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2 SHEETS—SHEET 1.

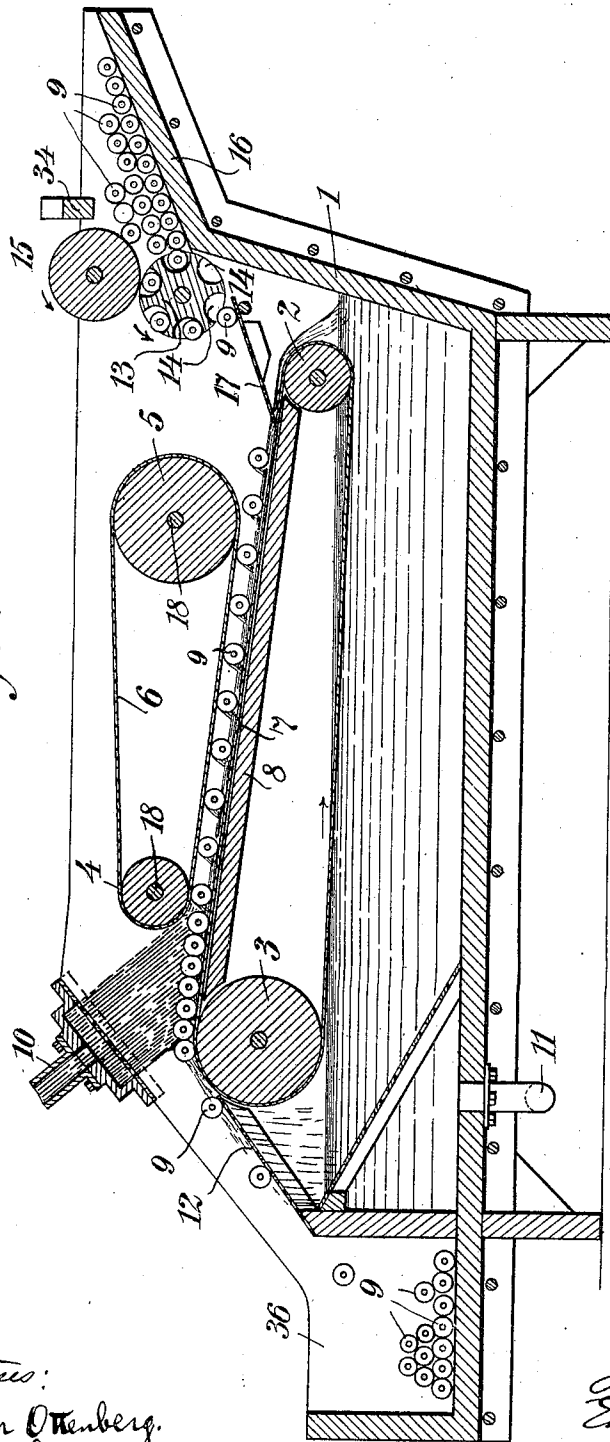


Fig. 1.

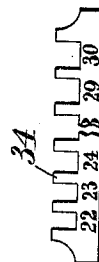
Witnesses:
Milton Ottenberg.
Cyril S. Brown.

Inventor:
Edward Herzog
Freeman Watson & Carl
Attygo

APPARATUS FOR WASHING OR DYEING COPS OR SIMILAR ARTICLES.
APPLICATION FILED MAR. 30, 1910.

Patented Aug. 1, 1911.

2 SHEETS--SHEET 2.



Witnesses:
Milton Odenberg.
Cyril S. Brown.

Inventor:
Edward Herzog
by Walter Freeman, Walter Cort
Attys.

UNITED STATES PATENT OFFICE.

EDUARD HERZOG, OF ERLACH, AUSTRIA-HUNGARY.

APPARATUS FOR WASHING OR DYEING COPS OR SIMILAR ARTICLES.

999,499.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed March 30, 1910. Serial No. 552,467.

To all whom it may concern:

Be it known that I, EDUARD HERZOG, a subject of the Emperor of Austria-Hungary, residing at Erlach, Lower Austria, in the Empire of Austria-Hungary, have invented a new and useful Apparatus for Washing or Dyeing Cops or Similar Articles, of which the following is a specification.

In order to properly prepare cops or similar articles for certain purposes it is necessary that they be thoroughly washed. Heretofore it has been customary to effect this washing by manipulating the articles by hand in suitable liquid, but such procedure is objectionable not only because of the amount of time consumed and consequent expense involved, but also because the material of the cops is liable to be damaged unless considerable skill is employed. Even when skilled labor is employed in such hand washing it is quite difficult to thoroughly clean the cops, although the water employed for washing may have been purified.

The object of the present invention is to provide an apparatus by which dirt or other extraneous matter can be thoroughly and readily removed from cops or similar articles without damaging the material at all. The apparatus may also be employed for dyeing such articles or otherwise treating them with suitable liquid.

In the accompanying drawings,—Figure 1 is a vertical sectional view through an apparatus constructed in accordance with the present invention; Fig. 2 is a side elevation of such apparatus; and Fig. 3 is a detail view.

Referring to the drawings, it will be seen that the apparatus comprises a tank or receptacle 1 within which are mounted two endless belts or aprons 7, 6, mounted respectively upon supporting drums 2, 3 and 4, 5. The said belts are arranged one above the other, the lower belt, which acts as the conveyer or carrier for the articles to be treated, being preferably of greater length than the upper belt 6, which is the means employed for rotating the several articles as they are carried through the apparatus. Preferably the upper run of the lower belt is supported by a suitable inclined surface 8, and the lower run of such belt passes through the body of water or other liquid collected in the lower portion of the receptacle. Said

belts are driven by suitable mechanism, the parts of which are so arranged that the supporting drums for the belts turn in the same direction, and the lower belt travels at a greater speed than the upper one. By this arrangement the cops or other articles 9 will be rotated as they are moved through the space separating said belts, the width or height of such space being substantially that of the diameter of said articles. While passing through the space separating said belts the articles are subjected to the action of a stream of water or other liquid delivered from a supply pipe 10. At one end the receptacle is provided with an inclined support 16 constituting a hopper in which the cops or other articles 9 to be treated can be initially deposited. It is desirable that the articles be spaced apart or arranged in a longitudinally separated series upon the carrier belt 7, and to automatically insure such an arrangement of said articles a revolving selector drum 13 is mounted within the receptacle adjacent the mouth or lower end of the supply hopper. This drum is provided with a series of peripheral pockets 14 each being of such depth and width as to admit but a single cop although the length of the cylinder and of the pockets therein may be such that a series of cops can be received in each pocket, being arranged therein end to end. To prevent more than a single cop or row of cops being withdrawn from the hopper by any of the pockets in the selector 13, a second roll 15 traveling somewhat faster than the roll or cylinder 13 is mounted above the latter. As the drum 13 revolves the cops are discharged therefrom onto an inclined guide 17 by which they are conducted to the conveyer belt 7, and after being discharged from said conveyer the cops pass across an inclined screen 12 permitting any water escaping therefrom to return to the main receptacle. The articles which have been cleaned or otherwise treated in the apparatus are collected within a suitable receptacle 36.

In order that the apparatus may be adapted for treating cops of different diameters, means are provided whereby the width or height of the space separating the belts 6, 7, may be varied. As shown, the shafts 18 of the supporting rolls for the upper belt are

carried by arms 19, 20 pivotally connected as at 21 with side walls of the receptacle; and such shaft supporting arms are connected by a joint 37 so that they may be simultaneously moved. A hand lever 25 bearing an eccentric 24 and cooperating with a toothed segment 26 is shown for rocking the levers 19, 20 and thereby bodily moving the upper belt 6 toward or from the lower belt. The said lever is connected with the shaft supporting lever 20 by a link 22 having at one end a ring 23 to receive the aforesaid eccentric 24. By means of a slotted portion 27 on the lever 19 and a nut 28 on a pin projecting through said slot, the levers 19, 20 and upper belt 16 can be secured in any desired position. In order that the tension of the upper belt may be properly maintained, the levers 19, 20, are preferably each made in two sections connected by adjusting screws 32. For adjusting the tension of the lower belt the shaft 29 for the supporting roll 3 may be mounted in bearing blocks 30 which are supported by guides 31 and adapted to be adjusted longitudinally thereof by suitable screws 32. A guide 34 may be employed to enable the operator to determine the amount of adjustment to be given the upper belt 6 so that the space separating the belts will be that of the diameter of the articles to be treated.

A waste pipe 11 is provided for withdrawing liquid from the receptacle.

The operation of the apparatus will be readily understood from the foregoing description and the drawings.

It will be seen that the cops or similar articles will be thoroughly and uniformly rubbed while being rotated in the liquid passing through the space operating the belts, and that the liquid will be caused to penetrate and act uniformly upon the entire body of the article.

Having thus described the invention, what is claimed is:

1. In an apparatus for the purpose described, the combination of a traveling support for articles to be treated, means for rotating such articles while they are traveling with said support, and means for causing liquid to flow over the support in a direction opposite that in which the articles move.

2. In an apparatus for the purpose described, the combination of means for supporting articles to be treated, and transporting the same through a body of liquid, means for delivering the articles to said traveling support so that they will be held thereon in a longitudinally separated series, and means for rotating the articles while traveling with said support.

3. In an apparatus for the purpose described, the combination of an endless carrier for articles to be treated, means for

causing liquid to flow over said carrier in the path of the articles mounted thereon, and means above the carrier adapted to contact with the articles supported thereby to rotate the same.

4. In an apparatus for the purpose described, the combination of two endless belts arranged one above the other, the space between the adjacent surfaces of said belts being equal to the diameter of the articles to be treated, means for delivering articles to the lower belt, and means for causing liquid to flow through the space separating said belts.

5. In an apparatus for the purpose described, the combination of two endless belts arranged one above the other, means for varying the height of the space between the adjacent runs of said belts to permit articles of different sizes to pass therethrough, and means for causing liquid to flow through said space in a direction opposite that in which the articles being treated travel.

6. In an apparatus for the purpose described, the combination of an endless belt or carrier adapted to support the articles to be treated, means for causing liquid to flow over the upper surface of said belt in a direction opposite to that in which the belt travels, and means for rotating articles supported by said belt.

7. In an apparatus for the purpose described, the combination of an endless belt or carrier, a hopper or support for articles to be treated, means for successively removing the articles from the hopper and delivering the same to said belt, means for causing liquid to flow over the operative surface of the belt in a direction opposite that in which the belt travels, and means for rotating the articles supported by the belt.

8. In an apparatus for the purpose described, the combination with an endless belt or carrier adapted to move articles to be treated through a body of liquid, a hopper or support for the articles to be treated, and a revoluble selecting device provided with peripheral pockets arranged adjacent the mouth of said hopper and adapted to successively receive articles therefrom and deliver the same to the belt.

9. In an apparatus for the purpose described, the combination of a liquid tank or receptacle, an endless belt or carrier mounted therein, a hopper or means for supporting a series of articles to be treated at one end of the tank, a drum or cylinder extending across the mouth of said hopper and provided with a series of peripheral pockets, a second drum or cylinder mounted above that aforesaid and adapted to prevent any article being withdrawn from the hopper unless contained within one of said pockets.

10. In an apparatus for the purpose described, the combination of a liquid tank or

receptacle, an endless carrier or support mounted therein, a hopper or support for articles to be treated at one end of the tank, means for withdrawing articles from such hopper and delivering the same to the belt, means for causing a stream of liquid to flow over the belt in a direction opposite that in which the articles are moved thereby, and means for rotating the articles on the belt.

11. In an apparatus for the purpose described, the combination of a liquid tank or receptacle, two endless belts supported therein one above the other, means for delivering articles to be treated to the space separating said belts, the relative speed of the belts being such that the articles will be moved longitudinally through said space, means for causing liquid to flow through said space between the belts in a direction opposite that in which the articles travel therethrough, and means whereby the width of the space separating said belts may be varied, for the purpose described.

12. In an apparatus for the purpose described, the combination of two endless belts, arranged one above the other, and means for causing a stream of liquid to flow through the space separating said belts in a direction opposite that in which articles to be treated are moved through said space, the space separating said belts conforming to the diameter of the articles to be treated so that

the articles will be rotated as they are moved through said space.

13. In an apparatus for the purpose described, the combination of an endless belt, having its upper run slightly inclined, a second endless belt extending parallel with the upper face of and adapted to contact with articles supported by the first said belt, means for discharging liquid onto the conveyer belt and the articles supported thereby, and a screen over which articles delivered by the conveyer are caused to pass.

14. In an apparatus for the purpose described, the combination of a suitable support, means for causing liquid to flow over said support, means for moving articles to be treated along the support in the path of the liquid, and means for exerting a rubbing pressure on the articles on said support.

15. In an apparatus for the purpose described, the combination of a support, means for moving articles to be treated over said support, means for exerting a rubbing pressure on articles on the support, and means for subjecting the articles on said support to the action of a suitable liquid.

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

EDUARD HERZOG.

Witnesses:

KARL REHAK,
AUGUST FUGGER.