W. J. HERRBOLD.

PAPER STOCK TREATING MACHINE.

APPLICATION FILED AUG. 27, 1918.

1,291,877.

Patented Jan. 21, 1919.

2 SHEETS--SHEET 1.

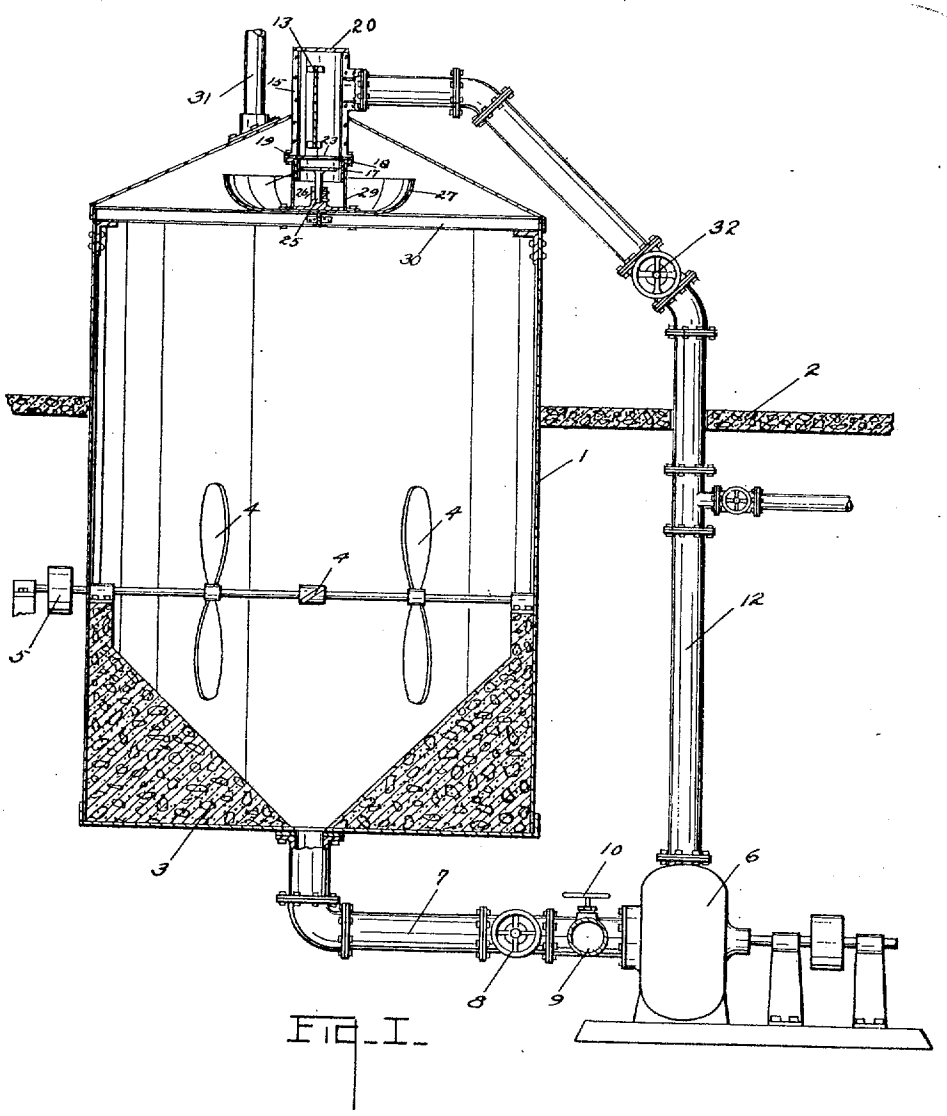



FIG. I.

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Inventor
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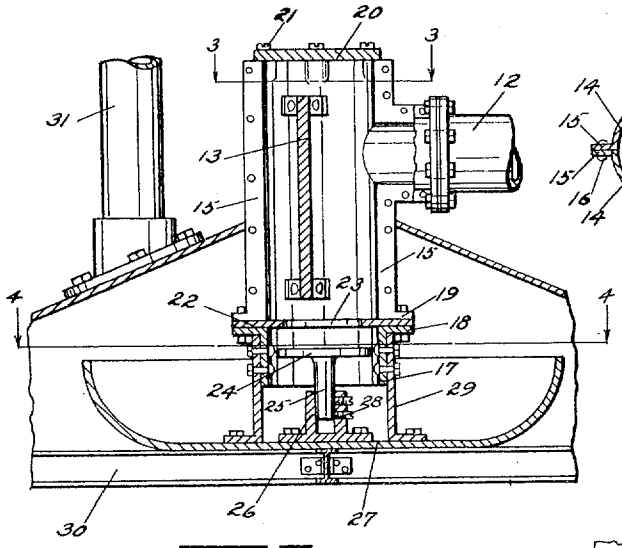



FIG. II.

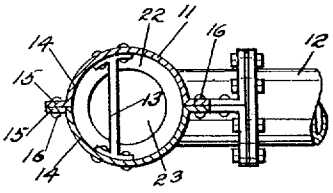



FIG. III.

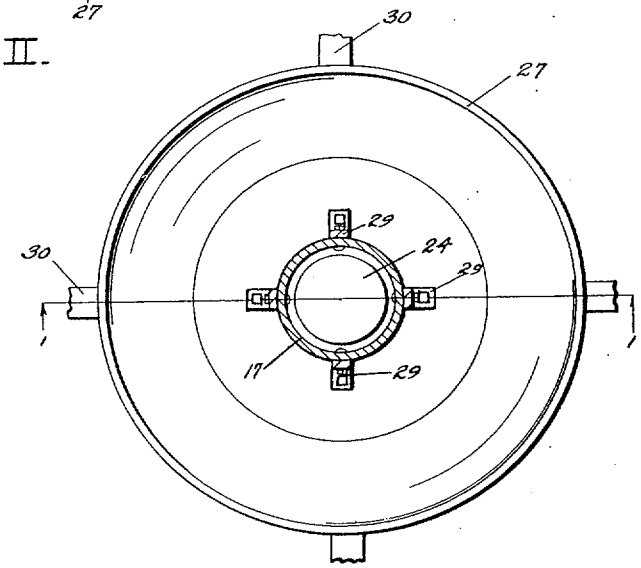



FIG. IV.

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# UNITED STATES PATENT OFFICE.

WILLIAM J. HERRBOLD, OF KALAMAZOO, MICHIGAN.

## PAPER-STOCK-TREATING MACHINE.

1,291,877. Specification of Letters Patent. Patented Jan. 21, 1919.

Application filed August 27, 1918. Serial No. 251,632.

*To all whom it may concern:*

Be it known that I, WILLIAM J. HERRBOLD, a citizen of the United States, residing in the city and county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Paper-Stock-Treating Machines, of which the following is a specification.

This invention relates to improvements in paper stock treating machines.

My improved stock treating machine is especially designed by me for use in disintegrating old papers for use as paper stock or for use in de-inking such stock.

The main objects of this invention are:

First, to provide an improved disintegrating machine in which the fibers are effectively separated or disintegrated without grinding or abrading action.

Second, to provide an improved stock treating machine which is well adapted for disintegrating printed papers and also for treatment thereof with de-inking solutions.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is a view partially in vertical central section on a line corresponding to line 1—1 of Fig. IV and partially in elevation of a structure embodying the features of my invention, the support for the main tank not being illustrated.

Fig. II is an enlarged detail view partially in vertical section as in Fig. I.

Fig. III is a detail horizontal section on a line corresponding to line 3—3 of Fig. II.

Fig. IV is a detail horizontal section on a line corresponding to line 4—4 of Fig. II.

In the drawing similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, 1 represents a stock tank, illustrated as extending through the floor 2, the base or support for the tank not being illustrated as any suitable base may be employed. The tank illustrated has a conical bottom 3 of concrete. Within the tank is an agitator, designated generally by the numeral 4, the shaft of which projects through the tank and is provided with a pulley 5.

A circulating pump 6, which is preferably of the rotary type, has its intake 7 connected to the bottom of the tank. A valve 8 is provided for this intake. The intake pipe 7 is also provided with a discharge 9 provided with a valve 10. At the top of the tank is a chamber 11 to the side of which the pump discharge 12 is connected. Within this chamber 11 is a baffle plate 13 disposed in front of the pump discharge so that the discharged stock impinges against the plate. This baffle plate is disposed in a spaced relation to the top and bottom of the chamber so that the stock may circulate within the chamber about the plate.

For convenience in manufacture the chamber is formed of vertically divided sections 14, 14 having flanges 15 connected by bolts or rivets 16 and an annular bottom section 17 having a flange 18 at its upper end bolted to the bottom flange 19 of the sections 14, 14.

The cap or top 20 is retained by the screw bolts 21. Below the baffle I preferably provide an annular restricting member 22, it, in the structure illustrated, being clamped between the flanges 17 and 10 of the chamber sections. This restricting member projects into the chamber and provides a central opening 23. Below the restricting member 22 is a discharge valve 24 of disk-shape supported centrally so that an annular discharge is provided about the valve. This valve is adjustable, its stem 25 being supported in the socket-like support 26 on the discharge pan 27, set screws 28 retaining it in its adjusted position. The discharge pan is supported by the hanger straps 29 on the chamber and the cross pieces 30 within the tank.

The discharge of the chamber is such that the stock is delivered into the chamber and circulated therein and discharged therefrom under a high pressure, resulting in the stock circulated through the chamber being thoroughly disintegrated.

The stock is discharged from the discharge pan 27 over its rim so that it is quite evenly delivered to the tank and the agitator therein insures that all of the stock is uniformly treated. The stock inlet pipe 31 is connected to the top of the tank to deliver

into the discharge pan 27. The pump discharge pipe 12 is preferably provided with a regulating valve 32.

My improved machine is especially adapted for treating of stock with de-inking solutions, as such stock is thoroughly and uniformly treated and at the same time effectively disintegrated. The stock is, in practice, suitably soaked and treated before being introduced to the machine.

I have not attempted to illustrate or describe certain modifications or adaptations which I contemplate, as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same as may be desired for particular installations or uses.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a stock treating machine, the combination of a tank, an agitating means within the tank, a chamber discharging to the tank, a pump having discharge connections to the chamber and an intake connection to the tank, a baffle plate disposed within the chamber so that the stock is discharged from the pump against the same, said baffle plate being disposed so that stock may circulate within the chamber about the same, a discharge pan disposed to receive the stock from said chamber, and a stock supply pipe connected to the tank to discharge into said pan.

2. In a stock treating machine, the combination of a tank, an agitating means within the tank, a chamber discharging to the tank, a pump having discharge connections to the chamber and an intake connection to the tank, a baffle plate disposed within the chamber so that the stock is discharged from the pump against the same, said baffle plate being disposed so that stock may circulate within the chamber about the same, and a discharge pan disposed to receive the stock from said chamber.

3. In a stock treating machine, the combination of a tank, a chamber discharging to the tank, a pump having discharge connections to the chamber and an intake connection to the tank, a baffle plate disposed within the chamber so that the stock is discharged from the pump against the same, said baffle plate being disposed so that stock may circulate within the chamber about the same, a discharge pan disposed to receive the stock from said chamber, and a stock supply pipe connected to the tank to discharge into said pan.

4. In a stock treating machine, the combination of a tank, a chamber discharging to the tank, a pump having discharge connections to the chamber and an intake connection to the tank, a baffle plate disposed within the chamber so that the stock is discharged from the pump against the same, said baffle plate being disposed so that stock may circulate within the chamber about the same, and a discharge pan disposed to receive the stock from said chamber.

5. In a stock treating machine, the combination of a tank, a cylindrical chamber at the top of said tank open at its bottom, a pump having a discharge connection to the side of said chamber and an intake connection to the bottom of the tank, a baffle plate disposed vertically within said chamber in front of the pump discharge and at substantially a right angle thereto with its ends spaced from the top and bottom of the chamber so that stock may circulate vertically about the same, an annular restricting member disposed below said baffle plate, a disk valve disposed below said restricting member in a spaced relation thereto and to the discharge of the chamber, the valve being supported for vertical adjustment with its periphery in spaced relation to the wall of the chamber providing an annular discharge, and a discharge pan below said chamber disposed centrally of the tank.

6. In a stock treating machine, the combination of a tank, a cylindrical chamber at the top of said tank open at its bottom, a pump having a discharge connection to the side of said chamber and an intake connection to the bottom of the tank, a baffle plate disposed vertically within said chamber in front of the pump discharge and at substantially a right angle thereto with its ends spaced from the top and bottom of the chamber so that stock may circulate vertically about the same, an annular restricting member disposed below said baffle plate, and a disk valve disposed below said restricting member in a spaced relation thereto and to the discharge of the chamber, the valve being supported for vertical adjustment with its periphery in spaced relation to the wall of the chamber providing an annular discharge.

7. In a stock treating machine, the combination of a tank, a chamber discharging to the tank, a pump having discharge connections to the chamber and an intake connection to the tank, a baffle plate disposed within the chamber so that the stock is discharged from the pump against the same, said baffle plate being disposed so that stock may circulate within the chamber about the same, a restricting member disposed below said baffle and having a central discharge, and a valve disposed below the opening of said restricting member to provide an annular discharge about the valve.

8. In a stock treating machine, the combination of a tank, a chamber discharging to the tank, a pump having discharge connections to the chamber and an intake connection to the tank, a baffle plate disposed with-

in the chamber so that the stock is discharged from the pump against the same, said baffle plate being disposed so that stock may circulate within the chamber about the same, and a discharge valve.

9. In a stock treating machine, the combination of a tank, a chamber discharging to said tank, a pump having a discharge connection to said chamber and an intake connection to the tank, a baffle plate disposed within said chamber so that the stock is discharged against the same, said baffle plate being disposed so that the stock may circulate about the same, and a valve for the discharge chamber, the capacity of the chamber and its discharge relative to the pump being such that the stock is under pressure within the chamber.

10. In a stock treating machine, the combination of a tank, a chamber discharging to said tank, a pump having a discharge connection to said chamber and an intake connection to the tank, a baffle plate disposed within said chamber so that the stock is discharged against the same, said baffle plate being disposed so that the stock may circulate about the same, the capacity of the chamber and its discharge relative to the pump being such that the stock is under pressure within the chamber.

11. In a stock treating machine, the combination of a tank, an agitating means within said tank, a chamber discharging to said tank, a pump having a discharge connection to said chamber and an intake connection to the tank, and a baffle plate disposed within said chamber so that the stock is discharged against the same, said baffle plate being disposed so that the stock may circulate about the same, the capacity of the chamber and its discharge relative to the pump being such that the stock is under pressure within the chamber.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM J. HERRBOLD. [L. S.]

Witnesses:

LUELLA G. GREENFIELD,

GRACE B. THOMPSON.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**