. The worm *c* not only performs the function of melting the crude material but also partially strains the sticks and coarse foreign matter falling into the neck *B*, from which they are removed, as already explained. As the melted material falls into the steam strainer *F* it is still further rarefied, and passing from thence through the strainer *G*, it descends through the tube *c'* to the evaporators in a purified and heated liquid state. Any products of evaporation that may arise from the contact of the melted material with the steam strainer *F*, pass off through pipe *E* into *L*. When the liquid and purified material passes into the evaporators *H I J*, all the volatile substance is distilled out of it as it flows round and round in the helical gutter formed by the scroll ribs (see *m*, figs. 1 and 2,) and the products of distillation passing off through the tube *L*, are conveyed to a suitable apparatus of condensation where they are converted into pure spirits of turpentine. (We have not shown the condenser in the drawings, as it forms no part of our invention, and we propose to use any apparatus that will effectually and properly condense the vapors.)

It will be understood that if the hopper *A* be kept full of crude material, the feeding and continuous operation of the apparatus will be automatic; the melting and straining-worm being constantly supplied by gravity as the lower portion of the mass is melted and runs off.

It will be seen that in an apparatus constructed and operating as we have described, the crude material will be very thoroughly cleansed of all sand, leaves, etc., before it reaches the still, whereby we are enabled with such an apparatus to produce a full and clear rosin and turpentine spirits, and also a light-colored product, since there is no sand or other foreign matter allowed on the hot surfaces of the evaporators, as is usually the case, to burn, and thus discolor the products.

We do not propose, of course, to limit ourselves to any precise forms of details of the apparatus, as these may be varied as deemed expedient without departing from the spirit of our invention.

Having fully explained our invention so that those skilled in the art can make and use it, what we claim as new, and desire to secure by Letters Patent, is—

Melting the lower portion of the mass of crude material in the bottom of the supply tank or hopper, and there partially straining it, substantially in the manner described and for the purposes set forth.

We also claim the employment within a closed chamber, *D*, of a steam-heated strainer, *F*, constructed and operating substantially as described for the purposes set forth.

We also claim the employment, in combination with the chamber *D* and steam-heated strainer *F*, of one or more auxiliary sieves or strainers, substantially as described.

We also claim the employment, in combination with a strainer confined within a chamber, of a cleaning device or scraper, arranged to be operated from the outside of the said chamber, substantially as described.

We also claim making the strainer-chamber *D* with windows, as and for the purposes specified.

We also claim the employment, within a closed vessel, *K*, of one or more steam-heated disks or evaporators, when formed with a scroll-shaped or helical groove in the passage of the liquid, substantially as described for the purpose set forth.

We also claim forming the still with windows, substantially as described for the purposes set forth.

We also claim supplying the superheated steam directly to the evaporators, carrying it thence to the steam strainer, and lastly to the melting-worm, so as to heat these several devices to different temperatures, as hereinbefore described for the purposes set forth.

We also claim the combination, or combined arrangement, of the supply hopper, melting coil, strainer, and still, with the heating medium, when operating together in substantially the manner hereinbefore described for the purposes set forth.

In testimony whereof we have hereunto set our hands and seals this 28th day of March, 1867.

J. E. WINANTS. [L. S.]  
JNO. F. GRIFFEN. [L. S.]

Witnesses:

W. G. H. ANDERSON,  
ALEX. OSTRANDER.