July 12, 1949. R. H. BREYFOGLE 2,476,131

APPARATUS FOR DEWATERING PAPER MAKING STOCK

Filed Jan. 31, 1946

Fig. 3.

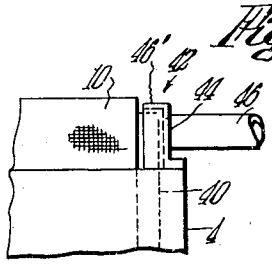
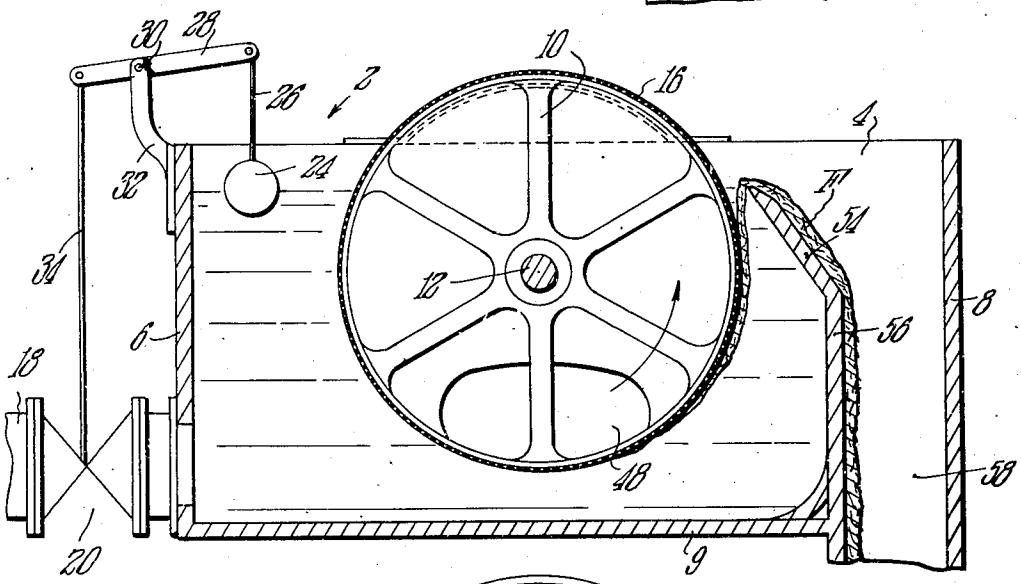


Fig. 2.



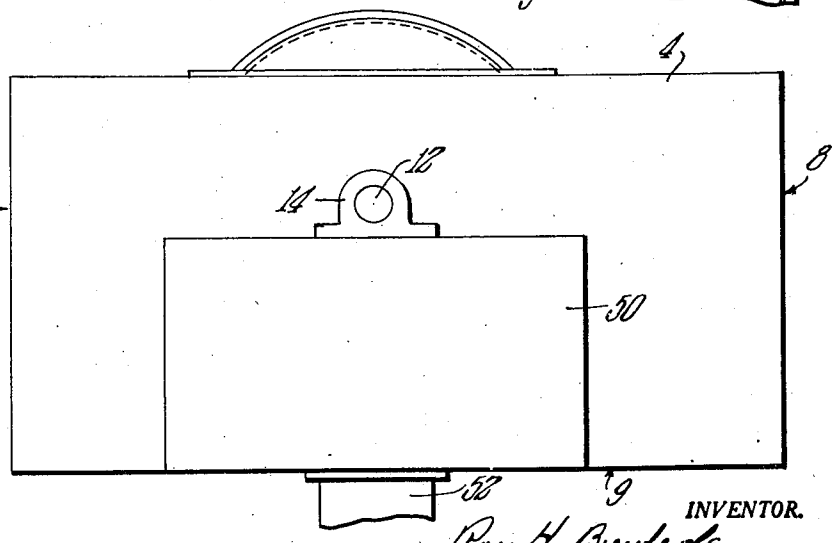


Fig. 1.

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APPARATUS FOR DEWATERING PAPERMAKING STOCK

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1 Claim. (Cl. 92—43)

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This invention relates to paper making and is directed more particularly to methods of and apparatus for thickening or de-watering paper making material.

The principal objects of this invention are directed to the provision of a method of and apparatus for thickening or de-watering paper making stock in such a manner that the stock is delivered from the apparatus in a thickened or de-watered condition so as to have the desired consistency.

The novel features of the invention are preferably practiced in connection with apparatus which is similar to a cylinder machine. That is, apparatus where a cylinder having a foraminous peripheral surface is rotatable in a vat to which the paper making stock to be thickened or de-watered is delivered.

With the foregoing and various other novel features and advantages and other objects of my invention as will become more apparent as the description proceeds, the invention consists in certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claim hereunto annexed and more fully described and referred to in connection with the accompanying drawings wherein:

Fig. 1 is a side elevational view of apparatus embodying the novel features of the invention and is adapted for the invention;

Fig. 2 is a transverse sectional elevational view through the apparatus shown in Fig. 1; and

Fig. 3 is a partial end elevational view of the apparatus shown in Figs. 1 and 2 to explain certain features of the invention.

Referring now to the drawings more in detail, the invention will be fully described.

A vat is represented by 2 which has side walls 4, end walls 6 and 8 and a bottom wall 9. A cylinder is represented by 10 which as usual has a shaft 12 rotatable in the usual manner in bearings 14. The cylinder 10 may be rotated by any well known means and in the form of the invention shown will rotate in the direction of the arrow shown in Fig. 2.

The peripheral surface 16 of the cylinder is in the nature of a screen arranged and adapted to allow water to pass therethrough for the deposit of paper making fibers thereon. A paper stock inlet pipe is shown at 18 and it may have a valve 20 therein through which paper making material is directed into the vat.

There may be a float 24 connected by a rod 26 to one end of a lever 28 which is pivoted at 30 to a bracket 32. The opposite end of the lever 28

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is connected by a rod 34 or other means to the valve operating means 20. Said valve and float are constructed and arranged so that a predetermined constant level of stock may be maintained in the vat.

Opposite ends of the cylinder 10 are provided with the usual outwardly extending annular flange parts such as 40, as shown in Fig. 3 which cooperate in the usual manner with the common well known means to seal opposite ends of the cylinder and side walls of the vat.

End caps 42 are provided which have outer walls 44 and circular walls 46'. Said caps are carried by the side walls 4 of the vat and are adapted and arranged in such a way as to enclose the portions of opposite ends of the cylinder which project upwardly above the level of the side walls 4 of the vat. At least one of the caps has connected thereto a conduit 46 which is in turn connected to a suitable source of air so that air under more or less pressure may be delivered interiorly of the cylinder 10.

A drain opening 48 is provided in one or both of the side walls 4 of the vat which is in communication with a drain chamber 50 from which extends a drain pipe 52.

According to the invention, paper making stock is delivered into the vat through the inlet 18 while the cylinder rotates in the direction of the arrow at the desired speed. Paper making fibers indicated by F are deposited on the foraminous surface of the cylinder as it rotates and are carried thereby around and upwardly.

Air is delivered through conduit 46 under some pressure at least so as to create a pressure within the cylinder which acts on or blows the fibers from off the cylinder adjacent the inner end of a wall section 54 adjacent the cylinder and forming a continuation of a wall 56.

Air enters at least one end of the cylinder but the construction may be such that air may be delivered to opposite ends thereof if desired. The action is such that the pressure of air within the cylinder is sufficient to lift the fibers from off the cylinder onto the wall 54 not necessarily in what may be termed a sheet but more or less in the form of a mass so that the mass is discharged through an outlet 58 formed by the walls 56 and 8.

The operation may be varied with different types of stock it being intended that the stock be de-watered or thickened so as to be adapted for subsequent paper making operations. Where stock having a consistency in the neighborhood of one percent is delivered to the vat the de-wa-

tering thereof may produce a continuous mass of fibers containing a relatively small amount of water.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claim are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

The combination in apparatus for dewatering paper making stock consisting of paper making fibers suspended in water of, a vat having opposite and adjacent side and end walls, a rotatable cylinder extending between said side walls and having a foraminous peripheral surface, an intermediate wall extending between said side walls and spaced from one end wall providing therewith an outlet for dewatered stock, the said intermediate wall having a lip along its upper edge disposed below the plan of the upper edges of the side walls and adapted to receive dewatered stock from said cylinder, said vat provided with a stock inlet and means controlling the admission of

stock and maintaining a predetermined level of stock in said vat at least below the lip of the intermediate wall, said cylinder provided with open ends and the upper portion of the said ends and peripheral surface thereof disposed above the plane of the upper edges of the side walls of the vat whereby upper portions of the open ends of the cylinder are presented above said edges, sealing means on the said upper edges of the side walls overlying the upper open end portions of the cylinder to seal the same, said cylinder being rotatable in a direction whereby its surface travels upwardly towards and past the said lip of the intermediate wall, and means for delivering air under pressure through said sealing means and open end of the cylinder into the interior thereof whereby it passes continuously outwardly through the foraminous surface as it moves upwardly and past said lip to discharge dewatered stock thereonto.

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