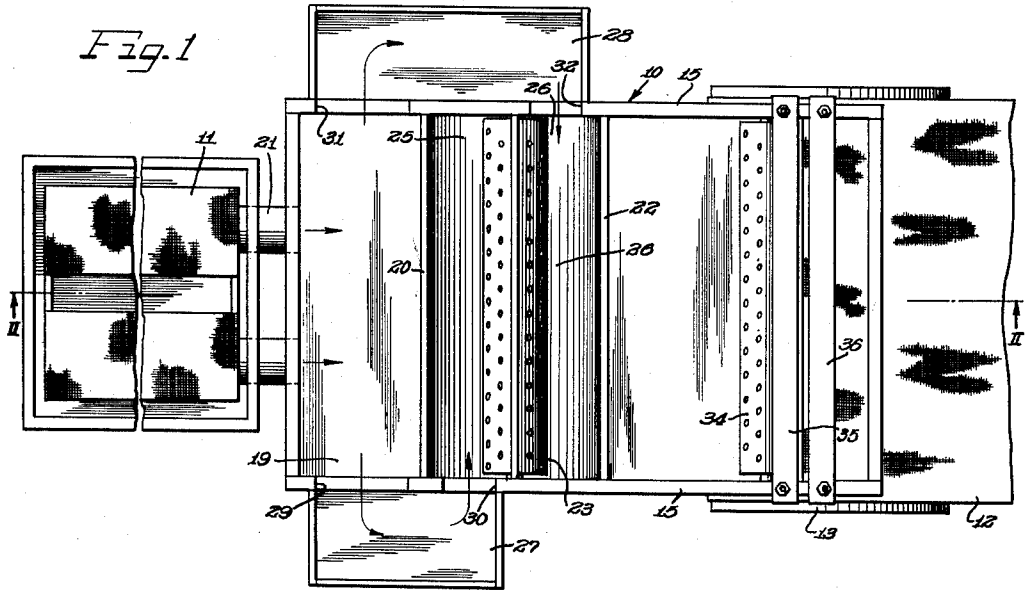
May 11, 1954 L. HORNBOSTEL 2,677,992

STOCK DISTRIBUTOR FOR PAPERMAKING MACHINES

Filed Feb. 5, 1949 3 Sheets-Sheet 1

Fig. 1



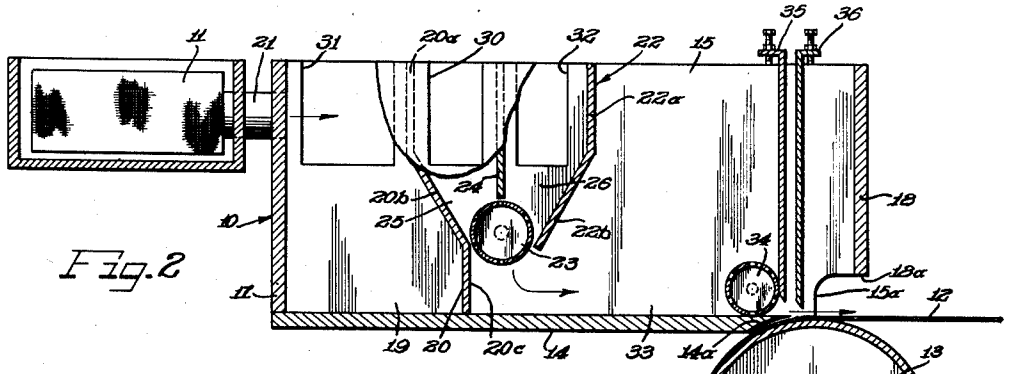
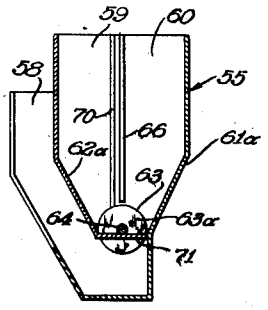


Fig. 2

Fig. 5



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STOCK DISTRIBUTOR FOR PAPERMAKING MACHINES

Filed Feb. 5, 1949 3 Sheets-Sheet 2

Fig. 3

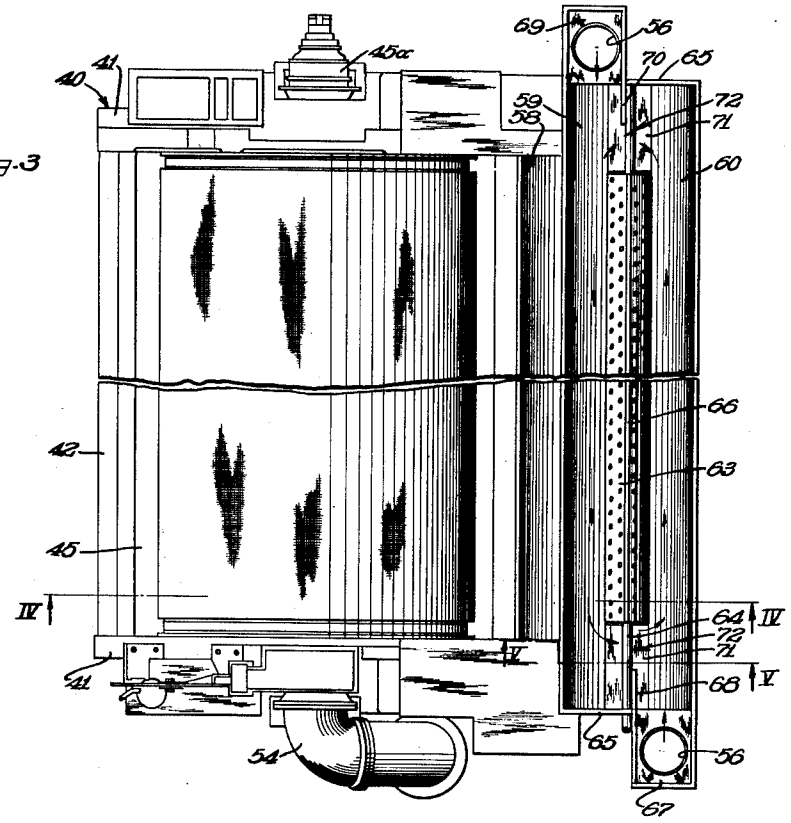
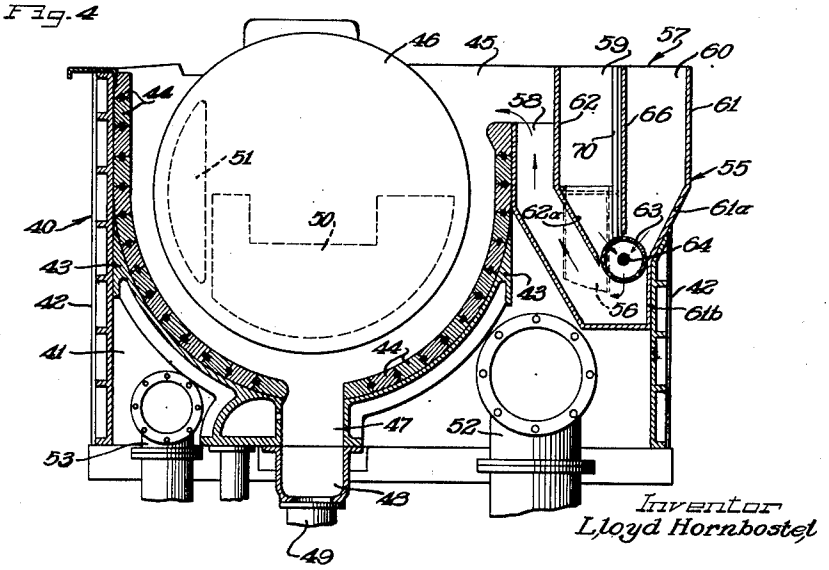


Fig. 4



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May 11, 1954 L. HORNBOSTEL 2,677,992

STOCK DISTRIBUTOR FOR PAPERMAKING MACHINES

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Fig. 6

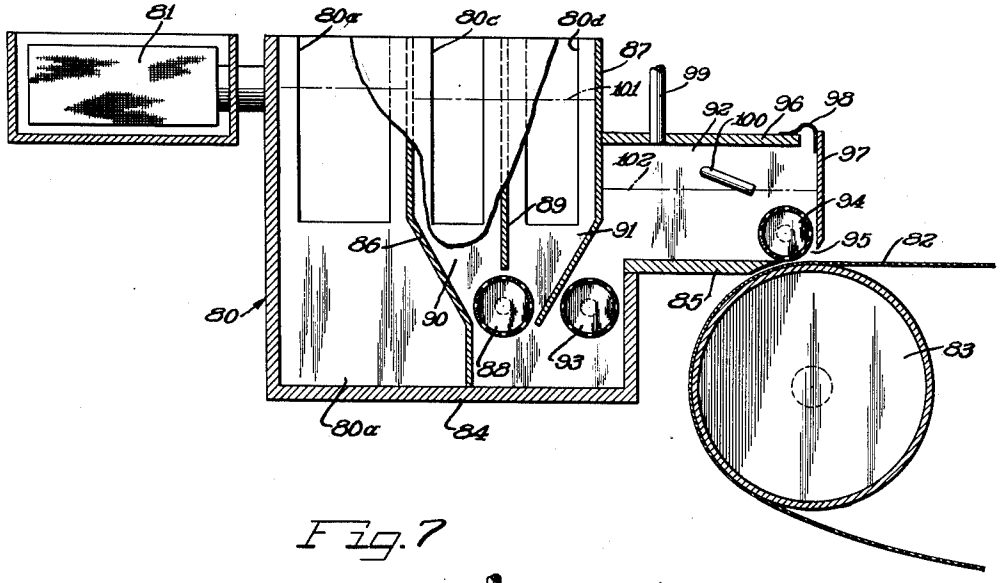
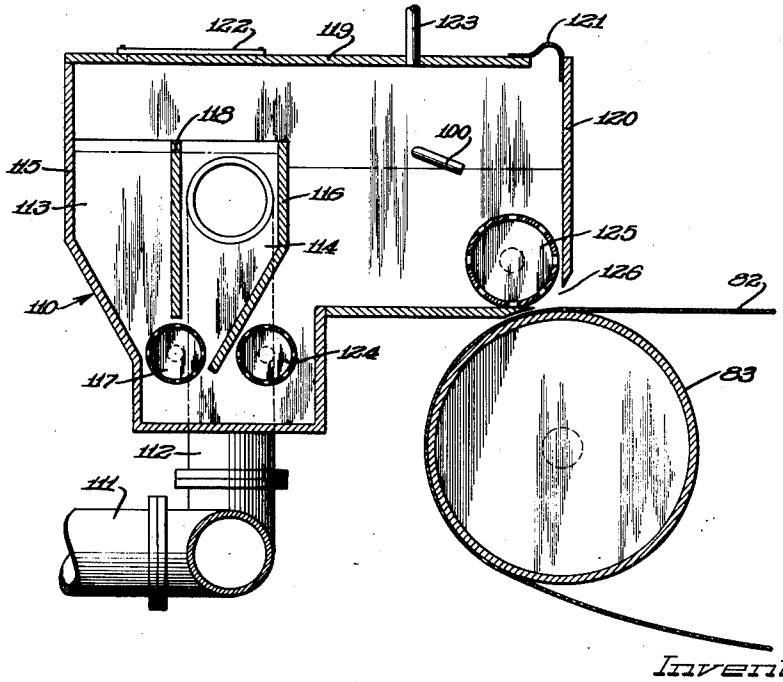


Fig. 7



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UNITED STATES PATENT OFFICE

2,677,992

STOCK DISTRIBUTOR FOR PAPERMAKING MACHINES

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Application February 5, 1949, Serial No. 74,730

7 Claims. (Cl. 92—44)

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The present invention relates to a stock distributor for a paper making machine and more particularly to a cross-flow paper stock distributor which eliminates eddy currents and insures even fiber deposition across the entire width of the forming surface of a paper making machine.

The stock distributor of this invention is adapted to be mounted within a stock inlet for introducing paper stock onto the forming surface of either a Fourdrinier or cylinder-type paper making machine. Stock flowing into the inlet may be pretreated in accordance with conventional practices in the art and stock issuing from the inlet flows onto the paper making machine forming wire surface.

Preferably, in both the Fourdrinier and cylinder-type machines, the stock distributor of the present invention is mounted in the inlet end of the machine and stock flowing therethrough is divided into oppositely directed moving streams for introduction into a pair of adjacent flow conduits separated by a common wall and by flow control means cooperating with this common wall and in gravity-fed stock flow communication with the conduits. As an example of suitable flow control means, a conventional rectifying roll mounted directly beneath the common wall may be employed. The exterior conduit walls are inclined inwardly towards the common wall in closely spaced relation to the flow control means. The flow control means and the common center wall, in cooperation with the adjacent flow conduit walls, serve to convert the oppositely flowing stock streams, which are preferably discharged simultaneously from each of the flow conduits, into a single, unidirectional stream. The separate streams are thus merged into a single stream with the elimination of eddy currents and cross-flow velocities and this merger is effected directly prior to the introduction of the paper stock onto a paper making machine forming wire as hereinbefore described.

If desired, the entire stock inlet, or only the portion thereof between the slice and the rectifying roll receiving the oppositely flowing stock streams may be pressurized. Further, if desired, the slice outlet may be at a level above the stock merging rectifier roll so that this roll will always be submerged in stock during operation of the inlet.

Thus, in each type of paper making machine, stock is introduced onto the forming surface under uniform flow conditions and an even fiber deposition occurs across the entire width of the paper making machine forming surface. The cross-flow velocity of the stock has been converted into a uniform lateral exit feed velocity prior to its introduction onto the forming surface to insure advantageous fiber deposition. Further, in the stock distributor of the present invention, it is not necessary to employ super-atmospheric pressure to obtain these improved results. Thus, the relatively inexpensive, easily maintained stock inlet equipped with my improved stock distributor represents a distinct forward step in the art and the advantages residing in the present invention will be evident to those skilled in the art.

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It is, therefore, an important object of the present invention to provide a cross-flow stock distributor for a paper making machine in which eddy currents and cross-flow velocities present in stock flowing into the machine are eliminated by dividing the stock stream into separate oppositely flowing components and merging these components by gravity flow of stock prior to the introduction of the stock onto the paper forming surface.

Another object of the present invention is to provide a cross-flow type stock distributor for a paper making machine in which cross-flow velocities and eddy currents within a pair of opposite stock streams are eliminated by gravity flow through suitable merging means so that the stock subsequently introduced onto the forming wire of the paper making machine takes place at a uniform, unidirectional velocity to insure an even fiber deposition across the entire face of the machine forming surface.

It is a still further important object of the present invention to provide an inlet box adapted for either a Fourdrinier-type or a cylinder-type paper making machine having an improved stock distributor mounted therein to eliminate eddy currents and cross-flow velocities normally present in the stock flowing to the machine forming wire, the distributor serving to divide stock flow through the box into a pair of oppositely directed streams which are subsequently merged by gravity flow through rectifying means prior to introduction of the stock onto the forming surface of the machine, whereby an even deposition of stock fibers cross the forming surface is insured.

Yet another object of the present invention is to provide a cross-flow type stock distributor for use with either a Fourdrinier or a cylinder-type paper making machine, the stock distributor having a pair of adjacent conduits into which stock is introduced as oppositely flowing stock streams, means for simultaneously discharging stock from each of said conduits and means for merging stock gravity-fed from each of said conduits into a single unidirectional stream having uniform flow characteristics for subsequent introduction onto the forming wire surface of the machine.

An additional object of the present invention is to provide a cross-flow type stock distributor for use with a paper making machine stock inlet and

including means defining a pair of adjacent conduits into which stock is introduced as oppositely flowing stock streams and means below the conduits receiving stock by gravity flow therefrom for merging stock simultaneously discharged from each of the conduits, with the last mentioned means being completely submerged even at the lowest possible operable stock level within the stock inlet.

It is still another important object of the present invention to provide an inlet box for use with a paper making machine having an improved cross-flow stock distributor mounted therein and means for subjecting that portion of the inlet box immediately in advance of the forming wire of the paper making machine to super-atmospheric pressures while maintaining stock flow thru the stock distributor at either atmospheric or super-atmospheric pressures as demanded by operating conditions of the machine with which the inlet box is employed.

Other and further objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

On the drawings:

Figure 1 is a top plan view of a stock inlet box for a Fourdrinier-type paper making machine equipped with a stock distributor of the present invention;

Figure 2 is a cross-sectional view taken along the plane II—II of Figure 1;

Figure 3 is a top plan view of a cylinder-type paper making machine equipped with a modified form of a stock distributor of the present invention;

Figure 4 is a cross-sectional view taken along the plane IV—IV of Figure 3;

Figure 5 is a cross-sectional view taken along the plane V—V of Figure 3;

Figure 6 is a vertical cross-sectional view of a stock inlet box for a Fourdrinier-type paper making machine equipped with an additional modified form of the stock distributor of the present invention; and

Figure 7 is a view similar to Figure 6 illustrating still another modified form of the present invention adapted for use with a Fourdrinier-type paper making machine.

As shown on the drawings:

In Figure 1, reference numeral 10 refers generally to an inlet box for a Fourdrinier-type paper making machine, the box 10 receiving stock from screens 11 for subsequent introduction onto the forming wire 12 lapped about breast roll 13 in a conventional Fourdrinier-type paper making machine.

The open-topped inlet box 10 is defined generally by a bottom wall 14 terminating in a forward, arcuate, apron-portion 14*a*, a pair of side walls 15, a rear wall 17 and a forward wall 18 overlying breast roll 13. The side walls 15 are cut away as at 15*a* to provide an outlet above the breast roll 13 and the wire for paper stock contained within box 10 and the forward wall 18 has a lower terminal edge 18*a* spaced above the forming wire 12, the edges 15*a* and 18*a* defining an outlet passage communicating with forming surface 12.

A stock reservoir chamber 19 is defined within the inlet box 10 by a rear end wall 17, the bottom wall 14, the side walls 15 and an intermediate wall 20 extending between the side walls 15 and contacting the bottom wall 14. The intermediate wall 20 is formed with a vertical rearward portion 20*a*, a downwardly and forwardly extending

center portion 20*b*, and a vertical bottom portion 20*c*. The stock reservoir 19 receives stock from the screens 11 through inlet passages or conduits 21 establishing communication therebetween. A second intermediate wall 22 is positioned between the wall 20 and the forward wall 18, the wall 22 being provided with a generally vertical upper portion 22*a* and a rearwardly and downwardly extending inlined portion 22*b* terminating in spaced relation with the lower edge of center portion 20*b* of wall 20.

A rectifier roll 23 is journaled in bearings carried by the side walls 15 and extends transversely across the box 10 to lie between the sloping wall sections 20*b* and 22*b*. A vertical wall 24 is positioned centrally above the rectifying roll 23 and terminates in spaced relation thereabove.

The walls 20, 22 and 24 define a pair of adjacent flow conduits 25 and 26 separated by the wall 24 and rectifying roll 23. Flow from the reservoir 19 into these conduits 25 and 26 is established by means of open-topped conduits 27 and 28 carried by the side walls 15, one of the side walls 15 being apertured as at 29 and 30 to allow flow as indicated by the directional arrows from chamber 19 to conduit 25 through conduit 27 and the other side wall 15 being apertured as at 31 and 32 to establish flow from chamber 19 to conduit 26 through conduit 28.

It will readily be seen that flow of stock, as indicated by the directional arrows in Figure 1, will be established in opposite directions within the chambers 25 and 26, respectively. The oppositely directed stock streams within these chambers will flow under the influence of gravity downwardly and in order to flow from the conduit must pass through the apertured periphery of the rectifier roll 23. The rectifier roll 23 is rotated by suitable conventional means (not shown) and serves to rectify the stock flow so that the united stream issuing therefrom flows in a single direction with the elimination of eddy currents and cross-currents.

This even, unilateral flow from the rectifier roll 23 is directed into a pond chamber 33 defined by the bottom wall 14, the side walls 15, the intermediate wall 20 and the forward wall 18. The stock in the pond chamber 33 may be maintained at any desired level by correlating the height of stock in the reservoir 19, the rate of flow of stock through the rectifier roll 23 and the rate of stock flow through silencer roll 34 to deposit fibers upon wire 12 at any desired thickness. A pair of slices 35 and 36 are mounted within the box between silencer roll 34 and the forward wall 18, with the rear slice 35 contacting the surface of the silencer roll 34 and extending in spaced relation to the portion 14*a* of the bottom wall 14 of box 10. The forward slice 18 extends into closely spaced relation with the wire 12 wrapped about the press roll 13 to aid in determining the thickness of deposited fibers formed thereon.

In the form of the invention illustrated in Figures 3 to 5 of the drawings, reference numeral 40 refers generally to a cylinder type paper making machine including a vat defined by side walls 41 and end walls 42. Arcuate partition walls 43 are mounted within the vat to carry boards 44 defining an open-topped vat circle 45. A cylinder mold 46 is rotatably mounted in the vat circle 45 on bearings 45*a* carried by side walls 41. Conventional partition walls are arranged in the vat to provide a trap or sump 47 at the bottom of the vat circle 45, the trap

47 being drained by an outlet box 48 and conduit 49.

The interior of the cylinder mold 46 discharges through an opening in one of the side walls 41 of the vat designated in dotted outline at 50. An additional opening 51 is provided to supplement opening 50, the two openings in conjunction controlling drainage of white water out of the interior of the cylinder mold, the water flowing outwardly through the open end of the mold. The openings 50 and 51 discharge through suitable means communicating with a conduit 52 to remove white water from the paper machine in a manner well understood in the art.

An additional discharge conduit 53 is provided to remove white water overflow from conduit 52. The interior of cylinder mold 46 may be evacuated, as by means of a fan or other suction device, through conduit 54 communicating with the upper portion of cylinder bowl 46.

Paper stock is supplied to the vat circle 45 from a flow inlet box indicated generally at 55. The flow inlet box 55 comprises a stock inlet conduit 56 adjacent each side wall 41 of a cylinder machine, a flow distributor 57 receiving flow from the conduits 56, and a passage 58 for conveying pulp suspension from the distributor 57 to the vat circle 45.

Flow distributor 57 is essentially identical with the distributor hereinbefore described in that a pair of adjacent flow conduits 59 and 60 are defined by spaced upstanding walls 61 and 62 having lower inclined wall portions 61*a* and 62*a*, respectively. The lower terminal edges of wall portions 62*a* and 61*a* are closely spaced from one another with wall 61 being provided with a lower extreme portion 61*b* extending vertically downwardly beyond portion 61*a*.

A rectifier roll 63, having closed circular end faces 63*a* (Figure 5) is mounted on a shaft 64 to extend between the closely spaced parallel edges of inclined wall portions 61*a* and 62*a*, as hereinbefore described in connection with rectifier 23 of the device illustrated in Figures 1 and 2. Shaft 64 is journaled in conventional bearings carried by opposing end walls 65. A vertically extending wall 66 is positioned centrally above rectifying roll 63 and terminates in spaced relation thereabove to serve as a common wall for chambers 59 and 60.

Stock flow from one of the conduits 56 is introduced into chamber 60 through an open topped conduit chamber 67 in full communication with one end of chamber 60. A baffle 68 extends inwardly from conduit 67 into conduit 59 for reasons hereinafter more fully described. A second open topped conduit 69 provides communication from the other inlet conduit 56 into chamber 59 and a second baffle 70, similar to baffle 68, is also provided as best shown in Figure 3. The baffles 68 and 70 extend downwardly into contact with plates 71 which are secured to wall sections 61*a* and 62*a* to close the gap therebetween beyond the terminal ends 63*a* of rectifying roll 63, thus preventing flow of stock from conduits 59 and 60 to bypass roll 63.

In the operation of the stock distributor illustrated in Figures 3 to 5, stock flowing through inlet 56 is introduced simultaneously into each of the conduits 59 and 60. The stock flow is oppositely directed in these conduits with the re-circulation of stock being possible through

re-circulation passages 72 defined between center wall 66 and baffles 68 and 69. Stock flow thus takes place so that circulation within the entire distributor in a counterclockwise direction is possible. This re-circulation of stock serves to keep the stock level within the two conduits 59 and 60 at a uniform level and prevents the formation of non-circulating pockets at the end of the conduits in which dirt and other residue carried by the stock may accumulate.

Stock flows from the conduits 59 and 60 by gravity through rectifier roll 63 and into a communicating passage 58. Stock flow from the two conduits is thus merged into a single stream with the elimination of cross-flow and eddy currents present in the oppositely flowing streams. The single unidirectional stream then passes through conduit 58 into vat circle 45 for introduction onto the forming surface of the cylinder mold 46.

In the modification of the present invention illustrated in Figure 6 of the drawings, reference numeral 80 refers generally to an inlet box for a Fourdrinier-type paper making machine, the box 80 receiving stock from screens 81 for subsequent introduction onto the paper machine forming wire 82 lapped about breast roll 83.

That portion of the inlet box 80 immediately ahead of screens 81 and receiving stock therefrom is provided with an open topped stock distributor similar in design and operation to that of Figure 1 of the drawings. However, it will be noted that the rear portion of the inlet box 80 is provided with a lower wall 84 at a level below the bottom wall 85 of the outlet end of the inlet box 80. The recessed portion of inlet box 80 is provided with a transversely extending wall 86 having vertical upper and lower sections and a sloping central section as hereinbefore defined in connection with the wall 20 of Figure 2. A second intermediate wall 87 corresponding to wall 22 of Figure 2 is provided in the inlet box 80 in spaced relation to the wall 86. A rectifier roll 88 is mounted between walls 86 and 87 as hereinbefore described in connection with the rectifier roll 23 of Figure 2 and a vertical wall 89 is spaced slightly above the rectifier roll 88 as also hereinbefore described. The walls 86, 87 and 89 cooperate to define flow conduits 90 and 91 similar to the conduits 25 and 26 hereinbefore described into which oppositely directed stock streams may be introduced from the screens 81.

Stock from the screens 81 is introduced directly into stock reservoir 80*a* similar to reservoir 19 and stock flow to conduits 90 and 91 is established thru open topped conduits similar to conduits 27 and 28 of Figure 1 and communicating with reservoir 80*a* thru apertures 80*b*, 80*c* and 80*d* in the side walls of inlet box 80.

It will be noted that stock flow from the conduits 90 and 91 will pass through rectifier roll 88 to be merged into a single, unidirectional stream in the manner hereinbefore described. This unidirectional stream next flows into a pond chamber 92 in the forward end of box 80 from which stock is introduced directly onto the forming wire 82. Stock from the rectifier roll 88 passes through an additional rectifier roll 93 during its passage into pond chamber 92 and through still another rectifier roll 94 positioned in the outlet 95 of the box 80.

The pond chamber 92 is provided with a top closure wall 96, a front closure wall 97 extending

into closely spaced relation to rectifier roll 94 to serve as a slice, therefore, and a flexible sealing member 98 joining walls 96 and 97 with a gas-tight fitting while permitting relative movement of wall 97 relative to roll 94 and to top wall 96. Top closure wall 96 carries a conduit 99 connected to a suitable source of air under pressure (not shown) for subjecting the closed pond chamber 92 to super-atmospheric pressure.

Chamber 92 is provided with a stock level control comprising a pipe 100 providing a vent to atmospheric pressure. The operation of the automatic level control will be obvious to those skilled in the art inasmuch as when the stock level within the chambers 92 drops below the opening of pipe 100, chamber 92 is vented to atmosphere and by this lessening of pressure stock level in the chamber will be raised by flow from the stock distributor hereinbefore described. When the stock level covers the end of pipe 100, pressure within the box increases and the flow of stock into chamber 92 of the stock distributor is resisted by this increased pressure.

The relative stock levels within chamber 92 and the stock distributor conduits 90 and 91 are represented by dotted lines 101 and 102, respectively. It will be appreciated that the hydrostatic head generated by the stock level difference between the stock in the conduits 90 and 91 and in the chamber 92 must be equivalent to or greater than the air pressure within chamber 92 or no stock flow from conduits 90 and 91 will occur into chamber 92.

It will be readily seen by those skilled in the art that the present invention thus provides means for subjecting stock to super-atmospheric pressure only in that portion of the inlet immediately in advance of the forming wire surface onto which stock is introduced from the inlet box. Further, it will be noted that rectifier roll 88 is below pond chamber outlet orifice 95, thus insuring the submergence of rectifier roll 88 within the stock passing through the inlet box at all times during which any stock flow through the box occurs. Thus the inlet box illustrated in Figure 6 is particularly adapted for use with paper making machines operating at very low forming surface speeds and very low stock levels. Further, the automatic level control of this modification of the present invention insures the introduction of a constant amount of stock onto the forming wire 82 at all times.

In the modification of the invention illustrated in Figure 7 of the drawings, reference numeral 110 refers generally to a modified form of stock inlet box employing a stock distributor similar to those hereinbefore described. Stock is introduced to the inlet box 110 through a branched pipe fitting including pipe 111 connected to a suitable source of paper stock, and a pair of branch lines 112, only one of which is shown, for introducing oppositely directed stock streams into stock flow conduits 113 and 114. Adjacent stock flow conduits 113 and 114 are defined by side wall 115 of inlet box 110, intermediate wall 116 extending transversely of inlet box 110 in spaced relation to wall 115, rectifier roll 117 mounted between walls 115 and 116 and vertically extending wall 118 mounted between walls 115 and 116 and extending into closely spaced relation to rectifier roll 117.

It will be noted that stock flow conduits 113 and 114 are entirely contained within inlet box 110 which is provided with an upper closure wall 119 and a forward closure wall 120 connected to wall 119 by flexible member 121 similar to number 98 hereinbefore described in connection with Figure 6. Access to the flow distributor conduits 113 and 114 is provided by manhole cover 122 in closure wall 119, the wall 119 also carrying a conduit 123 adapted for supplying air or other gas under atmospheric pressure to the interior of closed inlet box 110.

Thus, it may be seen that in this modification of the invention both the stock distributor and that portion of the inlet box immediately adjacent the forming wire may be subjected to super-atmospheric pressure by gases introduced through the conduit 123. Stock flow through conduit 111 and conduit 112 is pumped under pressure into the inlet box to overcome the pressure therein. This pressure may, if desired, be generated by the location of screens, similar to the screens 81 of Figure 6, at a position sufficiently above the level of inlet box 110 to provide a hydrostatic head sufficient to overcome super-atmospheric pressure within the inlet box 110.

The operation of the modification illustrated in Figure 7 is substantially the same as that of the modification illustrated in Figure 6 with the merged stock stream being rectified by rectifier roll 117, by second rectifier roll 124 and by an additional rectifier roll 125 located in the outlet orifice 126 of inlet box 110.

It will, of course, be appreciated by those skilled in the art that by the use of the various modified forms of the invention illustrated in the figures of the drawings that it is possible to employ the stock distributor of the present invention in a box inlet through which stock is flowed at all times at atmospheric pressure, as illustrated in Figs. 1–5 inclusive; that the stock may be subjected to pressure within the inlet box immediately before it is introduced onto the forming wire of the paper making machine, as in Figure 6; and that the stock may be subjected to super-atmospheric pressures at all times when it is within the stock inlet box, as in Figure 7.

The adaptability of the present invention to the various operating conditions which may prove expedient for any given paper making machine of either the Fourdrinier or cylinder-type will be readily appreciated and this adaptability constitutes one of the advantages residing in the present invention.

It will also be seen that in each of the embodiments of the present invention, shown in Figures 1–7 inclusive, the stock is gravity-fed from the oppositely directed streams through the rectifier roll. This employment of gravitational flow to the stream merging means also constitutes one of the advantages of the present invention and the improved results obtained thereby, namely in eliminating the necessity of pumping stock to the merging means, will be appreciated by those skilled in the art.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A stock distributor adapted for mounting between stock inlet and outlet passages of a stock inlet head box for introducing stock onto the forming wire of a paper making machine, said distributor comprising a pair of conduits having a common partitioning wall therebetween and a

common restricted bottom outlet communicating with said stock outlet passage, a first stock duct interconnecting said inlet passage and one end of one of said conduits for flowing stock thereinto in one direction and a second stock duct interconnecting said inlet passage and the opposite end of the other of said conduits for flowing stock thereinto in the opposite direction, and a rectifier roll mounted in said common restriction outlet beneath said common wall to receive gravity flow of stock from said conduits for merging said oppositely flowing streams into a single stream for introduction into said pond chamber and subsequent deposition upon said forming wire under atmospheric conditions.

2. In a stock inlet for a paper making machine, a stock distributor comprising a pair of elongated conduits, a common wall mounted between said conduits while allowing communication therebetween, a first stock inlet communicating with one end of one of said conduits, and a second stock inlet communicating with the opposite end of the other of said conduits, said conduits having a common restricted outlet directly underlying said common wall, rectifier roll means mounted within said common outlet in close running relation to said common wall for merging stock flow from each of said conduits into a single unidirectional stream and means for introducing said unidirectional stream onto the forming wire surface of said paper making machines, said common wall between said conduits allowing re-circulation of stock therebetween to prevent the formation of stagnant pools of stock therein.

3. In a stock inlet for a cylinder-type paper making machine, a stock distributor comprising a pair of conduits adapted to receive oppositely flowing streams of stock, said conduits having a common partition wall and a common restricted outlet communicating with each of said conduits, a first stock inlet communicating with one end of one of said conduits and a second stock inlet communicating with the opposite end of the other of said conduits a rectifier roll mounted directly beneath said common partitioning wall within said common outlet and in gravity-fed stock flow communication with said conduits for rectifying said oppositely directed stream into a single unidirectional stream, and means for introducing said single stream of said rectifier roll onto the cylinder mold of said cylinder machine.

4. In a stock inlet for a paper making machine, a stock distributor comprising a conduit adapted for stock flow therethrough and having upstanding side walls and converging lower walls, said lower walls defining a central restricted discharge outlet at the conduit bottom, and an upstanding central wall directly above and terminating short of said outlet to divide said conduit into a pair of interior adjacent stock passages each communicating with said outlet, first stock flow means communicating with said conduit through one of the side walls and on one side of the central wall and second stock flow means communicating with said conduit through the opposite side wall and on the opposite side of the central wall for creating oppositely directed stock flow streams in said conduit and a rectifier roll interposed between said central wall and said outlet to extend into said outlet and into closely spaced relation with said wall, said roll also extending in closely spaced relation to said lower walls to substantially fill said restricted orifice, said roll thus receiving gravity stock discharge to said stock passages and merging said discharge into a single stream issuing therefrom.

5. In a stock inlet for a paper making machine having means for subjecting stock flow through the inlet to superatmospheric pressure, a stock distributor comprising a conduit for receiving stock flow and having upstanding side walls, converging lower walls defining a central restricted discharge outlet conduit bottom, and an upstanding central wall directly above and terminating short of said outlet to divide said conduit into a pair of interior adjacent stock flow passages each communicating with said outlet, first stock flow means communicating with said conduit through one of the side walls and on one side of the central wall and second stock flow means communicating with said conduit through the opposite side wall and on the opposite side of the central wall for creating oppositely directed stock flow streams in said conduit and a rectifier roll disposed in said conduit between said central wall and said outlet to prevent discharge from either of said passages except through said roll, said roll thus receiving gravity stock discharge from the stock passages and merging said discharge into a single stream issuing therefrom.

6. In combination, front, back and a pair of side walls defining a stock distributor box, a partition wall extending between the side walls to define a pair of adjacent conduits, a first stock flow duct feeding stock into one conduit through one of the side walls, a second stock flow duct feeding stock into the other conduit through the other side wall, said front, back and partition walls defining adjacent restricted bottom outlets for said conduits, and a rectifier roll rotatably mounted in said restricted bottom outlet and cooperating with said walls in close running relation therewith to effectively prevent stock discharge from either of said conduits except through said rectifier roll.

7. In combination, front, back and a pair of side walls defining a stock distributor box, a partition wall extending between the side walls to divide the box into a pair of adjacent conduits, first flow means on one side wall communicating with one conduit and second flow means on the opposite side wall communicating with the other conduit for directing oppositely flowing stock streams into said conduits, said front and back walls being slanted inwardly toward said partition wall near their bottoms to define adjacent elongated restricted conduit bottom outlets, a rectifier roll rotatably journalled in said outlets below and in close running relation to the bottoms of said front, back and partition walls.

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