(No Model.) 2 Sheets—Sheet 1.

J. E. WETHERBEE.

AUTOMATIC GUIDE FOR FELTS OR WIRES.

No. 593,037. Patented Nov. 2, 1897.

Fig. 1.

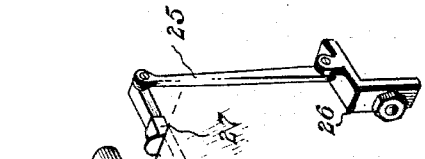


Fig. 3.

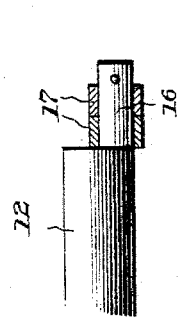


Fig. 4.

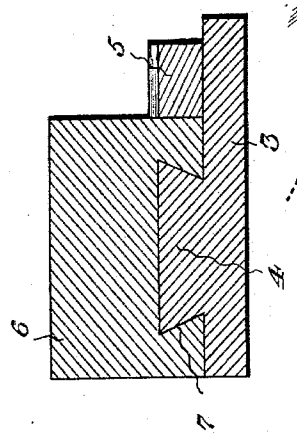


Fig. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 2.

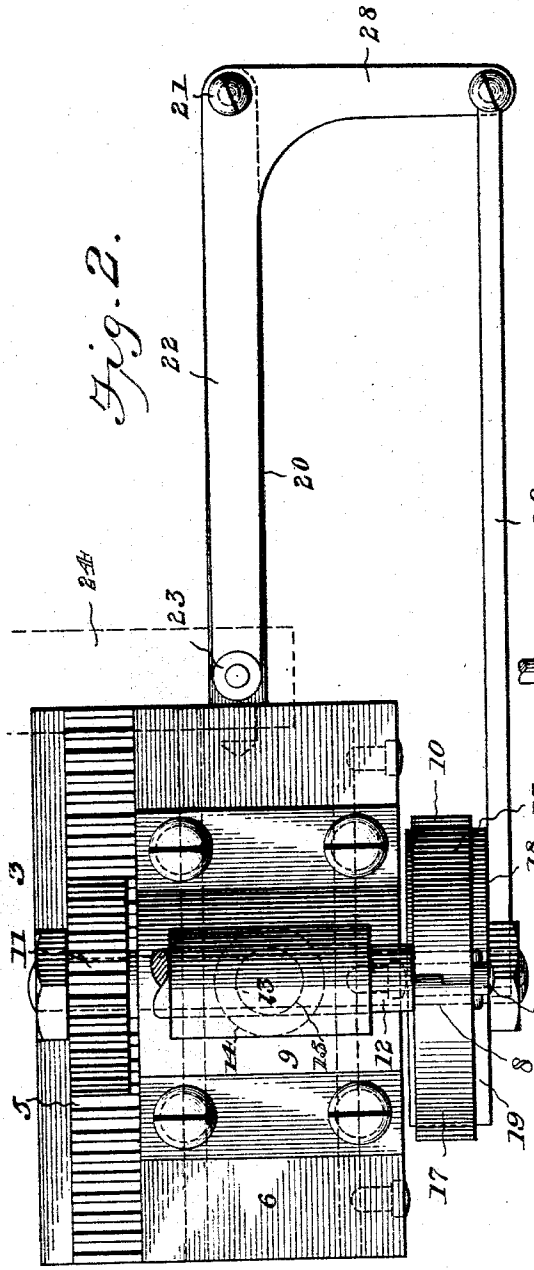
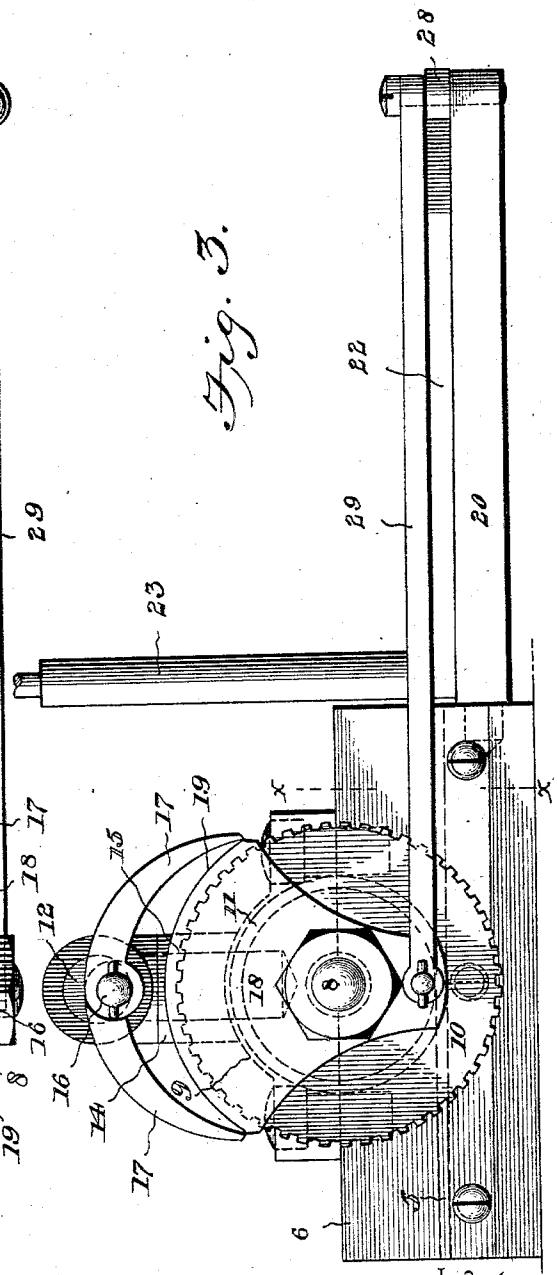


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES E. WETHERBEE, OF SANDY HILL, NEW YORK.

AUTOMATIC GUIDE FOR FELTS OR WIRES.

SPECIFICATION forming part of Letters Patent No. 593,037, dated November 2, 1897.

Application filed July 8, 1897. Serial No. 643,906. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. WETHERBEE, a citizen of the United States, residing at Sandy Hill, in the county of Washington and State of New York, have invented a new and useful Automatic Guide for Felts or Wires, of which the following is a specification.

This invention relates to mechanism for automatically guiding and regulating the felt or wire-cloth of paper-making machines; and the object of the invention is to provide a simple and efficient mechanism of this character which will be operated by the felt or wire-cloth to shift the axial position of the conducting-roll when the felt or wire-cloth moves laterally in either direction from its proper course.

With this and other objects in view the invention consists of the several details of construction and combination of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a portion of a felt or wire-cloth and of my improved mechanism for guiding the same. Fig. 2 is a plan view of the mechanism for shifting the conducting-roll. Fig. 3 is a side elevation. Fig. 4 is a vertical transverse section on the line x x of Fig. 3. Fig. 5 is a sectional detail.

Similar reference-numerals indicate similar parts in the several figures.

1 indicates the felt or wire-cloth, and 2 one of the conducting-rolls.

3 indicates a plate adapted to be rigidly secured to the frame of the machine or to a supplemental frame, as may be preferred. This plate is provided on its upper face with a dovetail tongue 4, which extends longitudinally thereof, and it is also provided with a rack-bar 5, which extends parallel to the tongue with a space between them. The rack-bar 5 and the tongue 4 may be integral with the plate, or they may be formed in separate pieces and be rigidly secured thereto.

6 indicates a sliding block which is provided on its lower face with a dovetail recess adapted to receive the tongue 4. The block 6 will therefore be free to slide longitudinally on the plate 3, but will be held against vertical movement relatively thereto.

8 indicates a shaft which is journaled in suitable bearings on the upper face of the block 6, of which bearing 9 indicates the upper half or cap-piece. The shaft 8 carries at one end a ratchet-wheel 10 and at its other end a gear-wheel 11, the teeth of which mesh with the teeth on the rack-bar 5.

One end of the shaft 12 of the roll 2 is journaled in a bearing 13, which has a swiveled connection with the sliding block 6. In order to get this swiveled connection, the cap-piece 9 of the bearing of the shaft 8 is provided with an upwardly-projecting tube 14, and the bearing 13 is provided with a stem 15, which fits snugly within the tube 14, but is free to have axial movement therein. The other end of the shaft 12 will be supported in a bearing having, preferably, a swiveled connection to some fixed part of the machine-frame.

16 indicates a pin on the outer end of the shaft 12 and eccentric thereto. This pin projects over the ratchet-wheel 16 and serves as a pivot for oppositely-disposed pawls 17, which are adapted to engage the teeth of the ratchet-wheel 10 with their free ends.

18 indicates a segmental plate pivoted intermediate its ends on the shaft 8 outside the ratchet-wheel 10, and this plate is provided at its upper end with a flange 19, which projects over the ratchet-wheel 10 and in its normal position will hold the pawls out of engagement with the teeth of the ratchet-wheel 10. This flange is of such length, however, that the slightest rotary movement of the plate 18 on the shaft 8 will move the flange out of engagement with one or the other of the pawls 17 and permit it to engage the teeth of the ratchet-wheel.

20 indicates an arm projecting from the end of the plate 3, and to this arm an elbow-lever is pivoted, as indicated at 21. The arm 22 of the elbow-lever carries at its outer end a vertical rod 23, to the upper end of which one end of a bar 24 is pivotally connected. This bar extends transversely across the felt or wire-cloth 1 below it and is pivotally connected at its other end to the upper end of a rod 25, which latter is pivoted at its lower end to a bracket 26, which will be secured to some fixed part of the machine.

27 indicates guides which are adjustably supported on the bar 24 to engage the edges

of the felt or wire-cloth 1. The other arm 28 of the elbow-lever is pivotally connected to one end of a rod 29, and the other end of this rod is pivotally connected to the lower end of the segmental plate 18.

When the felt or wire-cloth 1 travels over the roll 2, the latter will be rotated, and this will impart a rocking movement to the pawls 17; but as long as the felt or wire-cloth travels in its proper course the free ends of the pawls will be held out of engagement with the ratchet-wheel 10 by the flange 19. As soon, however, as the felt moves laterally in either direction the bar 24 will move with it, and this movement will rock the elbow-lever on its pivot 21 and thereby cause the segmental plate 18 to rock on the shaft 8 and move it out of engagement with one or the other of the pawls 17, which pawl will then be free to engage the teeth of the ratchet-wheel 10. This engagement of the pawl with the ratchet-wheel 10 will cause the shaft 8 to turn in its bearings and thereby cause the gear-wheel 10 to move over the rack-bar 5, which movement will cause the block 6 to slide on the plate 3 and thereby move one end of the roll and cause the roll to extend obliquely across the felt. This change in the position of the roll will soon cause the felt or wire-cloth to resume its proper course, and in doing this the bar 24 will be moved in the opposite direction and thereby return the plate 18 to its normal position to hold the pawls out of engagement with the teeth of the ratchet-wheel 10.

One of the distinguishing features of my invention is that the mechanism which shifts the sliding block is operated directly by the journal of the supporting-roll and works on a line with the roll continually. This mechanism is very sensitive to any lateral movement of the felt or wire-cloth, and as the parts of which it is formed are few and simple it will not be liable to get out of order.

What I claim is—

1. The combination of a fixed rack, a block supported to slide longitudinally of the rack, a roll having one of its bearings swiveled on said block, a felt or wire-cloth supported by and movable over said roll, a shaft journaled in said block, a gear-wheel on one end of the shaft meshing with the said rack, a ratchet-wheel on the other end of said shaft, a plate pivoted intermediate its ends on the shaft outside the ratchet-wheel and having a flange at its upper end projecting over the ratchet-wheel, a pin on the end of the roll-shaft eccentric thereto, reversely-arranged pawls pivotally mounted on said pin and normally engaging said flange, and devices connected to the lower end of said plate and operated by the lateral movement of the felt or wire-cloth to rock the plate on its pivot and permit one of the pawls to engage the ratchet-wheel, substantially as and for the purpose specified.

2. The combination of a fixed plate having a dovetail tongue, a sliding block having a dovetail recess to receive said tongue, a fixed rack on the plate parallel to said block, a roll having one of its bearings swiveled on said block, a felt or wire-cloth supported by and movable over said roll, a shaft journaled in said block, a gear-wheel on one end of the shaft meshing with the said rack, a ratchet-wheel on the other end of said shaft, a plate pivoted intermediate its ends on the shaft outside the ratchet-wheel and having a flange at its upper end projecting over the ratchet-wheel, a pin on the roll-shaft eccentric thereto, reversely-arranged pawls pivotally mounted on said pin and normally engaging said flange, an elbow-lever pivoted on a fixed support, a rod connecting one arm of said lever to the lower end of the pivoted plate, a vertical rod at the outer end of the other arm of said lever, a bar extending transversely of the felt below it and pivotally connected at one end of said vertical rod and at its other end to the machine-frame, and guides secured to the bar and engaging the edges of the felt or wire-cloth, substantially as described and for the purpose specified.

3. The combination of a fixed rack, a block supported to slide longitudinally of the rack, a felt-supporting roll having one of its bearings swiveled on said block, a shaft journaled in said block, a gear-wheel on one end of the shaft engaging said rack, a ratchet-wheel on the other end of the shaft, reversely-arranged pawls eccentrically pivoted on the roll-shaft over the ratchet-wheel, and mechanism operated by the lateral movement of the felt to bring one of the pawls into engagement with the ratchet-wheel and operate the latter to move the sliding block, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES E. WETHERBEE.

Witnesses:
WILLIAM J. TOWNSEND,
E. C. RILEY.