Feb. 10, 1970 H. A. DU FRESNE 3,494,048

WEB EDGE BAFFLE IN JET DRYING HOOD

Filed Jan. 22, 1968 2 Sheets-Sheet 1

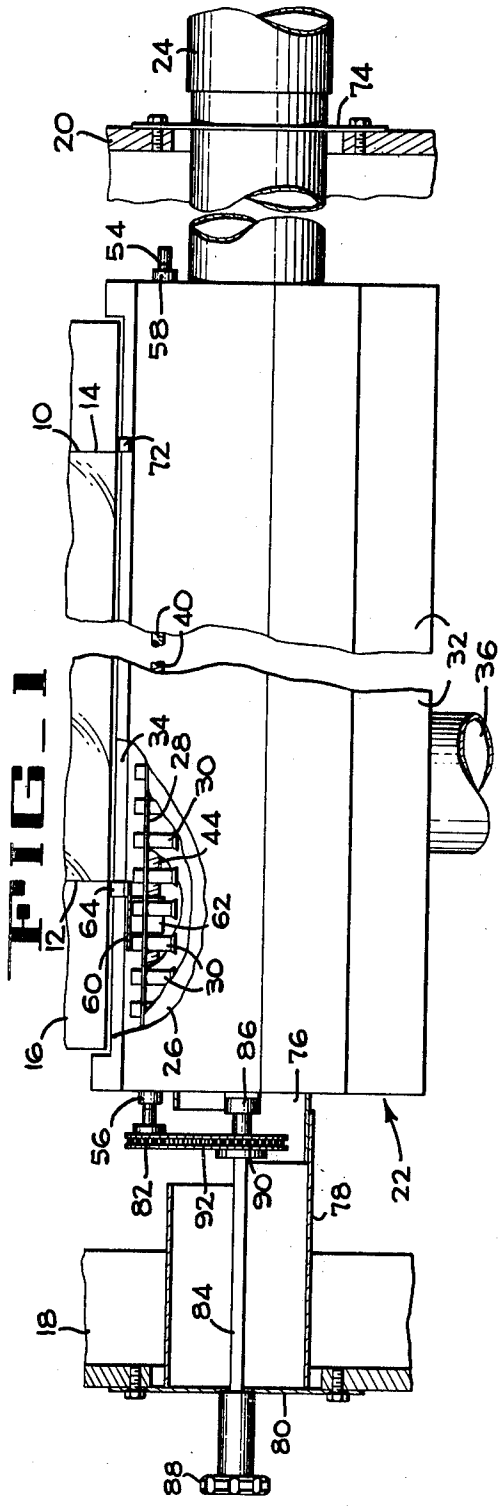


FIG_1

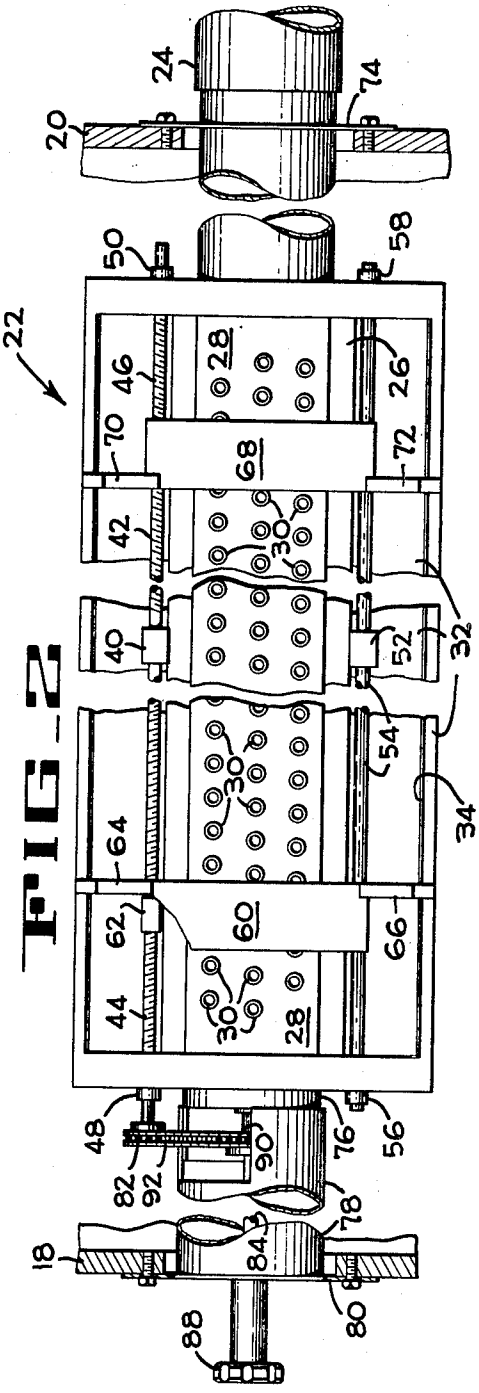


FIG_2

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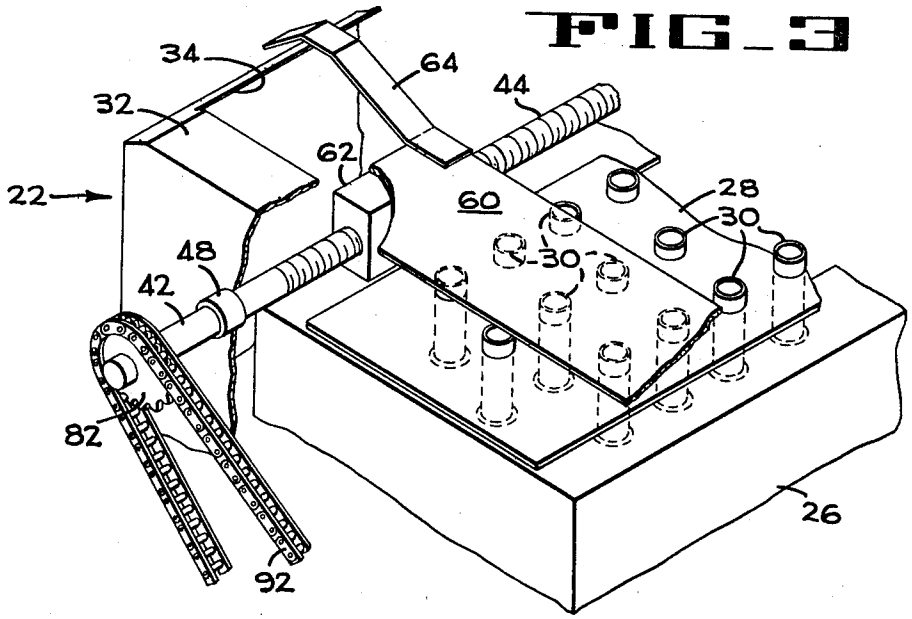
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FIG_3



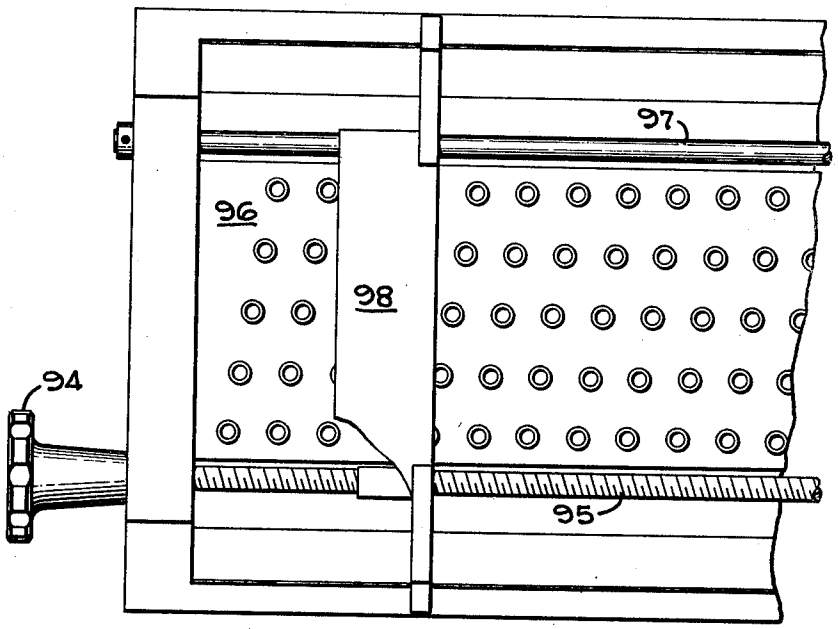


FIG_4

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WEB EDGE BAFFLE IN JET DRYING HOOD

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Int. Cl. F26b 13/10, 3/02
U.S. Cl. 34—23 6 Claims

ABSTRACT OF THE DISCLOSURE

A web is supported on a drum face and jets of hot treating gas are directed towards the web beneath a drying hood. Between the jets of hot treating gas and drum face, adjacent the web edges, a pair of baffles are adjustably positioned to shield the drum face and web edges from the jets. Thus, the baffles prevent gas from getting underneath the web, causing it to lift upward from the drum face.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to drying equipment having a rotary carrier for transporting a web to be treated by jet action of hot treating gas within a drying hood.

Description of the prior art

On flexographic printing presses, a web is attached to an impression drum and different colors can be printed on the web successively. A between color drying hood is used to dry or set the ink after one color has been applied and before the next color is printed. This hood includes a distribution box where hot air is forced out through jet orifices at high velocity to impinge against the moving web and dry the ink. An exhaust hood is mounted around the distribution box to withdraw the solvent laden air produced by drying of the ink. As printing press speeds are increased, the drying must be accomplished faster and more hot air is forced through the jet orifices to impinge against the moving web. The increased impinging force causes some air to penetrate between the web and impression drum, overcoming tension in the web and resulting in a bubbling or rippling of the web. This causes misprints and smearing of the ink.

SUMMARY OF THE INVENTION

Within drying hoods of the type described above as prior art, baffles are positioned adjacent the web edges, between the jets of hot treating gas and drum face, to prevent penetration of the treating gas beneath the web. These baffles enable high speed printing without smearing of the ink due to penetration of gas beneath the web. The baffles are adjustably positioned within the drying hood to accommodate various web widths, and controls for adjustment are positioned outside of the drying hood to facilitate regulation.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a side view of a between color drying hood assembly having portions broken away to show underlying structure and positioned on a printing press for operation.

FIGURE 2 is a plan view of the drying hood assembly shown in FIGURE 1 viewed from the impression drum of the printing press.

FIGURE 3 is a perspective view of an end portion of a drying hood assembly showing a baffle positioned above a distribution box.

FIGURE 4 is a partial plan view of a modified form of adjustment control for positioning the web edge baffle.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Looking now at FIGURE 1, a web **10** is shown having a left side edge **12** and a right side edge **14**. This web is trained about an impression drum face **16**, which extends transversely of and beyond the side edges thereof. A back surface of the web is in contact with the face of the impression drum while the front surface of the web faces outwardly therefrom. The impression drum is rotatably mounted between a left frame member **18** and a right frame member **20** of a flexographic printing press.

A between color drying hood assembly **22** is shown in FIGURE 1 positioned opposite from the impression drum face **16**, between the left frame member **18** and right frame member **20**. This assembly has an air supply conduit **24** fitting through the right frame member and this conduit is connected to a distribution box **26**, as shown in FIGURE 2. A portion of the distribution box is enclosed by a mounting plate **28** through which jet tubes **30** extend. These jet tubes have internal bores which provide flow communication outward from the interior of the distribution box and serve as nozzles to increase the velocity of treating gas flow. The jet tubes are positioned to face the web **10** and impression drum face. A hood **32** surrounds the distribution box and a gas discharge opening **34** is provided opposite the jet tubes and impression drum face. An exhaust outlet **36** extends from the hood on the side opposite from the gas discharge opening and is connected to a suction source to draw solvent ladened air produced by drying ink from within the hood.

An intermediate bearing **40** (FIG. 2) is fixed to one side of distribution box **26** and journals an adjusting bolt **42** that extends longitudinally of the hood **32**. The adjusting bolt has a left hand portion **44** threaded in one direction and a right hand portion **46** threaded in the opposite direction. These left and right hand portions of the adjusting bolt project through the hood and are held in place by collars **48** and **50**, respectively. An intermediate support **52** is fixed to the opposite side of the distribution box from the intermediate bearing and supports a guide rod **54** that extends longitudinally of the hood along that side of the mounting plate **28**. One end of the guide rod projects through the left end of the hood and is locked in place by a collar **56**, while the opposite end of the rod projects through the right end of the hood and is locked in place by a collar **58**.

A left baffle **60** extends transversely of the mounting plate **28** and has a travel nut **62** fixed to one end. This nut is threadably fitted upon the left hand portion **44** of the adjusting bolt **42**. A slide, not shown, is fixed to the opposite end of the baffle and has a smooth bore through which the guide rod **54** is fitted. An indicator arm **64** projects from the baffle end adjacent the travel nut, to a position which is visible from outside of the hood **32**. Similarly, a second indicator arm **66** projects from the baffle end adjacent the slide, to a position visible from outside of the hood. A right baffle **68** is mounted on the right hand portion of the adjusting bolt and the guide rod, in the same manner as the mounting of left baffle **60**. Indicator arms **70** and **72** extend from opposite ends of the right baffle to a position outside of the opening **34**.

The right side of the drying hood assembly **22** is supported by the supply conduit **24**, which fits through a mounting plate **74** that is bolted to the right frame member **20**. The left side of the drying hood assembly is supported by a pipe section **76**, that projects outwardly from the hood **32**, and a sleeve **78**, having one end which fits telescopically over the pipe section while the opposite end of the sleeve is welded to a mounting plate **80** that is bolted to the left frame member **18**.

The left hand portion **44** of the adjusting bolt **42** extends outward from the hood **32** and a driven sprocket **82** is mounted at the outermost end. A control shaft **84** (FIG. 1) extends concentrically through the sleeve **78** and has one end journaled in a bearing **86**, connected to the hood, while the opposite end extends through the mounting plate **80** and has a control knob **88** fixed thereon. A drive sprocket **90** is fixed to the control shaft, opposite the driven sprocket, and a drive chain **92** is trained about these sprockets. Suitable openings are provided in the pipe section **76** and sleeve **78**, to enable the drive chain to extend outward and engage the driven sprocket. Thus, it will be seen that rotation of the control knob is transmitted to the adjusting bolt, which in turn spaces the baffles **60** and **68**.

In operation, a web **10** is trained about an impression drum face **16**. Control knob **88** is turned until the indicator arms **64** and **72**, as shown in FIGURE 1, are positioned adjacent the web edges **12** and **14**, respectively. The baffles **60** and **68** are then adjacent the web edges and shield the impression drum face against the jet action of treating gas. Thus, the treating gas can be applied at a high velocity across the front surface of the web, while the web edges are protected by the baffles against penetration of treating gas between the back surface of the web and the face of the impression drum.

A modified form of the invention is shown in FIGURE 4, which differs from the form previously described in that a control knob **94** is mounted directly on an adjusting bolt **95**. This adjusting bolt is positioned on the opposite side of a mounting plate **96** from a guide rod **97**. A baffle **98** is mounted on the adjusting bolt and guide rod, whereupon rotation of the control knob, the baffle is positioned longitiudinally of the mounting plate.

Although the best mode contemplated for carrying out the present invention has been herein shown and described, it will be apparent that modifications and variations may be made without departing from what is regarded to be the subject matter of the invention as set forth in the appended claims.

Having completed a detailed description of the invention so that those skilled in the art could practice the same, I claim:

1. In a drying equipment for a web passing over an impression drum that extends beyond the edges of the web, the combination comprising means for directing heated air to flow at high velocity toward the web; and baffles overlying and shielding the edges of the web to prevent penetration of high velocity air between said impression drum and the web edges.

2. In drying equipment as described in claim **1**, baffle aligning means for adjustably positioning the baffle adjacent the edge of the web.

3. Apparatus for drying ink applied to a continuous moving web of material comprising an elongate generally rectangular hood extending transversely relative to the direction of web movement, means for supplying heated air to said hood, a plurality of nozzles for directing the heated air against the printed surface of the moving web, a pair of narrow baffles carried by said hood and mounted for movement toward and away from each other in a direction transverse to a direction of web movement, said baffles being effective to shield and divert the flow of heated air from the edges of said web by blocking the discharge of those nezzles lying in the projected area of said baffles, and means for moving the baffles in the mentioned directions.

4. The apparatus according to claim **3** wherein said baffles are provided with means for indicating the adjusted transverse position of said baffles.

5. In apparatus for drying a front surface of an elongated flexible web having a back surface supported on a drum face and opposed side edges spaced intermediately of the drum face, the combination comprising jet means for directing treating gas to impinge at high velocity upon the front surface of the web and drum face, a first baffle positioned between said jet means and drum face adjacent one of the opposed side edges of the web, and a second baffle positioned between said jet means and drum face adjacent the other opposed side edge of the web, said first and second baffles shielding the drum face adjacent the web side edges against impingement of treating gas and thereby preventing such gas from penetrating between the drum face and the back surface of the web.

6. The method of drying a web between color printing stations on a flexographic printing press comprising the steps of training the web about an impression drum face that extends transversely of the web and beyond side edges thereof, directing treating gas to flow at high velocity towards the web and impression drum face, and shielding the impression drum face adjacent the web edges to prevent treating gas from penetrating between the drum face and web.

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U.S. Cl. X.R.

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