May 9, 1961 K. METZLER 2,983,288

METHODS AND MEANS FOR DRYING OF WET WOVEN FABRICS

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Fig. I

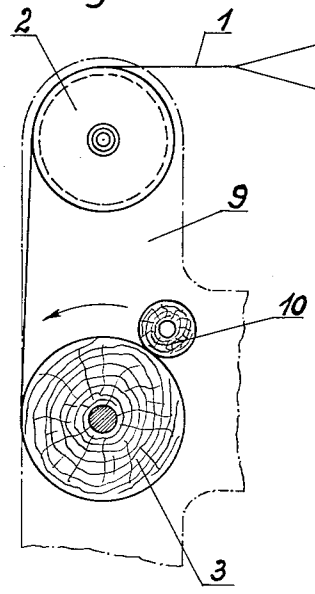


Fig. II

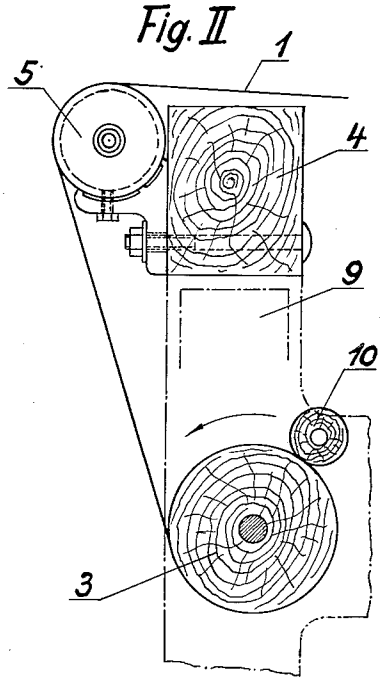
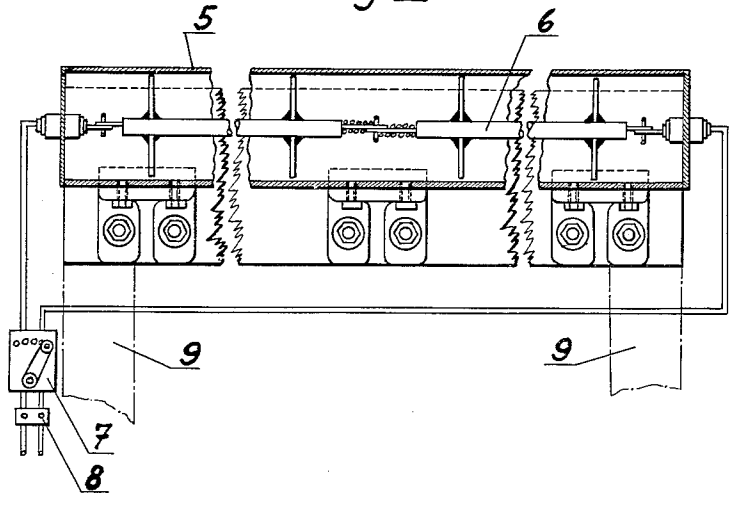


Fig. III



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Fig. 4

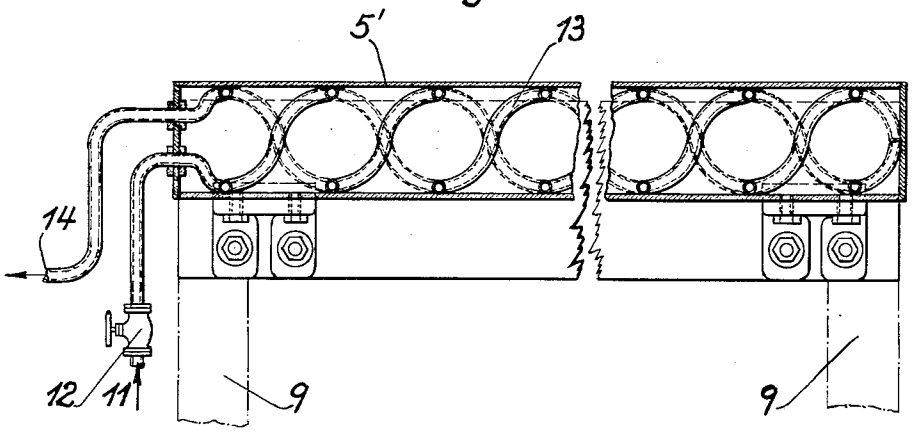
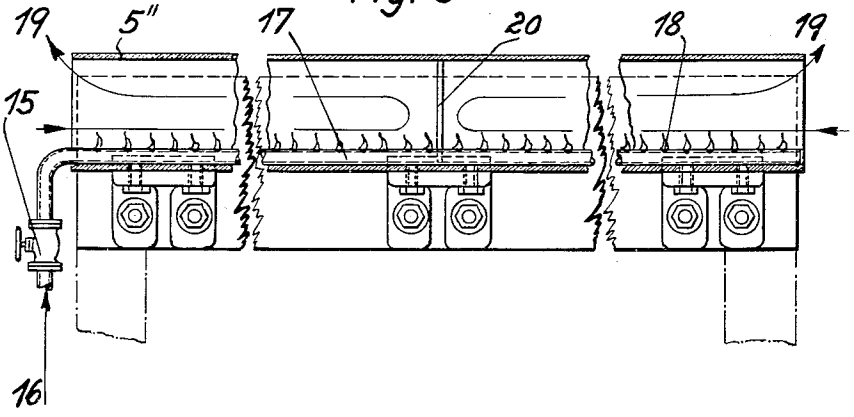


Fig. 5



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METHODS AND MEANS FOR DRYING OF WET WOVEN FABRICS

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10 Claims. (Cl. 139—291)

When weaving certain kinds of fabrics, it is known to weave them by the wet procedure. In general, the warp is then dry and the weft wet. In some cases, it may occur that both warp and weft are moistened during weaving, and particularly when technical fabrics and paper felts are concerned, which occasionally may have a bottom cloth of asbestos, a working of the asbestos yarn in the wet state will be irremissible. Up to now, such wet fabrics, when leaving the weaving loom, had to be dried on special drying machines, blowing engines, or other heating machines. This gives the important disadvantage that (1) additional working processes, (2) special machines, and (3) space for the same will be needed. A great disadvantage also consists in the fact that the take-up roller of the weaving loom, which is, as a rule, covered with a perforated steel fillet, will come in contact with the wet cloth so that the roller will absorb, to a certain extent, moisture and therefore warp, and the perforated steel fillet, and also the bright steel cloth-guiding rollers will easily oxidize, whereby iron-moulds may form on the cloth. All the afore-mentioned disadvantages will be avoided by use of the new method and means for drying wet-woven fabrics of this invention. In accordance with this invention wet-woven cloths are dried on the loom itself, by means of heating attachments and before being wound-up. For this purpose, the cloth is dried when passing the heated front-rest and before arriving at the take-up roller. To accomplish this purpose, the front-rest, generally made of wood or profile steel, is made of seamless steel tubing. Arrangements can, however, also be made to put on the normal front-rest a heating tube by means of which the cloth passing will be dried before reaching the take-up roller. An electrical heating arrangement has proved very satisfactory. The electrical heating is then effected by means of heating rods, whereby a regulator of temperature is added, which ensures a continuous regulation of the heating effect by means of pulsating cutting in and out of the contactor, between 4 and 60% of wattage. Of course, heating of the front-rest or guide-tube can also be effected by steam, heating gas, or hot air.

As the wet cloth, when passing the front-rest or the cloth-guide tube, has a favorable angle of wrap, and as the cloth is moving forward slowly in proportion to the inserted picks, a thorough, uniform, and sure drying of the cloth is ensured, whereby, especially when electrical heating is used, a too great drying or even roasting of the bottom part of the cloth is avoided, on account of the mechanical regulation of temperature. In illustration of the invention, the enclosed drawing shows the main embodiments.

Fig. 1 is a side view of a heated front-rest 2 over which passes directly the cloth, which is then brought to the take-up roller 3, carried in the loom sides 9, and passed in well known manner to the pressure roller 10.

Fig. 2 shows a normal front-rest 4 with additional heated cloth-guide tube 5.

Fig. 3 is a front view with a cut open cloth-guide tube 5, showing the electrical arrangement including the heating-rods 6, the regulator of temperature 7, and the contactor 8.

Fig. 4 is a front view of a heating device with a cut open cloth-guide tube 5, arranged for heating by steam or hot air. The steam or the hot air is admitted at 11, the quantity of flow can be regulated by means of a hand valve 12, then passed through the heating coil 13 and is finally let out at 14.

Fig. 5 is a front view of a heating device for heating with cut open cloth-guide tube 5 arranged for heating by gas. The heating gas, the supply of which can be regulated by means of a hand valve 15, enters at 16 and is then supplied to the fire tube 17 the top surface of which has a number of bore holes out of which the gas flames 18, after ignition, issue. In order to effect a better circulation of air, a partition plate 20 is disposed in the middle of the cloth-guide tube 5.

What is claimed is:

1. A method of drying cloths, woven wet in weft or in weft and warp on a weaving loom having a front-rest heated from the inside and a guide roller downstream of said front-rest, which comprises drying the wet cloth directly on the weaving loom itself, before the cloth reaches said guide roller, by means of heating devices wherein the drying of the wet cloth is effected during its passage over said front-rest.

2. A method of drying cloths, woven wet in weft or in weft and warp on a weaving loom having a front-rest and a guide roller downstream of said front-rest, which comprises drying the wet cloth directly on the weaving loom itself, before the cloth reaches said guide roller, by means of heating devices wherein the drying of the wet cloth is effected during its passage over said front-rest, said cloth being dried during its passage over the front-rest with said heating devices being directly connected to the front-rest.

3. A device for drying cloths woven wet on a weaving loom having a front-rest and a guide roller downstream of said front-rest which comprises, in combination, means for drying the wet cloth on the weaving loom itself before the cloth reaches the guide roller, said means comprising a heating device positioned to dry the wet cloths as they pass over the front-rest of the loom, said front-rest being provided with a heating tube by means of which the cloth, passing the front-rest, is dried before reaching the guide roller.

4. A device for drying cloths woven wet on a weaving loom having a front-rest and a guide roller downstream of said front-rest which comprises, in combination, means for drying the wet cloth on the weaving loom itself before the cloth reaches the guide roller, said means comprising a heating device positioned to dry the wet cloths as they pass over the front-rest of the loom, a cloth-guide tube immediately downstream of the front-rest and one member of the assembly consisting of the front-rest and the cloth-guide tube being electrically heated.

5. A device as defined in claim 4, wherein the electrical heating is effected by means of heating rods.

6. A device as defined in claim 4, wherein the electrical heating unit has a mechanical regulator of temperature.

7. A device for drying cloths woven wet on a weaving loom having a front-rest and a guide roller downstream of said front-rest which comprises, in combination, means for drying the wet cloth on the weaving loom itself before the cloth reaches the guide roller, said means comprising a heating device positioned to dry the wet cloths as they pass over the front-rest of the loom, a cloth-guide tube immediately downstream of the front-rest and the heating of one member of the assembly consisting of

the front-rest and the cloth-guide tube being effected by steam.

8. A device for drying cloths woven wet on a weaving loom having a front-rest and a guide roller downstream of said front-rest which comprises, in combination, means for drying the wet cloth on the weaving loom itself before the cloth reaches the guide roller, said means comprising a heating device positioned to dry the wet cloths as they pass over the front-rest of the loom, a cloth-guide tube immediately downstream of the front-rest and the heating of one member of the assembly consisting of the front-rest and the cloth-guide tube being effected by heating gas.

9. A device for drying cloths woven wet on a weaving loom having a front-rest and a guide roller downstream of said front-rest which comprises, in combination, means for drying the wet cloth on the weaving loom itself before the cloth reaches the guide roller, said means comprising a heating device positioned to dry the wet cloths as they pass over the front-rest of the loom, a cloth-guide tube immediately downstream of the front-rest and heating of one member of the assembly consisting of the front-rest and the cloth-guide tube being effected by hot air.

10. A device for drying cloths woven wet on a weaving loom having a front-rest and a guide roller downstream of said front-rest which comprises, in combination, means for drying the wet cloth on the weaving loom itself before the cloth reaches the guide roller, said means comprising a heating device positioned to heat said front-rest interiorly to dry the wet cloths as they pass over the front-rest of the loom.

References Cited in the file of this patent

UNITED STATES PATENTS

1,837,616	Greenwald	Dec. 22, 1931
2,129,273	Hartmann et al.	Sept. 6, 1938
2,133,034	Milnes	Oct. 11, 1938
2,244,744	Uytenbogaart et al.	June 10, 1941
2,769,222	Southwell	Nov. 6, 1956