

A. KLUGE.  
 VAT FOR DYEING STRAW AND THE LIKE.  
 APPLICATION FILED OCT. 4, 1913.

1,121,023.

Patented Dec. 15, 1914.

Fig. 1

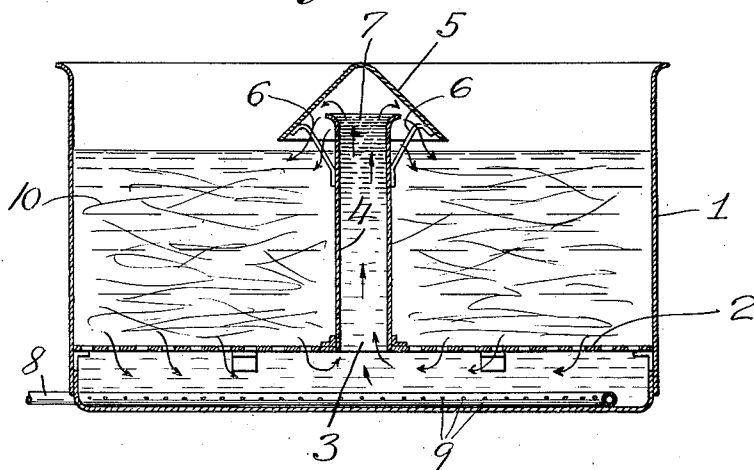
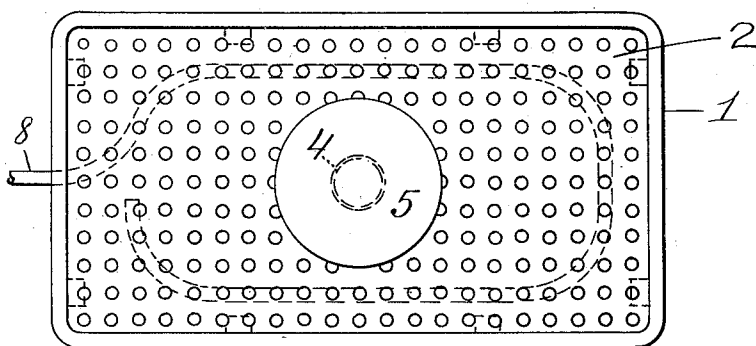


Fig. 2

Witnesses:  
*Wm. B. Randall*  
*Sidney C. Randall*

*August Kluge,*  
 Inventor  
 By his Attorney  
*Henry J. Luecke*

# UNITED STATES PATENT OFFICE.

AUGUST KLUGE, OF BROOKLYN, NEW YORK.

VAT FOR DYEING STRAW AND THE LIKE.

1,121,023.

Specification of Letters Patent.

Patented Dec. 15, 1914.

Application filed October 4, 1913. Serial No. 793,360.

*To all whom it may concern:*

Be it known that I, AUGUST KLUGE, a subject of the Emperor of Germany, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Vats for Dyeing Straw and the like, of which the following is a specification.

This invention relates to vats for dyeing straw, chip and the like, and is specifically directed to fluid operated means for circulating the coloring liquids and other fluids through the straw, or other material, in the vat. In accordance with my invention, the coloring liquor or other fluid is energetically distributed throughout the material to be colored by means of a medium such as steam, as by admitting such heated medium through a perforated coil, whereby the steam sets up an active circulation of the coloring fluid and brings about uniform dyeing of the material.

My invention is more fully set forth in the following description, and in the accompanying drawing, in which—

Figure 1 is a central vertical section of a vat embodying my invention, and Fig. 2 is a plan of the same.

Referring to the drawings, the vat 1 is provided with a raised perforated bottom 2, having a central opening receiving the lower open end 3 of the vertical passage or tube 4. The hood 5 is supported by the spaced arms 6 above the upper open end 7 of the tube 4. The tube 4 is designed to be of sufficient height to extend above the liquid level of the coloring or other liquor in which the straw 10 or other material is submerged. The coil or pipe 8, disposed between the bottom proper of the vat 1 and the raised bottom 2, is provided with nozzles or openings 9 directed, either horizontally or slightly downwardly, toward the center of the vat, causing the coloring liquor to ascend through the tube 4 and emerge out of the upper opening 7 and be spread uniformly by the hood 5 over the top of the straw 10 or other material, while at the same time the steam maintains the coloring liquor at the desired temperature. It will

be clear that the hood 5 also prevents loss of fluids, in case the steam is admitted at excess pressure. If desired, a cover may be placed over the top of the vat 1. It is advantageous to pack the straw tightly in the vat. The vat 1, bottom 2, tube 4 and hood 5 may be made of wood, or the like, or of such metals as copper which are not affected by the fluids employed. It will be understood that the steam or like medium will be controlled by a valve in the pipe 8.

While I have illustrated my invention by one embodiment thereof, it will be clear that many changes and modifications may be made without departing from my invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. The combination with a vat, of a perforated support positioned above the bottom of said vat to form a space between said support and the bottom of said vat, a vertically extending passage having an open upper end and communicating at its lower end with said space, a deflector at said upper end of said vertical passage, and means for producing fluid circulation over a path from said space upwardly through said vertically extending passage, past said deflector and downwardly through said vat back to said space, said circulation-producing means comprising a pipe disposed within said space and extending adjacent the periphery of the bottom of said vat, said pipe having perforations directed toward said lower end of said vertically extending passage.

2. The combination with a vat, of a perforated support positioned above the bottom of said vat to form a space between said support and the bottom of said vat, a vertically extending passage having an open upper end and communicating at its lower end with said space, a deflector at said upper end of said vertical passage, and means for producing fluid circulation over a path from said space upwardly through said vertically extending passage, past said deflector and downwardly through said vat back to said space, said circulation-producing means comprising a pipe substantially parallel and

adjacent to the periphery of the bottom of  
said vat, said pipe having perforations di-  
rected toward the bottom of said vat and  
toward the lower end of said vertically ex-  
5 tending passage.

Signed at Brooklyn in the county of

Kings and State of New York this 2nd day  
of October A. D. 1913.

AUGUST KLUGE.

Witnesses:

SIDNEY C. RANDALL,

HENRY J. LUCKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."