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FIBER SUSPENSION DISTRIBUTOR FOR THE INLET
OF PAPER-MAKING MACHINES
Filed Jan. 18, 1965

3,486,972

FIG. 1

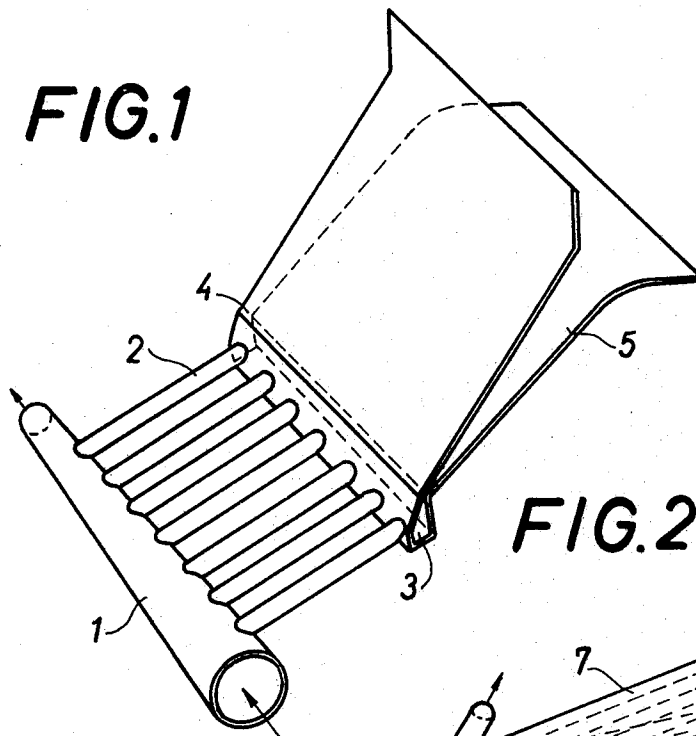


FIG. 2

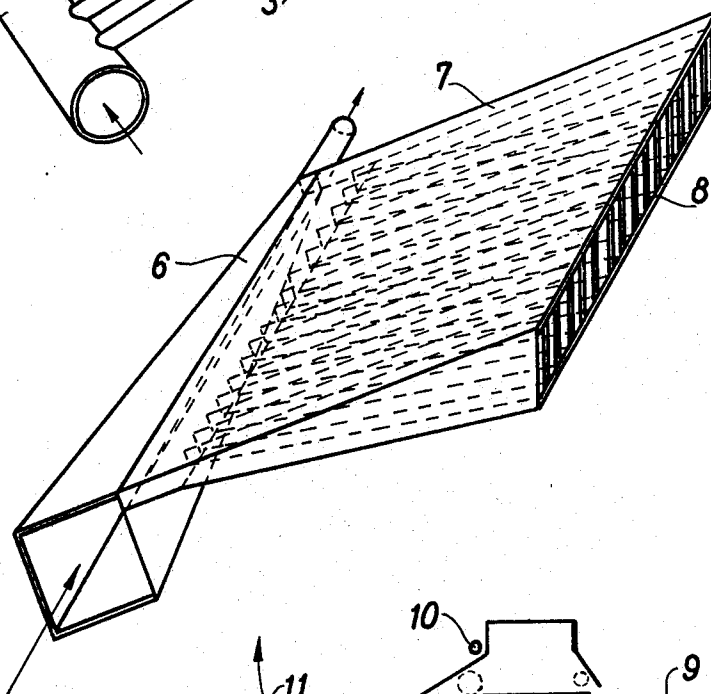
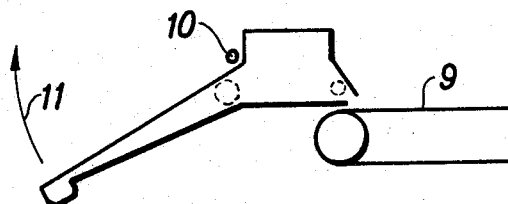


FIG. 3



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FIBER SUSPENSION DISTRIBUTOR FOR THE INLET OF PAPER-MAKING MACHINES

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7 Claims

ABSTRACT OF THE DISCLOSURE

A fiber suspension distributor for the inlet of paper machines comprises a tapered distributing pipe having a continuous slot along its length. The slot communicates with the open ends of a plurality of rectangular channels that are separated by upright partitions whose upstream end edges are exposed to but spaced from the slot.

The present invention relates to a fiber suspension distributor in paper machines of a type most similar to the conventional manifold distributor.

By a distributor for fiber suspension in paper machines is meant the system which conveys the fiber suspension to the so-called breast box, and from thence out through a distributing slot onto the wire. The distributor shall provide an even distribution or flow of the fiber suspension over the whole width of the machine.

Various types of distributors are known, amongst others may be mentioned the branch-pipe distributor, the flow distributor, and finally the manifold distributor. Since the distributor according to the invention is most similar to a manifold distributor, this is described more closely. The fiber suspension is conveyed into a pipe having decreasing sectional area and flows out through a series of cylindrical pipes, the so-called directional pipes, which are disposed perpendicular to the said conical pipe. The directional pipes discharge into the so-called distribution chamber, which lies transversely of the directional pipes and connects these with one another. This distribution chamber is provided with a slot from which it passes into a funnel shaped box, the so-called diffusor, from whence the fiber mass flows into the breast box. The various members of this system have the following functions:

In the conical distributor pipe an equalizing of pressure throughout the whole machine is effected, so that the total pressure is, so far as possible, equal at all points in the distributing pipe. The directional pipes are primarily for forcing the mass to flow in the axial direction of the paper machine. These pipes also provide a relatively great resistance to the through-flow in order to contribute towards a better equalizing of the pressure in the distributing pipe. The distribution chamber receives the flows from the directional pipes and provides a further equalizing of said flows. The distribution chamber ends, as mentioned in a slot whose purpose is to improve the equalizing by causing a pressure drop across the slot and an equivalent increase of pressure in front of it. In the diffusor the flow is retarded slowly in order that the velocity in the actual breast box does not become too high.

The distribution system described above is a complicated mechanism relatively expensive in production. It occupies a comparatively large space and is difficult to keep clean.

The object of the present invention is to provide a distributor which is cheaper to make, demands less space, is easy to keep clean and, moreover, is more effective than a conventional manifold system.

This is obtained according to the invention by combining the members which were previously called directional pipes and diffusor, and a characteristic of the invention is that on the cylindrical distributing pipe is disposed a funnel divided into a plurality of channels through which the fiber mass flows from the distributing pipe and directly up into the inlet box. The channels in this divided funnel are thus closely adjacent to one another and effect the necessary unidirection of the fiber suspension, while at the same time the velocity in the fiber mass is retarded, by reason of the funnel shape of the channels, before it passes into the breast box.

The invention is described more closely in the following with reference to the drawing, where

FIG. 1 shows a conventional distributor of the manifold type,

FIG. 2 shows the distributor according to the invention, and

FIG. 3 shows a diagrammatical view of the distributor combined with the discharge box having a discharge slot.

In a manifold distributor of conventional type, as shown in FIG. 1, the fiber suspension is conveyed to a conical distributing pipe 1. From thence the mass flows through the directional pipes 2 into the distribution chamber 3. The conical distributing pipe 1 is often open also at the narrow end in order to recirculate a portion of the mass so as thereby to avoid an accumulation of fibers, and also to obtain the best possible pressure distribution. The suspension then flows through the slot 4 from the distribution chamber 3 into the so-called diffusor 5, where the velocity is reduced. From thence the suspension flows into the breast box and from thence onto the paper machine's wire.

This complicated and expensive construction is replaced according to the invention by the device shown in FIG. 2. Also here the mass is distributed in a conical distributing pipe 6. The mass then flows perpendicularly out from this distributing pipe into a funnel shaped member 7, which is divided into a plurality of channels 8 closely adjacent to one another. The portion of the funnel closest to the distributing pipe, is not divided into channels.

FIG. 3 shows the disposition of the device in relation to the paper machine's wire 9. To ensure easy cleaning, the cover of the distributor is rotatably mounted about an axle 10, and may be swung upwardly in the direction of the arrow 11.

What is claimed is:

1. A fiber suspension distributor for the inlet of paper machines, comprising a tapered distributing pipe having a slot therein elongated in the direction of the length of the distributing pipe, and means defining a plurality of channels extending perpendicular to the distributing pipe and having their ends adjacent the distributing pipe exposed to said slot.

2. A distributor as claimed in claim 1, said means defining channels comprising a plurality of upright partitions that have end edges exposed to said slot.

3. A distributor as claimed in claim 2, said end edges being spaced a substantial distance from said slot across an unimpeded space.

4. A distributor as claimed in claim 1, said elongated slot being a single slot that extends substantially full length of the portion of said tapered distributing pipe that extends past said channels.

5. A distributor as claimed in claim 1, said channels being rectangular in cross section, the openings into said channels adjacent said slot being rectangular.

6. A distributor as claimed in claim 1, said channels having a cross section that progressively increases in

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area in a direction away from said slot for at least most of the length of the channel.

7. A distributor as claimed in claim 1, and means mounting an upper portion of the distributor for vertical swinging movement about a horizontal axis disposed adjacent the upper side of said channels at a point remote from said slot.

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U.S. Cl. X.R.

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