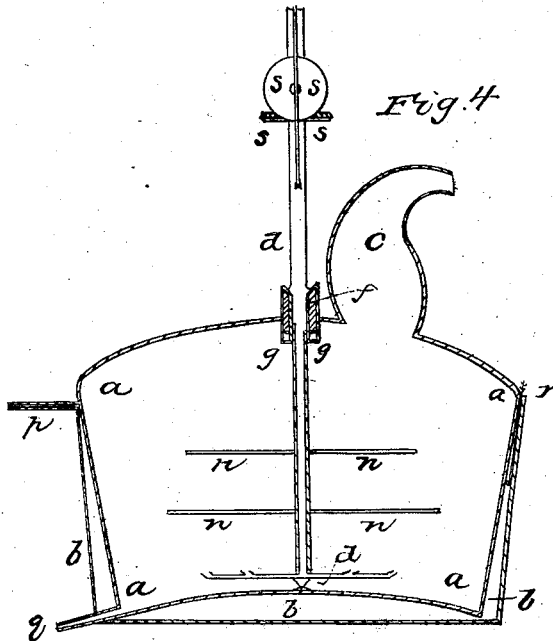
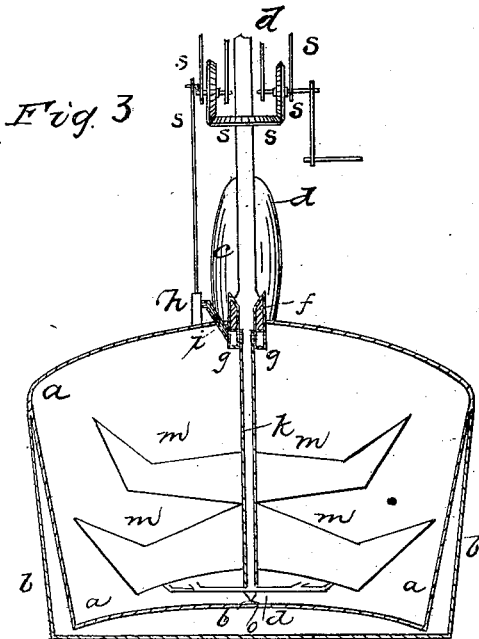
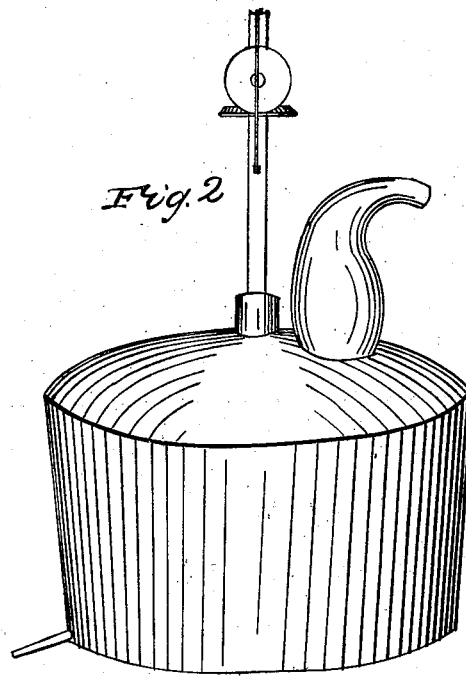
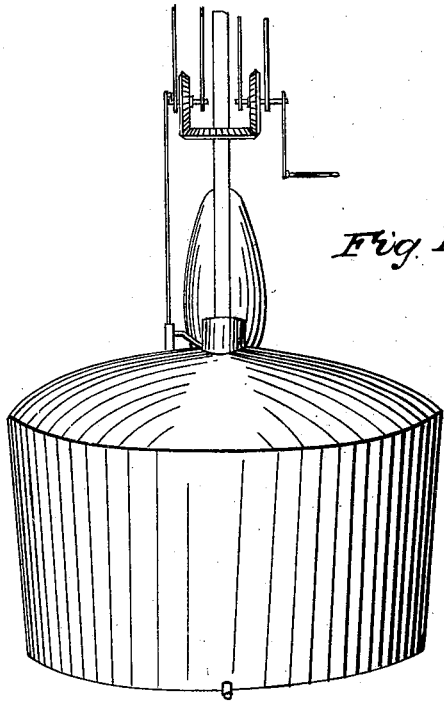


R. F. SMITH.
Turpentine Still.

No. 5,320.

Patented Oct. 2, 1847.



UNITED STATES PATENT OFFICE.

R. F. SMITH, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN DISTILLING TURPENTINE.

Specification forming part of Letters Patent No. 5,320, dated October 2, 1847.

To all whom it may concern:

Be it known that I, R. F. SMITH, of Charleston, in the district of Charleston and State of South Carolina, have invented a new and useful Improvement Applicable to Stills and Evaporating - Vessels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being made to the annexed drawings, making a part of this specification, in which—

Figures 1 and 2 are perspective views, and Figs. 3 and 4 are sections.

a a a a is the still; *b b b*, outer vessel for oil or other liquid bath, fitting close at the rim; *c*, cap of the still, placed not in the middle but to one side of the middle; *d d d*, circular shaft passing through the middle of the still, fitting snugly in the crown-box *f f* on the crown of the still, and resting in socket *O* on the bottom; *g g*, hollow round box attached to the crown-box and encircling shaft; *h*, force-pump to supply this box with water through pipe *i*. *k* is the tube in the shaft, to conduct the water to the bottom of the still, the water passing from the box *g* through a few small holes pierced in that part of shaft working in this box; *m m m m*, screw-shaped arms to the shaft for disturbing the boiling liquid or mass and accelerating the escape of the vapor. Of these there may be one or more.

n n are stays to support these arms; *p*, pipe to carry off from the outer vessel the gas that may form from baths of inflammable substances whenever used; *q*, spout to empty still; *r*, heat-regulator; *s s s s*, gearing to work the shaft and pump, to be fixed as may suit one's convenience.

The nature of my invention consists in providing a machine for accelerating the distillation and evaporation of substances subjected to heat, for saving from burning and discoloration the gaseous and other evaporations, as well as the residues left after these are thrown off, and for the increased safety in the process of distillation, particularly of resinous juices, by checking their rising tendency in the vessels when boiling.

To understand the mode of using my in-

vention, I proceed to describe its operations: The shaft is set in motion when the liquid is about evaporating, and continued so till the vapor is all thrown off. The constant disturbance of the liquid by these revolutions, and the upward direction given to it by the screw-formed arms, will not only prevent it from being burned about the sides and bottom of the still, but will help to liberate the vapor more freely. If the substance in the still inclines to boil over much, increase the revolutions of the shaft, and the boiling will subside. If, as is the case with some substances—say turpentine—at some of its stages of distillation water be required, supply this by the force-pump through the shaft to the bottom of the still. This mode of supply I have found more effectual than letting water on the top, as is now done with turpentine. My experiments have been confined, principally, to the distillation of turpentine. I was enabled to complete the process in about half the time employed by the mode now in use in North Carolina and elsewhere, consuming but half the quantity of fuel. I procured more spirits from the gum than is now obtained by saving the spirits formed about the sides of the vessel nearest the fire from being consumed, as now happens. The rosin left after the evaporation of the spirits is, with proper care, not burned by my process, and bears a greater value in commerce; and not the least important application of my improvement is the increased safety in manufacturing turpentine. According to the present method, no means being used to facilitate the rising of the vapor through the fluid or mass boiling, this is forced up often too high for the capacity of the vessel throwing off the cap of the still and running over into the fire. I found that by an active revolution of the shaft I could subdue this boiling tendency materially. With turpentine alone, then, I have accomplished several important objects—speed in distillation, obtaining more spirits, better rosin, and greater security in the whole process of manufacturing.

My drawings and model have been made with an outer vessel for the purpose of fur-

nishing, by baths, a regular heat, for delicate uses; but I design using the still with or without this.

What I claim as my invention, and desire to secure by Letters Patent, is—

The application of the shaft with its appendages to the distillation of turpentine in the manner described, or any other substan-

tially the same, not confining myself to the form of the stirring apparatus.

Charleston, South Carolina, February 6, 1847.

R. F. SMITH.

Witnesses:

W. H. TURNER,
R. C. SMITH.