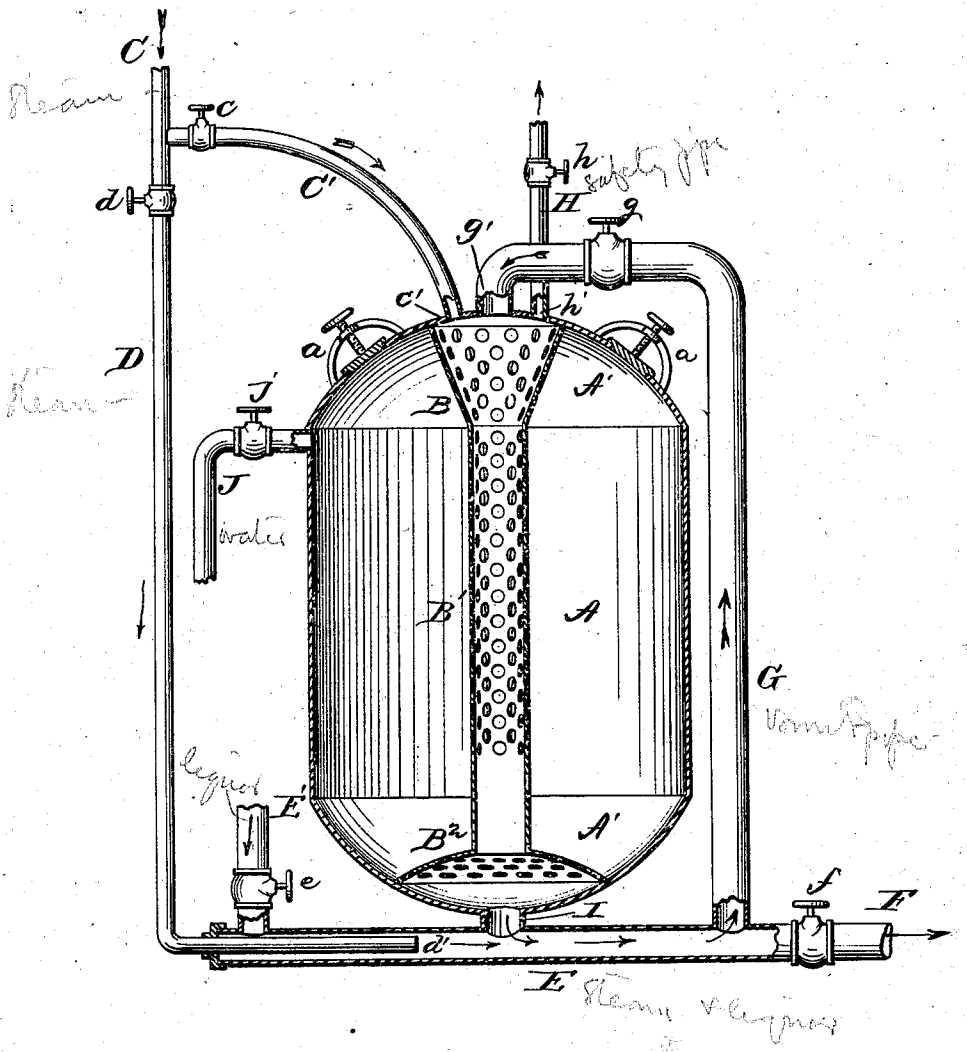
(No Model.)

J. FISH.

Apparatus for Bleaching Cloth.

No. 242,907. Patented June 14, 1881.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES FISH, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO THOMAS HALL AND RICHARD DUGGAN, BOTH OF SAME PLACE.

APPARATUS FOR BLEACHING CLOTH.

SPECIFICATION forming part of Letters Patent No. 242,907, dated June 14, 1881.

Application filed November 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES FISH, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Bleaching Cloths; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to a keir, or machine for bleaching various kinds of cloths, muslins, laces, and the like; and the novelty consists in the construction and arrangement of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claim.

The great and primary object of the invention is to produce a machine or keir which will effectually bleach the fabric without injuring the same, and to that end it is desirable that the liquor and steam should have a regular, steady, and continuous circulation through the vessel and fabric.

It has been heretofore practiced to use duplex vessels, and to force by pressure the liquor out of the bottom of one into the top of another by suitable connections; but in such cases there has been a friction between the cloths and the sides of the vessels, due in the one to the downward pressure to expel the liquor and in the other to the fabric rising with the liquor, and this friction is not only liable to make holes in the finer fabric, but in cases of dyed goods the fabric will have dark spots or patches wherever it has been rubbed. It is therefore desirable that the fabric should be retained in an approximately fixed position. I also find that where the liquor is forced from one keir to another during a great portion of the time the steam is being forced directly upon the cloths without liquor, and this tenders and materially injures the same. I also find that where the liquor falls directly upon the cloths or fabric the same upon the top is tendered and injured before that portion upon the bottom of the keir is properly bleached.

My invention is designed to avoid all these difficulties, to acquire and retain a regular circulation of steam and liquor, to avoid friction, and to prevent the falling liquor or vomit from striking the cloths or fabric.

Referring to the drawing which accompanies this specification and forms a part thereof, the figure is a vertical side elevation, partly in section.

Similar letters of reference indicate like parts.

A represents the body of the keir, having oval extremities A′ A′ and a central longitudinal perforated cylinder, B′, terminating above in a perforated inverted cone, B, and below in a perforated oval disk, B^2, as shown.

C represents the main steam-pipe, connecting with any suitable steam-generator, and C′ a branch thereof, having a stop-valve, *c*, and an outlet, *c′*, into the part B′ of the perforated cylinder B.

Below the junction with the branch pipe C, I will designate the steam-pipe by the letter D, and it is provided with a stop-valve, *d*, and the lower end is inserted into a horizontal steam and liquor pipe, E, having an exit, *d′*, within such pipe at a considerable distance from the point of juncture.

E′ represents the liquor-inlet, having a stop-valve, *e*, and it connects with the steam and liquor pipe E back of the steam-outlet *d′*. F represents the blow-pipe, and *f* the closing-valve.

G represents an ascending vomit-pipe, having a horizontal section, in which is placed a stop-valve, *g*, and a descending section, terminating in an outlet, *g′*, into the part B.

H represents a safety-pipe, having a safety-valve, *h*, and an open connection with the inside of the vessel within the part B.

J represents the water-pipe, and *j* its stop-valve.

a represents the man-hole, by means of which ready access to the vessel is obtained.

At any convenient place in the pipe D or E a steam-gage may be placed, and a glass tube may be placed in the tube G.

The operation of my invention is as follows: The cock *c* is turned, and steam is admitted through the pipe C′ into the keir until the fabric

becomes sufficiently heated, all the other cocks except blow-off *f* being closed. Then close cock *c* and the blow-off *f* and open the liquor-cock *e* and the safety-cock *h*. When sufficient liquor has been forced in the keir close cock *e* and open cock *d*. When the steam-gage indicates a pressure of about fifteen pounds open cock *g*. The force of the steam will produce a constant current, as is obvious.

It will thus be observed that I prevent the cloths and other fabric from rubbing the sides of the vessel, I avoid letting the liquor fall directly upon the fabric, and I inject the steam from top to bottom simultaneously.

I am aware that it is not broadly new to create a continuous circulation through a keir for bleaching purposes, and such construction is not sought to be covered in this application.

I am also aware of English Patent No. 1,904 of 1872, and the construction shown therein is not broadly claimed herein.

What I do claim is—

The bleaching-keir herein described, consisting of the closed vessel A, having perforated cylinder B′, with inverted conical portion B, of sufficient diameter to inclose the inlets and exits *c′ g′ h′*, and the flaring portion B^2, the steam-pipe D *d*, branch pipe C *c*, pipe E, and exit F *f*, the steam-inlet *d′*, pipe G *g*, blow-off H *h*, pipe J *j*, and liquor-pipe E′ *e*, all constructed, arranged, and combined to operate as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES FISH.

Witnesses:

JOHN S. GILE,

THOMAS HALL.