

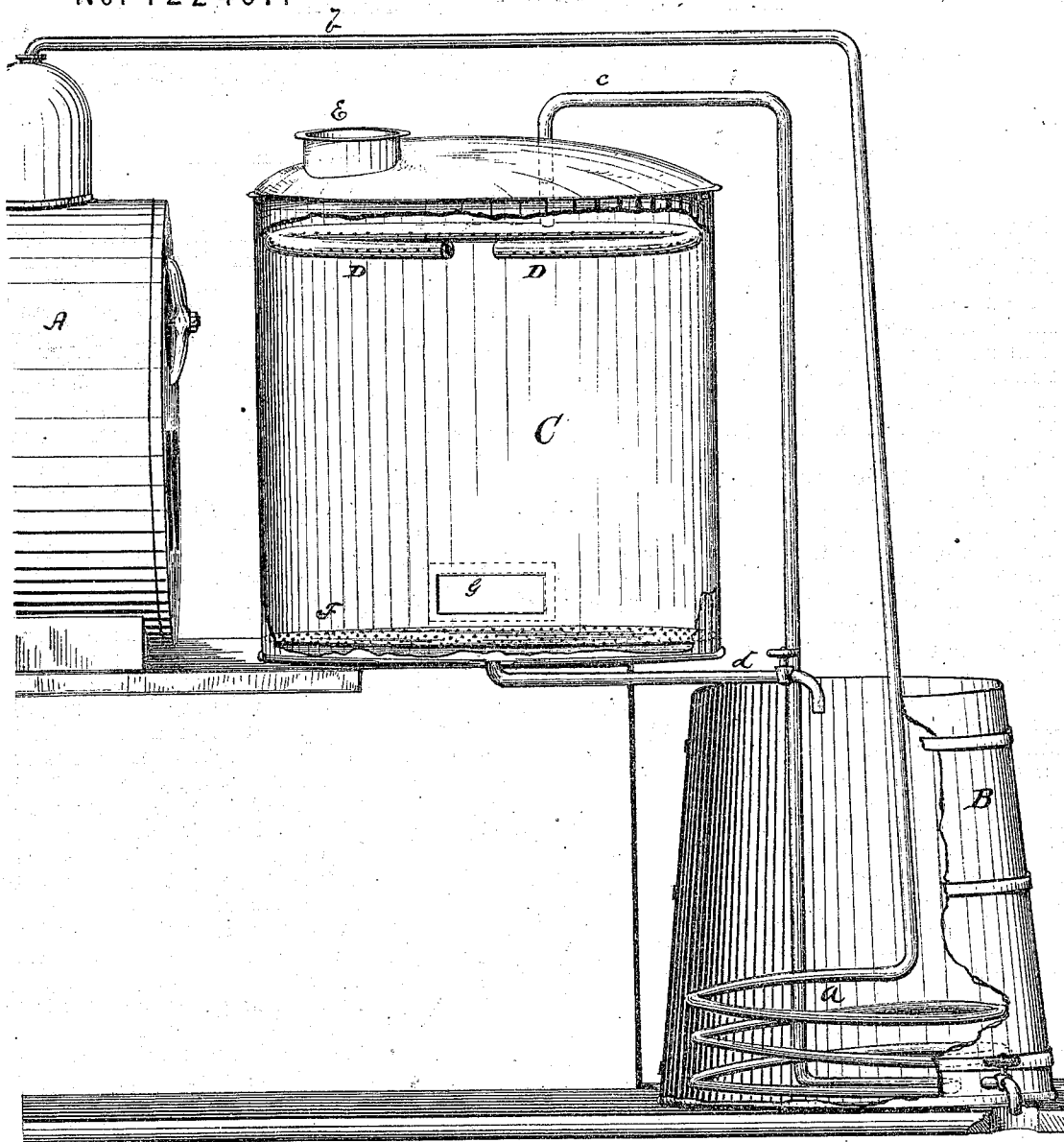
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Improvement in Apparatus for obtaining Extracts from  
Dye Woods.

No. 122467.

Patented Jan. 2, 1872.



WITNESSES.

*Peter A. Hughes*  
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INVENTOR.

*Isaac B. Kirby*

# UNITED STATES PATENT OFFICE.

ISAAC B. KIRBY, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO A. & W. SPRAGUE MANUFACTURING COMPANY.

## IMPROVEMENT IN APPARATUS FOR OBTAINING EXTRACTS FROM DYE-WOODS.

Specification forming part of Letters Patent No. 122,467, dated January 2, 1872.

### *To all whom it may concern:*

Be it known that I, ISAAC B. KIRBY, of the city and county of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Apparatus for Obtaining Extracts from Dye-Woods; and I do hereby declare that the following specification, taken in connection with the drawing making a part of the same, is a full, clear, and exact description thereof.

The object of my invention is to reduce the cost of obtaining dye-wood extracts by utilizing the steam necessary to be employed, as far as possible, in both the operations of digesting the wood and strengthening the specific gravity of the extract. At the same time I claim to obtain a purer extract as incidental to the process embodied in the working of my apparatus.

A represents a boiler, of any preferred construction, suitable for making steam. B is a tank or vat, to be furnished with a coil, *a*, or other suitable radiator, through which steam from the boiler A circulates for evaporating the liquid extract contained in the vat B to the required standard of strength. One end of the coil *a* connects, through the pipe *b*, with the boiler A, and the other end, by means of the pipe *c*, is connected with the interior of the digester C. The pipe *c* within the digester C terminates in a sprinkler, D, which, by preference, is a pipe laid in a flat coil and perforated with holes. The digester, other than as indicated, is not peculiar. It is a strong, close vessel of iron, and is provided with an opening, E, for the introduction of dye-wood, which opening is to be closed by a man-hole plate when the apparatus is in operation. Near the bottom is a strainer, F, and in the side above the strainer is an opening, G, which, upon the removal of a tightly-fitting plate, can be used to remove the spent dye-wood. A pipe, *d*, furnished with a suitable cock, leads from the bot-

tom of the digester C into the vat B, and through which pipe liquid from time to time can be run from the digester into the vat.

It is to be supposed, now, that a proper quantity of cut logwood or other dye-wood chips has been placed in the digester C and the vessel closed. It should also be supposed that the vat is filled to the proper height with the first extract which has been run off from the digester. Steam is now admitted through the pipe-connection *b*. The first effect of the steam is to set into ebullition the liquid in the vat. After it has performed this office it passes through the pipe *c* to the digester, and becoming in its passage mostly condensed into water, is discharged through the sprinkler D in jets over the dye-wood in the digester, and maintains the proper supply of water for obtaining the first dye-wood extract. By this arrangement not only is the full beneficial effect of the fuel required to make the steam obtained, but the water used in the digester becomes, in its passage through the heating-coils *a* and pipe-connection *c d*, greatly purified by distillation, and the value of this is experienced in the superior quality of the extract which is obtained by the process involved in the apparatus described.

I do not claim that there is any novelty in the boiler for generating steam, the digester for obtaining the first extract, or the vat and its heater for strengthening the density of the extract by the process of evaporation; but

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

The combination of the boiler A, a digester, C, and an evaporator, B, by means of the pipe-connections *b c* and heater *a*, arranged to operate together substantially as described.

ISAAC B. KIRBY.

Witnesses:

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