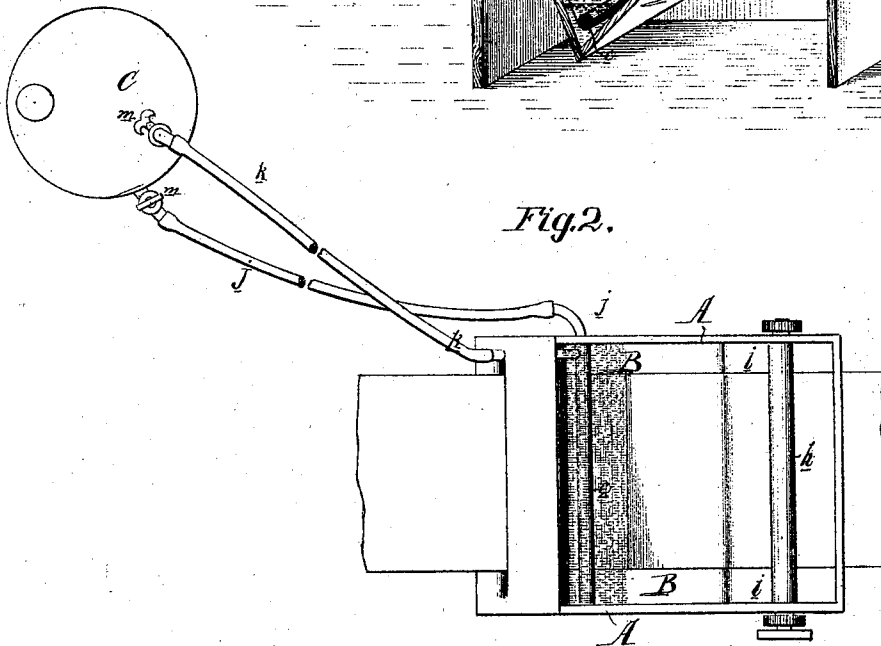
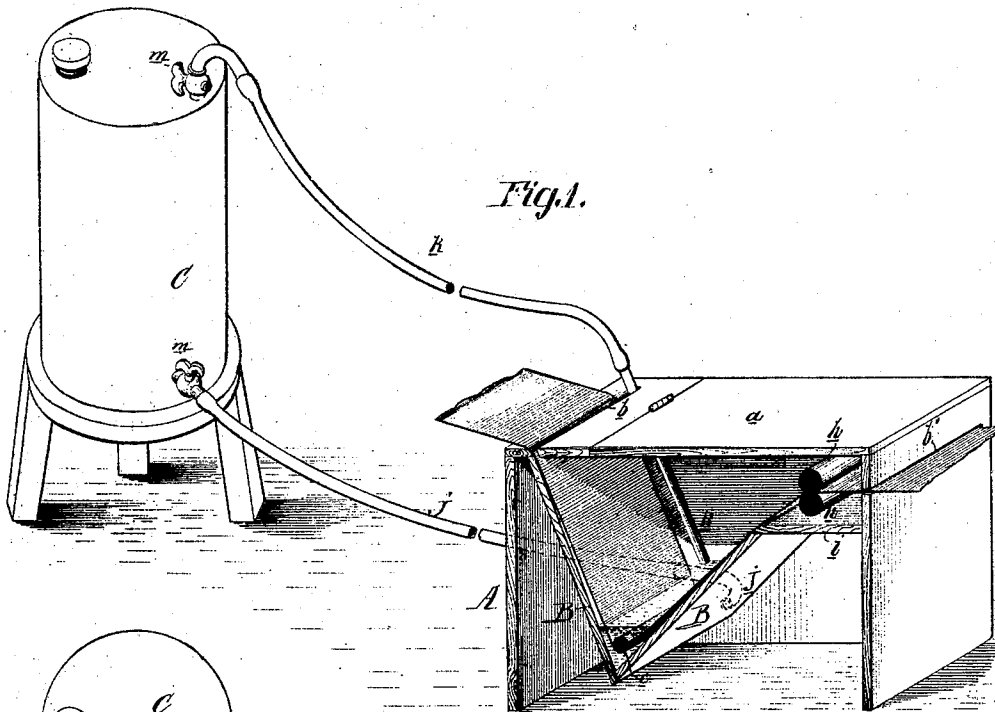


T. M. Brown,
Dyeing Vat.

No. 110,907.

Patented Jan. 10. 1871.



Witnesses { *John Parker*
Thos. M. Brown

Thomas M. Brown
by his Attys
Howson and Son

United States Patent Office.

THOMAS MESSENGER DROWN, OF PHILADELPHIA, PENNSYLVANIA, AS
SIGNOR TO W. A. DROWN, OF SAME PLACE.

Letters Patent No. 110,907, dated January 10, 1871.

IMPROVEMENT IN APPARATUS FOR DYEING FABRICS.

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

I, THOMAS MESSENGER DROWN, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Apparatus for Dyeing or Impregnating Fabrics, of which the following is a specification.

Nature and Object of the Invention.

My invention consists of apparatus, too fully described hereafter to need preliminary explanation, for dyeing or water-proofing fabrics, the main object of my invention being the impregnation of the fabrics without exposing much of the liquid to air and light, thereby preventing the rapid evaporation or deterioration of the liquid, and when the latter is of an inflammable character of preventing accidents from ignition.

Description of the Accompanying Drawing.

Figure 1 is a sectional perspective view of my improved apparatus for dyeing or impregnating fabrics; and

Figure 2, a plan view of the same.

General Description.

A represents a rectangular box provided with a hinged lid, *a*, and containing an angular reservoir, B.

The fabric to be treated is passed through a slit, *b*, in the top of the box, under a roller, *c*, arranged near the bottom of the reservoir, then between pressing and drawing-rollers, *h h*, above the reservoir, and finally through a slit, *b'*, in the front of the box.

The drawing and pressing rollers *h h* are geared together at one or both ends so that they may be operated simultaneously, and are contained within the box above a shelf or partition, *i*, which may be slightly inclined or otherwise arranged in such a manner as to conduct back into the reservoir the superfluous liquid expressed from the fabric in passing between the rollers.

The reservoir is supplied with a sufficient quantity of the liquid, with which the fabric is to be treated, to cover the roller *c*, by a pipe, *j*, which enters the reservoir beneath the said roller and communicates with the lower part of a closed tank, C, arranged at such a height above the said reservoir as to enable the liquid to flow into the same by its own gravity.

A pipe, K, also extends from the top of the said tank into the reservoir, and terminates within the latter at a point coinciding with the desired height of the liquid.

This pipe is designed to supply air to the tank as the liquid flows from the latter through the pipe *j* into the reservoir.

When the liquid rises in the reservoir to a point above the open end of the said pipe *k*, the flow through the pipe *j* must cease until the level of the liquid again

descends so as to enable air to enter the tank. Thus a constant and uniform self-regulating supply of liquid, at any determined level, can be maintained in the reservoir.

Both of the pipes *j* and *k* are furnished with stop-cocks, *m*, so as to enable the supply of liquid to the reservoir and of air to the tank to be cut off at any time; and the said pipes, which can be flexible if desired, may be of any length, according to the position of the tank in respect to the reservoir, which may be placed at a considerable distance from the tank to avoid accidents where the liquids employed are of a light inflammable nature.

The above apparatus has been designed especially for dyeing fabrics with materials which would be injured by exposure to the air or light, and also for impregnating fabrics with substances held in solution in volatile liquids, such, for instance, as spermaceti dissolved in benzine or naphtha for water-proofing purposes.

The advantages of the apparatus for such purposes may be briefly described as follows:

The closed box or vessel prevents deterioration of the liquids employed by direct exposure to air or light, and also prevents the escape of the vapors of volatile liquids.

The arrangement of the pipes in respect to the tank and reservoir prevents unnecessary exposure or loss of liquid by maintaining a sufficient but comparatively small quantity of the latter in the reservoir.

The arrangement of pipes, and the fact that the tank, with which they are connected, can be at any desired distance from the reservoir, also permits benzine and similar inflammable substances to be used with perfect safety.

The arrangement of the drawing and pressing-rollers within the box and above the reservoir also prevents unnecessary loss of liquid, as all of the matter which is expressed from the fabric in passing between the said rollers can flow back into the reservoir.

Claims.

1. A reservoir, containing volatile impregnating material, closed to prevent the evaporation of the said material, but slit at two points to permit the passage through it of a strip of fabric to be impregnated, as set forth.

2. The combination of said reservoir and a tank, *c*, communicating with the reservoir, as described.

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

THOMAS M. DROWN.

Witnesses:

WM. A. STEEL,
FRANKLIN B. RICHARDS.