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VENEER DRYER

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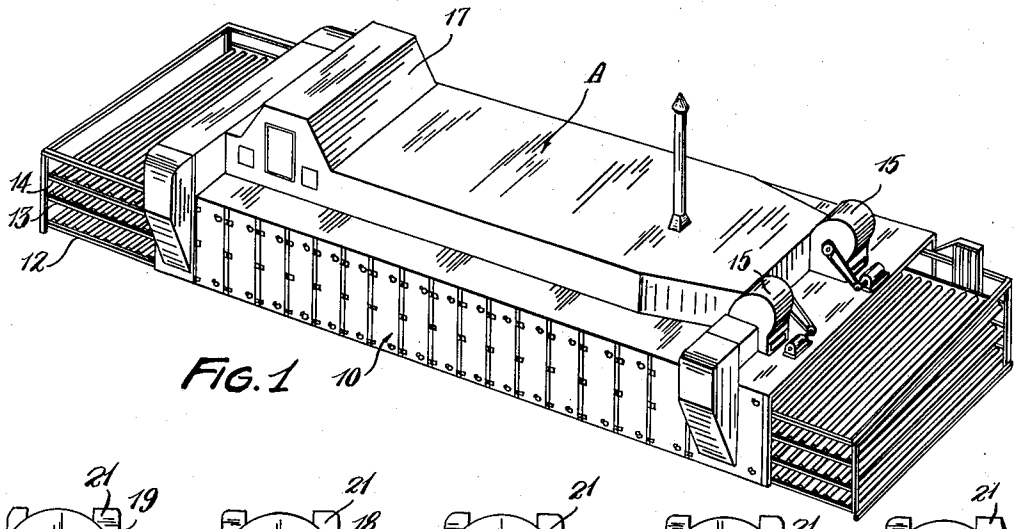


FIG. 1

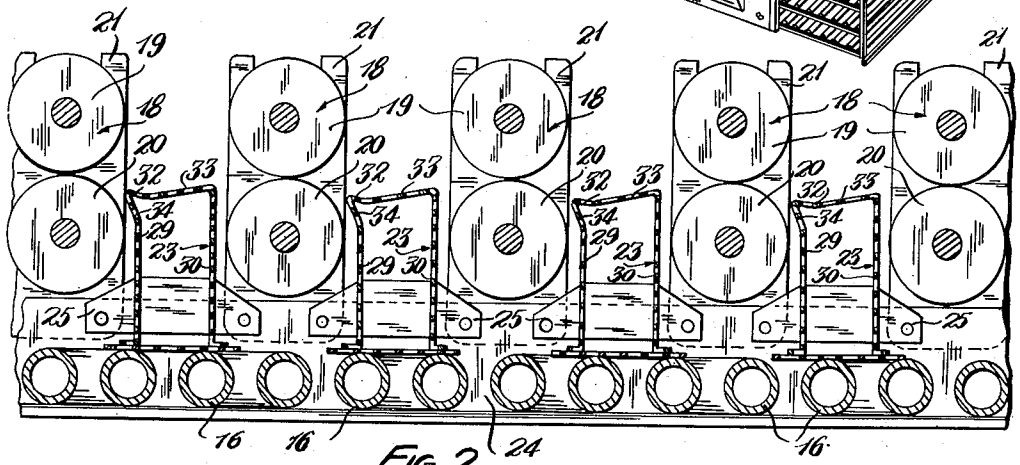


FIG. 2

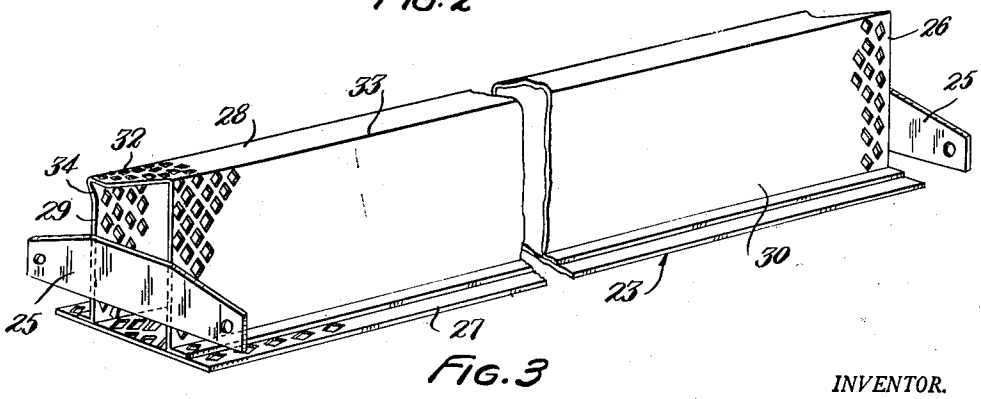


FIG. 3

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VENEER DRYER

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The present invention relates to an apparatus for treating or handling sheet material and more particularly to a veneer dryer through which sheet material is conveyed by spaced pairs of conveyor rolls.

The principal object of the present invention is the provision of a new and improved apparatus, particularly a veneer dryer wherein wet veneer sheets to be dried are progressively passed over spaced rolls in traveling through the apparatus, the apparatus being so constructed and arranged that the sheets are positively guided from one roll to the next by guide means constructed so as to assure that the sheets will properly pass over the rolls even though the rolls may not be true enabling extremely thin sheets to be fed through the apparatus.

Another object of the present invention is the provision of a new and improved apparatus for performing an operation on sheet material, particularly a dryer for wet veneer sheets wherein the sheets are transported through the apparatus by means of spaced pairs of conveyor rolls which drive the veneer as it passes between the respective rolls of each pair, the apparatus including novel guide means intermediate adjacent pairs of conveying rolls to receive the sheets discharged from the one pair of rolls and to positively guide the material in between the respective rolls of the following pair, the guide means being so constructed and arranged that heat radiation to the material and free circulation of drying air within the apparatus and about the sheet material are unimpeded.

Another object of the present invention is the provision of a new and improved dryer for sheet veneer and the like having spaced conveyor rolls for transporting the sheet veneer through the dryer, the dryer being so constructed and arranged that the veneer may be fed in a direction perpendicular to the grain of the veneer.

A more specific object of the present invention is the provision of novel and improved guide means for positively guiding sheet material from one pair of conveyor rolls between which the material passes to a following pair of conveyor rolls, the guide means comprising a generally rectangular box-like reticulated member adapted to be located intermediate the conveyor rolls and extending substantially coextensive with the length of the conveyor rolls.

The invention resides in certain constructions, combinations and arrangements of parts and further objects and advantages will be apparent to those skilled in the art to which it relates from the following description of the preferred embodiment described with reference to the accompanying drawings forming a part of this specification in which,

Fig. 1 is a perspective view of a dryer for wet sheet material particularly veneer and the like which embodies the present invention;

Fig. 2 is a fragmentary vertical sectional view of one deck of conveyor rolls for transporting sheet material through the dryer of Fig. 1; and

Fig. 3 is a perspective view of the guide means used between adjacent pairs of conveying rolls of the dryer of Fig. 1.

While the present invention is capable of various applications and of being utilized in various types of machines where sheet material is to be progressively passed between the individual rolls of spaced pairs of rolls, it has been illustrated as embodied in a dryer for sheet veneer and the like where it is particularly advantageous because of the flexible nature of wet veneer, the relatively short lengths of the material, and the irregular nature of the leading edges of the sheets, it is difficult to assure that the material will move from one pair of conveying rolls into the nip of the following pair of conveying rolls.

Referring to the drawings the particular dryer for veneer and the like in which the present invention has been embodied is designated generally by the reference numeral A and comprises an elongated housing **10** through which the sheet material to be dried is passed. The dryer illustrated is provided with three decks **12**, **13**, **14** of conveyor rolls for transporting sheet material through the dryer. The wet sheet material is dried by hot air circulated through the housing **10** by blowers **15** mounted on the top side of the housing at the exit end of the dryer and by heating coils **16** located transversely of the housing below each conveyor deck. The circulating air is heated externally of the housing **10** by suitable heating means located within duct **17** mounted on top of the housing **10**.

Each deck of conveyor rolls for transporting sheet material through the dryer comprises spaced pairs **18** of cooperating rolls, each pair including an upper roll **19** and a lower roll **20**. The rolls **19**, **20** are journally supported transversely of the housing **10** by support members **21** secured to the frame and preferably at least one roll of each pair is power driven. The drive mechanism for the rolls does not form a part of the present invention and is therefore not shown or described in detail.

The sheet material to be dried passes between the rolls **19**, **20** of each pair and is moved through the conveyor by rotation of the rolls. A reticulated guide member **23** substantially coextensive with the length of the rolls is mounted intermediate each adjacent pair **18** of conveyor rolls to guide the sheet material from one pair of rolls into the nip of the following pair of rolls. The guide member **23** is supported between two longitudinal frame members **24**, only one of which appears in the drawings, by plates **25** mounted on the opposite ends of the guide member **23** and connected to the frame members. The guide member **23** is constructed so as to assure that the material being discharged from between the rolls immediately before the guide is received by the member and positively guided into the nip of the following pair of rolls even though the rolls may not be true.

The guide member illustrated comprises a generally rectangular box-like member formed by a section **26** having an inverted U-shaped cross-section mounted upon a generally flat section **27**. The flat section **27** forms the lower side of the guide member **23** and extends laterally to each side of the generally U-shaped section **26**. The side of the section **26** which forms the bottom of the U constitutes the top **28** of the member **23** and is generally horizontal when the guide is in position in the apparatus as shown in Fig. 2. The distance between the sides **29**, **30** of the section **26** is less than the width of the top **28** in order to allow the guide member **23** to be mounted intermediate the rolls with the necessary clearance and yet obtain a top surface of sufficient width to properly guide the material from one set of rolls to the following set. The top **28** in the illustrated and preferred embodiment is located below the top of the lower rolls **20** and has a generally horizontal portion **32** for receiving the

sheet material and a portion 33 inclined upwardly from the portion 32 to guide the sheet material into the nip of the following pair of rolls. The top 28 may extend into the space between the rolls 19, 20 on one or both sides of the member 23 to assure that the sheets will be received and discharged properly. The side 29 of the member 23 adjacent to the rolls discharging the sheet material to the guide is shorter than the other side 30 and is flared outwardly at the upper end as at 34.

The guide member 23 has been shown as a reticulated member to permit heat radiation from coils 16 to reach the sheet material and free movement of circulating air within the dryer. The guide member is preferably formed of expanded metal although any suitable reticulated material may be used.

The use of guide constructed as above described permits sheets of veneer to be dried which are thinner and shorter than those which could heretofore be dried in this type of apparatus. In addition the sheets may be fed in a direction perpendicular to the grain which has not, heretofore, been feasible.

From the foregoing description of the preferred embodiment of the invention, it will be apparent that the objects heretofore enumerated and others have been accomplished and that there has been provided an apparatus for performing an operation on sheet material, especially a drying operation on wet sheet material, which is so constructed and arranged that a sheet material is guided from one pair of rolls into a second pair of cooperating rolls by guide means which will perform its function even though the second set of roll may not be true and which will permit the free circulation of air around the guide means. While the preferred embodiment of the present invention has been shown and described in considerable detail, the invention is not limited to the form or construction shown and it is the intention to cover hereby all adaptations and modifications and uses thereof which come within the practice of those skilled in the art to which the invention relates and the scope of the appended claims.

Having thus described my invention, I claim:

1. In an apparatus for drying sheet veneer, a housing, means for circulating air through said housing, means to convey sheet veneer to be dried through said housing comprising spaced pairs of conveying rolls, the veneer to be dried passing between the rolls of each pair and being transported thereby, a reticulated guide member intermediate adjacent pairs of rolls and having a surface extending between the rolls on either side thereof, said surface having a portion adapted to receive material from one pair of rolls adjacent thereto and a second portion inclined with respect to the first portion to guide the material into the nip of the other pair of rolls adjacent thereto, heating elements, and means supporting said heating elements adjacent to a side of said guide member remote from said surface.

2. In an apparatus for drying sheet veneer and the like, a housing, means for circulating air through said housing, means to convey sheet veneer to be dried through said housing comprising spaced pairs of conveying rolls with the rolls of each pair being positioned vertically with respect to each other, the sheet veneer to be conveyed passing between the rolls of each pair and being transported thereby, a guide member of reticulated material generally coextensive with said rolls intermediate adjacent pairs of rolls and having a generally inverted U-shaped cross section providing an upper surface extending between the rolls on either side of said member, the surface being positioned below the points of engagement of the individual rolls of said one pair of said adjacent pairs of rolls and having a first portion adapted to receive sheet veneer from said one pair of rolls and a second portion inclined upwardly with respect to the first portion to guide the sheet veneer into the nip of the other pair of rolls adjacent to the member, and means for supporting said member.

3. In an apparatus for drying sheet veneer and the like, a housing, means for circulating air through said housing, means to convey sheet veneer to be dried through said housing comprising pairs of conveying rolls with the rolls of each pair being positioned vertically with respect to each other, means rotatably supporting said pairs of rolls in spaced horizontal substantially aligned relationship, the sheet veneer to be conveyed passing between the rolls of each pair and being transported thereby, a guide member of reticulated material generally coextensive with said rolls intermediate adjacent pairs of rolls and having a generally inverted U-shaped cross section providing an upper surface extending between the rolls on either side of said member, the surface being positioned below the points of engagement of the individual rolls of one pair of said adjacent pairs of rolls and having a first portion adapted to receive sheet veneer from said one pair of rolls adjacent to the member and a second portion inclined upwardly with respect to the first portion to guide the sheet veneer into the nip of the other pair of rolls adjacent to the member, heating elements, and means for supporting said heating elements below said guide member.

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