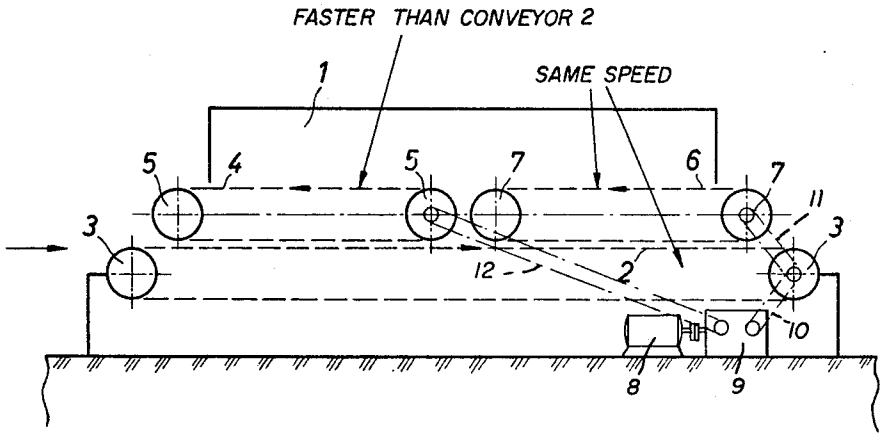
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WEB DRYING APPARATUS

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WEB DRYING APPARATUS

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The invention concerns web drying apparatus and in particular, though not exclusively, apparatus for drying veneers.

One known drier includes a conveyor belt and a web covering belt and it has been found that with materials likely to shrink, driving the conveyor belt and the cover belt at the same speed has proved disadvantageous in various cases, particularly with veneers in which the danger of the formation of cracks or splits arises.

Consequently in dryers intended for the drying of webs of veneer, the cover belt has been arranged in such a way that it is dragged along by the material being dried. This arrangement, however, is found to have the disadvantage that the veneer is exposed to strains which may affect its quality.

The invention is based upon the appreciation that in a dryer in which the cover belt is dragged by the veneer it attains, as a rule, a higher speed than the driven conveyor belt. The cover belt moves in the direction of shrinkage of the material being dried, which on shrinking has a relative speed compared with the conveyor belt, By the measure according to the invention, the material to be dried is relieved of pressure to the greatest possible extent and the danger of cracking or splitting is lessened.

According to the present invention drying apparatus particularly, though not exclusively, for drying webs of veneer including a conveyor belt for conveying the webs to be dried and a cover belt lying on the material to be dried is characterised in that at least one cover belt is provided and is arranged to be driven at a higher speed than the conveyor belt.

The release of pressure on the sheet of veneer due to the greater speed of the cover belt as against that of the conveyor belt is of special significance on long dryers as in this case, with certain woods a considerable shrinkage can take place.

It has been ascertained that a further improvement in the apparatus can be achieved if instead of one cover belt extending over the length of the dryer, several, especially two cover belts having together substantially the same length as the conveyor belt are provided behind one another and if at least one short cover belt, particularly the front one, is driven at a higher speed than the conveyor belt whilst the other short cover belt is driven at the same speed as the conveyor belt. It has proved advantageous to select a higher speed for the cover belt in the area where least shrinkage has taken place in the web to be dried. This is the case at the start of the drying process or at the entry to the dryer because wood, for example, first starts to shrink when the moisture content drops below 30 to 40% of the original water content of the wood.

If the cover belt having the greater speed is arranged in the area of shrinkage of the wood, it exerts a disadvantageous effect on the material being dried by setting up strain in the wood.

It is possible to use several short cover belts of different lengths instead of one long cover belt. When drying veneers it has proved advantageous to use two short cover belts of substantially the same length. Other length ratios are advantageous with materials to be dried having different drying characteristics. With material which dries very quickly, a short cover belt, whose speed is

greater than that of the conveyor belt, of substantially one third the length of the conveyor belt will suffice, whilst with very slow drying materials, a faster cover belt can extend over substantially two thirds of the conveyor belt or of the length of the dryer.

If the cover belt, having a higher speed than that of the conveyor belt, is to be driven from the driving member for the conveyor belt over a gear having a transmission continuously adjustable into high speed, the same ratio between the speed of the conveyor belt and the speed of the cover belt, which is driven at a different speed than the conveyor belt is maintained, especially at the entrance to the dryer, on alterations of the speed of the conveyor belt due to a different temperature, or to a difference in thickness of the material to be dried when the type of material is the same.

With woods that shrink a great deal, it has proved that the speed of one of the short cover belts must be greater than the speed of the conveyor belt by about double the percentage shrinkage of which the wood is capable.

The invention will be described further, by way of example, with reference to the accompanying diagrammatic illustration of one form of dryer made in accordance with the invention.

The dryer **1**, constructed according to the invention, has at least one conveyor whose endless belt **2** consists of a carrier cloth or the like.

The endless conveyor belt **2** is supported by rollers **3** from which it is driven. A short cover belt **4** of holding down material is arranged over the inlet half of the conveyor belt **2** and is supported and driven by rollers **5** in the same way as the conveyor belt **2**. A short rear cover belt **6**, supported and driven by carrier rollers **7** lies over the rear portion of the conveyor belt **2** at the exit region of the dryer **1**. The rear cover behind the belt **6** is driven at the same speed as the conveyor belt **2**.

The conveyor belt **2** and the two cover belts **4** and **6** are conveniently driven from the same motor, the conveyor belt **2** and the rear cover belt **6** having the same speed due to being driven by common gearing (not shown). Driving connection from the motor to the front cover belt **4** is such that the front cover belt **4** is driven at a speed in excess of the conveyor belt **2**, the gearing for cover belt **4** being associated with the drive gear for the conveyor belt **2** whereby any alteration of the speed of the conveyor belt **2**, causes an alteration of the speed of the cover belt **4** in the same ratio so that for example, on alteration of the temperature or thickness of veneer no special adjustment of the speed of the cover belt **4** is required.

The invention is not restricted to the above details. For example, the belts **2**, **4**, **6** can also each be attached to separate driving motors, at least the two motors for the front cover belt having continuously adjustable speed.

In a further modification there may be several short cover belts, for example, three arranged one behind the other instead of one long cover belt and with material which has a high shrink characteristic such an arrangement is found to be advantageous.

With reference to the drive for the conveyor belts **2**, **4** and **6**, the drawing shows a motor **8** connected to a gear box **9** and this gear box has two chains or belts **10** and **12** connected thereto of which chain **10** is adapted to operate the roller **3** and a further chain **11** is connected therefrom to the roller **7**. The chain **12** is connected to operate the roller **5**. It will be evident due to the connecting drives that the conveyor belts **2** and **6** will operate at the same speed but the conveyor belt **4** operates at a faster speed than conveyor **2** due to the gearing in the box **9**.

What I claim is:

1. Web drying apparatus having a drying chamber adapted for the drying of wood veneer and the like, comprising a housing, a conveyor belt arranged within the housing and projecting therefrom to convey said web to be dried, at least one cover belt over the conveyor belt and spaced from said conveyor belt and adapted to lie on said web during drying, end means arranged positively to drive said cover belt at a speed in excess of the speed of said conveyor belt.

2. Web drying apparatus having a drying chamber adapted for the drying of wood veneer and the like comprising a housing, a conveyor belt arranged within the housing and projecting therefrom to convey said webs to be dried, two cover belts spaced from said conveyor belt and adapted to lie on said web during drying, said two cover belts being arranged in end to end relationship over said conveyor belt, one cover belt being located at an entrance region of said apparatus, and means arranged positively to drive said last-mentioned cover belt at a speed in excess of the speed of said conveyor belt.

3. Web drying apparatus having a drying chamber adapted for the drying of wood veneer and the like comprising a conveyor belt arranged within the housing and projecting therefrom to convey said webs to be dried, two cover belts spaced from said conveyor belt and adapted to lie on said web during drying, said two cover belts being arranged in end to end relationship over said conveyor belt, one cover belt being located at an entrance region of said apparatus, and means arranged positively to drive said last-mentioned cover belt at a speed in excess of the speed of said conveyor belt, said means including means to drive the other cover belt at a speed equal to the speed of the conveyor belt.

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