

June 19, 1923.

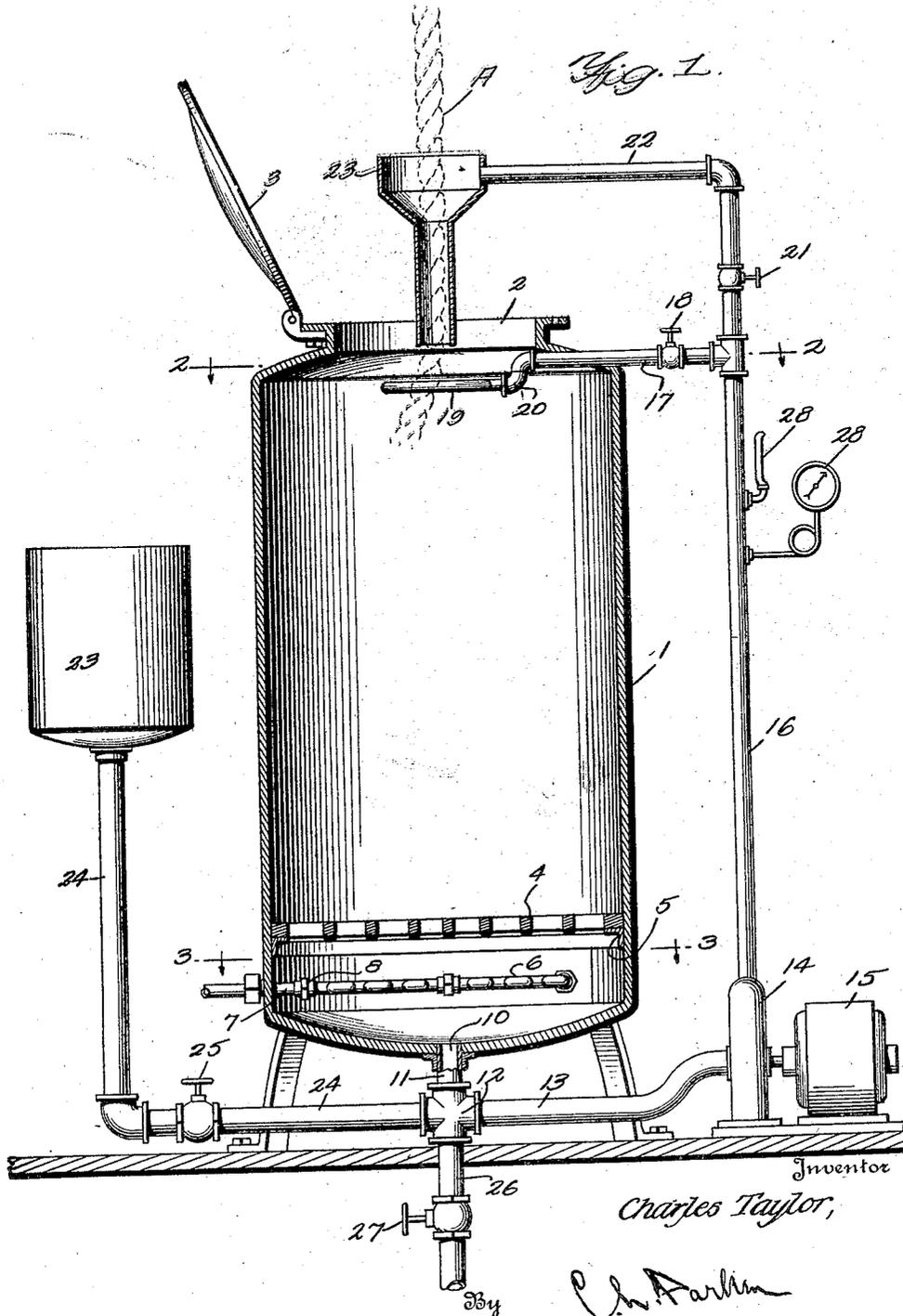
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C. TAYLOR

BLEACHING APPARATUS

Filed Oct. 31, 1922

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

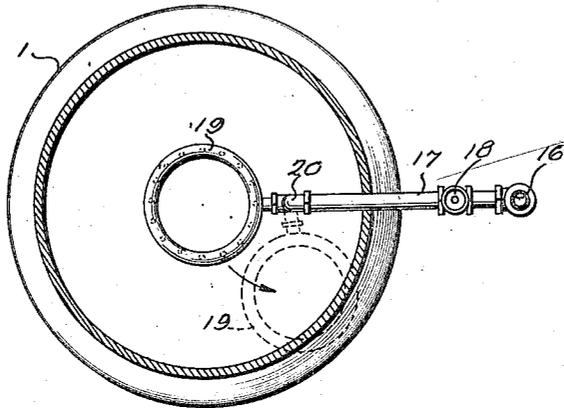
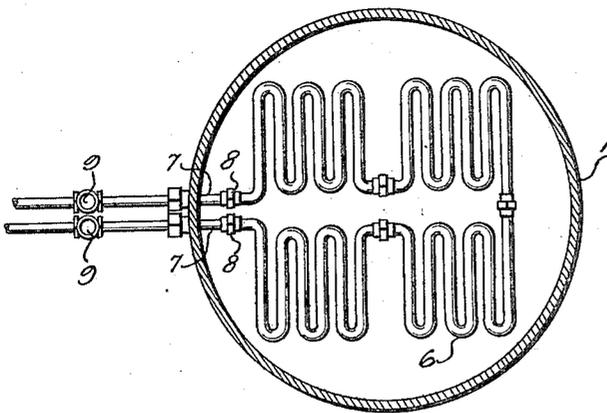


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES TAYLOR, OF PATERSON, NEW JERSEY.

BLEACHING APPARATUS.

Application filed October 31, 1922. Serial No. 598,140.

To all whom it may concern:

Be it known that I, CHARLES TAYLOR, a subject of the King of Great Britain, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Bleaching Apparatus, of which the following is a specification.

This invention relates to processes of bleaching, and apparatus therefor.

In the present process, cloth to be bleached is fed to a kier and sprayed with bleaching liquid in the usual manner, the liquid being circulated from the bottom of the kier to the top by suitable means and the kier is heated to the desired temperature by means of superheated steam.

The steam is preferably arranged in a jacket or coil and the kier heated by radiation, whereby the concentration of the bleaching liquid is not affected by the steam employed for heating.

An object of the invention is the provision of suitable apparatus for use in practicing the process, consisting of a kier having a grate therein and provided with an outlet at the bottom connected to suitable means for returning the bleaching liquid to the top. A closed steam coil is arranged in the kier adjacent the grate and is connected to a suitable supply of superheated steam.

In the accompanying drawings, I have shown an apparatus particularly suitable for use in practicing the process. In this showing:

Figure 1 is a vertical sectional view of the kier,

Figure 2 is a horizontal sectional view on line 2—2 of Figure 1, and,

Figure 3 is a similar view on line 3—3 of Figure 1.

Referring to the drawings, the reference numeral 1 designates a kier formed of any suitable material and arranged in the form of a tank. The kier is provided with an opening 2 at its upper end which may be closed by a hinged cover 3 when cloth is not being delivered thereto. A grate 4 is arranged adjacent the bottom of the kier, the grate being supported on a ring 5, secured to the inner wall. A coil 6 is arranged within the kier beneath the grate. As shown, the ends of the coil are connected to pipes 7 by means of unions 8. These pipes extend through the wall of the kier and are

provided with suitable control valves 9. One of the pipes serves as an inlet and is connected to a suitable source of superheated steam (not shown) and the other pipe serves as an outlet. The bottom of the kier is provided with an outlet opening 10, connected to a pipe 11. This pipe is in turn connected to a fitting 12. A return pipe 13 is connected to the fitting and this pipe communicates with a pump 14, driven by a suitable motor 15. The pump communicates with a vertical pipe 16, having a lateral branch 17, arranged therein adjacent the top of the kier. This branch is provided with a valve 18. The inner end of the pipe 17 is connected to a perforated rose 19, arranged within the kier by a swivel joint 20. Beyond the pipe 18, the vertical pipe is provided with a control valve 21. This pipe terminates in a horizontal pipe 22, connected to a feed hopper 23, arranged over the top of the kier. The cloth to be bleached is delivered through this hopper and is shown in dotted lines, being designated by the letter A.

The bleaching liquid is adapted to be stored in a tank 23' which is connected to the fitting 12 by means of a pipe 24. This pipe is provided with a control valve 25. A discharge pipe 26 is connected to the fitting 12 and is provided with a control valve 27. The vertical pipe 16 may be provided with suitable instruments 28 for measuring the temperature of the bleaching liquid and for determining the flow of the liquid in circulation.

In practicing the process, the material is delivered to the kier in the usual manner and the bleaching liquid is sprayed upon the material through the pipes 17 and 22. Either of these pipes may be cut off from the supply when desired by closing the valve 18 or 21. The material passes into the kier and rests upon the grate 4. The bleaching liquid collects in the bottom of the kier and when the valves 25 and 27 are closed, it is delivered through the pipes 11, 13 and 16 by the pump 14 to the pipes 17 and 22. The liquid is thus kept in circulation. The kier may be heated to any desired temperature by passing superheated steam or other fluid through the coil 6. By confining the heating fluid in a coil, the concentration of the bleaching solution is not changed, which is a decided advantage over the open steam method of heating. When the instrument 28 indicates an unde-

sired rise in temperature in the body of bleaching liquid, the heat may be cut down or regulated by valves 9.

5 After the bleaching process has been completed, the bleaching fluid may be discharged through pipe 26 by opening the valve 27. The bleaching fluid is stored in tank 23' and is delivered to the kier by opening valve 25, the valve 27 being closed when
10 the fluid is being delivered to the kier and being closed during the performance of the process.

It is to be understood that the form of the invention herewith shown and described
15 is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the sub-
20 joined claim.

I claim:

In an apparatus of the character described,

a kier having an inlet opening, a hopper arranged above said opening, a pipe extending downwardly from said hopper and
25 terminating within said inlet opening to feed the material to be bleached to said kier, a grate in said kier to support the cloth, said grate being arranged adjacent the bot-
30 tom, a valved outlet pipe arranged in the bottom of said kier, a pipe connecting said outlet pipe to said hopper, a pump arranged in said connecting pipe, a valved branch pipe extending from said connecting pipe, and a
35 perforated rose arranged on the end of said branch pipe and in alinement with said hopper and said first mentioned pipe.

In testimony whereof, I affix my signature in presence of two witnesses.

CHARLES TAYLOR.

Witnesses:

EDITH SUTHERLAND,
W. AUKIN FURREY.