No. 662,590. Patented Nov. 27, 1900.

R. BRANDTS.

APPARATUS FOR DYEING, &c.

(Application filed Apr. 2, 1898.)

(No Model.)

Fig. 1.

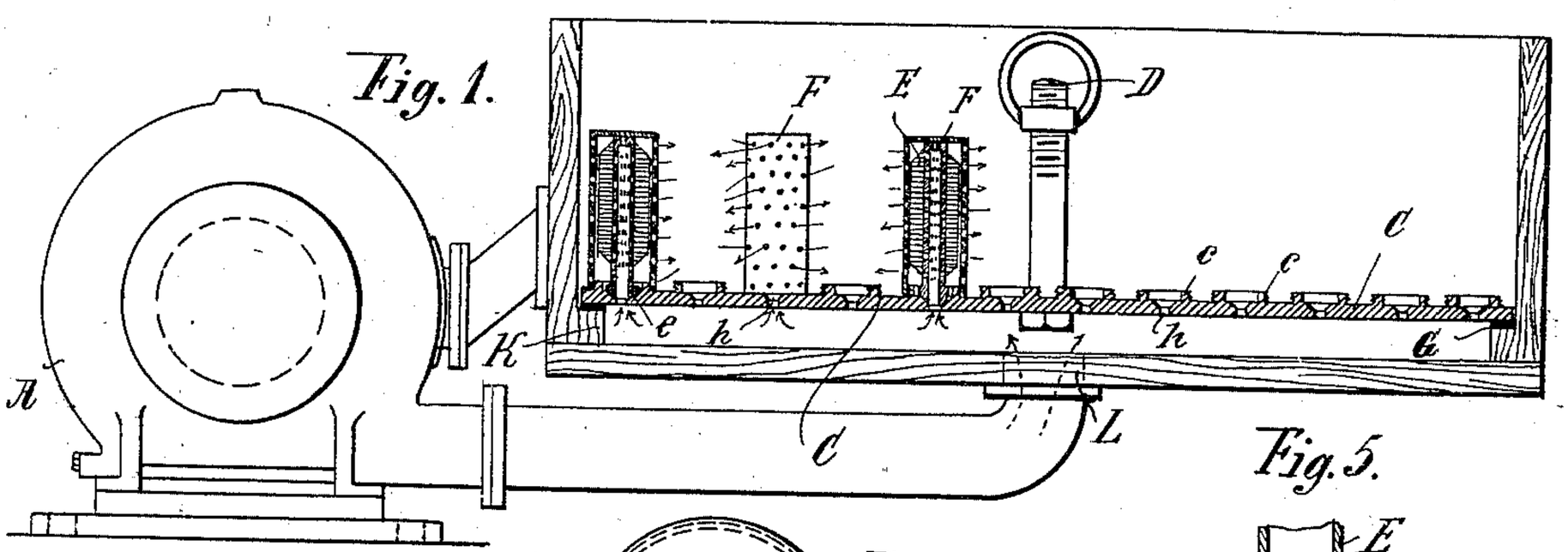


Fig. 5.

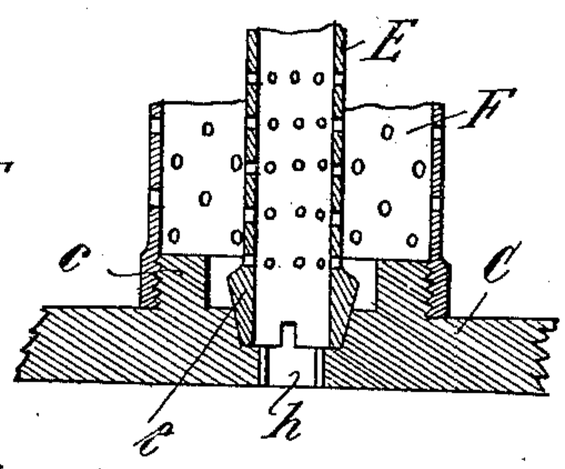


Fig. 2.

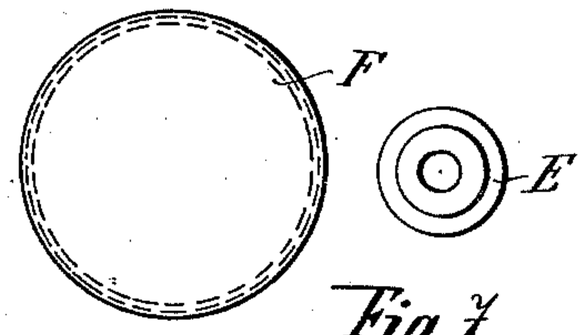
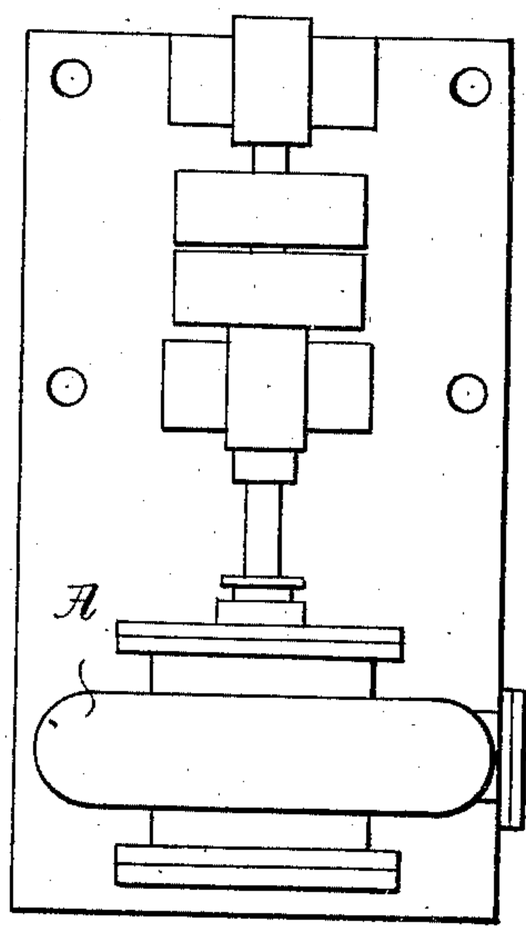


Fig. 6

Fig. 7.



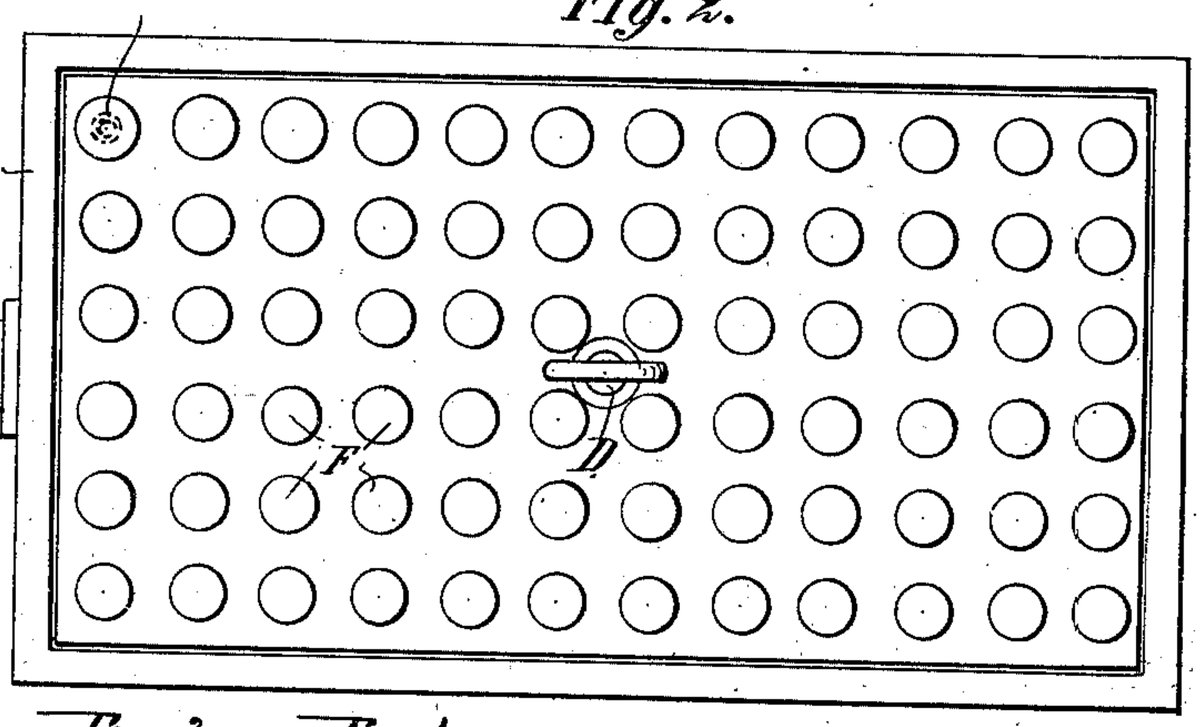


Fig. 3.

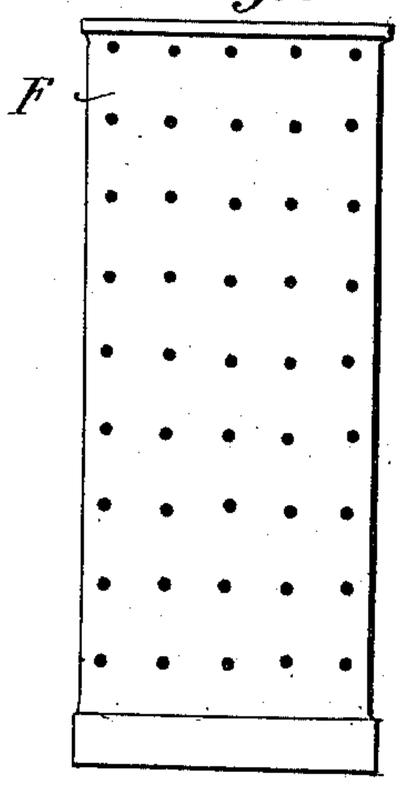
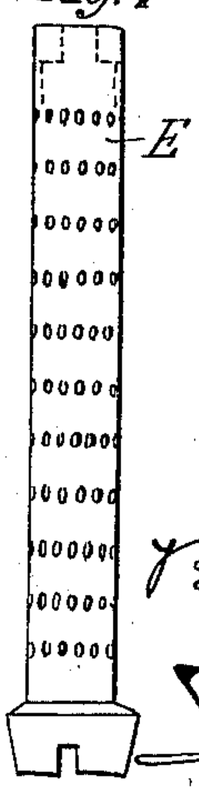


Fig. 4



Witnesses
R. M. Tilly
H. J. Powell.

Inventor
Richard Brandts
By Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

RICHARD BRANDTS, OF MÜNCHEN-GLADBACH, GERMANY.

APPARATUS FOR DYEING, &c.

SPECIFICATION forming part of Letters Patent No. 662,590, dated November 27, 1900.

Application filed April 2, 1898. Serial No. 676,262. (No model.)

To all whom it may concern:

Be it known that I, RICHARD BRANDTS, manufacturer, residing at München-Gladbach, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Apparatus for Dyeing, Bleaching, and otherwise Treating Textile Roving, (for which I have applied for patent in Germany,) of which the following is a specification.

My invention relates to apparatus for dyeing, bleaching, or otherwise treating textile rovings or slubbings with fluids. Apparatus for this purpose has been used heretofore in which the rovings or slubbings are wound upon perforated bobbins, through which the liquid is forced and compelled to pass through the material to be treated. In apparatus of this kind more or less difficulty has been experienced in obtaining a perfectly uniform subjection of the material to the liquid and also in preventing the material from being frayed, tangled, or torn during treatment. In treating such materials in apparatus of this kind with dye liquor the lack of uniformity in the treatment results in spotting the material, which not being of uniform character does not become uniformly saturated throughout with the liquor.

It is the object of my invention to overcome these difficulties and to insure a uniform treatment of the material while at the same time effectively protecting it from injury. This object I attain by inclosing the perforated bobbins upon which the material is wound in casings or shells having small perforations or openings of an aggregate area less than the perforations or openings of the bobbins through which the liquor is forced. These cylinders or casings act to effectively protect the material and to prevent fraying, tangling, or tearing during treatment and by the relative smallness of their perforations retard or throttle the liquor in its outward passage, thereby causing it to remain longer in contact with the material and producing at each bobbin an increased internal pressure, which will cause the liquor to fully permeate the fibers of the material and produce a uniform treatment.

In the accompanying drawings, Figure 1 is a longitudinal vertical section of an apparatus for treating rovings, &c., embodying my invention. Fig. 2 is a plan view of the same. Figs. 3 and 4 are side elevations, enlarged, of the outer casing and bobbins, respectively. Fig. 5 is an enlarged sectional view showing the connection of the bobbin and shell, and Figs. 6 and 7 are top views of the same.

B is a suitable vessel or tank having a false bottom C, which forms a chamber at the bottom of the vessel, communicating through an opening L with a circulating-pump A. The false bottom C is shown resting on supports K, with interposed washers G to form a liquid-tight joint.

E represents the bobbins upon which the material is wound. They consist of perforated cylinders of small diameter open at the bottom and communicating with openings *h* through the bottom C, by which they are carried. I have shown the bobbins provided with conical bases *e*, adapted to conical seats in the bottom C.

F represents the outer casings or shells, which may be made of copper or other suitable material. These casings or shells are of sufficient diameter to fit over the bobbin and the roving wound thereon, as shown in Fig. 1. They are closed at the top and are provided with openings or perforations, of an aggregate area substantially less than that of the openings or perforations of the bobbins. They are supported by the bottom C by a tight joint, as by screwing them to bosses *c* thereon, as shown.

In using the apparatus the bobbins E are wound with the material to be treated and are then placed in the bottom C. The casings F are fastened over them and the liquor is introduced through the passage-way L and passes up through the openings *h* into the interior of the bobbin, whence it passes through the perforations therein and traverses the material. The free escape of the liquor is impeded by the relative smallness of the perforations in the casings or shells F, and as a result there is an increased pressure at each bobbin which acts to force the liquor among the fibers of the material. The location of these pressure-generating shells over each bobbin localizes the pressure and makes it uniform at each bobbin, so that a uniform

treatment is obtained throughout. The shells or casings also effectively protect the material during treatment.

For the purpose of enabling the false bottom C with the casings and bobbins to be easily removed and replaced it may be provided with an upright D, adapted for connection with a suitable lifting device.

The details of construction may be varied without departing from the invention.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In apparatus for treating textile rovings, &c., with liquids, the combination of a base-plate provided with a series of openings for the passage of liquor, a series of hollow perforated bobbins for carrying the material to be treated communicating interiorly with the liquor-openings in said base-plate, and a series of hollow casings inclosing said bobbins and the material carried thereby and provided with openings for the escape of liquor of substantially less aggregate area than that of the openings of the bobbins whereby the escape of the liquor at each bobbin is impeded and an increased pressure is obtained.

2. In apparatus for treating textile rovings, &c., with liquids, the combination of a vessel, a removable base-plate, provided with a series of openings for the passage of liquor, located in said vessel at a distance from the bottom thereof, a series of hollow perforated bobbins for carrying the material to be treated communicating interiorly with the liquor-openings in said base-plate, and a series of hollow casings inclosing said bobbins and the material carried thereby and provided with openings for the escape of liquor of substantially less aggregate area than that of the openings of the bobbins, whereby the escape of the liquor at each bobbin is impeded and an increased pressure is obtained.

3. In apparatus for treating textile rovings, &c., with liquor, the combination with a hollow perforated bobbin, upon which the material to be treated is wound, of the outer closed protecting and pressure-generating cylinder or shell, inclosing said bobbin and having openings for the escape of liquor of substantially less aggregate area than that of the perforations in the bobbin.

4. In apparatus for treating textile rovings, &c., with liquids, the combination of the base C provided with a series of openings *h*, a series of hollow perforated bobbins carried by said base C and communicating interiorly with the openings *h*, and a series of removable perforated casings E supported by said base C and inclosing the bobbins, the aggregate area of the perforations in any casing being less than the aggregate area of the perforations in the inclosed bobbin, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

RICHARD BRANDTS.

Witnesses:
N. T. E. HESS,
WM. PLATT PHELPS.