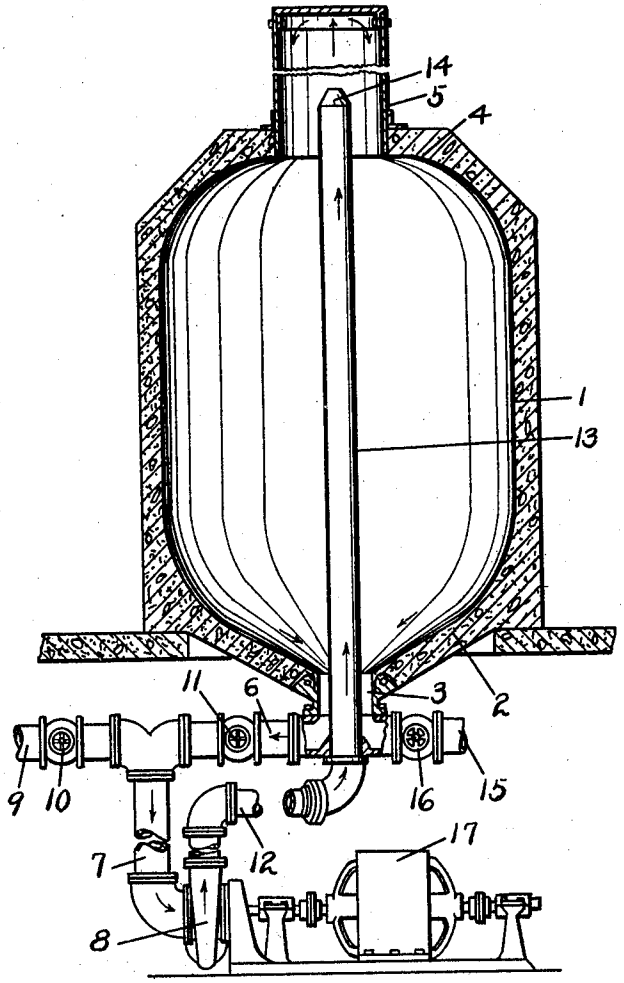
M. C. J. BILLINGHAM.

PAPER STOCK TREATING MACHINE.

APPLICATION FILED SEPT. 1, 1920.

1,399,184. Patented Dec. 6, 1921.



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MILTON C. J. BILLINGHAM, OF KALAMAZOO, MICHIGAN.

PAPER-STOCK-TREATING MACHINE.

1,399,184. Specification of Letters Patent. Patented Dec. 6, 1921.

Application filed September 1, 1920. Serial No. 407,467.

To all whom it may concern:

Be it known that I, MILTON C. J. BILLINGHAM, a citizen of the United States, residing at Kalamazoo, 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 paper for use in paper stock and for the deinking of such stock.

The main objects of this invention are:

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

Second, to provide an improved disintegrating or defibering machine well adapted for use in deinking printed papers and preparing the same for paper stock.

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 the figure is a detail view partially in vertical section of my improved stock treating machine or apparatus.

In the accompanying drawing, I have not attempted to illustrate or maintain the proper relative proportions of parts as these will be varied to suit the capacity and the particular conditions of installation, and certain parts are shown in conventional form.

In the embodiment illustrated, I provide a cylindrical tank 1 disposed vertically and provided with an internally concave bottom 2, the central discharge 3, and an internally curved top 4.

Mounted centrally on the top of the tank is a pipe 5 of considerable height which for convenience I designate as a standpipe. The discharge 6 is connected to the discharge opening 3 of the tank, the intake 7 for the pump 8 being connected with this pipe 6. A stock supply pipe 9 is also provided, the pipe 9 being controlled by the valve 10, and the pipe 6 being controlled by the valve 11.

The discharge 12 of the pump is connected to the pipe 13 disposed vertically within the tank and centrally thereof so that its nozzle 14 delivers or discharges centrally of the standpipe 5. The capacities of the pipes 5 and 13 are such that the stream discharged from the nozzle impinges with the stock descending within the standpipe violently agitating the stock and tearing the fibers apart without grinding or abrading action.

My improved machine is especially well adapted for use in treating stock with deinking solution as the stock is not only uniformly treated but is effectively disintegrated without grinding action which would beat or grind the ink into the fibers and thus prevent the ink being freed. The fibers are not materially broken up or shortened, the disintegration being effected by a pulling or tearing action while the material is entirely suspended in the liquid.

I provide the connection 15 for the treated stock controlled by the valve 16. The pump is driven by suitable means such as the motor shown conventionally at 17.

I have shown but a single embodiment of my improvements as I believe the disclosure made will enable those skilled in the art to which my invention relates to adapt or embody the same as may be desired.

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 cylindrical tank disposed vertically and having a concave bottom with a central discharge, a standpipe mounted centrally on said tank and open thereto at its lower end, a pump having its intake connected to said tank discharge, and a discharge pipe for said pump disposed vertically of said tank through said discharge thereof and projecting into said standpipe, the relative capacities of said pipes being such that the stream of stock discharged from the pump discharge pipe impinges with the stock descending within said standpipe.

2. In a stock treating machine, the combination of a tank having a discharge at the bottom, a standpipe mounted on said tank

and open thereto at its lower end, a pump having its intake connected to said tank discharge, and a discharge pipe for said pump projecting into said standpipe, the relative capacities of said pipes being such that the stream of stock discharged from the pump discharge pipe impinges with the stock descending within said standpipe.

3. In a stock treating machine, the combination of a cylindrical tank, a standpipe opening at its lower end to said tank, a circulating pump, and a discharge for said pump delivering centrally into said standpipe, the relative capacities of said pipes being such that the stream of stock discharged from the pump impinges with the stock descending within said standpipe.

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

MILTON C. J. BILLINGHAM. [L. S.]

Witness:
GRACE B. THOMPSON.