

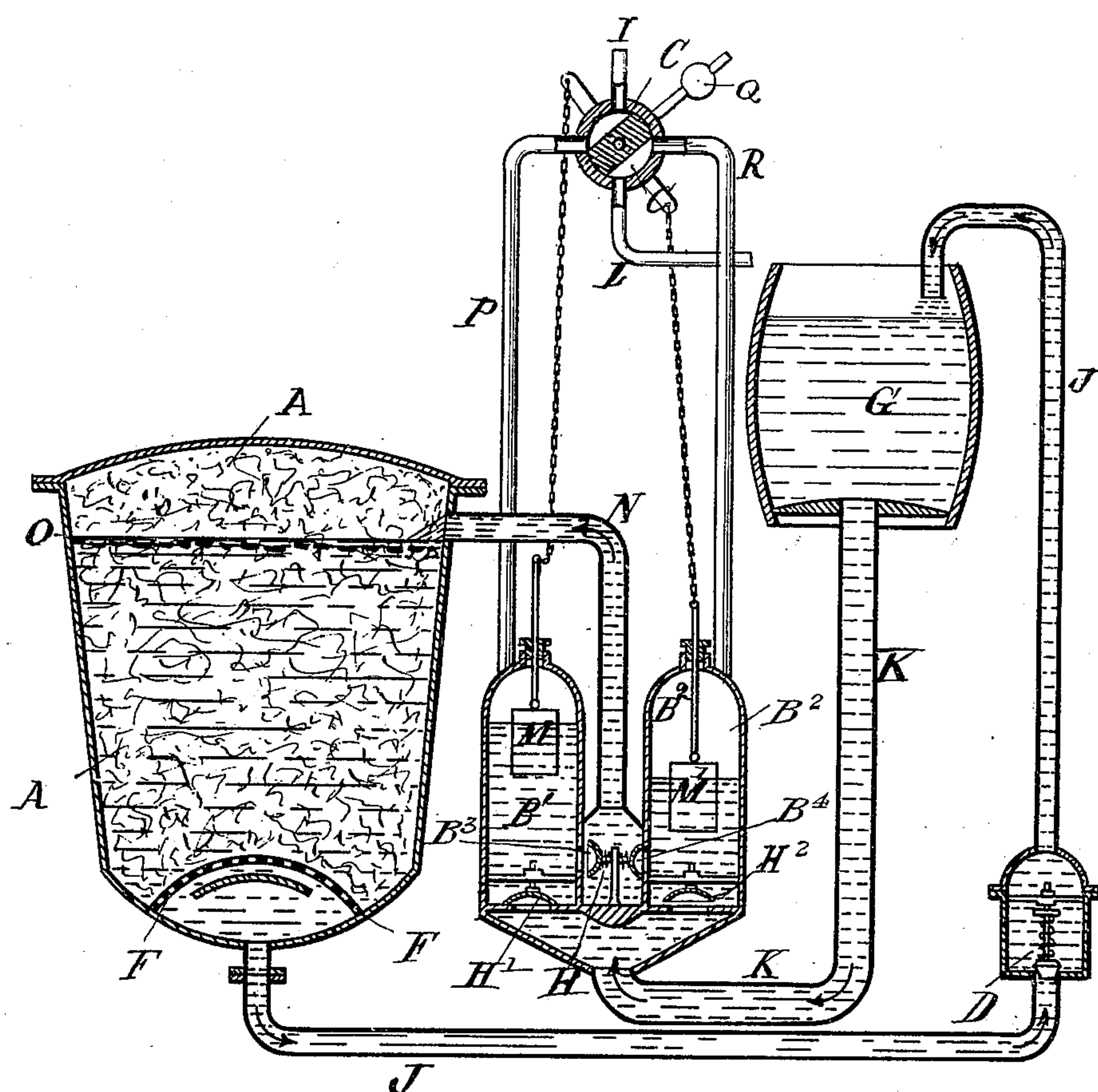
No. 640,203.

Patented Jan. 2, 1900.

H. ILLGEN.  
DYE VAT.

(Application filed Dec. 23, 1897.)

(No Model.)



Witnesses:-  
Hermann Illgen  
Heinrich Neubert

Inventor:-  
Hermann Illgen  
by Gustav W. Koppert  
Attorney



# UNITED STATES PATENT OFFICE.

HERMANN ILLGEN, OF CRIMMITZSCHAU, GERMANY.

## DYE-VAT.

SPECIFICATION forming part of Letters Patent No. 640,203, dated January 2, 1900.

Application filed December 23, 1897. Serial No. 663,222. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN ILLGEN, a subject of the King of Saxony, and a resident of Crimmitzschau, in the Kingdom of Saxony, Germany, have invented certain new and useful Improvements in Dyeing-Vats, of which the following is a full, clear, and exact description.

The present invention relates to dyeing-vats, either for producing the dyeing liquor from chips or for dyeing fabrics, and it relates more particularly to that class of apparatus in which the circulation of the liquor is kept up by pressure applied to certain liquor-receptacles, a pair of which are employed, and each member of the pair is alternately brought into direct communication with the source of actuating pressure. The liquor passes from a reservoir through one of the pressure-chambers to the vat, through which it is forced by pressure, then along another pipe, and back to the receptacle for reuse. During this process and at the moment when the pressure is changed from one receptacle to the other in alternating the pressure in the vat will be cut off momentarily, and at this moment a spring-valve arranged in the pipe system leading from the vat back to the receptacle closes under the influence of its spring and causes a slight backflow, which is just sufficient to cause a short backflow of the liquor through the sieve in the bottom of the vat, and thus to clean the said sieve.

In order to render the present specification more easily intelligible, reference is had to the accompanying drawing, in which similar letters of reference denote similar parts.

The liquor coming from receptacle G flows along pipe K to a chamber common to both the receptacles B' and B<sup>2</sup> and communicating with each receptacle by means of an inwardly-opening valve H' and H<sup>2</sup>. Pressure derived from any suitable source is fed to the cock through pipe I and alternately applied to one or other of the chambers B' B<sup>2</sup> through the four-way cock C and the liquor forced out thereby through one of the valves B<sup>3</sup> B<sup>4</sup> into H and thence along pipe N to the vat A. It then passes through the upper sieve O down through the material in the vat and out at the lower sieve F, along the pipe J, past the spring-

pressed valve D, and back along J into the receptacle or reservoir G. Each of the chambers B' B<sup>2</sup> is provided with a float M M', attached by means of a chain to the handles of the cock C, and the valves B<sup>3</sup> and B<sup>4</sup> are spring-closed and are opened by the pressure fed to their respective chambers.

The device operates in the following manner: The liquor coming from G is not under pressure, but flows by gravity through the valve H<sup>2</sup> (open) into the chamber B<sup>2</sup>, the valve B<sup>4</sup> of which is closed. The position of the plug as shown at this time is such that the upper part of the chamber B<sup>2</sup> is in communication with the open air through pipe R and the plug of said cock. The cock is, however, simultaneously supplying pressure coming from I along the pipe P to the chamber B', and the liquor in the same keeps the valve H' closed and is simultaneously forced out through the valve B<sup>3</sup> into the chamber H and thence along N to the vat A, from this along J through the spring-valve D, and back to the reservoir G. As soon as all the liquor has been forced out of chamber B' the float M in the same in sinking will pull the handle of the cock C over, thus reversing the cock and placing the said chamber in communication with the outer air and supplying pressure to the chamber B<sup>2</sup>, which has been refilled in the meantime. This causes the valve H<sup>2</sup> to close, and the valve B<sup>4</sup> will now be opened by the interior pressure in B<sup>2</sup>, so that liquor will now pass to the vat from B<sup>2</sup>. Now just at the moment of changing the chambers B' B<sup>2</sup> the vat A will be relieved of pressure altogether for an instant, and at this moment the valve D closes under the influence of its spring, creating a short back current in the liquor which is driven back through the sieves F and O, and this slight back current serves to clean the sieves. This is the object of the invention.

I claim as my invention—

In an apparatus for dyeing or producing dyeing liquor, having a vat with sieves, a pair of pressure-chambers and means for feeding liquor from the said chambers, under pressure, alternately, to the said vat, and a pipe system leading from the liquor-reservoir to the said pressure-chambers and from the vat

back to the said reservoir, as specified, the combination of a spring-pressed valve D arranged in the pipe leading from the vat back to the reservoir and adapted to close suddenly  
5 when the vat is momentarily relieved of pressure in the manner and for the purpose substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMANN ILLGEN.

Witnesses:

HERM. LAUK,  
RUDOLPH FRICKE.