(No Model.)

C. L. KLAUDER.

ENRICHING DYE BATHS WITH DYEING SOLUTIONS.

No. 266,481. Patented Oct. 24, 1882.

Fig. 1.

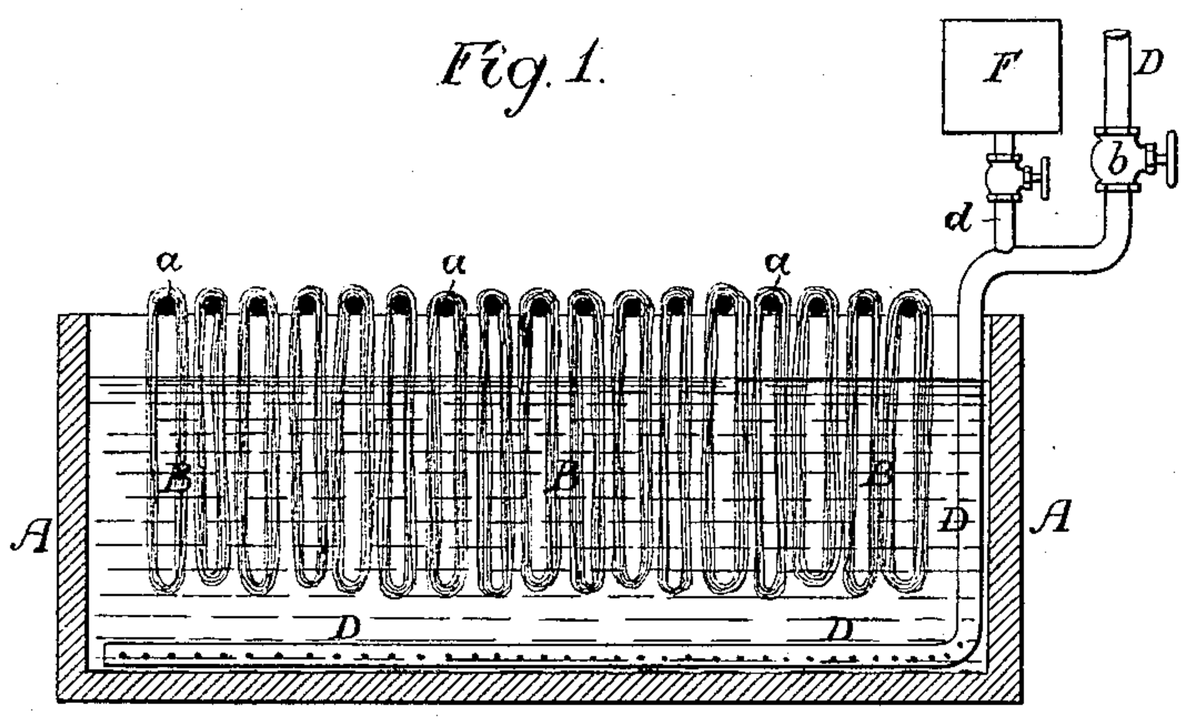
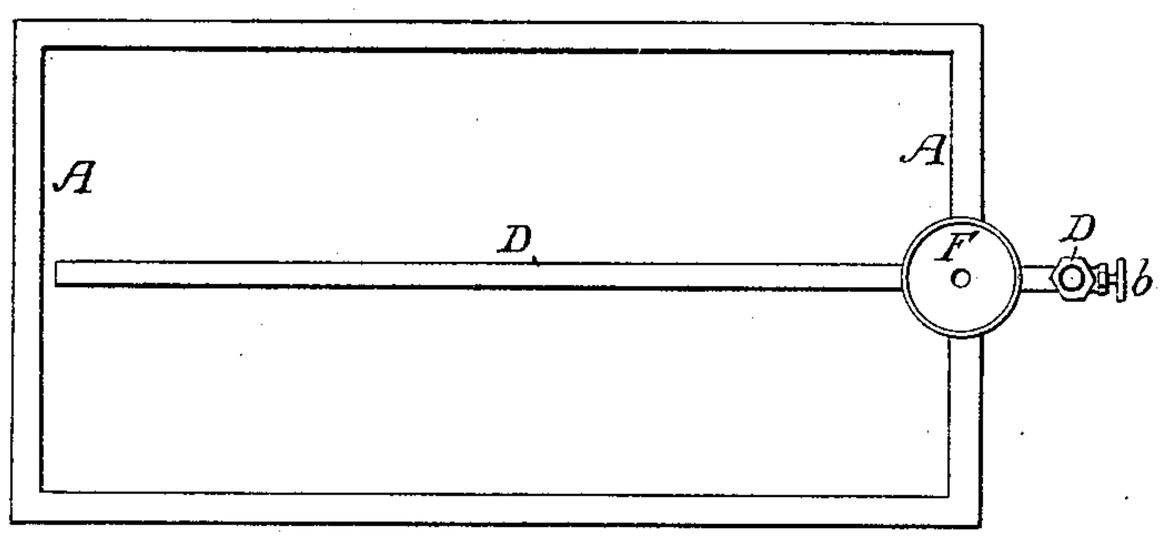


Fig 2.



Witnesses.
James F Jobin
Hamilton Turner.

Inventor:
Charles L. Klauder
by his Attorneys
Howson and Sons

UNITED STATES PATENT OFFICE.

CHARLES L. KLAUDER, OF PHILADELPHIA, PENNSYLVANIA.

ENRICHING DYE-BATHS WITH DYEING SOLUTIONS.

SPECIFICATION forming part of Letters Patent No. 266,481, dated October 24, 1882.

Application filed April 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. KLAUDER, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a Mode of Enriching Dyeing-Baths with Dyeing Solutions, of which the following is a specification.

My invention relates to the operation of dyeing yarn in vats containing steam heating-pipes; and the object of my invention is to enrich the dyeing-bath by the addition thereto at intervals of dyeing solution, in the manner described hereinafter, without resorting to the usual tedious plan of first removing the yarn and then preparing an enriched bath by the usual stirring process.

In the accompanying drawings, Figure 1 is a longitudinal section of a dye-vat with appliances whereby my invention may be carried into effect, and Fig. 2 a plan view.

A is the vat containing the dyeing-liquors in which the hanks B of yarn are suspended from transverse bars *a*, resting on the top of the vat, as usual.

D is the pipe, by which steam is introduced into the dyeing-liquor for maintaining the same at the desired temperature, this pipe being provided with a valve, *b*, and the portion of the pipe which extends along the bottom of the vat having perforations on each side, so that the steam will be discharged laterally and disseminated throughout the contents of the vat. The liquor in the vat must be enriched at intervals by fresh dyeing solution; and the usual plan of doing this has been to first remove the hanks of yarn from the vat, then to introduce the enriching solution, and then to agitate the contents of the vat by suitable implements, so as to effect a thorough admixture of the solution, the removal of the yarn being necessary in order to permit a proper use of the mixing implements. I obviate the necessity of resorting to these tedious operations by so utilizing the steam heating-pipe that the steam is made the vehicle for introducing the enriching solution into the bath at intervals and effecting its desired admixture with the contents of the vat without removing the yarn.

There is a small reservoir, F, for containing the enriching solution, and this communicates through a valved pipe, *d*, with the steam-pipe D at a point above the vat. Excepting at intervals, the valve of the reservoir-pipe is closed and that of the steam-pipe open, so that the dyeing-bath may be maintained at the desired temperature by the injection of steam; but when the bath becomes weak and demands a fresh supply of coloring-matter, the steam-pipe valve is closed and the valve of the reservoir-pipe temporarily opened, so as to permit a limited supply of dyeing solution to enter the vertical portion of the steam-pipe, after which the valve is closed and that of the steam-pipe opened, the steam forcing the coloring solution through the pipe and through the perforations, and so disseminating it throughout the bath that mixing with the ordinary implements is rendered unnecessary.

I claim as my invention—

The mode herein described of enriching steam-heated dyeing-baths with enriching solution, the said mode consisting in first introducing the solution into the steam heating-pipes, and subsequently intermixing the said solution with the liquid in the bath by the steam, as herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. L. KLAUDER.

Witnesses:

HARRY DRURY,

HARRY SMITH.