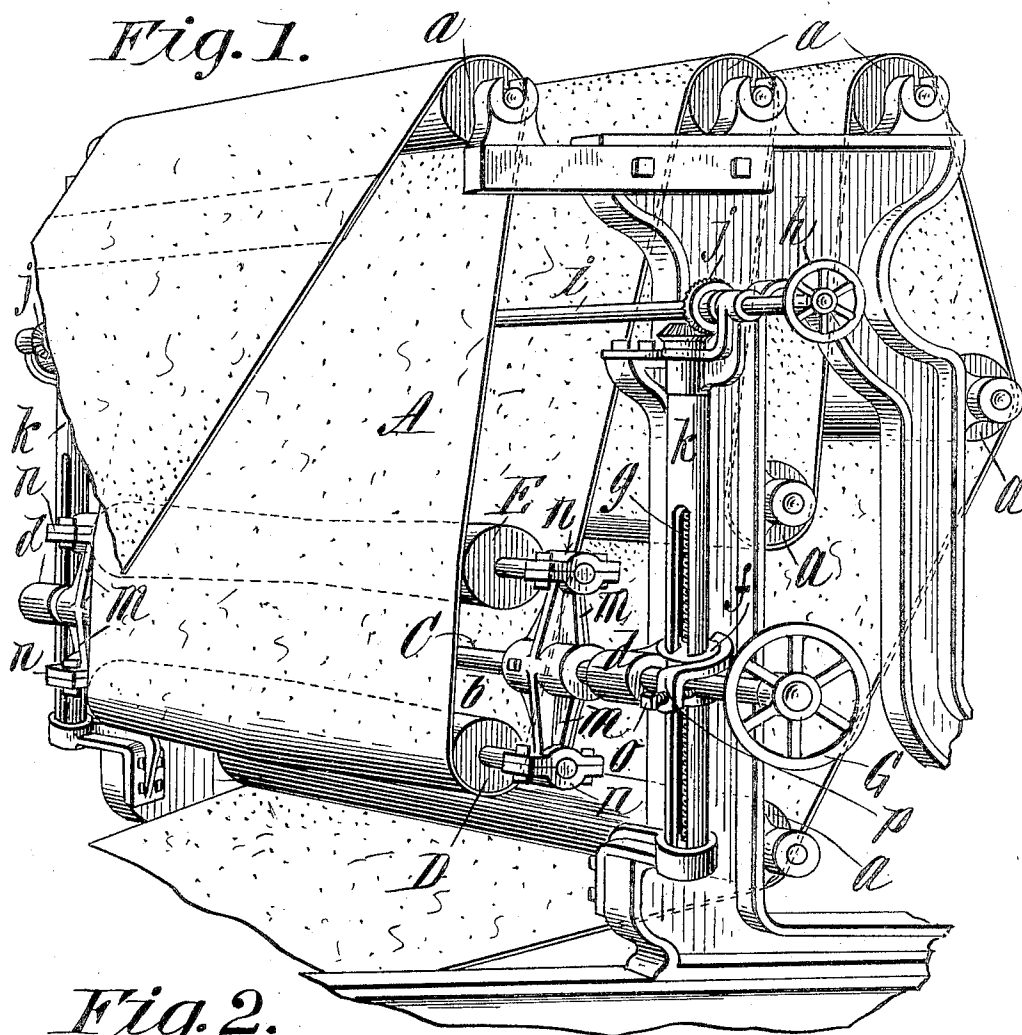


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T. HANCOCK.
FELT REGULATING DEVICE FOR PAPER MACHINES.
APPLICATION FILED JULY 3, 1905.



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UNITED STATES PATENT OFFICE.

THOMAS HANCOCK, OF HOLYOKE, MASSACHUSETTS.

FELT-REGULATING DEVICE FOR PAPER-MACHINES.

No. 813,288.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed July 3, 1905. Serial No. 268,223.

To all whom it may concern:

Be it known that I, THOMAS HANCOCK, a citizen of the United States of America, and a resident of Holyoke, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Felt-Regulating Devices for Paper-Machines, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in means for regulating the tension of the endless felt aprons of a Fourdrinier or other paper-machine, or "press-felts," as they are commonly termed to distinguish them from
15 certain other aprons in a paper-machine, and more particularly for maintaining such apron even and taut between its opposite edges to prevent flapping or fluttering in the running thereof.

20 The principal object of the invention is to provide an improved press-felt-regulating means which is equally effective to overcome any tendency to slackness of the felt either at its middle portion (between its edges) or at
25 its edge portions, and which may be most quickly and conveniently adjusted as occasion may require to accord with conditions of slackness of the felt either at its edge portions or between the edge portions.

30 The improved appliance is designed to serve as the "take-up" for tensioning the felt by taking up any slack in its length, as well as in its width.

35 The invention consists in the combination, with the felt, of a pair of axially-parallel guide-rolls around which the felt runs, one of said rolls tapering from its middle portion outwardly and the other roll tapering from its opposite end toward its middle, and a support
40 on which said pair of rolls are mounted for rotation and which support is movably mounted for reversed presentations of said pair of rolls in relation to the felt.

45 In the accompanying drawings, Figure 1 is a perspective view showing a portion of a Fourdrinier paper-machine which is understood as forward of the wire and suction-boxes and comprising a portion of the press-felt and illustrating the improved felt-regulating device as in its position of coaction with the felt.
50 Fig. 2 is a front elevation of the regulating device.

Similar characters of reference indicate corresponding parts in both of the views.

55 In the drawings, A represents the press-felt, shown as running around the support and

guide-rolls *a* therefor, as usual, while located within the loop or bight *b* of the felt is the present improved device comprising the essentials as hereinabove stated. As specifically constructed the improved device comprises the horizontal shaft C, mounted transversely on the paper-machine and supported in the journals *d d*, which are made as parts of vertically-adjustable blocks *f*, one of which is shown at *f*, and these blocks or nuts are engaged with vertical rotary screw-shafts *g*, which have no endwise movements, but which on being turned through the hand-wheel *h* and shaft and gearing connections *i j* cause vertical adjusting movements of the blocks or nuts, which are guided in the pillars *k*.

The aforementioned transverse horizontal shaft C is provided at or near opposite end portions thereof with the oppositely-extending arms or bars *m m*, which are rigidly affixed thereto and have boxes or journals *n n* at their ends for the journals or gudgeons of the pair of rolls D and E, which are supported at opposite sides of and axially parallel with the said shaft C. The said roll D is shown as tapering from its middle portion outwardly to its opposite ends, while the other roll E is shown as made tapering from its opposite outer ends inwardly to its middle portion, the inward tapers or hollowing of the roll E being substantially complementary to the expansion of the other roll D. The degree of tapering of the rolls D and E is shown exaggerated in the accompanying drawings; but in practice for rolls having lengths equal to the widths of the felt the actual taper of each roll having a mean diameter of about eight inches is about one-quarter of an inch. The said shaft C has at its one extended end a hand-wheel G, by means of which to conveniently turn such shaft to revolutely reverse or adjust the apron-regulating rolls D and E.

When the adjustment has been accomplished, the shaft C is confined against rotational movement, so that the pair of rolls carried on the rigid arms *m m* will be axially immovable, and as a simple means for the adjustment confinement a set-screw *o* is shown as threading through a bracket extension *p* of one of the blocks or nuts *f* to engage by its inner end against and firmly hold from turning the shaft C.

In Fig. 1 the roll D, which is centrally expanded, is shown as in engagement with the felt in the bight thereof, while the other roll E, which is centrally of contracted diameter,

is in engagement with a running portion of the felt above the roll D, and in this adjustment or arrangement of the parts they are effective to take up or overcome slackness in the felt, which may be discovered most marked at its middle or between the edges thereof; but in case the felt is found to have developed a slackness at its edge portion the regulating device comprising the pair of rolls D and E is overturned or reversed to assume the position represented in Fig. 2.

While the regulating device is practical and in a large degree efficient when used with only one of the rollers D or E engaging the felt in the bight thereof, the other roller being peripherally free from or out of engagement with the running course of the felt above the bight, it is far best for the most highly efficient and favorable operation of the regulator to have both of the rolls positioned in peripheral engagement or impingement against the felt, so that, for instance, while the lower one impinges outwardly against the middle portion of the felt the upper one will exert a compensating outward-crowding action against the edge portions of the felt, or vice versa, and of course it is apparent that by bodily adjusting the regulator by changing the vertical position of the carrying-shaft C this improved device serves the function of the usual take-up or felt-tensioning roll.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a paper-machine, the combination with the press-felt, of a pair of axially-parallel guide-rolls, around which the felt runs, one of said rolls tapering from its middle portion outwardly, and the other roll tapering from its opposite ends toward its middle, and a support, on which said pair of rolls are mounted for rotation, and which support is movably mounted for reversed presentations of said pair of rolls in relation to the felt.

2. In a paper-machine, the combination with the press-felt, of a shaft or bar trans-

versely and horizontally mounted and rotatably adjustable in the frame of the machine, and having at the opposite end portions thereof rigid arms, a pair of separated axially-parallel felt guide-rolls, one tapering from its middle portion outwardly and the other tapered from its opposite ends toward its middle, and journaled for rotation in the arms carried by said shaft, and means for confining said rotatably-adjustable shaft in any given adjustment.

3. In a paper-machine, the combination with the felt, of a pair of axially-parallel guide-rolls, around which the felt runs, one of said rolls tapering from its middle portion outwardly, and the other roll tapering from its opposite ends toward its middle, and a support, on which said pair of rolls are mounted for rotation, said support being mounted for roll-positioning adjustment about a horizontal axis transverse of the machine, and said support being also adjustably movable in the line of the run of the felt, for the purposes set forth.

4. In a paper-machine, the combination with the felt, of a shaft or bar transversely and horizontally mounted and rotatably adjustable in the frame of the machine, and bodily adjustable in a line at right angles to its axis, and having at the opposite end portions thereof rigid arms, a pair of separated axially-parallel felt guide-rolls, one tapering from its middle portion outwardly and the other tapered from its opposite ends toward its middle, and journaled for rotation in the arms carried by said shaft, and respective means for bodily adjusting said shaft, for rotationally adjusting it, and for confining it in its respectively adjusted positions.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

THOMAS HANCOCK.

Witnesses:

WM. S. BELLOWES,
G. R. DRISCOLL.