Feb. 6, 1951 S. J. GEDDINGS 2,540,874

FELT FOR PAPERMAKING MACHINES

Filed May 25, 1949

Fig 1.

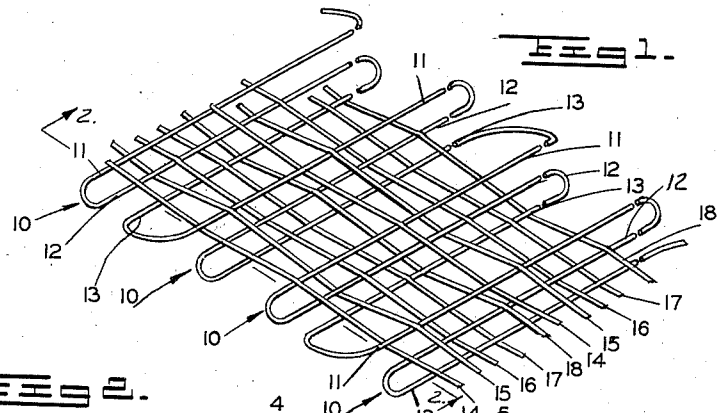


Fig 2.

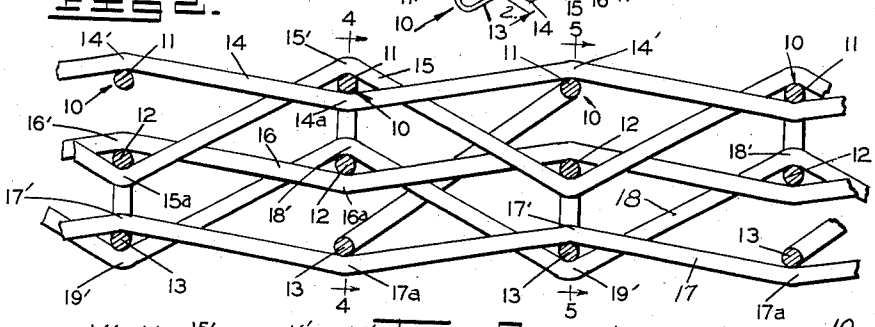


Fig 3.

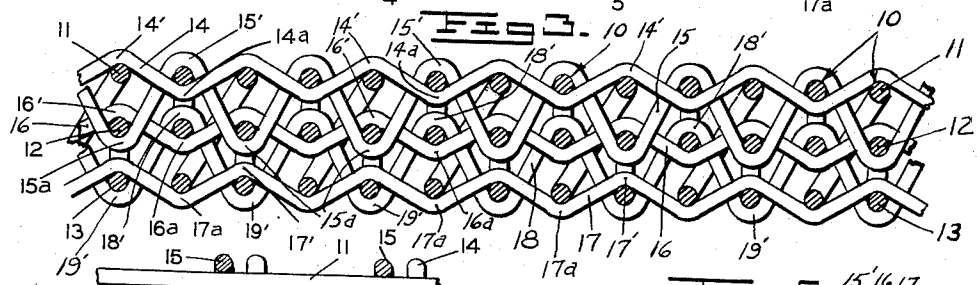


Fig 4.

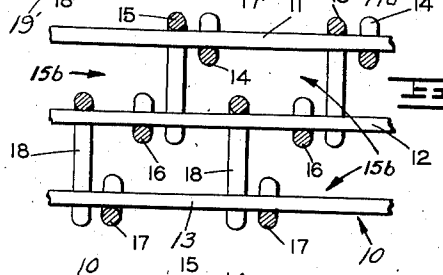


Fig 5.

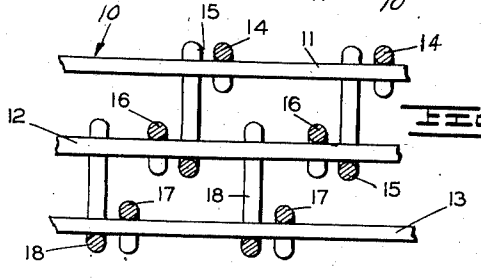
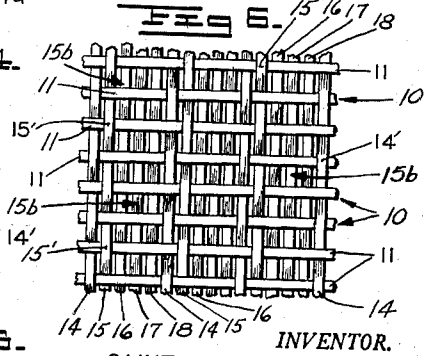


Fig 6.



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UNITED STATES PATENT OFFICE

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FELT FOR PAPERMAKING MACHINES

Saint Julian Geddings, Columbia, S. C.

Application May 25, 1949, Serial No. 95,308

1 Claim. (Cl. 139—383)

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This invention relates to felt for use upon paper making machines.

Important objects of the invention are to provide a felt of the above mentioned character, which is firm, strong and formed highly porous without skipping reed dents; which when wetted and dried will have a reduced shrinkage so that it will not narrow down beyond certain limits; which has a limited longitudinal stretch; which has one face formed completely of heat resisting material and its opposite face substantially completely of highly absorbent material; and which has an increased absorbing and drying action so that it may be driven at a higher speed in paper making machines for effecting an increased output of the treated paper.

In the accompanying drawings, forming a part of this application, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a diagrammatic view in perspective showing my improved fabric with the yarns widely separated for the purpose of illustration.

Figure 2 is a vertical longitudinal section taken on line 2—2 of Figure 1, the yarn being widely spaced for the purpose of illustration,

Figure 3 is a longitudinal section through the fabric, the yarn being somewhat spaced for the purpose of illustration,

Figure 4 is a transverse vertical section taken on line 4—4 of Figure 2, parts in elevation,

Figure 5 is a similar view taken on line 5—5 of Figure 2, parts in elevation and,

Figure 6 is a plan view of the asbestos face of the fabric, the yarn being considerably opened for the purpose of illustration.

In the drawings, the numeral 10 designates groups of filling picks, extending throughout the entire width and length of the fabric. Each group comprises an upper pick 11, an intermediate pick 12, and a lower pick 13. These filling picks are formed in the conventional manner from a continuous filling made of heat resisting material, such as asbestos. The filling constitutes the binder.

The numeral 14 designates warps arranged in a set which extends throughout substantially the entire width and length of the fabric. The warps 14 are formed of heat resisting material, such as asbestos. The numeral 15 designates warps arranged in a companion set, which extends throughout substantially the entire width and length of the fabric. The warps 15 are formed of heat resisting material, such as asbestos. The warps 15 alternate with respect to the warps 14

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and are arranged next to the same. The warps 14 are passed over the upper filling pick 11 of the first group to the left, Figures 1 and 2, and passed under the upper filling pick 11 of the next group 10, and this passing arrangement continues throughout the length of the fabric. The warps 15 are passed under the intermediate filling pick 12 of the first group 10 to the left, Figures 1 and 2, and then passed over the upper filling pick 11 of the next group 10, and this alternate passing arrangement continues throughout the entire length of the fabric. It is thus seen that the warps 15, at alternate filling groups 10, pass from above the upper filling picks 11 downwardly into the fabric and pass beneath the intermediate filling picks 12 of the remaining alternate groups 10. The descending portions of the warps 15 produce the pores or openings in the upper face of the fabric. Since the warps 14 and 15 and the filling picks 11 are formed of asbestos, the upper face of the fabric or felt is formed entirely of asbestos, with the pores or openings therein.

The numeral 16 designates strong intermediate warps, arranged in a set. These strong warps are formed of flax or the like and may be woven tight or under high tension. The strong warps 16 are passed over the intermediate filling pick of the first group 10 to the left, Figures 1 and 2, and beneath the intermediate filling pick 12 of the next filling group 10, and this passing arrangement continues throughout the entire length of the fabric.

The numeral 17 designates warps arranged in a set and formed of readily absorbent material such as cotton. The warps 16 are arranged next to the warps 15 and the warps 17 are arranged next to the warps 16. The warps 17 are passed over the filling pick 13 of the first group to the left, Figures 1 and 2, and are passed under the filling pick 13 of the next group 10, and this alternate passing arrangement continues throughout the felt. The numeral 18 designates warps formed of readily absorbent material such as cotton, and the warps 18 are arranged in a set, and this set is a companion for the set of warps 17. The warps 18 are passed beneath the filling pick 13 of the first group 10 to the left, Figures 1 and 2, and then passed above the intermediate filling pick 12 of the next group 10, and this alternate passing arrangement continues throughout the fabric. It is thus seen that the warps 17 are passed above and below alternate filling picks 13, while the warps 18 are passed below pairs of filling picks 13 of alternate groups 10 and passed

over the filling picks 12 of the groups 10 between such pairs. Portions of the warps 18 extending to the picks 12 form ends 18', and these warp portions extending into the felt, produce the openings or pores. The warp ends 18' in one group are disposed upon the same filling pick 12. The warp ends 19' in each group are disposed upon the same filling pick 13. The warp ends 17' in each group are disposed upon the same filling pick. The warp ends 17a in each group are disposed upon the same filling pick 13. The warp ends 15' in each group are disposed upon the same filling pick 11, and these warp ends 15' produce a straight transverse group in alignment with the straight transverse group of the warp ends 18'. The warp ends 15a in each group form a straight transverse group in alignment with the adjacent straight transverse group of warp ends 19'. The warp ends 14' are disposed above alternate pairs of filling picks 11 and warp ends 14a are disposed beneath filling picks 11 between such pairs. Warp ends 16' are arranged above filling picks 12 in pairs and warp ends 16a beneath the filling picks 12 between the pairs. It is thus seen that the transverse straight groups of warp ends 14', 13', 15a and 19' are in alignment; and the transverse straight groups of warp ends 15', 14a, 18', 16a and 17a are in alignment.

The warp ends 14' and 15' pass to the upper face of the felt, and since the filling picks 11 are also formed of asbestos, the upper face of the fabric is therefore entirely formed of heat resisting material, such as asbestos.

The warp ends 19' and 17a pass to the lower face of the felt, and since these warp ends are formed of cotton, such lower face is formed entirely of readily absorbent material, except for the filling picks 13.

In view of the foregoing disclosure, it will be seen that I have provided a felt having one face formed entirely of heat resisting material, such as asbestos, and its opposite face formed of highly absorbent material, such as cotton. These faces have openings or pores 15b produced by the warps 15 and 18 extending into the body of the felt and passed about the intermediate filling pick 12, and the warps 16 which are spaced from such faces. The asbestos face is adapted to travel about steam heated drums in the paper making machine and such face will not be injured, while the paper being treated rests upon the cotton face of the felt. The filling constitutes the binder and this filling is crimped. When the felt is wetted and then dries there will be little tendency for the felt to shrink transversely, as the shrinkage will be compensated for by the crimps in the filling, which crimps tend to straighten out.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:

A fabric comprising groups of fillings, each group comprising substantially aligned outer filling picks and an intermediate filling pick, the outer filling picks forming first and second longitudinal groups of filling picks, the intermediate filling picks forming an intermediate longitudinal group of filling picks, a first set of heat resisting warps engaging over the next alternate filling picks of the first longitudinal group and engaging beneath the remaining filling picks of the same longitudinal group, a second set of heat resisting warps arranged next to the warps in the first set and passed over the next alternate filling picks of the first outer longitudinal group, the last named filling picks having the first set of warps engaging beneath them, said second set of warps engaging beneath the next alternate filling picks in the intermediate longitudinal group, the last named filling picks being in the same groups with the filling picks of the first outer longitudinal group having the first set of warps engaging over them, a third set of strong warps arranged next to the warps in the second set and engaging over the next alternate filling picks in the intermediate longitudinal group, the last named filling picks having the second set of warps engaging beneath them, the third set of warps engaging beneath the remaining filling picks in the intermediate longitudinal group, a fourth set of readily absorbent warps arranged next to the warps in the third set and engaging over the next alternate filling picks in the second outer longitudinal group, the last named filling picks being in the same groups with the filling picks of the intermediate longitudinal group having the second set of warps engaging beneath them, the fourth set of warps engaging beneath the remaining filling picks in the second outer longitudinal group, and a fifth set of readily absorbent warps engaging beneath the next alternate filling picks of the second outer longitudinal group, the last named filling picks having the fourth set of warps engaging over them, the fifth set of warps engaging over the next alternate filling picks of the intermediate longitudinal group, the last named filling picks having the third set of warps engaging beneath them.

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