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STOCK INLET CONTROL FOR PAPER MAKING MACHINES

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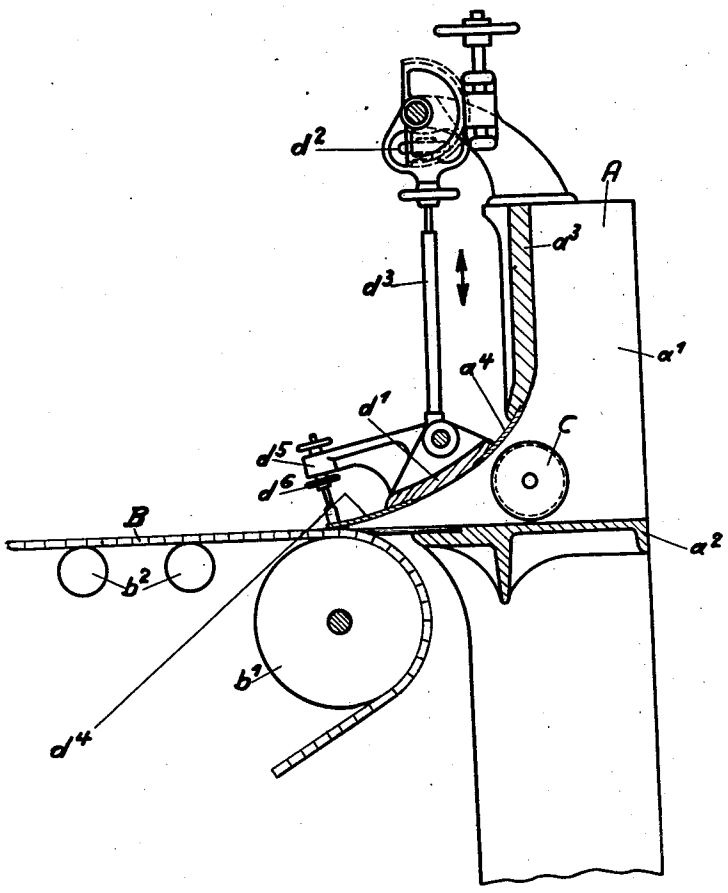

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STOCK INLET CONTROL FOR PAPER MAKING MACHINES

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3 Claims. (Cl. 92—44)

The invention relates to a stock inlet for Fourdrinier and similar machines, and has for its purpose and object to provide means whereby to control the angle at which the stock stream is laid down on the wire. By the present invention, provision is made for obtaining any desired discharge angle between the upper portion of the inlet and the wire while the discharge section remains constant.

In stock inlets as hitherto known, a change of the discharge section at the orifice has caused at the same time a change in the discharge angle dimension between the top and bottom lip portions. In certain cases it is, however, desirable to provide for the adjustment of the discharge angle irrespective of the orifice opening. In some instances the front wall of the inlet has, therefore, been made in two parts while the lower part of the wall carrying the upper lip of the adjustable discharge orifice has been made horizontally adjustable. In another arangement the whole front wall with the discharge orifice attached to it was made vertically adjustable. Such arrangement required, however, complicated and heavy mechanisms for adjusting the vat wall and also required the employment of seals between the stationary and the moving parts.

The present invitation consists in providing the upper portion or lip of the stock inlet with an adjusting board which extends over the whole width of the box and is connected between two flexible parts, one of which is connected with the inlet structure and the other of which is supported from the adjusting board itself. Said parts are adjustable in the direction of their width and relative to the adjusting board. Arranged in this way, parts of the upper lip of the stock inlet are adjustable with respect to each other and as well with respect to the vat itself.

With the foregoing and other objects in view, the invention consists in the construction, combination and relative arangement of parts hereinafter described and claimed.

The annexed drawing shows one example of the invention and represents a vertical central section through the stock inlet of a Fourdrinier machine, this view being taken in the direction of the flow of the stock.

Referring in detail to the drawing, stock inlet A, through which the stock passes to the wire B, having support by breast roll b^1 and table rolls b^2 in well known manner, includes vat a^1 and discharge table a^2, the latter forming the bottom of the vat. In front of the discharge orifice, there is the usual perforated roll C.

The upper portion or lip of the orifice consists of an adjusting board d^1 which extends transversely across the vat and is here represented as connected with a conventional type of raising and lowering device d^2 by means of spindles d^3. The connection between front wall a^3 of the vat and adjusting board d^1 is effected by a flexible strip a^4 which permits different adjustments of board d^1. The fore part of the discharge orifice is formed by a flexible strip d^4, which is suspended from holders d^5 and connected with board d^1. By means of adjusting screws d^6 associated with the holders d^5, strip d^4 can over the whole width thereof be very finely adjusted.

The advantage of the invention lies in the adjustability of the several upper portions of the inlet, made possible by the flexibility of the flexible strips. This provides for a precise adjustment of the flow conditions so as to suit the special characteristics of the various paper stocks. By making the upper lip structure in several independently adjustable sections, changes in the outlet section can be made independent of the angle adjustment of the upper lip with respect to the wire. It is, therefore, possible to adjust any desired discharge angle without changing the discharge section. Another important advantage is that various stock flows can be obtained with this new arrangement, it being possible through the adjustments to form the upper lip into either curved or flat form, as desired. The shape of the orifice and the undisturbed flow of the stock from the vat through the discharge orifice have an important bearing on the position assumed by the fibres. In a long, narrow discharge orifice the fibres mostly assume a longitudinally disposed position in the direction of flow, and this has a disadvantageous influence on the lateral strength of the sheet. A short discharge opening and consequent small space between distributor roll and discharge slit reduces the tendency of the fibres to assume a lengthwise position, since the mixing effect of the roll extends to almost the discharge slit. With the invention favorable sectional conditions behind the distributor roll may be obtained and may be induced at will without the discharge conditions at the discharge orifice having to be changed. By means of these various measures it is, therefore, possible to bring about a far reaching influence on the manner in which the stock reaches the wire and thereby on the formation of the sheet.

It will be evident that the construction hereinbefore set forth is capable of a considerable range of change and modification without in any

manner departing from the spirit of my invention and I accordingly do not wish to be understood as limiting myself to the specific details of construction hereinbefore set forth except as hereinafter claimed.

I claim:—

1. In a Fourdrinier or like machine, the combination with a stock container and a wire of a stock discharge device, said stock container having a roll close to the stock discharge device, including a non-flexible adjusting board, means on the container to adjust said board, a flexible connection extending from said adjusting board to the stock container, a flexible member extending from the other end of the adjusting board and having free ends, and means supported on the adjusting board for adjusting the free ends of the second flexible member from the adjusting board independently of the adjustment of the adjusting board itself, whereby the size of the continuous discharge outlet with respect to the wire which receives the stock through such outlet and the discharge angle of the stock to the wire may be varied.

2. In a Fourdrinier or like machine, the combination with a stock and a wire, and stock container having a stock discharge device, the combination of a flexible member secured to the front wall of said stock container, an adjustment member secured to the free end of the flexible member, a flexible member secured to the free end of the adjustment member, means for adjusting the adjustment member, and means on the adjustment member to adjust the free end flexible member, the flexible member secured to the container wall and to the adjustment member being curved, in continuity with the general line of curvature of the adjustment member and free flexible member, whereby the upper limitation of the stock flowing from the inner part of the container to the discharge opening has an uninterrupted and smooth conduction at any cross section of the discharge or at any angle, without stream resistances or eddies.

3. In a Fourdrinier or like machine, the combination set forth in claim 2, in which the means on the adjustment member for adjusting the free flexible end is of one piece with the adjustment member.

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