July 14, 1959 G. I. GOUMENIOUK 2,894,581

FLUID STOCK DISTRIBUTOR

Filed March 26, 1957 3 Sheets-Sheet 1

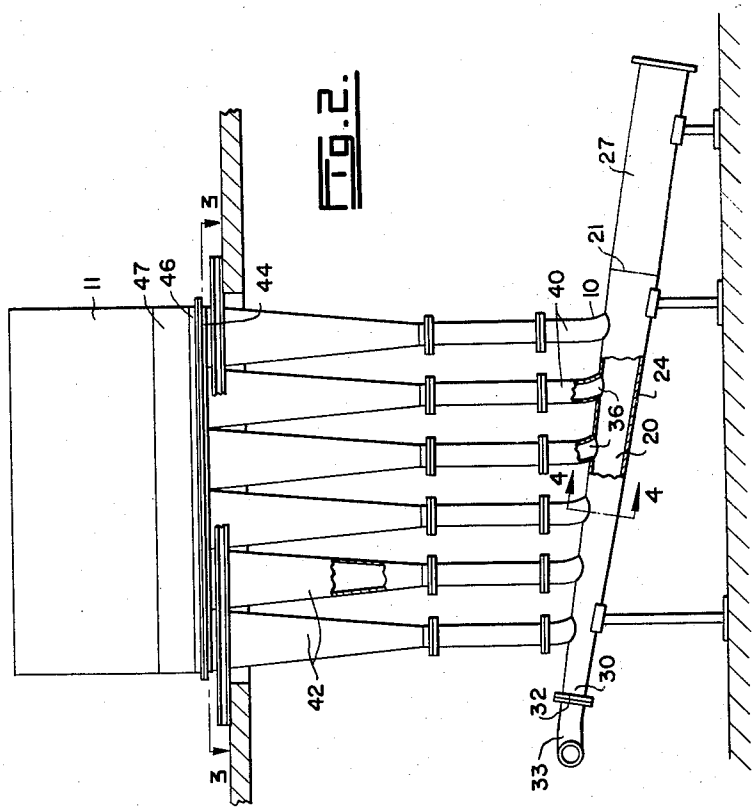


Fig. 2.

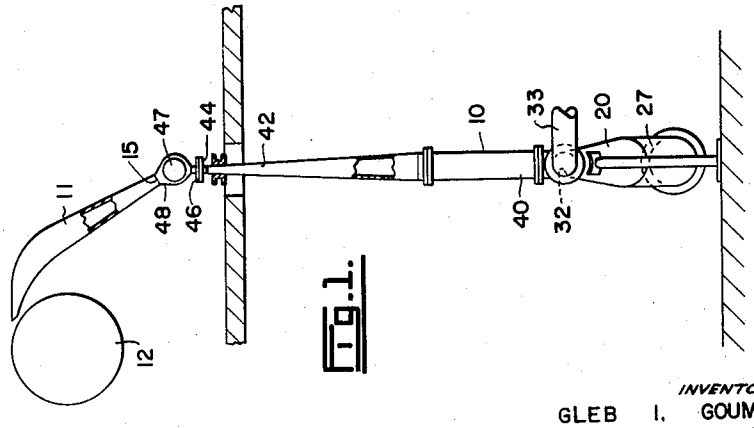


Fig. 1.

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FLUID STOCK DISTRIBUTOR

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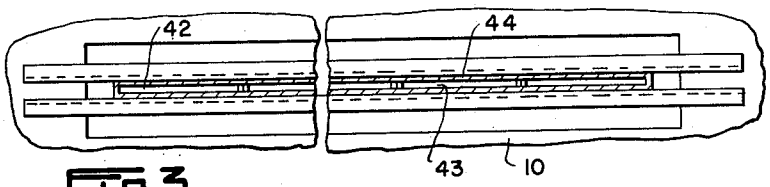


Fig. 3.

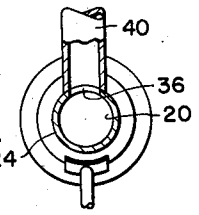


Fig. 4.

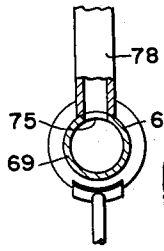


Fig. 7.

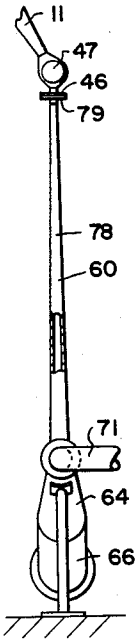


Fig. 5.

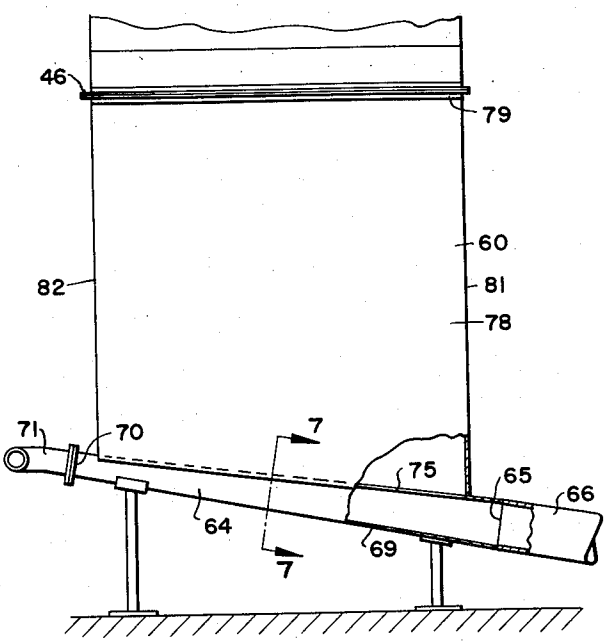


Fig. 6.

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FLUID STOCK DISTRIBUTOR

Filed March 26, 1957 3 Sheets-Sheet 3

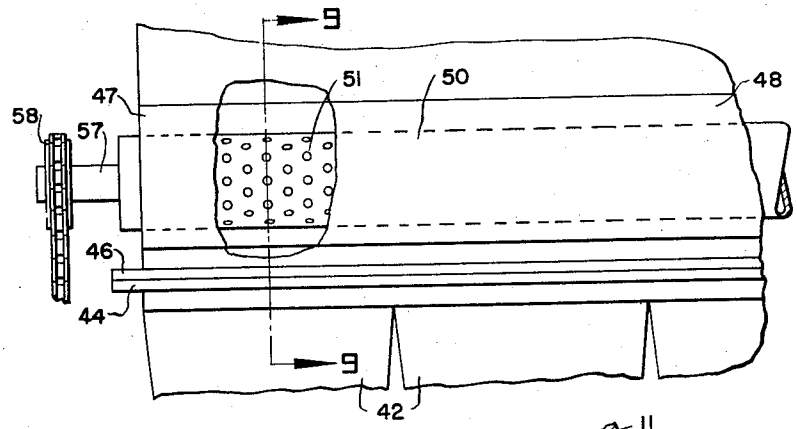


Fig. 8.

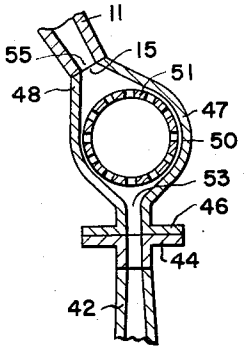


Fig. 9.

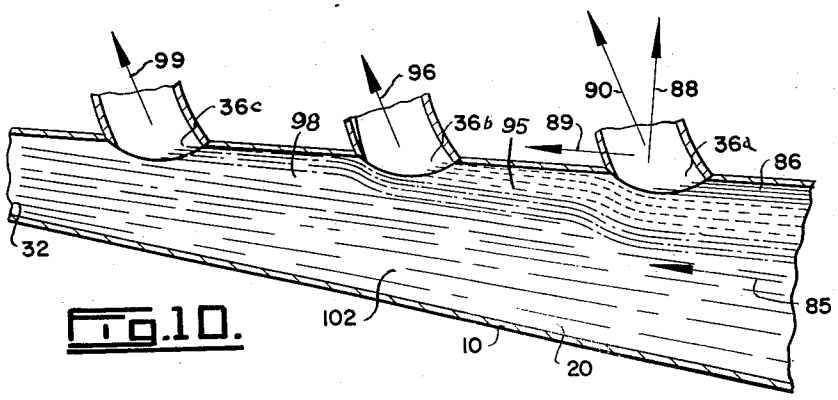


Fig. 10.

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FLUID STOCK DISTRIBUTOR

Gleb I. Goumeniouk, West Vancouver, British Columbia, Canada, assignor to Rice Barton Corporation, Worcester, Mass.

Application March 26, 1957, Serial No. 648,558

16 Claims. (Cl. 162—339)

This invention relates to a distributor for transforming fluid stock from pipe flow to smooth even sheet flow.

While this distributor is primarily designed to supply paper or pulp stock to the head box of a paper making machine, and it is so described therein, it is to be understood that the distributor may displace the head box, and that it may be used for any other purpose where it is desired to convert pipe flow of a fluid to a sheet flow without creating undue disturbances in the flow.

The problem of supplying pulp stock or furnish to the head box of paper making machines is well known. The difficulty is the result of the fact that stock pumped through a pipe must be converted into a very wide thin sheet before its delivery to the drainage section of a pulp or paper machine. Many attempts have been made to produce the wide sheet flow without eddies and other disturbances therein, but these have not been completely successful.

A multiple stage flow-splitting distributor has been used in an effort to solve this problem. In theory this type of distributor divides the flow equally across the head box by a series of equal splits of the flow at rectangular T's. Experimental work has shown that in order for the flow to be equally split at each T, it is desirable to have approximately fifty diameters of straight pipe after each preceding elbow in each pipe leading to a T. The cost and space requirements of such an arrangement are prohibitive.

Cross flow distributors have been tried, but it is known that they are subject to instabilities, and create eddies. In theory this type of entry was considered to give a perfect stock distribution across the width of the machine. In practice, however, the distribution is not perfect because of the exaggeration of disturbances in the flow upstream of the distributor. In addition to this, the opposing transverse components of stock velocity do not fully cancel as they leave the slot of the distributor, but give rise to vortices and cross component remnants which often persist right through the stock inlet on to the fourdrinier wire.

T-type and Y-type headers have been tried. A predominant defect in these is that a considerably higher flow exists in the branch pipes leading to the head box which are adjacent the feed pipe of the header, and a considerable amount of stock deposition and blocking takes place in the branch pipes near the outer ends of the header.

A distributor according to the present invention eliminates the defects of the prior distributors without increasing the cost or the amount of space required. In fact, this distributor performs so well that it may be used with head boxes of very much smaller dimensions than those in general use today; and ultimately, this distributor may be used in place of a head box, in which case, the sheet flow is discharged directly on to the wire.

The present distributor comprises an elongated distributor chamber having an inlet at one end and through which stock flows in a longitudinal direction from the

inlet, said chamber having a wall gently angled relative to the inlet and across the path of flow of the stock, and outlet means in said angled wall extending substantially the length of the chamber through which stock flows laterally from said chamber, whereby the pressure of the stock in the chamber and the inertia of the flow along the chamber create a resultant flow laterally from the outlet means which is substantially constant through the width of the discharge from the distributor.

This distributor utilizes the natural forces associated with the flow of stock along the distributor chamber to produce a lateral flow from the side of said chamber throughout the length thereof without creating undue disturbance of the flow either in the chamber or away therefrom.

Examples of this invention are illustrated in the accompanying drawings, in which,

Figure 1 is an end view of one form of distributor connected to a head box, said distributor including branch pipes,

Figure 2 is a front elevation of the distributor of Figure 1,

Figure 3 is an enlarged section taken on the line 3—3 of Figure 2,

Figure 4 is an enlarged fragmentary section taken on the line 4—4 of Figure 2,

Figure 5 is an end view similar to Figure 1 of another form of distributor, including a wide thin channel,

Figure 6 is a front elevation of the distributor of Figure 5,

Figure 7 is an enlarged fragmentary section taken on the line 7—7 of Figure 6,

Figure 8 is an enlarged detail of a distributor roll at the end of the stock distributor and the entrance to the head box, said distributor roll being useful with either of the illustrated forms of the invention, but being shown with the distributor of Figures 1 and 2,

Figure 9 is a fragmentary section taken on the line 9—9 of Figure 8, and

Figure 10 is a diagram illustrating the flow theory of the stock distributor.

Referring to Figures 1 to 4 of the drawings, **10** is one form of distributor associated with a head box **11** of a paper making machine **12**. Any type of head box may be used, head box **11** being shown only for the purpose of illustration. As the construction and operation of head boxes are well known, they do not need description herein.

Head box **11** is made wide enough to supply stock to the machine **12** sufficient to form a sheet of a desired width. The box has a thin wide entrance **15**, at one end and a similar discharge outlet or slice at its opposite end where it can discharge on to the machine **12**.

The distributor **10** includes an elongated distributor chamber **20** having an inlet or entrance **21** at one end. This chamber has a wall **24** which is generally angled relative to the inlet, as clearly shown in Figure 2. It is constructed so as to have the cross sectional area of the chamber diminish from its inlet to its opposite end, and in practice it has been found desirable to make the chamber in the form of a pipe which tapers inwardly from the inlet **21**.

Pulp stock in fluid form is supplied to the distributor chamber **20** in any desired manner. It is, however, desirable to provide a section of pipe **27**, with or without added flow-stabilizing devices, which is connected to the entrance end of the chamber and is in line therewith. This straightens out the flow of stock and makes it relatively uniform throughout its cross sectional area before it enters the distributor chamber. Pipe **27** is connected to a suitable stock supply, not shown. The stock directed to the chamber through inlet **21** flows in a longitudinal

direction from said inlet. The wall 24 of the chamber is generally angled across the path of flow of the stock. Although the end 30 of the distributor chamber opposite its inlet 21 may be closed, it is preferable to have a relatively small discharge opening 32 therein so that some of the stock flows out through this opening into a pipe 33 which returns it to the stock source for recirculation.

Outlet means is provided in the angled wall 24 of the distributor chamber extending substantially the length of the latter. In this example of the invention, the outlet means is in the form of a plurality of spaced apertures 36 in the wall, the first aperture being near the inlet 21, and the last aperture near the discharge opening 32. Each of these apertures is relatively small compared to the initial size of the distributing chamber, and the total area of these apertures plus that of the discharge opening 32 is smaller than the area of entrance 21.

A branch pipe 40 is connected to and extends outwardly from the angled wall 24 of the distributor chamber over each aperture 36 thereof. The ends of the branch pipes remote from the distributor chamber are gradually flattened out into thin relatively wide channels 42 lying in a common plane. By referring to Figures 2 and 3, it will be seen that these channels are located side by side and create a substantially continuous discharge slot 43 extending from one end to the other of the distributor chamber but directed outwardly therefrom. The channels 42 are connected together by a flange arrangement 44. The channels may be connected directly to the entrance 15 and head box 11. However, in the illustrated form of the invention, flange 44 is connected to a flange 46 of a distributor roll assembly 47 located between the channels and the head box entrance, said assembly being connected to the head box at 48, see Figure 1.

The assembly 47 includes a cylindrical chamber 50, the length of which is substantially the same as the width of the head box. A perforated distributor roll 51 is rotatably mounted in this chamber and extends the length thereof. The dimensions of the chamber and roll are such that the latter just fits in the former, see Figures 8 and 9. The housing 50 has a slot-like entrance 53 which opens through flange 46 so that when the latter is connected to flange 44, the chamber entrance registers with the slots of the channels 42. The roll chamber also has an outlet 55 which may or may not taper down to the inlet 15 of the head box. All stock emerging from the slots of channels 42 passes through roll 51 before reaching the head box. This roll is rotated in any desired manner by a suitable source of power, not shown. A shaft 57 may project from the roll out through the end of housing 50 and have a sprocket 58 thereon for connection to a source of power, such as an electric motor.

By referring to Figure 2, it will be seen that the branch pipes 40 are progressively shorter from the aperture 36 near the chamber inlet 21 towards the opposite end of said chamber.

During operation, pulp stock is directed through pipe 27 into the distributor chamber 20 through the entrance 21 of the latter. The stock flows laterally from the chamber through apertures 30 in the angled wall 24, and if the discharge opening 32 is provided, some of the stock flows out through it into pipe 33 for recirculation. Branch pipes 40 direct the stock passing through apertures 36 into the flattened out thin relatively wide channels 42. The stock emerges from the thin slots of these channels in the form of a wide thin sheet which passes through distributor roll 51 into and through head box 11 whence it is discharged on to the screen of the paper making machine 12. The theory regarding the flow of stock in and from the distributor chamber will be hereinafter described.

Figures 5, 6 and 7 illustrate a stock distributor 60 which is an alternative form of the invention. This distributor includes an elongated distributor chamber 64 having at one end an inlet 65. Stock is supplied to the chamber from a suitable source, not shown, through a straight pipe 66, with or without additional flow stabilizing devices, connected to the chamber inlet. This chamber also has a wall 69 gently angled relative to the chamber inlet and across the path of flow of the stock in the chamber, and it may have a discharge opening 70 at its end opposite the inlet, said opening having a pipe 71 connected thereto for directing stock back to the stock source for recirculation. This distributor chamber diminishes in cross section from its entrance.

In this form of the invention, the outlet means of the distributor chamber is in the form of thin outlet slots 75 in the angled wall 69 and extending substantially the length of the chamber. A wide thin channel 78 is connected to and extends outwardly from the angled wall 69 of the distributor chamber over the slot 75 therein, the interior of the channel being substantially the same size and shape as said slot. The outer end of this channel is provided with a flange 79 which may be connected directly to the entrance of the head box 11, or it may be connected to flange 46 of the distributor roll assembly 47. The side 81 of channel 78 at the end of outlet slot 75 near the chamber inlet 65, is longer than the opposite side 82 of said channel.

The stock distributor 60 operates in much the same manner as distributor 10 described above. The flow of stock from the source is straightened out and made uniform by pipe 66, and it flows generally longitudinally through the distributor chamber 64. Stock passes laterally through the elongated thin slot 75 into channel 78 which directs it in the form of a sheet to the distributor roll assembly 47 or if the latter is not used, to the entrance of the head box 11.

Figure 10 diagrammatically illustrates the theory of the flow of the stock through distributor 10. The stock flows longitudinally along the distributor chamber 20 in the general direction of arrow 85. The portion or filament of the stock in line with aperture 36*a* and designated 86 flows out through said aperture. The pressure of the stock in the pipe tends to move this stock in the direction of arrow 88, but the inertia of the stock tends to move it in the direction of arrow 89. This creates a resultant flow in the general direction of arrow 90. The stock 95 in line with aperture 36*b* moves past aperture 36*a* and out through aperture 36*b*. Here the stock force and inertia result in a flow in the direction of arrow 96 which is approximately parallel to arrow 90. Stock 98 flows past aperture 36*b* and out through aperture 36*c* and along the resultant course indicated by arrow 99. Stock 102 in the distributor chamber flows past aperture 36*c* and out through discharge opening 32.

Only three apertures have been shown in Figure 10 since the flow at and through all the apertures is substantially the same. It will be noted that the conditions at each aperture are the same as those at the other apertures so that the flow conditions out of the distributor chamber are the same throughout the length thereof. As the stock flows laterally through each aperture, substantially without disturbing the flow of stock towards the next aperture in the chamber, there are no serious disturbances set up in the stock flow which could carry on to and through the head box, and which would show up in the sheet formed on the paper machine. In other words, the stock is directed out of the distributor chamber with a minimum of disturbance so that the sheet flow from the channels 42 is smooth and even.

Owing to the fact that the branch pipes 40 are arranged to get progressively shorter towards the discharge opening end of the distributor chamber, the stock travels substantially through the same hydraulic distance from the chamber entrance through each branch pipe to the discharge slot thereof. This means that the friction loss for each filament of stock flow from the chamber entrance through one of the branch pipes is substantially the same

as that for the filament of flow through each of the other pipes.

The distributor roll assembly may or may not be used. It is desirable to use it since the flow of stock down the centre of the distributor chamber is subjected to less friction than that flowing along the side walls thereof. Therefore, there is a slight tendency for the stock to flow a little faster through the centre group of branch pipes than through the pipes near the opposite ends of the chamber, especially if the pipes are very short. The rotating distributor roll **51** completely masks this tendency. As this roll slidably fits within a cylindrical housing, all the stock must pass through it and is subjected to the same treatment throughout the entire width or diameter of the roll. The cylindrical housing prevents any appreciable amount of the stock from getting around the outside of the roll.

The theory described above also applies to distributor **60**. However, instead of the stock flowing laterally through a plurality of spaced apertures, it flows laterally evenly throughout the length of the distributor chamber through slot **75**. Thus, the stock flows in sheet form from the chamber and is directed in this form through channel **78** to the distributor roll assembly **47** and/or the head box. Thus, the flow of stock is converted to a sheet flow at the distributor chamber and is maintained in that condition right through to the paper making machine **12**. This is considered an ideal condition.

As the length of channel **78** diminishes from its side **81** to side **82**, the friction loss for every filament of flow of stock through the distributor chamber and channel is substantially the same as that for all others.

What I claim as my invention is:

1. A distributor for transforming fluid stock from pipe flow to smooth even sheet flow, comprising an elongated distributor chamber having an inlet opening at one end extending across the longitudinal axis thereof, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock, and outlet means completely in said angled wall extending substantially the length of the chamber through which stock flows laterally from said chamber, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet means which is substantially constant through the width of the discharge from the distributor.

2. A stock distributor as claimed in claim 1 in which the outlet means comprises a thin slot in the angled wall.

3. A stock distributor as claimed in claim 1 in which the outlet means comprises a plurality of spaced apertures in the angled wall, said apertures being small relative to the inlet of the chamber.

4. A distributor for transforming fluid stock from pipe flow to smooth even sheet flow, comprising an elongated distributor chamber having an inlet opening at one end, extending across the longitudinal axis thereof, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock, outlet means completely in said angled wall extending substantially the length of the chamber through which stock flows laterally from said chamber, and a small discharge opening at the end of the chamber remote from and in line with the inlet opening thereof and just clear of the outlet means, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet means which is substantially constant throughout the width of said resultant flow, and the flow through the discharge opening prevents distortion of the resultant flow from the adjacent part of the outlet means.

5. A distributor for transforming fluid stock from pipe flow to smooth even sheet flow, comprising an elongated distributor chamber having an inlet opening at one end extending across the longitudinal axis thereof, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock, a thin outlet slot in said angled wall extending substantially the length of the chamber through which stock flows laterally from said chamber, and a small discharge opening at the end of the chamber remote from and in line with the inlet opening thereof and just clear of the outlet slot, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet slot which is substantially constant throughout the width of said resultant flow, and the flow through the discharge opening prevents distortion of the resultant flow from the adjacent end of the outlet slot.

6. A distributor for transforming fluid stock from pipe flow to smooth even sheet flow, comprising an elongated distributor chamber having an inlet opening at one end extending across the longitudinal axis thereof, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock, a plurality of spaced apertures completely in said angled wall substantially throughout the length of the chamber through which stock flows laterally from said chamber, and a small discharge opening at the end of the chamber remote from and in line with the inlet opening thereof and just clear of the aperture farthest from the inlet opening, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet apertures which is substantially the same through all said apertures, and the flow through the discharge opening prevents distortion of the resultant flow from the adjacent aperture.

7. A distributor for transforming fluid stock from pipe flow to smooth even sheet flow, comprising an elongated distributor chamber having an inlet opening at one end extending across the longitudinal axis thereof, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock, a thin outlet slot in said angled wall extending substantially the length of the chamber through which stock flows laterally from said chamber, a thin and wide channel connected to and extending outwardly from the angled wall of the distributor chamber over the slot therein, the interior of the channel being substantially the same size and shape as the slot, and a small discharge opening at the end of the chamber remote from and in line with the inlet opening thereof and just clear of the

slot, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the slot which is substantially the same throughout the width of said slot, and the flow through the end discharge opening prevents distortion of the resultant flow from the adjacent end of the slot.

8. A stock distributor as claimed in claim 7 in which the side of the channel at the end of the outlet slot near the chamber inlet opening is longer than the opposite side of the channel.

9. A distributor for transforming fluid stock from pipe flow to smooth even sheet flow, comprising an elongated distributor chamber having an inlet opening at one end extending across the longitudinal axis thereof, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock, a plurality of spaced apertures completely in said angled wall substantially throughout the length of the chamber through which stock flows laterally from said chamber, a branch pipe connected to and extending outwardly from the angled wall of the distributor chamber over each aperture thereof, and a small discharge opening at the end of the chamber remote from and in line with the inlet, thereof and just clear of the aperture farthest from the inlet opening, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet opening direction without the necessity of mechanical means create a resultant even flow laterally from the outlet apertures which is substantially the same through all said apertures, and the flow through the discharge opening prevents distortion of the resultant flow from the adjacent aperture.

10. A stock distributor as claimed in claim 9 in which the branch pipes are progressively shorter from the aperture near the chamber inlet opening towards the opposite end of the chamber.

11. A stock distributor as claimed in claim 9 in which the ends of the branch pipes remote from the distributor chamber are gradually flattened out into thin relatively wide channels lying in a common plane, said channels being side by side.

12. A distributor for transforming fluid stock from pipe flow to smooth even and wide sheet flow in a direction laterally from the distributor, comprising an elongated distributing chamber substantially in the plane of the desired wide sheet flow and inclined from an inlet opening in one end thereof in across-the-sheet-flow direction towards said flow direction, said inlet opening extending across the longitudinal axis of the chamber, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock in the chamber, outlet means in said angled wall extending substantially the length of the chamber through which stock flows laterally from said chamber, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet means which is substantially constant through the width of the discharge from the distributor, and passage means at and communicating with said said outlet means for receiving said created resultant flow of stock and conveying it away from the distributor.

13. A distributor for transforming fluid from pipe flow to smooth even and wide sheet flow in a direction laterally from the distributor, comprising an elongated distributing chamber substantially in the plane of the desired wide sheet flow and inclined from an inlet opening in one end thereof in across-the-sheet-flow direction towards said flow direction, said inlet opening extending across the longitudinal axis of the chamber, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock in the chamber, a plurality of spaced apertures in said angle wall substantially throughout the length of the chamber through which stock flows laterally from said chamber, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet apertures which is substantially the same through all said apertures, and a branch pipe connected to and extending outwardly from the angled wall of the chamber over each aperture thereof for receiving said created resultant flow of stock and conveying it away from the distributor.

14. A distributor for transforming fluid from pipe flow to smooth even and wide sheet flow in a direction laterally from the distributor, comprising an elongated distributing chamber substantially in the plane of the desired wide sheet flow and inclined from an inlet opening in one end thereof in across-the-sheet-flow direction towards said flow direction, said inlet opening extending across the longitudinal axis of the chamber, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock in the chamber, a thin outlet slot in said angled wall extending substantially the length of the chamber through which stock flow laterally from said chamber, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the slot which is substantially the same throughout the width of said slot, and a thin and wide channel connected to and extending outwardly from the angled wall of the chamber over the slot therein, the interior of the channel being substantially the same size and shape as the slot, said channel receiving said created resultant flow of stock and conveying it away from the distributor.

15. A distributor for transforming fluid from pipe flow to smooth even and wide sheet flow in a direction laterally from the distributor, comprising an elongated distributing chamber substantially in the plane of the desired wide sheet flow and inclined from an inlet opening in one end thereof in across-the-sheet-flow direction towards said flow direction, said inlet opening extending across the longitudinal axis of the chamber, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently angled relative to the inlet direction and across the path of flow of the stock in the chamber, a plurality of spaced apertures in said angled wall substantially throughout the length of the chamber through which stock flows laterally from said chamber, a small discharge opening at the end of the chamber remote from and in line with the inlet

opening thereof and just clear of the aperture farthest from the inlet opening, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the outlet apertures which is substantially the same through all said apertures, and the flow through the discharge opening prevents distortion of the resultant flow from the adjacent aperture, and a branch pipe connected to and extending outwardly from the angled wall of the chamber over each aperture thereof for receiving said created resultant flow of stock and conveying it away from the distributor.

16. A distributor for transforming fluid from pipe flow to smooth even and wide sheet flow in a direction laterally from the distributor, comprising an elongated distributing chamber substantially in the plane of the desired wide sheet flow and inclined from an inlet opening in one end thereof in across-the-sheet-flow direction towards said flow direction, said inlet opening extending across the longitudinal axis of the chamber, a stock supply pipe substantially axially aligned with the chamber and connected to the chamber inlet opening, whereby stock from the supply pipe enters the chamber axially thereof substantially without turbulence, said chamber diminishing in cross sectional area from the entrance and towards the opposite end thereof and having a wall gently

angled relative to the inlet direction and across the path of flow of the stock in the chamber, a thin outlet slot in said angled wall extending substantially the length of the chamber through which stock flow laterally from said chamber, a small discharge opening at the end of the chamber remote from and in line with the inlet opening thereof and just clear of the slot, whereby the pressure of the stock in the chamber and the inertia of the stock in the inlet direction without the necessity of mechanical means create a resultant even flow laterally from the slot which is substantially the same throughout the width of the slot, and the flow through the discharge opening prevents distortion of the resultant flow from the adjacent end of the slot, and a thin wide channel connected to and extending outwardly from the angled wall of the chamber over the slot therein, the interior of the channel being substantially the same size and shape as the slot, said channel receiving said created resultant flow of stock and conveying it away from the distributor.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,894,581

July 14, 1959

Gleb I. Goumeniouk

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 41, for "and" read -- end --; line 51, for "through" read --throughout --; same column 5, line 67, column 6, lines 16, 40, 64, and column 7, line 20, for "and", each occurrence, read -- end --; same column 7, line 30, for "inlet, thereof" read -- inlet opening thereof --; line 33, after "inlet" strike out "opening"; same column 7, line 61, and column 8, line 12, for "and" read -- end --; line 16, for "angle" read -- angled --; line 39, for "and" read -- end --; same column 8, line 44, for "flow" read -- flows --; same column 8, line 68, and column 9, line 25, for "and" read -- end --; column 10, line 4, for "flow" read -- flows --.

Signed and sealed this 26th day of April 1960.

(SEAL)

Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents