H. RESCH, Sr.

APPARATUS FOR USE IN DYEING WOUND YARN.

APPLICATION FILED OCT. 5, 1909.

Patented Apr. 18, 1911.

990,064.

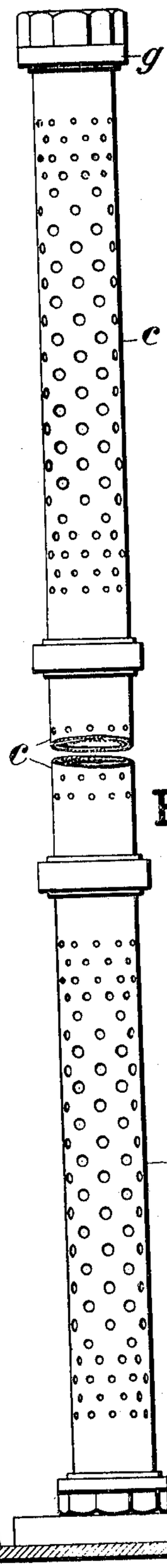


FIG. 1.

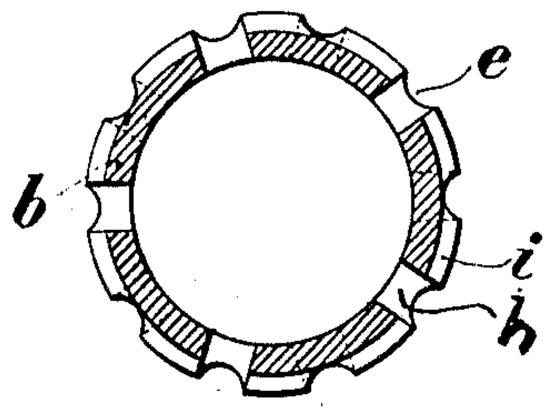


FIG. 3.

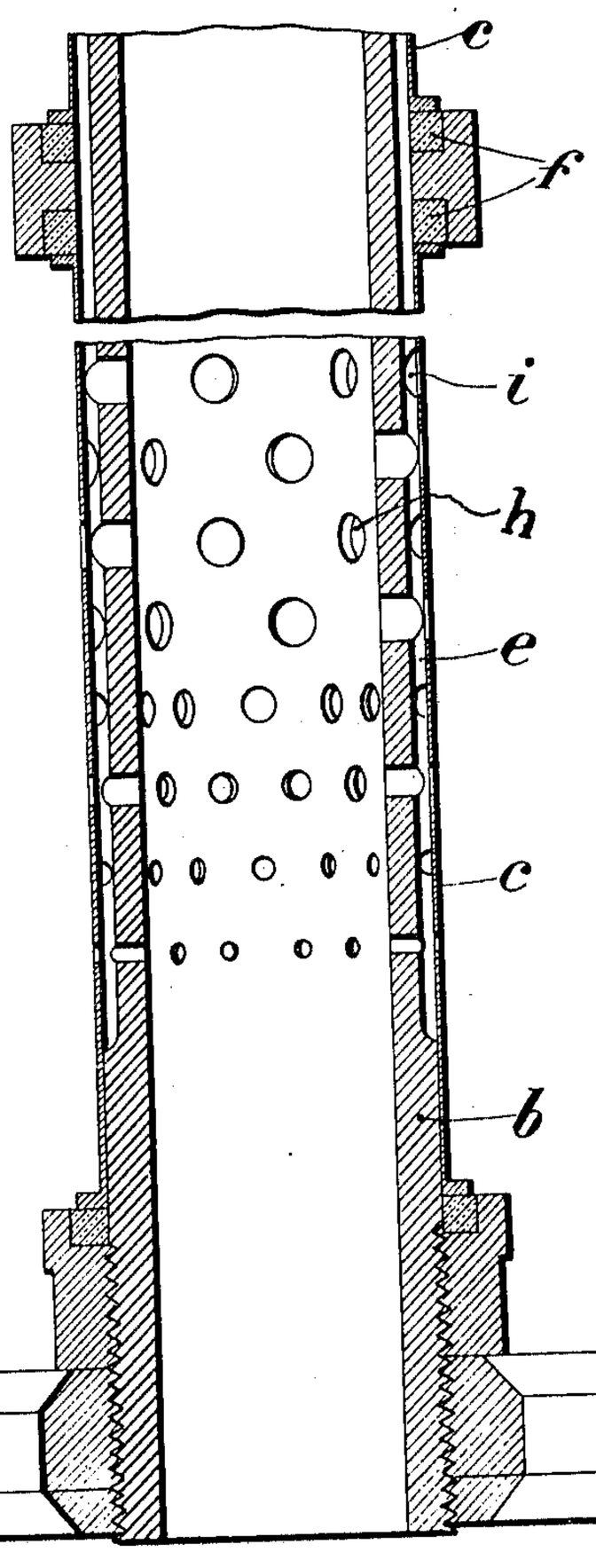


FIG. 2.

Witnesses.
W. Mack Durall.
D. L. Spinato

Inventor
H. Resch, Sr.,
by Fairbanks, Jones & Witherspoon,
his Attorneys.

# UNITED STATES PATENT OFFICE.

HERMANN RESCH, SR., OF LÖRRACH, GERMANY.

## APPARATUS FOR USE IN DYEING WOUND YARN.

990,064. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed October 5, 1909. Serial No. 521,082.

*To all whom it may concern:*

Be it known that I, HERMANN RESCH, Sr., a subject of the Grand Duke of Baden, and resident of Lörrach, Baden, Germany, have invented new and useful Improvements in Apparatus for Use in Dyeing Wound Yarn, of which the following is a full, clear, and exact specification.

Perforated pipes or tubes upon which roving or yarn is wound for dyeing and which are secured on holders in the dye bath are known, as also are forms of perforated spindles on which are secured spools or cops of yarn for dyeing purposes.

My invention consists of a perforated hollow spindle for use in dyeing wound roving or yarn, whereon is secured a spool of yarn or its perforated tube, the said spindle being provided in addition to the perforations, with external longitudinal and transverse grooves. By forming the spindle in this manner it is possible to fit the spool of yarn to be dyed over its entire length close to the spindle and yet obtain a uniform distribution of the dye liquor throughout. Furthermore, owing to the exact fit of the spool the spindle forms a strengthening core for the spool or spools, and affords the necessary support for them even if their tube or shell has a wall of small thickness. In order to prevent the inner layers of yarn from being sucked into the perforations of the yarn carrying tube on the spindle during the dyeing operation, the said tube is preferably provided with a porous covering of web or the like.

In the accompanying drawing, which illustrates this invention, Figure 1 shows a spindle provided with three spools or yarn carrying tubes placed one above the other. Fig. 2 shows a portion of the same in longitudinal section on a larger scale, and Fig. 3 shows a transverse section of Fig. 2.

Into the false bottom *a* of a dye vat is screwed a perforated pipe or hollow spindle *b* which forms the spindle on which the roving or yarn is placed and a number of which pipes or spindles may of course be provided. On this hollow spindle *b* are placed the perforated spools or tubes *c* provided with the yarn and placed one above the other. The said spools or yarn carrying tubes *c* which may be of thin sheet metal have an inner diameter corresponding to the outer diameter of the spindle *b* so that they fit close to the latter and are supported by it, the thick walled spindle *b* forming a strengthening core for the spool or tube *c* and giving it the necessary support. In order to allow for the proper distribution of the dye liquor in spite of the close fit of the spool or tube *c* on the spindle *b*, the said spindle is provided in addition to its perforations *h*, with longitudinal grooves *e* and transverse grooves *i* (Figs. 2 and 3) by means of which a uniform distribution of the bath through the yarn is obtained in all directions and throughout the whole length. A joint is effected between the spools placed above each other by means of packing rings *f*, as shown in Fig. 2, and the spindle *b* is closed at the top by means of a screw cover *g*, as shown in Fig. 1. After removing the spool or tube *c* with the dyed yarn thereon from the spindle *b*, it is advantageous for the purpose of drying in centrifugal apparatus to introduce a wooden core into the spool or yarn carrying tube.

Owing to the spools of yarn carrying tubes *c* being fitted closely on a core spindle or newel during the dyeing they can be made of a very thin wall, so that they are of great lightness, which is of considerable advantage for their fixing on the carrier of fliers.

What I claim is:

1. A hollow column for use in dye vats comprising a hollow perforated spindle, a series of superposed perforated spools carried by said spindle, packing rings connecting said spools, the exterior of said spindle being grooved annularly and axially, said spindle being screw-threaded on its lower end, and an angular cap at the top of said spindle, substantially as described.

2. A hollow column for use in dye vats, comprising a hollow perforated spindle, a

series of superposed perforated spools carried by said spindle, packing rings connecting said spools, the exterior of said spindle being grooved annularly and axially, said spindle having fastening means on its lower end, substantially as described.

In witness whereof I have hereunto signed my name this 18th day of September 1909, in the presence of two subscribing witnesses.

HERMANN RESCH, SENIOR.

Witnesses:
GEORGE GIFFORD,
AMAND BRAUN.