(No Model.) 3 Sheets—Sheet 1.

W. C. PEIRCE.

CLOTH GUIDING MECHANISM FOR CLOTH FINISHING MACHINES.

No. 463,581. Patented Nov. 17, 1891.

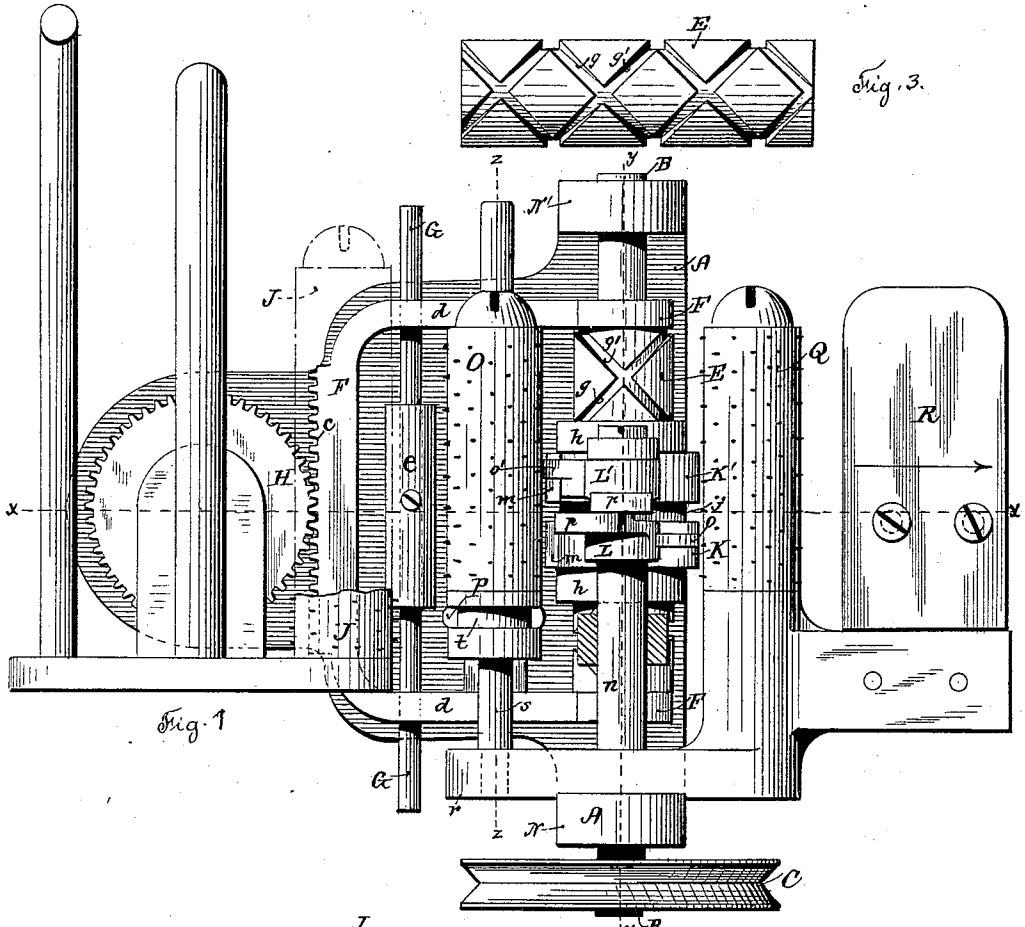

Fig. 1

Fig. 3.

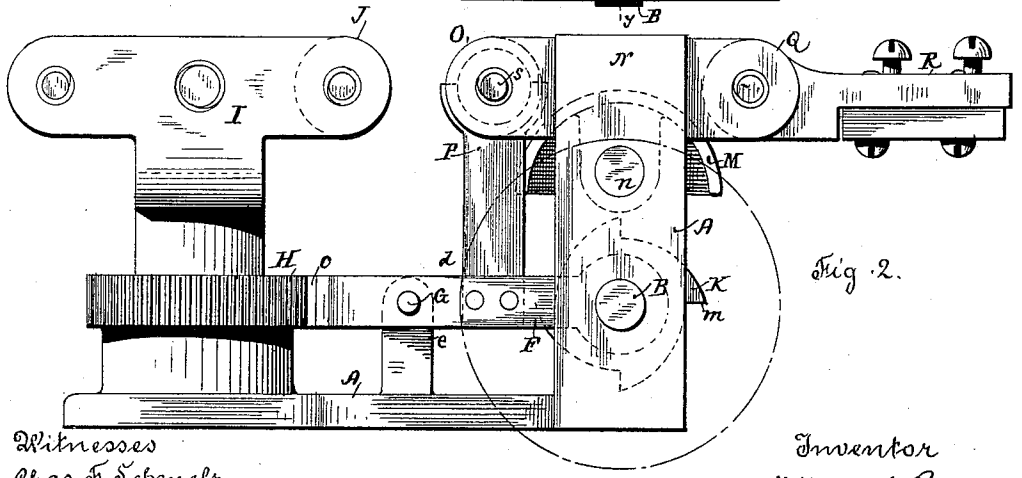

Fig. 2.

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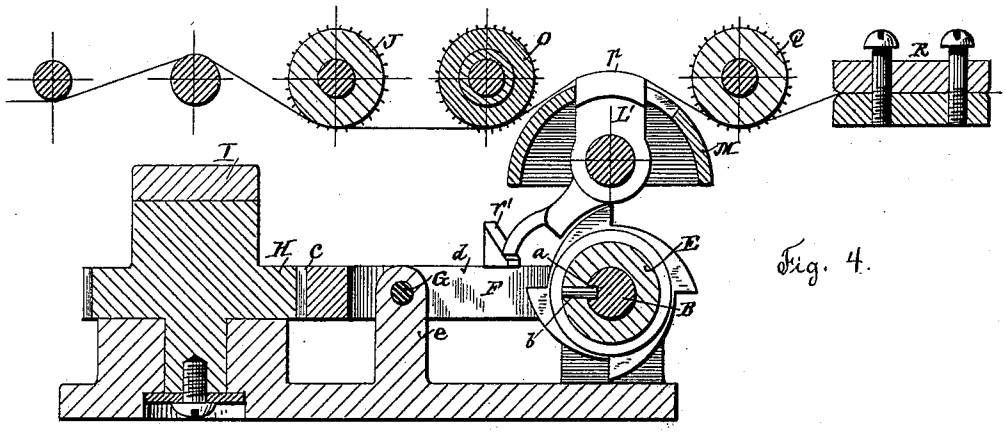


Fig. 4.

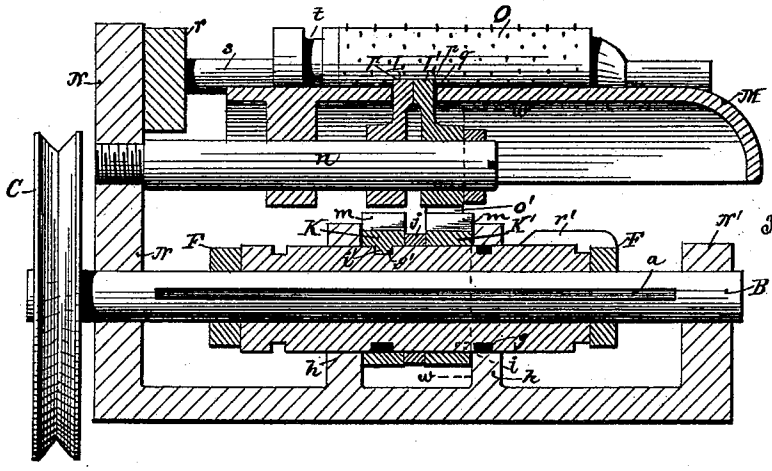
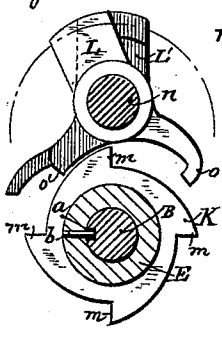


Fig. 5.

Fig. 8.



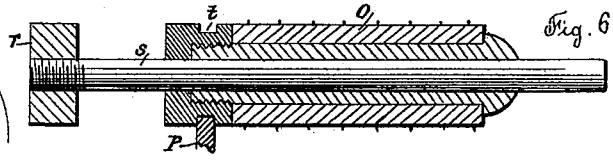


Fig. 6.

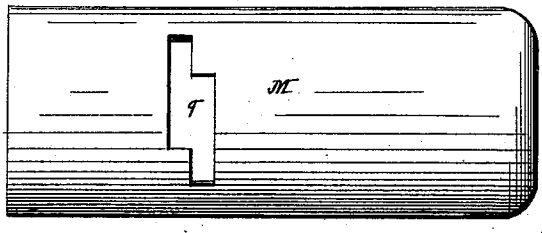


Fig. 7.

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Fig. 9.

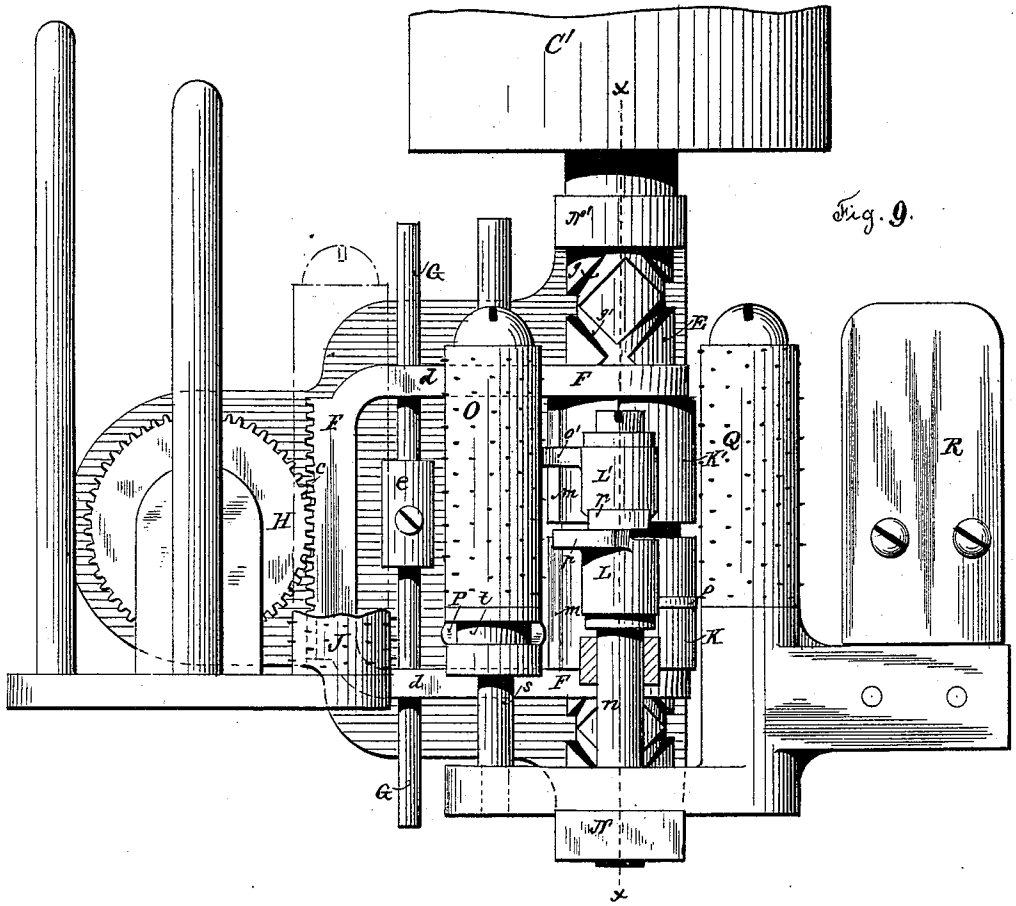
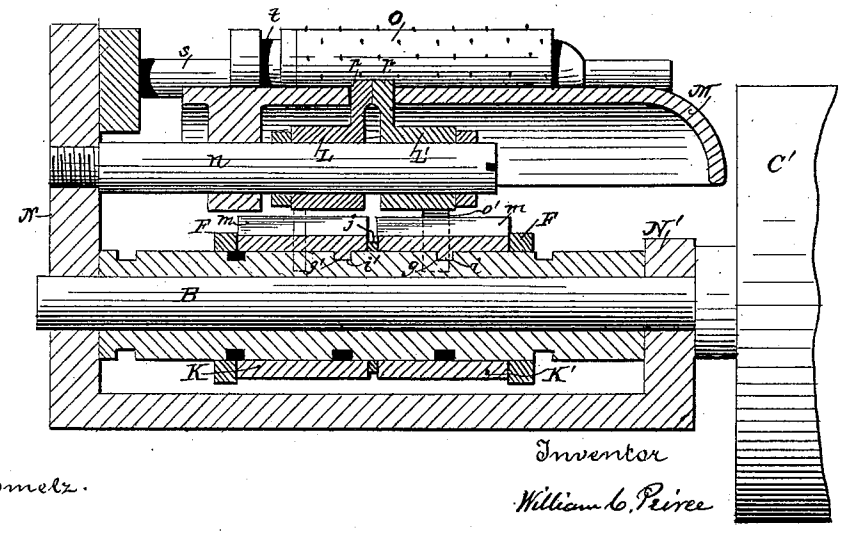


Fig. 10.



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UNITED STATES PATENT OFFICE.

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CLOTH-GUIDING MECHANISM FOR CLOTH-FINISHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 463,581, dated November 17, 1891.

Application filed June 11, 1890. Serial No. 355,083. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. PEIRCE, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Cloth-Guiding Mechanism for Cloth-Finishing Machines, of which the following is a specification.

In feeding webs of cloth to cloth-finishing machines it is desirable to provide an automatic feeding device which is efficient in its operation and not liable to get out of order; and to this end my invention consists in the employment of a screw and nut for producing the guiding movement of the guide-rollers of the machine, as hereinafter fully set forth.

Figure 1 represents a top view of my improved cloth-guiding mechanism or machine with the pivoted guide-roll broken away and the detector guide-plate removed. Fig. 2 represents an elevation at the outer side of the machine. Fig. 3 represents a side view of the screw, which is made in the form of a sliding sleeve. Fig. 4 represents a vertical section taken in the line *x x* of Fig. 1. Fig. 5 represents a vertical section taken in the line *y y* of Fig. 1, showing the guiding-plate in position. Fig. 6 represents a vertical section taken in the line *z z* of Fig. 1 through the axis of the direct-acting guide-roller. Fig. 7 represents a top view of the detector guide-plate separate from the machine. Fig. 8 represents a vertical section taken in the line *w w* of Fig. 5 through the screw-sleeve. Fig. 9 represents a top view of the machine, showing a modification in which the nut is made to slide instead of the screw, the guide-plate being removed to show the screw and nuts. Fig. 10 represents a vertical section taken in the line *x x* of Fig. 9.

In the accompanying drawings, Figs. 1 and 2, A represents the frame of the machine.

B is the driving-shaft, upon which is placed the pulley C, and upon the shaft B is also placed the sliding sleeve E, which is held to rotate with the shaft B by means of the groove *a*, made in the shaft, and the pin *b*, which passes from the sleeve E into the groove *a*.

Upon the shaft B and loosely embracing the sleeve E is placed the yoke F, which is provided with a rack *c*, and the forward end of the yoke F is supported in a proper sliding position by means of the guide-rod G, which passes through suitable perforations made in the arms *d d* of the yoke F and is held in the perforated standard *e* of the frame. The sliding sleeve E and yoke F will thus be adapted for a limited movement along the shaft B between the bearing-standards N N'. The rack *c* engages with the teeth of the gear H, which is either connected with or forms a part of the pivoted head I, which carries the guide-roller J, (shown by the broken lines in Fig. 1,) the said guide-roller being thus caused to change its angular position to guide the edge of the web upon the movement of the sliding sleeve E in either direction upon the shaft B. The periphery of the sliding sleeve E is provided with a right-hand spiral groove *g* and a left-hand spiral groove *g'*, and upon the sleeve E, between the fixed standards *h h*, are placed the nuts K K', the nut K' being provided with a spiral thread *i*, which fits the right-hand spiral groove *g* of the sleeve, and the nut K is provided with a similar spiral thread *i'*, which fits the left-hand spiral groove *g'*, and between the nuts K K' is placed the loose ring or washer *j*. The nuts K K' are adapted to revolve with the sleeve E and are provided with the teeth *m*, which are adapted to engage with the projecting lower ends of the detectors L L'. The detector L is pivoted to the fixed stud *n* and is provided with a hook *o*, which is adapted to engage with the teeth *m* of the nut K, and the detector L' is also pivoted to the stud *n* and provided with an arm *o'*, which is adapted to engage with the teeth *m* of the nut K'. The detector L is overbalanced upon the pivot-stud *n*, so that the hook *o* will be out of engagement with the teeth of the nut K until the engaging upper end *p* is carried forward by engagement with the web, and the companion detector L is overbalanced, so that the arm *o'* will be in engagement with the teeth of the nut K' until the engaging upper end *p* is also carried forward by the web. To the stud *n* is attached the detector guide-plate M, which is provided with the slot *q*, adapted to receive the projecting upper ends of the detectors L L'.

To the projecting arm r of the standard N is attached the stud s, upon which is loosely placed the guide-roller O, which is provided with an annular groove t, the said groove being adapted to receive the fork P, which is attached to the yoke F, so that whenever the said sleeve and yoke are moved in either direction a corresponding movement will be imparted to the guide-roller O. Upon the standard N is also placed the fixed roller Q and the flat supplementary guide R.

When the edge of the web is running through the machine in the line $x\,x$, Fig. 1, in engagement with the upper end p of the detector L′, the arm o' will be thrown by the friction of the web out of engagement with the teeth of the nut K′, so that both of the nuts K′ and K will revolve with the sleeve E, which will thus rest in a fixed position upon the shaft B, and if the edge of the web should then run outwardly onto the end p of the detector L this would cause the hook end o of the detector to engage with the teeth m of the nut K, thus stopping the revolution of the same and causing the endwise movement of the sleeve and lateral movement of the yoke, which will cause an angular movement of the guide-roller J and a direct axial movement of the guide-roller O to carry the edge of the web back to the true line, and when the edge of the web runs inwardly and off from the end p of the detector L′ the arm o' will drop into engagement with the teeth m of the nut K′, thus stopping the rotation of the same with the sleeve and causing the endwise movement of the sleeve upon the shaft B and the corresponding angular movement of the guide-roller J and direct movement of the guide-roller O to carry the edge of the web again back to the true line.

A modification of my invention is shown in Figs. 9 and 10, in which the sleeve or double screw is either made stationary upon or integral with the shaft, and the nuts are adapted for a sliding movement upon the engagement of the detectors therewith, the yoke F being made to embrace the nuts upon the screw, so as to move therewith, the operation of the machine remaining as before, and in this case the nuts K K′ are made elongated in order that the lateral movement of the same will not interfere with the proper action of the detectors.

The operating-screw can be driven either by means of a driving-belt upon the pulley C (shown in Fig. 1) or by means of the forward movement of the web over the roller C′, (shown in Figs. 9 and 10,) and either one or both of the guide-rollers can be employed.

If the machine when driven by a belt upon the pulley C is allowed to run without being threaded with a web, there will be danger of damage to the machine by the continued engagement of the detector L′ with the teeth of the nut K′, thus causing the unregulated continued movement of the yoke F until such movement is obstructed by injurious engagement, and in order to guard against such a result a guide-arm or cam r' is arranged upon the yoke F, as shown in Figs. 4 and 5, to raise the catch-arm o' out of engagement with the nut K′ before the dangerous extreme of movement has been reached.

I make no broad claim to the combination, with a guide-roller adapted to guide the movement of the edge of the web, a roller-support which is adapted to change the direction of the axis of the guide-roller, and reversing devices in operative connection with the said roller-support, of driving means for actuating the reversing devices, and a bearing for the driving means from which as a resisting-base the power is applied to the reversing devices, the said bearing being independent of the angular movement of the roller-support; neither do I make a broad claim to the combination, with a guide-roller adapted to guide the movement of the edge of the web, a roller-support which is adapted for angular movement to change the direction of the axis of the guide-roller, and reversing devices in operative connection with the said roller-support, of a driving means for actuating the reversing devices, a bearing for the driving means from which as a resisting-base the power is applied to the reversing devices, the said bearing being independent of the angular movement of the roller-support, and a detector which engages with the reversing devices upon a variation in the running edge of the web, as the same was not my invention.

I claim as my invention—

1. The combination, with a direct-moving guide-roller adapted to carry the edge of the web to the true line, of a rotary screw in operative connection with the guide-roller, a nut adapted to rotate with the screw, and a detector adapted for engagement with the running edge of the web and with the nut to stop its rotation and cause the required direct movement of the web by the direct movement of the guide-roller, substantially as described.

2. The combination, with a pivoted guide-roller adapted to guide the edge of the web to the true line, of a rotary screw in operative connection with the guide-roller, a nut adapted to rotate with the screw, and a detector adapted for engagement with the running edge of the web and with the nut to stop its rotation and cause the required guiding movement of the pivoted guide-roller, substantially as described.

3. The combination, with a guide-roller adapted to cause the lateral movement of the edge of the web, of a reversely-threaded rotary screw in operative connection with the guide-roller, a right-hand nut and a left-hand nut adapted to rotate with the screw, and the detectors adapted to engage with the nuts to stop their rotation and cause the required movement of the guide-roller, substantially as described.

4. The combination, with a guide-roller adapted to cause the lateral movement of the edge of the web, of a rotary screw in operative connection with the guide-roller, a nut adapted to rotate with the screw, a detector adapted for engagement with the running edge of the web and with the nut to stop its rotation and cause the required movement of the guide-roller, and the guide-arm adapted to disengage the detector to prevent a dangerous excess of movement, substantially as described.

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Witnesses:
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JOHN S. LYNCH.