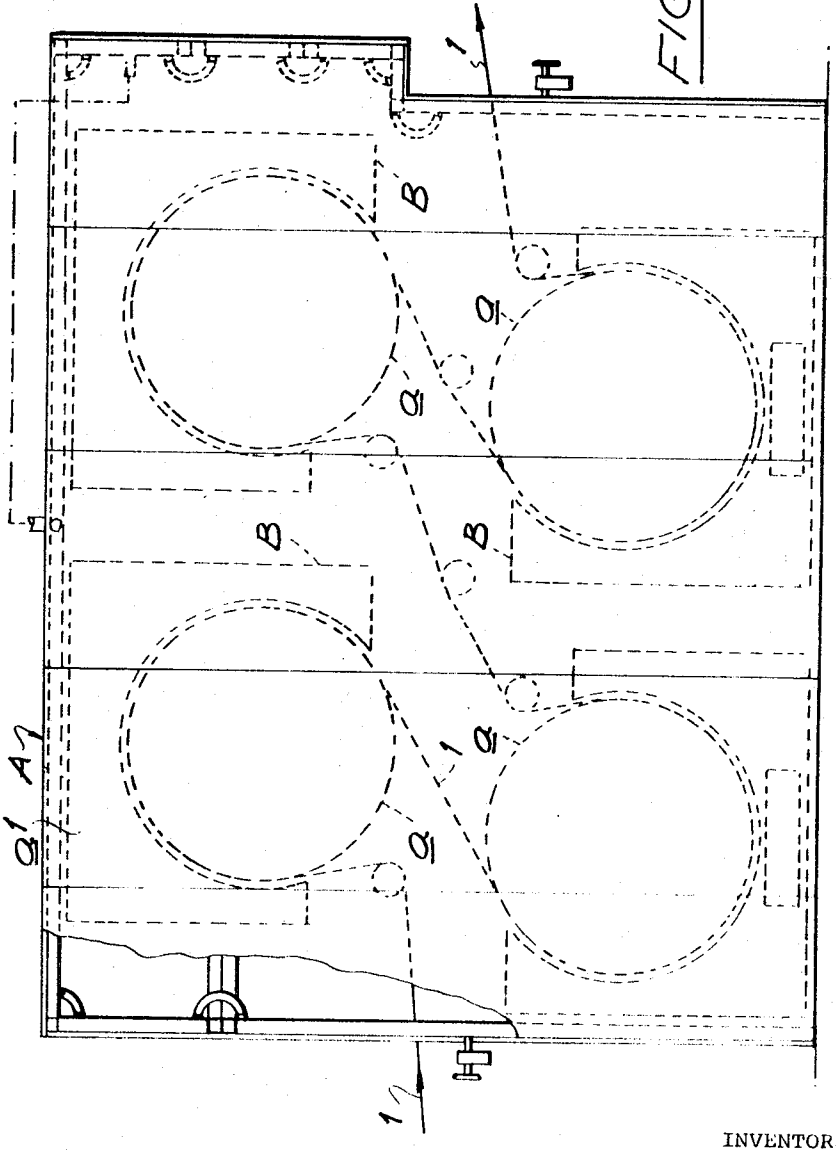
Nov. 30, 1971 J. D. WHITTAKER ET AL 3,623,237

OUTER COVERS FOR THE ROLLERS OF MACHINES FOR THE TREATMENT OF MATERIALS IN WEB FORM

Filed April 21, 1970 3 Sheets-Sheet 1

FIG 1



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Filed April 21, 1970 3 Sheets-Sheet 2

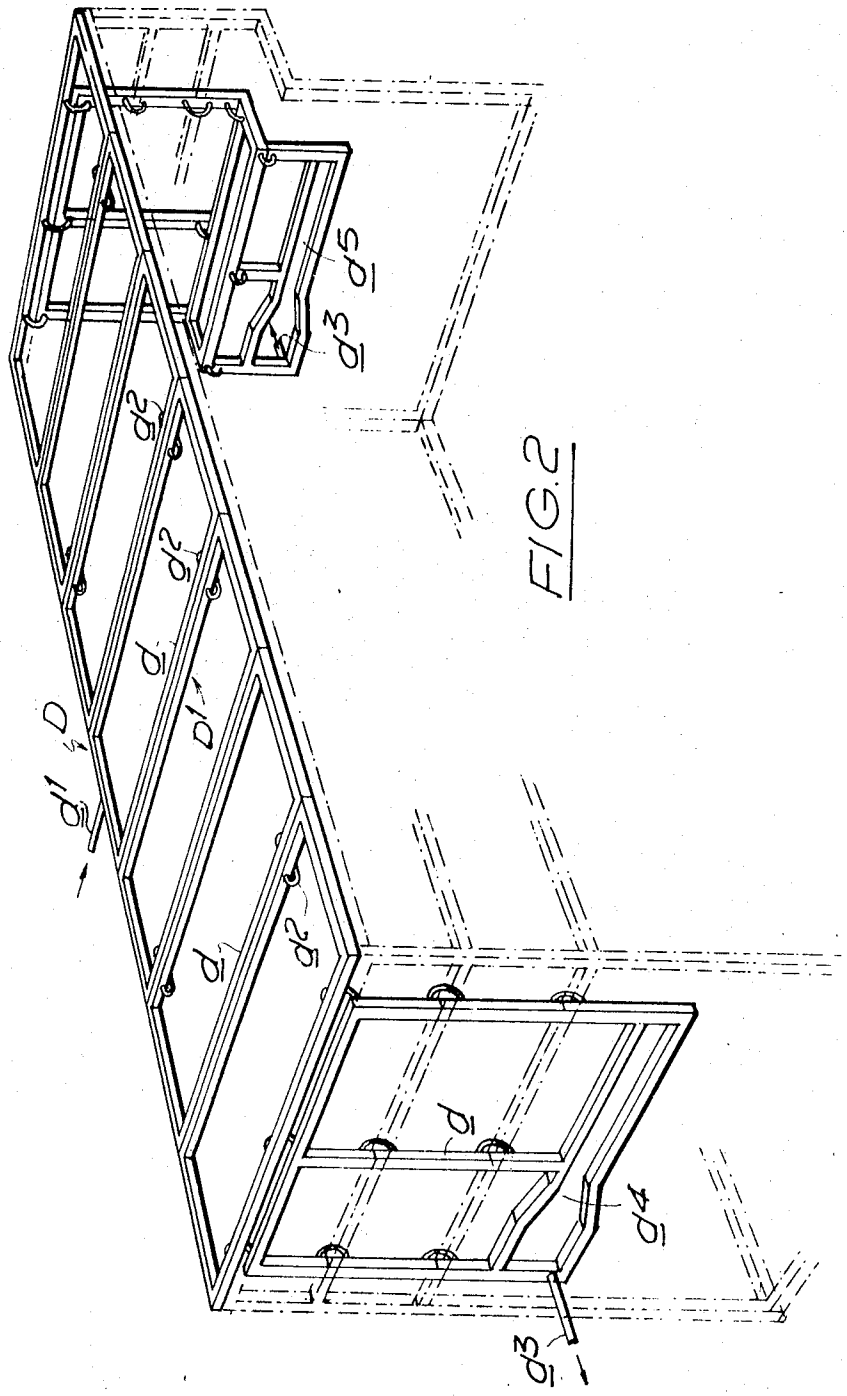


FIG. 2

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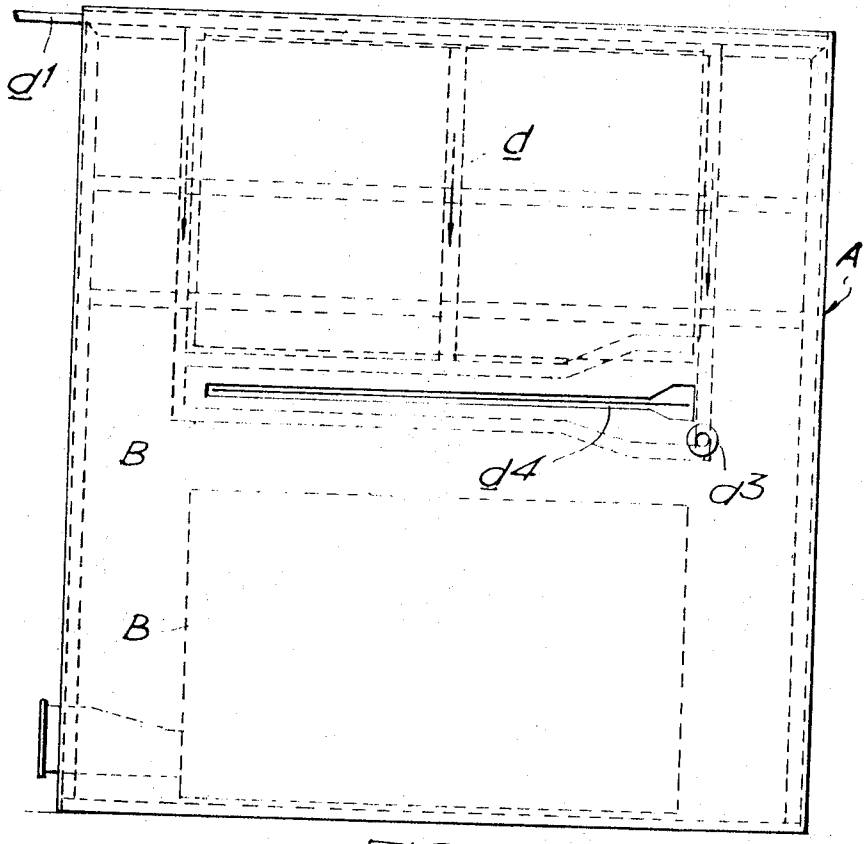


FIG. 3

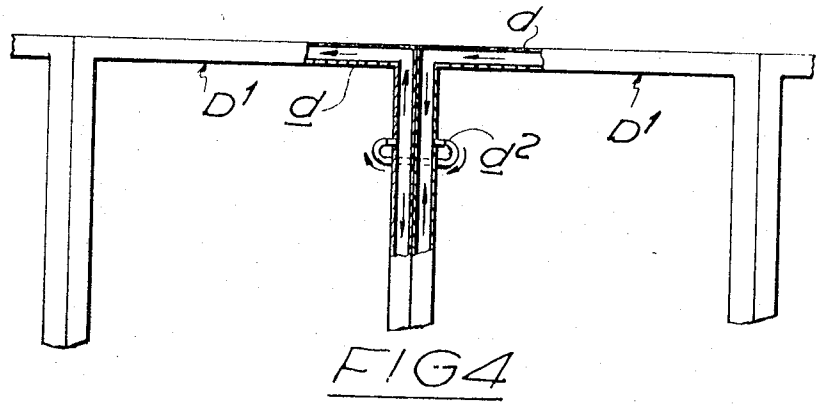


FIG 4

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3,623,237

OUTER COVERS FOR THE ROLLERS OF MACHINES FOR THE TREATMENT OF MATERIALS IN WEB FORM

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Int. Cl. F26b *19/00*
U.S. Cl. 34—201 4 Claims

ABSTRACT OF THE DISCLOSURE

A machine for the treatment of material in web form with humidified air or steam constructed with a top and ends forming a frame comprising a plurality of rectangular or square frame elements welded together, each formed of a plurality of tubes for the passage of the heated fluid adjacent frame elements being connected by cross over pipes to convey the fluid from one element to an adjacent element.

This invention relates to improvements in outer covers for the rollers of machines for the continuous treatment of material in web form with humidified air or steam, of the type in which the outer cover serves to prevent or restrict the escape of humidified air or steam from the machine to the surrounding atmosphere as, for example, in a machine for conditioning paper webs, and the invention particularly relates to improvements in or modifications of the outer cover which is the subject of Patent No. 3,395,458.

In the specification of the aforementioned patent there is disclosed an outer cover having sides and a top supported on a frame formed by girder shaped elements; and steam pipes are mounted adjacent to the inner surfaces of the cover to heat the surfaces to inhibit the formation of condensate thereon in order to prevent spoilage of the web by condensate dripping from the cover.

An object of the invention is to provide an outer cover which is of simple construction and relatively easy to assemble.

According to the invention an outer cover for a machine for the continuous treatment of material in web form with humidified air or steam is formed of the type referred to comprising a frame or canopy having a top and ends constructed from a plurality of square or rectangular frame or canopy elements each frame element being formed of individual tubes with the tubes of one frame element in communication with those of an adjacent frame element so that heated fluid supplied to one element circulates through the tubes of the element and then passes to an adjacent frame element and at least one of the tubes being arranged for the introduction of heated fluid thereinto to heat at least a portion of the inner surfaces of the said cover.

The invention will be described with reference to the accompanying drawings:

FIG. 1 is a side elevation of a paper web conditioning machine;

FIG. 2 is a perspective view of the frame members for the circulation of heated fluid;

FIG. 3 is an end elevation of the machine showing the web outlet from the machine;

FIG. 4 is a detail view partly in section of adjacent tubes.

In a machine A for treating or conditioning web material **1**, for example paper webs, the web is passed around one or more rollers or drums *a* each of which has a hood B or pressure box disposed in proximity to the roller periphery. Each hood B may have a curved surface adjacent to the roller periphery, which surface may correspond substantially to the radius of curvature of the roller. This surface is formed with apertures or other means by which steam, which may be at relatively high pressure, or humidified air is applied to surface of the web after the steam or air is supplied to the hood from a suitable source.

To prevent excessive moisture entering the atmosphere surrounding the machine the roller/rollers and hood/hoods are disposed within an outer cover a^1 formed with a top and sides. The top and sides may be formed by panels each formed by an outer sheet of metal, for example aluminium, mounted on on inner layer or slab of an heat insulating material, for example asbestos, such that inner surfaces of the cover are formed by surfaces of the heat insulating material. The panels are supported in position by a frame D built up from a plurality of tubes *d*, preferably of metal for example steel, which may be square or rectangular in cross section. These tubes *d* are located adjacent to the inner surfaces of the cover *a* and are arranged in a series of frame elements D^1 each of rectangular, square or other suitable shape wherein individual tubes *d* form sides of the frame elements with tubes in an individual element D^1 in communication with the tubes in an adjacent element D^1. The individual frame elements D^1 are secured together to form the frame D which is preferably rigid and the frame so formed extends over substantially the whole of the inner surfaces of the top and end of the cover.

One frame element D^1 is connected by a pipe d^1 to a source of heated fluid, for example steam, which may be at a relatively low pressure, or hot water, and the element may be provided with outlet means to allow the fluid to leave the element after circulation through the tubes *d*.

Preferably however as shown in the drawings the tubes *d* of adjacent frame elements D^1 are connected together by cross over pipes d^2 through which the heated fluid passes from one frame element to the next after circulating through the tubes *d* of the first tube element. The introduction of heated fluid to the frame elements may be controlled by thermostatically controlled valve means arranged to open when the fluid is at a desired temperature, and condensate outlets d^3 are provided to allow the escape of condensed steam from the tube elements when steam is used as the heated fluid.

The passage of heated fluid through the tubes *d* heats inner surfaces of the cover to prevent condensate forming thereon and in some machines it is believed that it will be sufficient to circulate the heated fluid only through the tubes adjacent to the inner surface of the top of the cover and through the tubes adjacent to the inner surfaces of the ends of the cover. These ends have openings d^4 and d^5 for the passage of the web **1** therethrough to and from the roller/rollers *a* and the heated fluid may only be circulated through the tubes located adjacent to portions of the inner surfaces of the ends, which portions are disposed adjacent to and above the openings d^4, d^5.

What we claim is:

1. An outer cover for a machine for the continuous treatment of material in web form comprising a frame, rectangular frame elements welded together to form the

frame, and individual tubes welded together at their ends to form the frame elements, the tubes of one frame element being in communication with those of an adjacent frame element so that heated fluid supplied to one element circulates through the tubes of the element and then passes to an adjacent frame element and at least one of the tubes being arranged for the introduction of heated fluid there into to heat at least a portion of the inner surfaces of the said cover.

2. An outer cover for a machine for the continuous treatment of material in web form as in claim 1 and a cross over pipe through which heated fluid passes from one frame element to an adjacent frame.

3. An outer cover for a machine for the continuous treatment of material in web form as in claim 1 in which heated fluid supplied to one frame element after passing around the tubes of the element passes to an adjacent element or elements and to outlets at the ends of the machine.

4. An outer cover for a machine for the continuous treatment of material in web form as in claim 1 having openings in the ends of the frame through which the web enters and leaves the machine.

References Cited

UNITED STATES PATENTS

798,196	8/1905	Lyle	285—188 X
1,692,498	11/1928	Gates	34—155 X
3,003,482	10/1961	Hamilton et al.	122—478
3,395,458	8/1968	Whittaker et al.	34—114

FOREIGN PATENTS

615,261	10/1926	France	165—168

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