

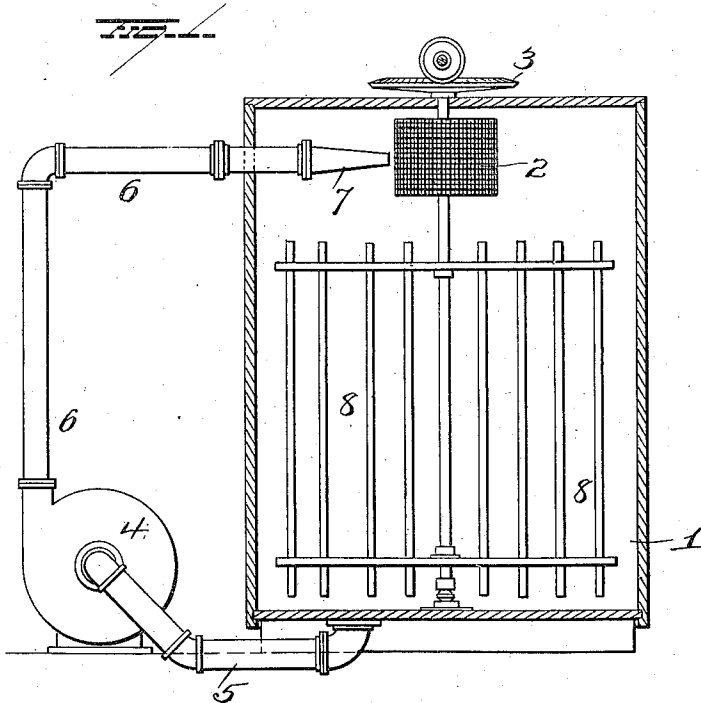
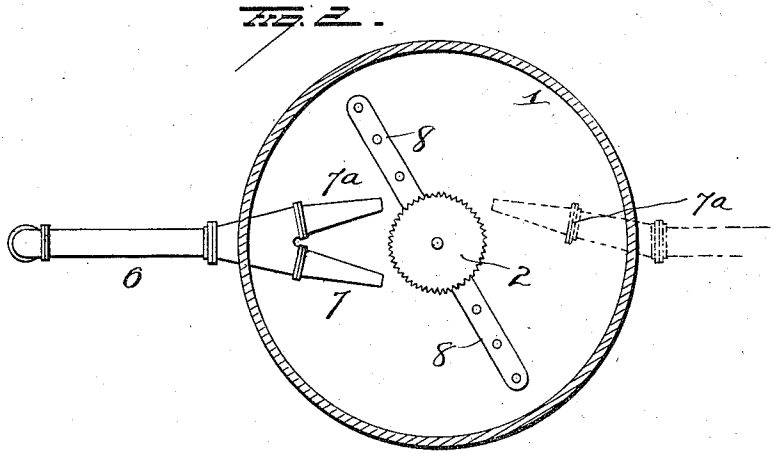
W. H. STOBIE.

APPARATUS FOR DISINTEGRATING FIBROUS MATERIAL USED IN THE MANUFACTURE OF
PAPER PULP.

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1,062,307.

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WITNESSES

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APPARATUS FOR DISINTEGRATING FIBROUS MATERIAL USED IN THE MANUFACTURE OF PAPER-PULP.

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Specification of Letters Patent.

Patented May 20, 1913.

Application filed April 26, 1912, Serial No. 693,479. Renewed February 20, 1913. Serial No. 749,728.

To all whom it may concern:

Be it known that I, WILLIAM H. STOBIE, a citizen of the United States, residing at Waterville, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Apparatus for Disintegrating Fibrous Material Used in the Manufacture of Paper-Pulp; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in apparatus for disintegrating fibrous material used in the manufacture of paper pulp, and is designed particularly as an improvement on the construction disclosed in my application Serial No. 693,477 filed April 26, 1912.

The object of this invention is to provide a target against which the pulp stock is projected, that may be turned so as to present a continuously changing surface to the action of the jet; and it consists broadly in a vat, a roll or cylinder therein having a serrated or roughened surface, and a system of pipes and a pump for taking the stock from the vat and projecting it in the form of a jet against the surface of the roll or cylinder whereby the fibers are separated without breaking or cutting them.

In the accompanying drawings, Figure 1 is a view in plan of an apparatus embodying my invention and Fig. 2 is a view in vertical section through the tank or vat.

1 represents a vat or tank to contain the paper stock which has been previously mixed with the proper proportion of water to reduce it to a consistency where it can be readily pumped and conveyed through pipes, and 2 is a roller or cylindrical target mounted vertically within the vat, and adapted to rotate. This cylinder or target is provided with serrations which may extend in the direction of the length of the cylinder or circumferentially; or both, and is mounted at its ends so as to rotate. It may be rotated by the impact of the jet projected against it as will be hereinafter explained, or it may be provided with a gear 3, by which it may be rotated positively either with the jet or in a reverse direction, by a motor or gearing leading from a suitable source of power.

Leading from the bottom of the tank 1, 55 to the pump 4 is the pipe 5, and leading from the pump to the tank, is the discharge pipe or pipes 6, each terminating within the tank, in a nozzle 7. In the present instance I have shown two discharge nozzles 60 7 and 7^a arranged tangentially to the cylindrical target 2 at opposite sides thereof, and pointing in the same direction so as to project the jets issuing therefrom against the cylinder at opposite sides of its axis. With 65 this arrangement each jet will counteract any rotary tendency of the other, but if desired the position of one jet say, 7^a, can be changed as shown in dotted lines in Fig. 1 so that both will point in opposite direc- 70 tions and thus tend to rotate the target unless it be restrained by suitable braking devices. With this arrangement, the impingement of the jets against the cylinder will rotate the latter unless it be restrained 75 by suitable braking devices, but if desired a positive rotation may be imparted to the cylinder at any desired speed, in either direction, by the gearing previously referred to. The pulp stock strikes the periphery of 80 the cylinder at an angle and falls back into the tank, and is repassed through the pipes by the pump, and against the cylinder until the stock has been reduced to the proper consistency. If desired I may provide the 85 shaft carrying the target 2 with an agitator 8 which will keep the pulp in motion. This forcible contact of the stock with the serrations or teeth on the cylinder, reduces the material to a fibrous form without impair- 90 ing the strength or reducing the length of the fibers of the original pulp.

Instead of circulating or repassing the stock through the vat and pump and against the cylinder until it has been reduced to the 95 desired condition, I may project the stock against the serrated cylinder and then pass it on to a reducing engine or other apparatus employed in the paper making process. The action of the serrations or teeth on the 100 stock projected thereagainst, is to divide or separate the fibers without breaking or cutting them, thereby fitting the stock so that it felts better on the machine, and produces the desired fineness without making the 105 stock "slow" which invariably results from long beating in a regular engine.

It is evident that many slight changes

might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but

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

1. In apparatus for disintegrating and dividing fibrous matter in the formation of pulp, the combination of a cylinder having a grooved or roughened surface and mounted to turn, and means for discharging a stream of pulp stock tangentially against said roughened surface.

2. In apparatus for disintegrating and dividing fibrous matter in the formation of pulp, the combination of a grooved or roughened cylinder mounted to turn and oppositely disposed nozzles for projecting streams of pulp stock against opposite sides of the cylinder.

3. In apparatus for disintegrating and dividing fibrous matter in the formation of pulp stock, the combination of a grooved or roughened cylinder, mounted to turn, gearing for turning same and means for discharging a stream of pulp tangentially against the cylinder.

4. In apparatus for disintegrating and dividing fibrous matter in the formation of pulp stock, the combination of a tank, a grooved or roughened cylinder located within the tank and mounted to turn, means for continuously withdrawing the pulp from the tank and discharging it in the form of a jet tangentially against the cylinder, and an agitator located within the tank below the cylinder.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILLIAM H. STOBIE.

Witnesses:

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JOSEPH R. GOODWIN.