No. 835,928. PATENTED NOV. 13, 1906.

F. W. ALLEN.

NOZZLE FOR LEACHING VATS.

APPLICATION FILED MAY 10, 1906.

Fig. 1.

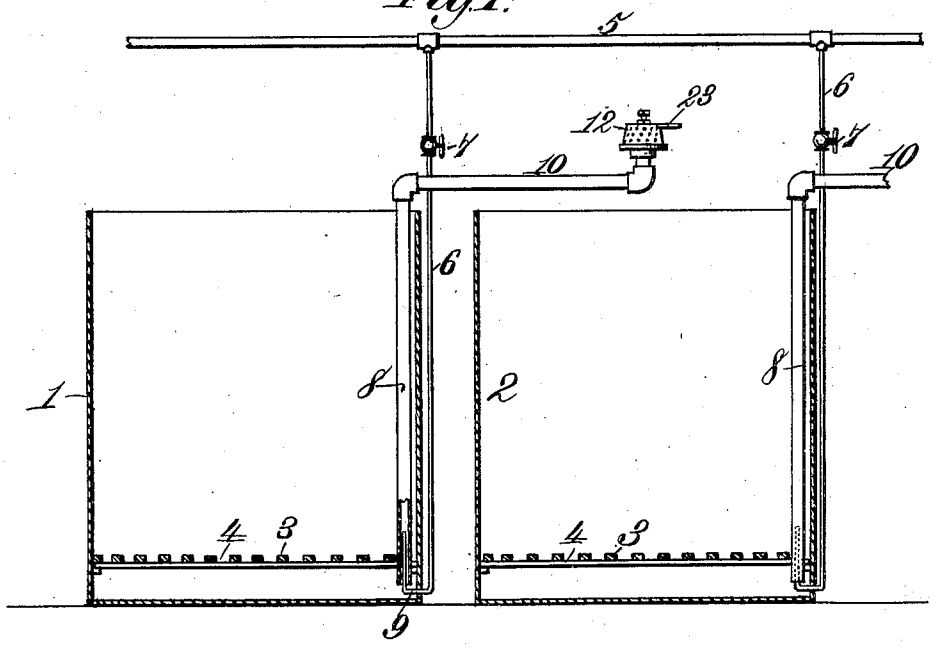


Fig. 2.

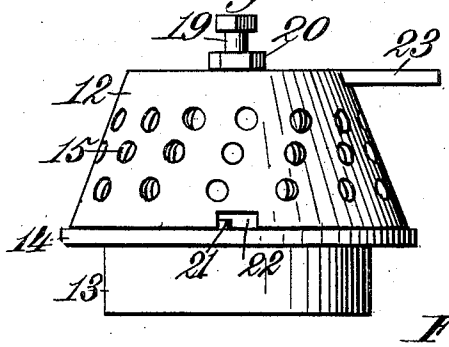


Fig. 3.

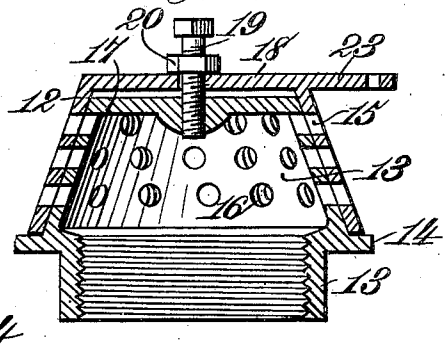
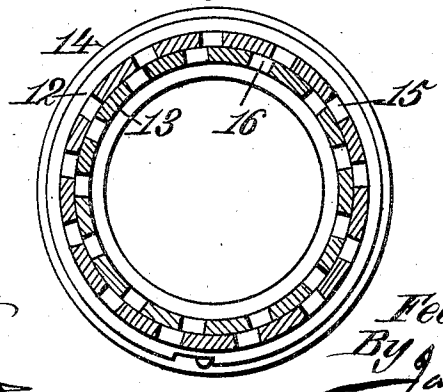


Fig. 4.



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UNITED STATES PATENT OFFICE.

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NOZZLE FOR LEACHING-VATS.

No. 835,928. Specification of Letters Patent. Patented Nov. 13, 1906.

Application filed May 10, 1906. Serial No. 316,120.

To all whom it may concern:

Be it known that I, FELIX W. ALLEN, a citizen of the United States, residing at Harrisonburg, in the county of Rockingham and State of Virginia, have invented new and useful Improvements in Nozzles for Leaching-Vats, of which the following is a specification.

This invention relates to means for transferring the liquid from one leaching-vat to another leaching-vat of a series of the latter for thoroughly saturating tanbark, the said means being under adjustable control to regulate the size of the stream emanating therefrom.

The special feature of the improved means is in the form of a nozzle comprising two members with perforate sides and imperforate tops, one member being adjustable or movable on the other.

The nozzle is applied to one end of a pipe disposed over a leaching-vat and located in such position as to be effective in delivering the liquid from an adjacent vat after such liquid has leached through the bark, the opposite end of the pipe being disposed in the bottom of the vat from which the liquid is fed or withdrawn and has an air-pipe connection coöperating therewith, such connection being under the control of a valve to regulate the pressure of the liquid delivered through the nozzle. This application of the improved nozzle is preferred; but it will be understood that it has a general use and may be constructed of any suitable material—either metal, glass, or a non-corrosive substance—and, furthermore, the proportions and dimensions thereof may be modified at will to accommodate various applications thereof.

In the drawings, Figure 1 illustrates two vats in section and forming part of a series of leaching-vats, showing the arrangement of the air and feeding pipes and the position of the improved nozzle on the feeding-pipe with respect to one of the vats. Fig. 2 is an enlarged detail elevation of the nozzle. Fig. 3 is a transverse vertical section through the nozzle. Fig. 4 is a horizontal section of the same.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numerals 1 and 2 designate leaching-vats, each of which has a false bottom 3, with openings 4 therein. These vats are usually arranged in series of any number desired.

Two of the vats are shown to illustrate the features of the invention; but the same arrangement will be carried out with respect to all the vats. Above the vats an air-feeding pipe 5 is disposed and connected to any suitable air-pressure medium. Extending downwardly from the air-feeding pipe at intervals are air connections 6, each of which is provided with a valve 7. A pipe 8 extends downwardly through each vat and terminates a short distance below the false bottom 3. Projecting into the lower end of the pipe 8 is an elbow 9 of the air connection 6. The upper extremity of the pipe 8 is formed with an L extension 10 of such length as to locate the free extremity thereof centrally above the vat 2, for instance, and this arrangement will be effected through the whole series of vats.

The principal feature of the invention consists of a nozzle which is secured on the free end of each L extension 10, and consists of two caps or members 11 and 12, the inner cap having a screw-collar 13 applied to the free end of the L extension 10 and a flange 14 above the collar. The cap or member 12 is rotatable on the cap or member 11, both caps or members, respectively, having perforations 15 and 16 in the sides thereof, and their tops 17 and 18 are imperforate, with the exception at the center of the cap or member 12, through which extends a pivot-bolt 19, which is connected to the center of the top of the inner cap 11. This pivot-bolt has a set-nut 20 thereon, which holds the outer cap 12 down in place over the inner cap. Adjacent to the flange 14 of the inner cap a stop projection 21, forming a part of said cap, extends outwardly through a slot 22 in the lower edge of the outer cap to limit the movement of the said outer cap in opposite directions with respect to the inner cap. The outer cap also has an arm 23 projecting therefrom, which serves as a handle and may have any device attached thereto to render the same convenient in operation. By turning the outer cap on the inner cap the size of the openings in the inner cap will be modified or the apertures for the expulsion of the liquid may be increased or decreased. The openings in the two caps are so disposed with respect to each other that each opening of the outer cap registers solely with one opening of the inner cap, and

the liquid entering the nozzle may be liberated from the latter through openings either in a large, medium, or very small stream.

The feed of the liquid from the bottoms of the tanks to the several nozzles is dependent upon the air under pressure conveyed from the pipe 5 through the connections 6 to the lower ends of the pipes 8. When the valves 7 are open to admit air to the lower ends of the pipes 8, the liquid in the tanks below the false bottoms 3 is drawn upwardly and forced ahead of the air into the nozzles, and by manipulating the valves 7 the amount of liquid delivered from the nozzles may be regulated at will. The bark placed in the first vat—vat 1, for instance—is saturated by liquid falling thereover, which seeps through the said bark and passes down into the bottom of the vat below the false bottom 3 and is then taken up by the pipe 8 through the medium of the air-pressure, as explained, and distributed by the nozzle in said pipe 8 to the next vat, and from the succeeding vat—vat 2, for instance—the same operation is pursued with respect to the third vat, and so on through the whole series of vats. The movable cap member on the fixed cap member in each nozzle structure is advantageous in that the openings in the two cap members will be prevented from becoming clogged or obstructed in addition to the convenience derived by turning the one cap member on the other to regulate the amount of liquid passing out from the nozzle. The liquid passing out from the nozzle over vat 2 falls into the latter and passes through the bark therein and is transferred to the third vat in the same manner as explained with respect to the transfer of the liquid from the first to the second vat.

By the use of these nozzles the operation of leaching bark and the general operation of tanning is materially expedited, and, furthermore, the saturation of the bark is positive and more thorough without loss, as the liquid from one tank is transferred to the next, and so on through the whole series.

In the event that the nozzles require cleaning such operation can be readily carried on by disconnecting the same from the L extensions 10 of the pipes 8. This cleaning operation of the nozzles can be pursued without separating the parts thereof.

It will also be understood that the improved nozzles may be applied to other apparatuses with the same advantages in the distribution of liquid fed thereto.

It is proposed to manufacture these nozzles of any suitable material and in different sizes.

Having thus fully described the invention, what is claimed as new is—

1. A nozzle for the purpose set forth consisting of an inner stationary member with a perforate side and imperforate top, an outer member rotatably applied over the inner member and also having a perforate side and an imperforate top, the perforations in the sides of the members being adapted to register, and means for limiting the movement and for operating the outer member.

2. A nozzle for the purpose set forth consisting of inner and outer members each having a perforate side and an imperforate top, the outer member being rotatable on the inner member and each opening thereof being disposed to register with a single opening in the said inner member.

3. A nozzle for the purpose set forth consisting of inner and outer members each having a perforate side and an imperforate top, the inner member also having a flange and a central screw-collar, and the outer member rotatable on said inner collar, the perforations in the sides of the members being adapted to register, the outer collar fitting over the inner collar with its lower edge bearing on the said flange.

4. The combination with a vat having a perforate false bottom, a pipe having one end projecting below the false bottom and the opposite end extended over and away from the top of the vat, a nozzle on the upper end of said pipe and provided with perforate members, one of the latter being rotatable on the other to cause the perforate members to register and also to regulate the size of the perforations of the inner member, a second vat under the nozzle, and a valved air-pipe coöperating wih the lower extremity of pipe projected below the false bottom.

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

FELIX W. ALLEN.

Witnesses:
CHARLES S. HYER,
JAMES L. NORRIS.