Sept. 29, 1953 E. J. WORDEN 2,653,566

WEB COATING MACHINE

Filed Jan. 18, 1951

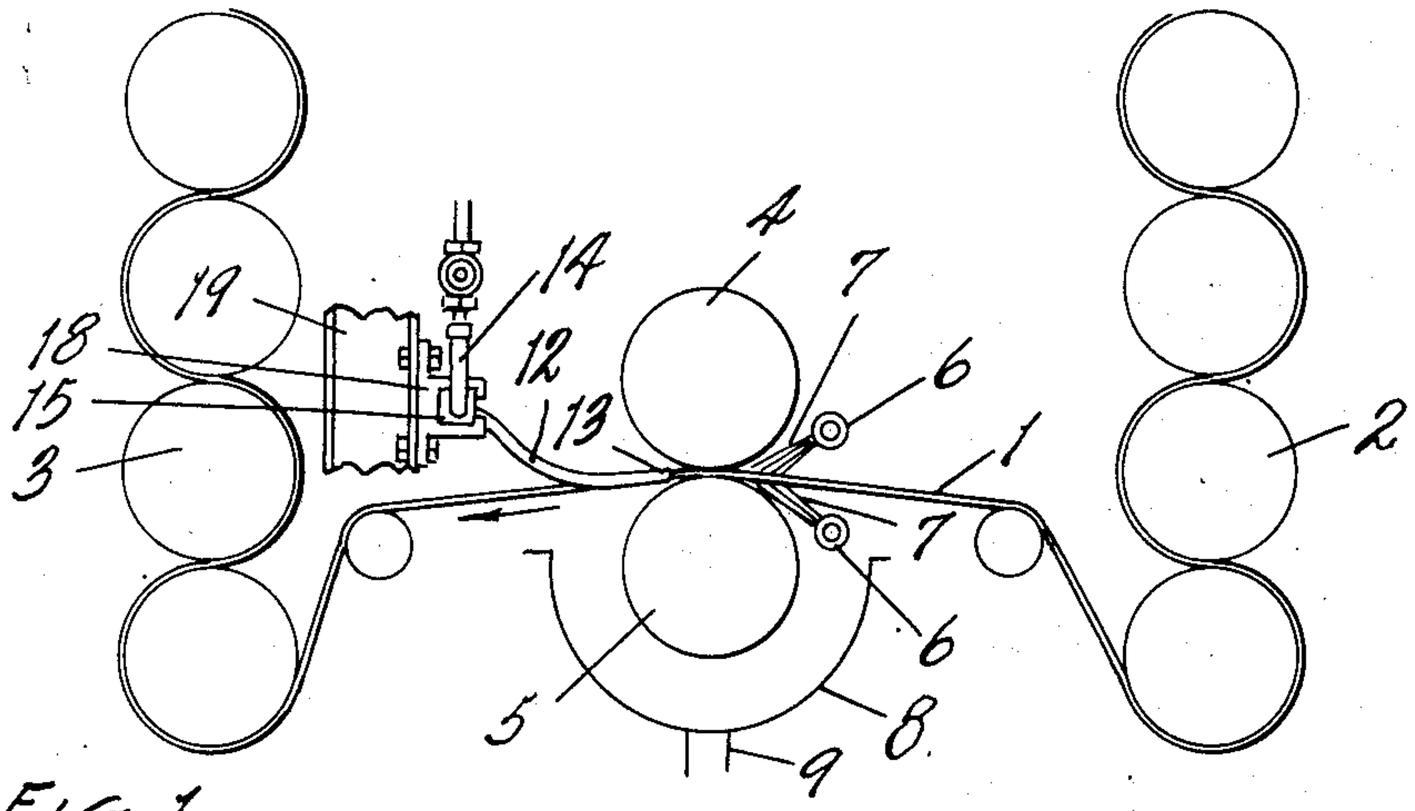

FIG. 1

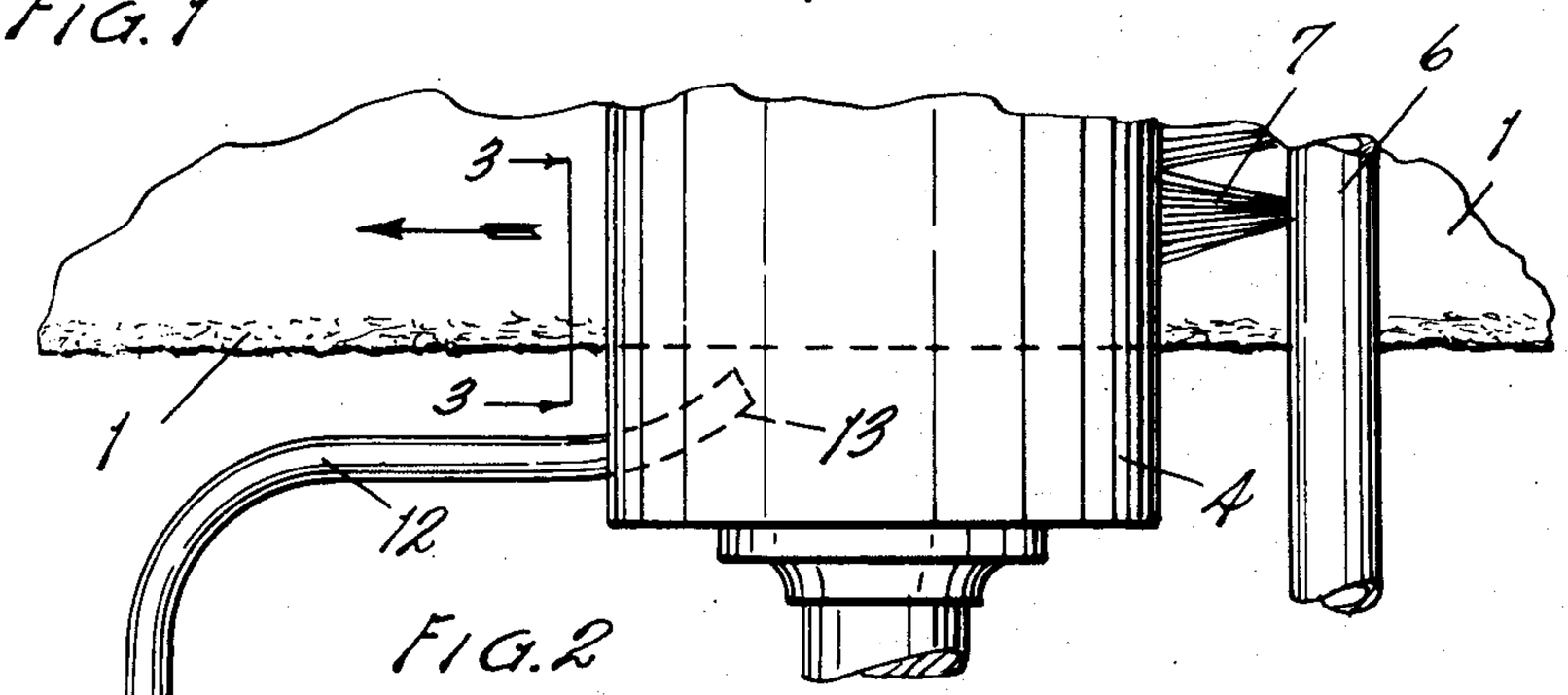

FIG. 2

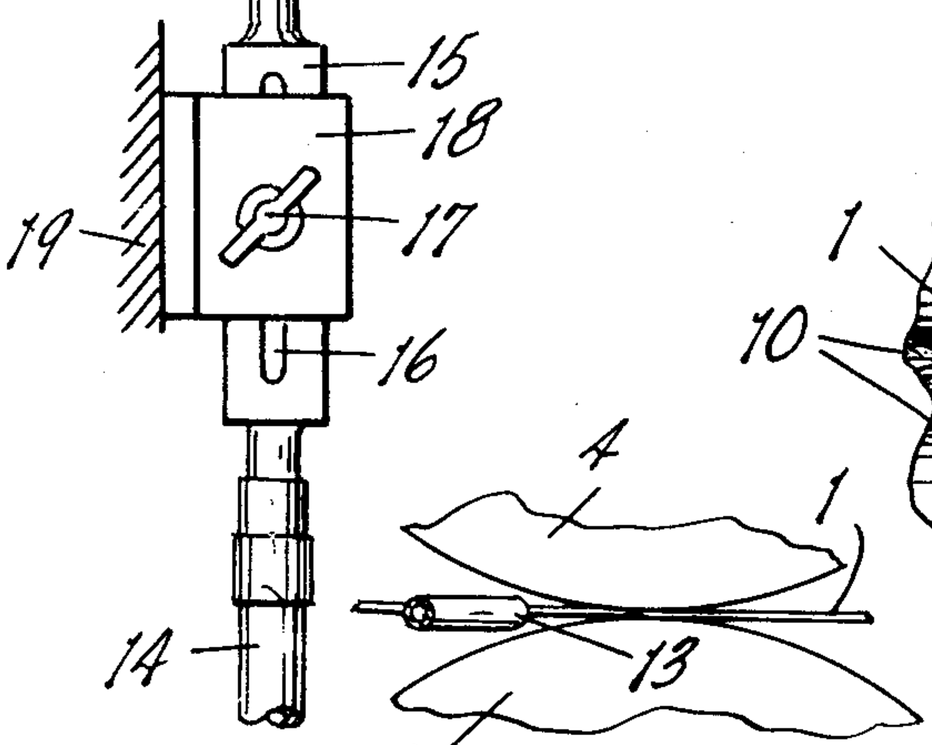

FIG. 4

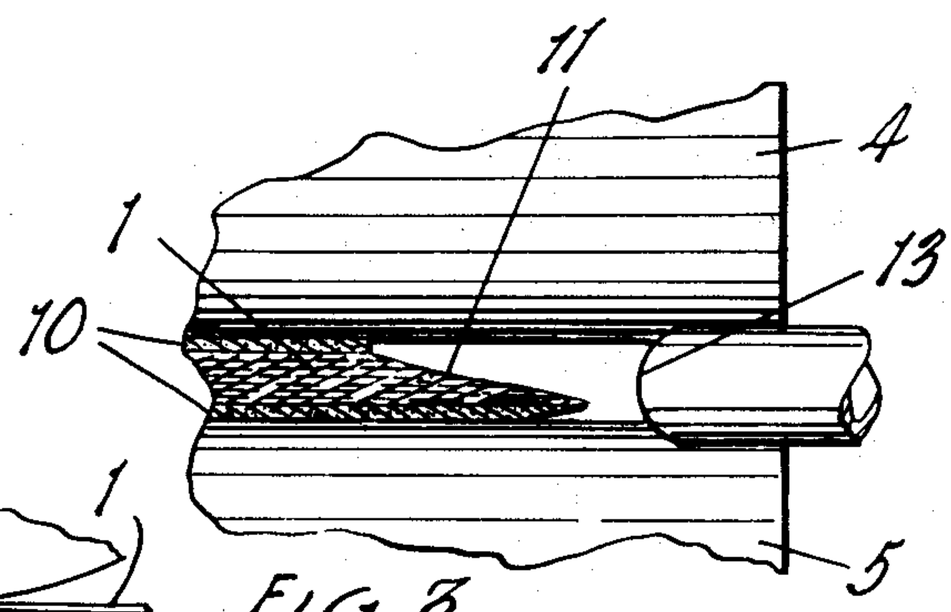

FIG. 3

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WEB COATING MACHINE

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2 Claims. (Cl. 118—63)

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This invention relates to improvements in web coating machine.

The main objects of this invention are:

First, to provide a web coating machine in which the deckle edge of a web of paper may be maintained and one in which the rolls are prevented from becoming clogged or loaded with adhesive material at the edges of the web.

Second, to provide a coating machine having these advantages which is adapted for the coating of webs of different widths.

Objects relating to details and economies of the invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure embodying the features of the invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary side elevational view of a coating machine embodying the invention, various parts being mainly in conventional form.

Fig. 2 is an enlarged fragmentary plan view of the embodiment of my invention shown in Fig. 1.

Fig. 3 is an enlarged fragmentary view on a line corresponding to line 3—3 of Fig. 2.

Fig. 4 is a fragmentary side elevation view further showing the relation of parts.

In the accompanying drawing 1 represents a web of paper to be coated, 2 a stack of calender rolls disposed in advance of the application of the coating to the web, and 3 a stack of drying calender rolls disposed at the rear of the coating means. The press rolls 4 and 5 are arranged to receive the traveling web between them, the web traveling toward the left as viewed in Fig. 1.

In the embodiment illustrated the coating is applied to both the upper and lower sides of the web by means of the spray pipes 6 which are directed to discharge the coating material conventionally indicated at 7 against the web in the direction in which it is traveling and closely adjacent to the nip of the rolls. A trough 8 is disposed below the press rolls and provided with suitable drain pipe 9. In Fig. 3 the web 1 is illustrated after the coating 10 has been applied thereto. It will be understand that the thicknesses of the web and coating are greatly enlarged and magnified for convenience in illustration.

The web is provided with a deckle edge 11, means for forming the web with the deckle edge being known in the art. The press rolls 4 and 5 not only serve to press the coating material on to the web but also to a substantial degree to determine the thickness of the coating. In their functioning to this end the coating material is squeezed out between the rollers at the edges of the web.

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To prevent clogging of the rollers at the end of the web or an accumulation of coating on the rollers at the edges of the web, and to maintain the deckle edge, I provide means for supplying a blast of air which is discharged forwardly between the nips of the rollers at the edges of the web and forwardly and laterally against the edges of the web closely adjacent to the zone of engagement thereof between the nip of the rollers. In the embodiment illustrated this is accomplished by means of the air conduit 12, the nozzle or tip 13 of which is positioned to the rear of and closely adjacent to the nip of the rollers so that it discharges the blast of air provided from a suitable source of air under pressure through the pipe 14 and is directed forwardly and laterally against the edge of the web and, it will be noted, quite closely adjacent to the zone of engagement of the web between the nip of the rolls. This blast of air is directed against the surfaces of the rolls opposite to their direction of rotation at the nip thereof, and it is directed against the edge of the web, which wipes the coating material from the edge of the web or prevents the edge of the web from becoming coated.

The conduit 12 may be satisfactorily formed from a piece of bendable copper tubing and it is carried by a supporting block 15 slotted at 16 to receive the clamping bolt 17 on the bracket 18 mounted on a suitable support 19, desirably a part of the frame of the coating machine. Only such portions of a coating machine are illustrated as are deemed necessary in order to illustrate a practical embodiment of the invention.

I have illustrated only one air nozzle or air blast means but it will be understood that in practice there is an air blast nozzle or air blast means at both ends of the rolls. The spray means for applying the coating material is a simple and effective means but it should be understood that other means may be used and are known to those skilled in the art of paper coating, among them the fountain type, the feed roll distributing type and other means. In all of these the problem I have overcome is present, namely, the coating material is squeezed out from the nip of the press rolls at the edges of the web.

I have illustrated and described my invention in a practical embodiment thereof. I have not attempted to illustrate or describe other modi-

fications or adaptations as it is believed this disclosure will enable embodiment of the invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination in a web coating machine including coacting press rolls between which the web of paper to be coated is passed with the press rolls in pressure engagement therewith, of coating material spray pipes disposed to discharge upon the web traveling between the rolls in the direction of its travel and in advance of and toward and closely adjacent to the nip of the rolls, and an air nozzle disposed at the rear of the rolls and directed forwardly and inwardly to discharge a blast of air forwardly between the nip of the rolls at the edge of the web and forwardly and laterally inwardly of the web against the edge of the web and then onto the body of the web closely adjacent to the zone of engagement thereof between the nip of the rolls to transfer the coating material squeezed to the edge of the web by said rolls inwardly away from said edge and onto the body of the web rearwardly of and adjacent to the nip of the rolls, the nip of the rolls constituting means to support the edge portion of the web against displacement from the general plane of the web during such transfer operation.

2. The combination in a web coating machine including coacting press rolls between which the web of paper to be coated is passed with the press rolls in pressure engagement therewith, means for applying coating material to the web in advance of the nip of the rolls, and an air nozzle disposed at the rear of the rolls and directed forwardly and inwardly to discharge a blast of air forwardly between the nip of the rolls at the edge of the web and forwardly and laterally inwardly of the web against the edge of the web and then onto the body of the web closely adjacent to the zone of engagement thereof between the nip of the rolls to transfer the coating material squeezed to the edge of the web by said rolls inwardly away from said edge and onto the body of the web rearwardly of and adjacent to the nip of the rolls, the nip of the rolls constituting means to support the edge portion of the web against displacement from the general plane of the web during such transfer operation.

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