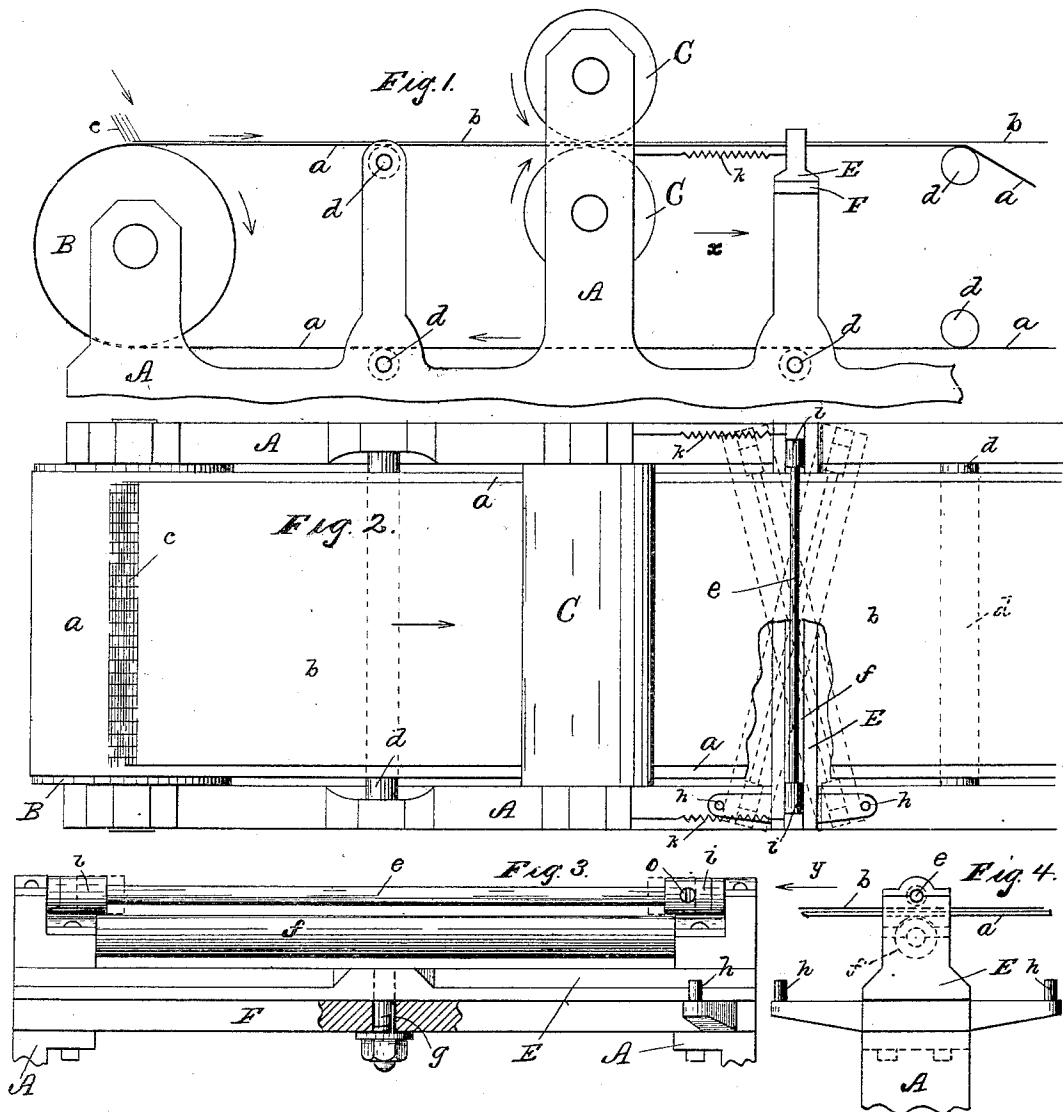


(No Model.)

L. ENSIGN.  
GUIDE FOR PAPER MACHINE FELTS.

No. 432,993.

Patented July 29, 1890.



Attest:  
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# UNITED STATES PATENT OFFICE.

LUTHER ENSIGN, OF ROCHESTER, NEW YORK.

## GUIDE FOR PAPER-MACHINE FELTS.

SPECIFICATION forming part of Letters Patent No. 432,993, dated July 29, 1890.

Application filed January 12, 1889. Serial No. 296,126. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER ENSIGN, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Guides for Paper-Machine Felts, which improvement is fully set forth in the following specification, and shown in the accompanying drawings.

The object of my invention is to produce an improved guide for the felts of paper-machines, the same being hereinafter fully described, and more particularly pointed out in the claim.

Referring to the drawings, the figures of which are mainly diagrammatic, Figure 1 shows a side elevation of parts of a paper-machine with my improved guide in place; Fig. 2, a plan, parts being broken away and other parts shown in various positions by full and dotted lines; Fig. 3, drawn to a larger scale, a side elevation of the guide seen, as indicated by arrow *x* in Fig. 1; and Fig. 4, an end view of the parts seen, as indicated by arrow *y* in Fig. 3.

Referring to the parts, A is the frame of the paper-machine; B, the main carrying-roller for the felt, and C C press-rollers. *a* is the felt for carrying the web of paper which it receives, as shown at *c*, or in any other suitable manner.

*d* are carrying-rollers for the felt, which, with the cylinder B, press-rollers C C, and felt, are all of common construction and all moving in the ordinary manner in the several directions indicated by the associated arrows.

The guide for the felt consists of a pivotal bar E, carrying the rollers *f* and *e*, the edge rollers *i i*, the returning-springs *k k*, and the stops *h h*. The bar E is pivoted upon a central pin *g*, held in the part F of the frame, so as to swing in a horizontal plane. The felt runs between the rollers *e* and *f* and rests upon the latter roller. The roller *e* is provided at its ends with short rollers *i i*, one at each side of the felt, either cylindrical or conical in form, as may be desired. These rollers *i i* stand a fraction of an inch away from the respective edges of the felt when the bar E stands at right angles with the felt. Should the felt at any time run to one side, it will encounter one or the other of the rollers

*i*, and the resulting friction will cause that end of the bar E to swing in the direction in which the felt is moving, as indicated by 55 dotted lines in Fig. 2. In case the bar is thus swung by the felt the inner end of the roller *i*, crowded against by the felt, will approach the center longitudinal line of the felt and crowd the latter back to a central position 60 upon the carrying-rollers. When the felt has been thus returned to its central position upon the rollers, the friction between it and the roller *i* will cease, and the returning-spring *k*, that has been stretched by the motion of 65 the bar, will cause the latter to resume its normal position at right angles to the edge of the felt.

*h h* are stops, which prevent the bar E from swinging too far in either direction, these 70 stops being so placed that when the bar is swung against either one of them the edge rollers *i i* will just touch the respective edges of the felt, the latter being then central upon the carrying-rollers. 75

The springs *k k* are similar in form and equal in tension and connect the opposite ends, respectively, of the bar E with the frame. These springs act to hold the bar in a position substantially at right angles with 80 the line of the felt. The springs are connected with the bar at points on opposite sides of the pivot-pin *g* and act against each other, and the position of the bar results from a balance between their opposite actions. As the 85 rollers *i i* stand a little apart from the edges of the felt, as above stated, it is not essential that the bar E should occupy a position exactly at right angles with the line of the felt, and hence any small inequality in the ten- 90 sion of the springs that would cause the bar to stand slightly askant would be of no consequence. When the bar is swung against a stop by a sidewise movement of the felt, one of the springs will be stretched and the other 95 relaxed. As soon as the friction between the felt and the roller *i* ceases the strained spring will pull the bar back to its normal position. These springs thus constantly tend to hold the guide mechanism in its proper po- 100 sition, and they, in combination with the other parts of the guide mechanism, constitute the essential part of my invention.

The rollers *i i* are made longitudinally ad-

justable upon the roller *e*, as shown in Fig. 3, they being held to said roller by retaining-screws *o*. These rollers may be made of wood, fabric, or wood covered with fabric; but I prefer to make them of some yielding material,  
5 such as india-rubber.

What I claim as my invention is—

A guiding device for the felt of a paper-machine, comprising, in combination, a pivotal bar, a roller held by said bar beneath the  
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felt, a roller *e* above the felt, rollers *i i* upon the roller *e*, stops for the pivotal bar, and returning-springs for said pivotal bar connected, respectively, with the latter at points on opposite sides of the pivotal point of the bar and to the frame, substantially as described.

LUTHER ENSIGN.

Witnesses:

E. B. WHITMORE,  
M. L. McDERMOTT.