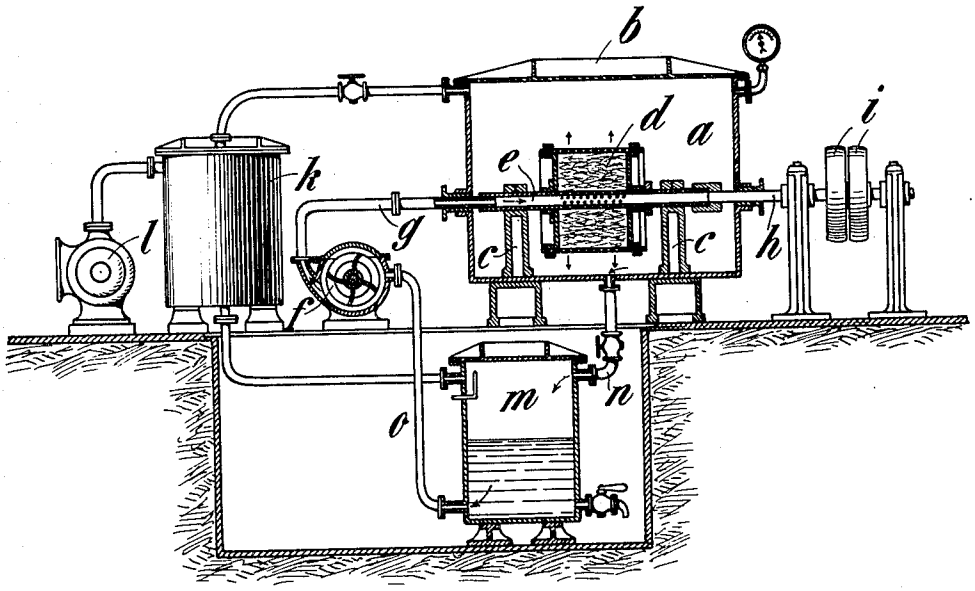
No. 849,635. PATENTED APR. 9, 1907.

J. O. OBERMAIER.

# APPARATUS FOR TREATING TEXTILE FIBERS WITH LIQUIDS AND GASES.

APPLICATION FILED SEPT. 5, 1906.




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# UNITED STATES PATENT OFFICE.

JULIUS OTTO OBERMAIER, OF LAMBRECHT, GERMANY.

## APPARATUS FOR TREATING TEXTILE FIBERS WITH LIQUIDS AND GASES.

No. 849,635. Specification of Letters Patent. Patented April 9, 1907.

Application filed September 5, 1906. Serial No. 333,352.

*To all whom it may concern:*

Be it known that I, JULIUS OTTO OBERMAIER, a subject of the King of Bavaria, residing in the town of Lambrecht, in the Rhenish Palatinate, German Empire, have invented a certain new and useful Improvement in Apparatus for Treating Textile Fibers with Liquids and Gases, of which the following is a specification.

This invention relates to an apparatus for treating textile fibers and fabrics with liquids and gases for dyeing purposes. By means of this apparatus all the operations necessary are carried out in quick, safe, and perfect manner, while the pressure under which the work is performed may be readily controlled.

The accompanying drawing represents a vertical longitudinal section of my improved apparatus.

An outer receptacle *a* is provided with a tightly-fitting cover *b* and incloses two bearings *c*. Within receptacle *a* is contained an inner perforated receptacle *d*, adapted to receive the material to be treated. Receptacle *d* is mounted on a horizontal hollow perforated shaft *e*, supported by bearings *c*. By arranging shaft *e* of receptacle *d* in a horizontal position numerous practical advantages result over a vertically-placed shaft, when receptacle *d* operates as a centrifugal. Shaft *e* is connected at one end to a pump *f* by tube *g*, while its other end is coupled to a power-shaft *h*, carrying pulley *i*. Receptacle *a* is connected with an air-chamber *k* or the air-pump *l* and with the dye-reservoir *m* by means of the tube *n*. When the material-receptacle *d* is therefore properly fitted in the receptacle *a*, the pump *f* is set in motion and drives the prepared liquid from receptacle *m* by means of the tube *e* through the material. The liquid then arrives in the receptacle *a* and flows from here directly through the tube *n* to the dye-reservoir *m*, whence it again begins its circulation—that is to say, it is sucked up by the pump by means of tube *o*.

If the dyeing operation is completed, vessel *d* is rotated by shaft *h* to throw the liquid remaining in said vessel out by centrifugal action. This liquid will enter vessel *a* and flow from said vessel through pipe *n* back into reservoir *m*. By simultaneously operating the air-pump *l* all the above-described operations may be performed either in vacuum or under an excess of pressure.

With my invention it is possible to get along with a small but concentrated quantity of dyeing liquid, because the material to be dyed is not surrounded wholly by the liquid, but lies free. The liquid is always collected in a dye-reservoir which is placed lower than the material-receptacle and may thence be easily sucked off in order to be driven uniformly through the material-receptacle. It is evident that this material-receptacle may be taken off or uncoupled in a very simple manner, while the amount of the driving power necessary is much less than with upright centrifugals. Further, it is possible to carry out the various steps in any desired succession or to repeat them any desired number of times.

What I claim, and desire to secure by Letters Patent of the United States, is—

A dyeing-machine consisting of a material, receptacle *d* mounted on a hollow horizontal shaft and made as a centrifuge situated in a vessel *a* and connected with a pump *f g*, which vessel *a* is connected with a dye-reservoir *m* situated lower than the vessel, as also with a vacuum apparatus *k* by the insertion of connections between the latter, for the purpose of effecting all of the usual operations during the dyeing process with the least possible consumption of liquid in any order of succession and repetition, under pressure as well as under vacuum, without changing the position of the material.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JULIUS OTTO OBERMAIER.

Witnesses:

MICHAEL ZIMMERMANN,

JAKOB FRICH.