

UNITED STATES PATENT OFFICE.

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LEACH-PITCHER.

No. 796,902.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed November 28, 1903. Serial No. 183,074.

To all whom it may concern:

Be it known that I, JAMES C. DUNN, of the town of Acton, in the county of Halton, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Leach-Pitchers, of which the following is a specification.

My invention relates to improvements in leach-pitchers; and the object of the invention is to devise a simple and efficient mechanical means of rapidly ejecting or casting the spent tanbark out of the leach or leach-tank; and it consists, essentially, of a tank preferably cylindrical and provided with a bottom having a hole or holes, a spindle supported and extending centrally through the tank and having a threaded upper end, a sleeve surrounding the spindle and having radial arms and spiral sweeps connected thereto on the outside and a nut on the inside fitting the threaded upper end of the spindle and a keyway on the outside of the spindle, a bevel-wheel having a key fitting in such way and journaled in suitable bearings, and means for rotating such bevel-wheel, all as hereinafter more particularly explained.

Figure 1 is a sectional perspective view of a leaching-tank, showing the parts involved in my invention. Fig. 2 is a plan view.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the tank, A' the bottom, and *a* the hole in the bottom through which the spent tanbark is ejected. It will be understood to those familiar with the art that the tanbark when placed in the tank is fitted around a tube, which extends upwardly from the hole *a*, and that such tube is afterward withdrawn, leaving a clear hole from top to bottom of the tanbark. It is through this hole that it is desirable to eject the spent bark.

The casing A is supported on any suitable framework B, such as is shown, and any suitable form of conveyer may be used to convey the ejected tanbark from underneath the hole *a* to any desired point.

I shall now describe the means by which the tanbark is ejected.

C is a sleeve which is provided with a keyway *c* and extends up through the center of the leaching-tank A.

D is a nut secured in the top of the sleeve

and having a hole *d*, which is threaded to receive the upper end of the spindle E. It will be noticed that the upper portion of the standard E is threaded to the depth at least of the tank and that the bottom end of the standard E is threaded and is provided with retaining-nuts *e* and *e'*, which extend above and below the plate F, secured in the bottom of the frame, thereby securely holding the standard E from rotating.

On the top of the sleeve E, I secure a hub-plate G, to which are secured and from which extend out radial arms *g*. The arms *g* are provided at the outer ends with the curved fingers *g'*, as indicated, for the purpose of scraping the tanbark from the walls of the tank.

H represents spiral sweeps, preferably formed of reverse L-shaped angle-irons, such sweeps being secured in position on the plate G and radial arms.

The sleeve E is provided with a bearing D', suitably supported in the frame and above such bearing with a bevel gear-wheel I, having a key *i* fitting in the keyway *c* of the sleeve C. It will thus be understood that the sleeve C is capable of being turned by the bevel gear-wheel I and at the same time will derive a longitudinal movement through such bevel gear-wheel by means of the nut D, fitting on the threaded upper end of the standard E.

The bevel gear-wheel I is driven by a bevel-pinion J, located on the end of the spindle *j* in one direction, so as to cause the arms and spindle-sweeps to move downwardly. The spindle J is supported in suitable bearings and may be moved longitudinally, so as to withdraw the gear-pinion J from mesh with the wheel I when it is desired to rotate the bevel gear-wheel in the opposite direction, so as to cause the sleeve and arms and sweeps attached thereto to move upwardly. Any suitable means may be employed to give the required movement to the spindle *j*; but I show in the present instance a grooved collar *j'* on the spindle, which is engaged by the forked end *j''* of the pivoted lever *j'''*. A similar bevel-pinion J', secured on the end of the spindle *j''*, is employed and similar means for throwing such pinion into gear, so as to cause the sleeve C to move upwardly and carry

with it the radial arms and sweeps to the top of the tank or to cause the pinion J' to move outwardly when the spindle j is thrown into mesh, as hereinbefore described.

As the radial arms of the spiral sweeps are caused to move downwardly such spiral sweeps scrape the top of the tanbark off gradually, and on account of the peculiar formation of the spiral serve, with the arms H and fingers g' , to throw such scrapings inwardly into the hole in the tanbark above the hole a , through which latter hole it drops onto a suitable conveyer of any description. The continuous rotation of the spiral sweeps have of course the effect of gradually clearing the tanbark out of the leaching-tank through the hole a , beginning at the top.

When the spent tanbark has been cleared, the arms and sweeps may be restored to their normal position for use again.

It will be seen from the direction of rotation shown by the arrow in Fig. 2 that the tanbark is swept inwardly, so as to fall through the hole a , which is situated in proximity to the center of the tank; but it will be understood that I may reverse the direction of rotation without departing from the spirit of my invention, and in this case the hole a would be placed near the wall of the tank. Again, I have shown and described in this specification the dividing means as situated at the bottom of the tank; but it will be also understood without departing from the spirit of my invention I may with equal facility suitably journal the driving means and drive the sweeps from above. I may also find it desirable to dispense with a central screw-spindle, depending on the gravitation, or more properly the weight, of the sweeps to effect the necessary downward movement of the sweep.

What I claim as my invention is—

1. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a rotatable sweep centrally supported in the tank and extending spirally about the said support, and means for causing it to simultaneously rotate and move downwardly as and for the purpose specified.

2. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a central sleeve extending upwardly through the bottom of the tank, radial arms secured to the top of the sleeve, and sweeps secured to the arms and extending spirally about the sleeve as and for the purpose specified.

3. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a central sleeve extending upwardly through the bottom of the tank, radial arms secured to the top of the sleeve,

and spiral sweeps secured to the arms, and means for imparting longitudinal and rotary movement to the sleeve as and for the purpose specified.

4. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a central sleeve extending upwardly through the bottom of the tank, radial arms secured to the top of the sleeve, curved fingers secured to the ends of the arms and spiral sweeps secured to the arms, and means for imparting a longitudinal and rotary movement to the sleeve as and for the purpose specified.

5. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a central sleeve extending upwardly through the bottom of the tank a hub-plate secured to the top of the sleeve, arms secured to the hub-plate, and spiral sweeps secured to the arms and hub-plate, and means for imparting longitudinal and rotary movement to the sleeve as and for the purpose specified.

6. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a central sleeve extending upwardly through the bottom of the tank, a hub-plate secured to the top of the sleeve, arms secured to the hub-plate, and spiral sweeps secured to the arms and hub-plate, a nut in the sleeve, a standard extending through the sleeve and provided with a threaded upper end extending through the nut, and means for rotating the sleeve as and for the purpose specified.

7. In leach pitchers or casters, the combination with the tank having a hole in the bottom thereof, of a central sleeve extending upwardly through the bottom of the tank, a hub-plate secured to the top of the sleeve, arms secured to the hub-plate, and spiral sweeps secured to the arms and hub-plate, a nut in the sleeve, a standard extending through the sleeve and provided with a threaded upper end extending through the nut, a bevel-wheel having a key extending into the keyway in the sleeve, and means for driving such bevel-wheel as and for the purpose specified.

8. In leach pitchers or casters, a spiral sweep located in the tank and designed to have imparted to it both a rotary and downward movement as and for the purpose specified.

9. In leach pitchers or casters, a tank having an opening in the bottom, a spiral sweep located in the tank and suitably operated said sweep being arranged to cross the said opening as and for the purpose specified.

10. In leach pitchers or casters, the combination with a tank having a hole in the bottom thereof, of a plurality of spiral sweeps

centrally supported and suitably operated the said sweeps being concentric with each other as and for the purpose specified.

11. In leach pitchers or casters, the combination with a tank having a hole in the bottom thereof, of a spiral sweep and a central sleeve suitably supported and to which such

spiral sweep is connected as and for the purpose specified.

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Witnesses:

B. BOYD,
C. H. BATE.