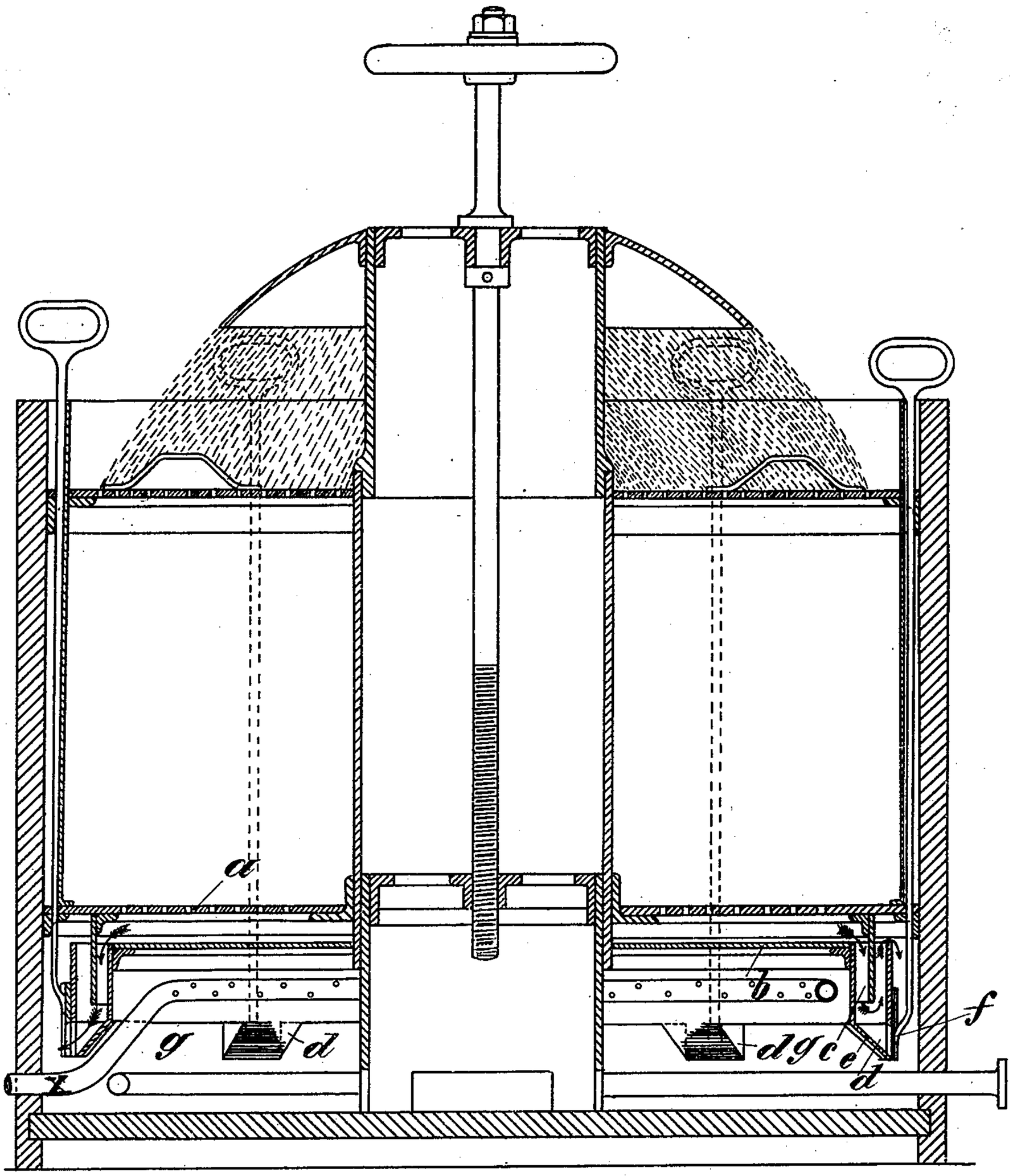
No. 665,646. Patented Jan. 8, 1901.

A. URBAN.

DYE VAT.

(Application filed May 20, 1899.)

(No Model.)



Attest
Walter Donaldson
F. L. Middleton

Inventor
Adolf Urban
by Richards & Co
Attys

UNITED STATES PATENT OFFICE.

ADOLF URBAN, OF SAGAN, GERMANY.

DYE-VAT.

SPECIFICATION forming part of Letters Patent No. 665,646, dated January 8, 1901.

Application filed May 20, 1899. Serial No. 717,601. (No model.)

To all whom it may concern:

Be it known that I, ADOLF URBAN, of Sagan, in the Province of Silesia, German Empire, have invented some new and useful Improvements in Dyeing Apparatus, of which the following is a full and clear description.

The subject of the present invention is a dyeing apparatus, as represented in the accompanying drawing in transverse section.

This apparatus is characterized by the arrangement of a water seal in the chamber underneath the perforated bottom *a*, (the dye bath or vat.) This water seal shall fill the purpose that the steam generating from the boiling dye in the dye bath or reservoir cannot reach the stuff to be dyed, and, furthermore, the regular operation of the apparatus shall be maintained thereby independently of the texture of the material to be dyed. Below the perforated bottom *a* a bottom *b* is arranged in the dye-vat, said bottom being provided with a groove *c* around the same. This groove *c* has at the bottom a suitable number of hollows *d* with a slanting side wall *e*. These pocket-like hollows are closed at their outward sides by slides *f*, which can be inserted from above. A cylinder *g* passes from the perforated sieve-bottom *a* into the groove *e*, but this cylinder ends at a determined distance above the bottom of the groove. Through a perforated pipe X steam can reach the dye-bath located in the space under the perforated bottom *a*, and thus bring the dye liquor to boiling. The boiling liquor will rise through the central pipe and flow over the upper sieve-bottom, whereafter it can pass through the holes of this bottom to the material laid in between this perforated bottom and the lower bottom *a*. The liquor must pass through the lower perforated bottom *a* in order to return to the dye-vat. As long as the slides *f* are closed the dye liquor must pass the water seal in the arrow direction on the left side of the drawing, but it will descend directly without rising again in the arrow direction on the left side of the figure as soon as the slides *f* are raised. As long as the slides *f* are closed the groove *c* remains filled with dye liquor, and thereby the steam is prevented from direct access to the material located over the perforated bottom *a*. If the material to be dyed is laid in loosely in an apparatus of this kind and if no water seal would be provided as in the present instance, the resistance against ascent encountered by the dye liquor in the material would be less than the resistance encountered by the dye liquor in the central passage-pipe. As a consequence the liquor would not rise in the central passage-pipe when the material is piled in loosely, but it would enter into the material to be dyed from below, so that a circulation of the liquor in the apparatus would not be possible. The water seal as used in the present instance allows, though, to pile the dyeing material quite loosely upon the perforated bottom *a*, and it yet prevents the direct access of the liquor into the goods from below, as the water seal renders difficult the access of the liquor to the material.

By opening the slides *f*, as mentioned heretofore, the water locking is made inactive, and this becomes feasible when the material to be dyed is packed closely enough between the two perforated bottoms. Thus the process will operate in wool stuffs and other materials, which are easily permeable with the water shut off, while with cotton this device can be left inoperative.

I claim—

1. In a dyeing apparatus the combination with a vat having a central passage-pipe, a steam-pipe in the bottom of the vat, a perforated top and false bottom in said vat and a partition having a water seal between said false bottom and the bottom of the vat, substantially as described.

2. In a dying apparatus, the combination of a vat having a central passage-pipe, two bottoms, one of which is perforated and a water seal with slides *f* for opening and closing the water seal in the manner described and for the purpose named.

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

ADOLF URBAN.

Witnesses:
RUDOLF FUIP,
WILHELM WEIDNER.