

W. S. ROWLEY.  
 CLOTH OPENER, SPREADER, AND GUIDER.  
 APPLICATION FILED JAN. 28, 1918.

1,347,714.

Patented July 27, 1920.

Fig. 1.

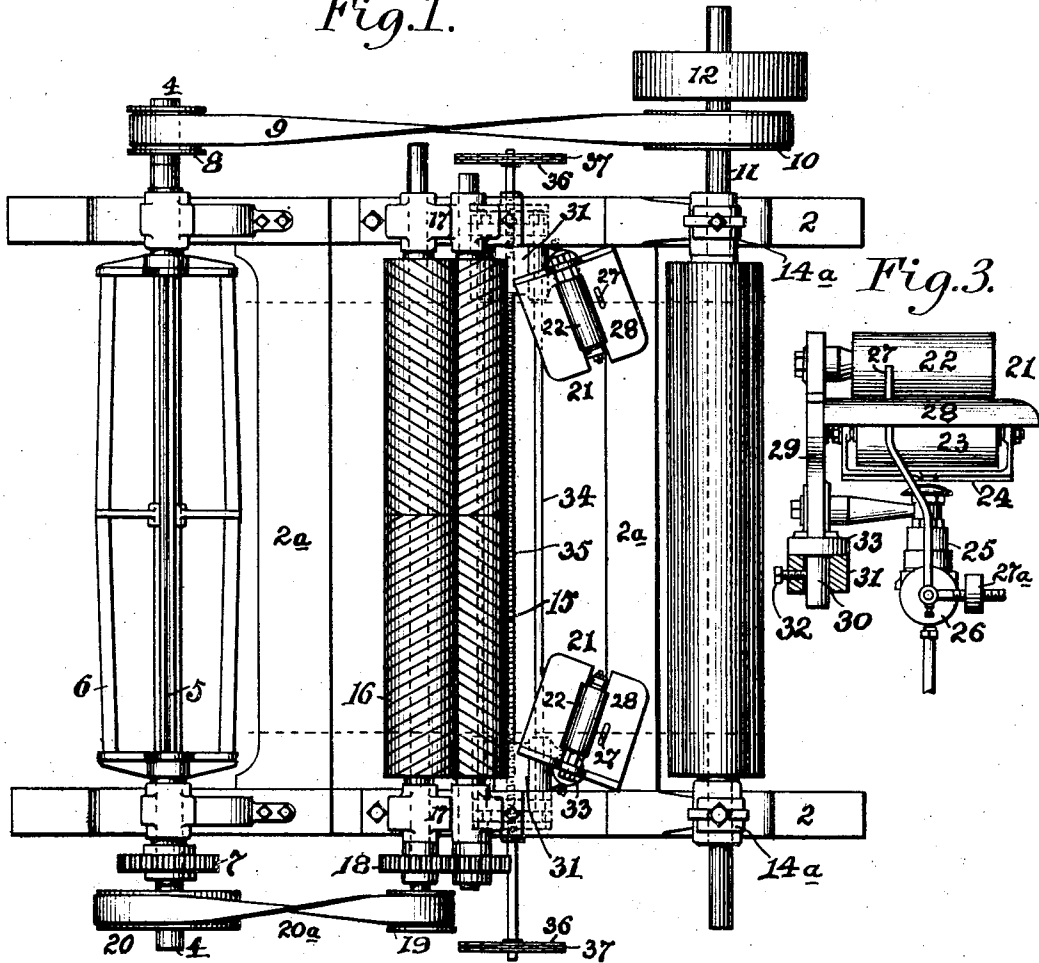


Fig. 3.

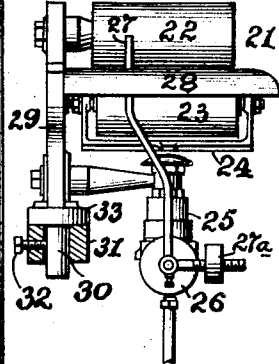
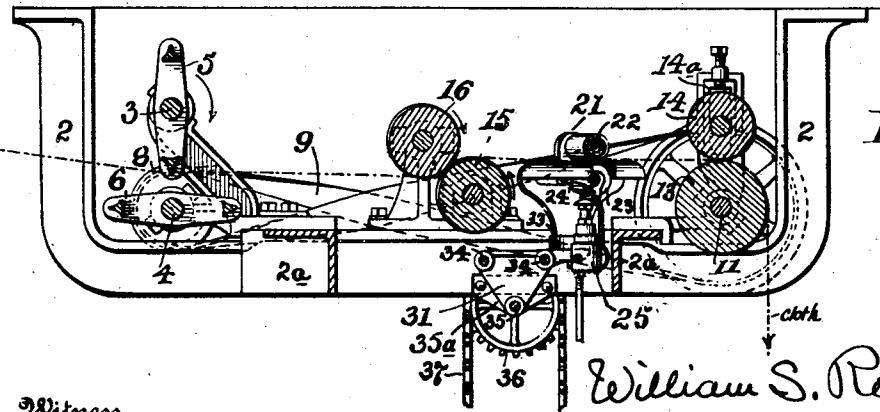


Fig. 2.



Witness

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By

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# UNITED STATES PATENT OFFICE.

WILLIAM S. ROWLEY, OF PALMYRA, NEW JERSEY, ASSIGNOR TO H. W. BUTTERWORTH & SONS COMPANY, A CORPORATION OF PENNSYLVANIA.

CLOTH OPENER, SPREADER, AND GUIDER.

1,347,714.

Specification of Letters Patent.

Patented July 27, 1920.

Application filed January 28, 1918. Serial No. 214,120.

*To all whom it may concern:*

Be it known that I, WILLIAM S. ROWLEY, a citizen of the United States, and resident of Palmyra, county of Burlington and State of New Jersey, have invented an Improvement in Cloth Openers, Spreaders, and Guiders, of which the following is a specification.

The object of my invention is to provide certain improvements in scutchers for finishing woven textile materials and more particularly, for stretching the fabric web to definite width and straightening the selvages before passing through the draw rolls.

Heretofore scutchers have been provided with a transverse governor bar between the scroll rolls and draw rolls, which bar was so pivoted that it had a tendency to cause the fabric to be properly guided to the draw rolls, whereby the selvage edges may travel through the draw rolls in substantially the same continuous alinement. The governor bar however was not reliable in its operation and moreover was not adjustable to be equally effective for all widths of fabric.

More particularly, the object of my invention is to dispense with the governor bar heretofore employed and provide the scutcher between the scroll rolls and the draw rolls with a pair of guiders, one at each side of the machine; and said guiders adapted to be adjusted to or from each other to suit different widths of fabric. The guider rolls are arranged obliquely to the selvages of the fabric and adapted to stretch the fabric transversely to its length and at a time immediately before passing to the draw rolls, the action being to accurately govern the positioning of the selvages so that the fabric, in passing through the draw rolls, maintains a substantially constant relation longitudinally of said rolls, thereby insuring its delivery in a perfect manner, so that whether it is folded or rolled, the selvage edge at either end will lie accurately in the same plane. Furthermore, my object is to cause the guiders to act upon each selvage edge of the textile web in an independent manner, so that the accurate positioning of the selvages in passing through the draw rolls insures the maintaining of the alinement of the web at its place of delivery.

My invention also consists of improvements hereinafter described whereby the

above objects and results are attained, said improvements comprising certain organization and combination of parts which are fully described hereinafter and more particularly defined in the claims.

For the purpose of illustrating my invention, I have shown in the accompanying drawings the embodiment thereof which is at present preferred by me, since the same is in form to give satisfactory and reliable results, but it is to be understood that the several instrumentalities of which my invention consists, can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities herein shown and described.

Referring to the drawings:—Figure 1 is a plan view of a scutcher embodying my invention; Fig. 2 is a longitudinal sectional view of the same; and Fig. 3 is an elevation showing the construction of the guiders employed in the scutcher when embodying my invention.

2, 2, are the main frames and preferably U shaped for attachment to the ceiling joists. These side frames are connected by transverse frames 2<sup>a</sup>. Two shafts, 3 and 4, arranged one above the other in suitable bearings respectively carry the beaters 5 and 6. These beaters comprise transverse frames with longitudinal bars slightly bowed outward in the middle; and the bars of the beaters are so arranged that the cloth to be treated in passing between the two sets of beaters is alternately beaten first by one beater and then by the other in rapid succession, the tendency of the beaters being to soften and spread the fabric. From the beaters 5 and 6 the fabric passes between the scroll rolls 15 and 16. As shown, these rolls are ribbed in character and the ribs are arranged helically about the rolls, said helical ribs diverging from the middle outward, as will be understood by reference to Fig. 2.

The fabric, in passing between the scroll rolls, is smoothed laterally from the center outwardly toward the selvages, to bring the fabric to its full width.

From the scroll rolls 15 and 16 the fabric passes between the two guiders 21, said guiders arranged to act upon the fabric adjacent to its respective selvages. The operation of these guiders is such, that they tend to cause the selvages to be fed in predeter-

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mined alinement on their way to the draw rolls 13 and 14. After passing between the draw rolls where the fabric is pressed and positively fed, it is then permitted to descend and be rolled or folded as may be desired. By reason of the presence of the guiders and their special action the selvages of the fabric, when in rolled or folded form, will be accurately positioned so that all portions of the selvage at the end of the web will lie in the same plane and the width of the fabric in its rolled or folded form will be uniform.

I will now refer in detail to the means for operating the several parts of the scutcher. The draw roll 13 is secured to a shaft 11, held in suitable bearings and driven by a belt wheel 12. The draw roll 14 is maintained in contact with the roll 13 by suitable adjustable bearings 14<sup>a</sup>, these parts being of any well known construction. By the adjustability, any pressure may be placed upon the fabric desired so that the drawing effect of the cloth through the scutcher is properly insured.

The scroll rolls 15 and 16 are of usual construction, in which the scrolls are of helical form and diverge from the center toward each end. The scroll ribs on the two rolls are oppositely arranged as to the direction of their helical form owing to the fact that they are required to revolve in opposite directions; and when the fabric is passed between them the action of the scroll ribs is to spread the fabric from the center laterally toward each of the selvages thereof. These rolls are supported in suitable bearings 17 and are geared together by gears 18 so that they revolve at the same surface speeds and in opposite directions. 19 is a belt wheel secured to the shaft of one of the scroll rolls to insure rotation thereto.

The beaters 5 and 6 comprise open frames having transverse beater bars which alternately beat the fabric from opposite sides and in that manner shake it out while also slightly spreading it in the manner well known to this type of machine.

The guiders, shown at 21, may be of the construction illustrated in U. S. Letters Patent No. 1,120,019, granted to H. C. Brehmer, under date of December 8, 1914, and I therefore do not make any claim to the particular details of construction of these guiders. Generally considered, they comprise the following instrumentalities: a slotted guide plate 28, having above the slot thereof a horizontal roll 22 carried upon a fixed axis and below the slot of the plate, an adjustable horizontal roller 23. This roller 23 is journaled in a pivoted frame 24 which is raised or lowered by the action of a pneumatic motor 25, whose operation is controlled by a valve device 26; said valve device in turn being controlled by a finger

27 which is moved toward the selvage of the fabric by a counter weight 27<sup>a</sup> and moved in the opposite direction by the selvage edge of the fabric itself to control the valve and its motor. The roll 23 is depressed or raised under the control of the fabric, it being raised to grip the fabric whenever the selvage thereof tends to move away from the control finger 27. When the fabric is gripped between the rolls 22 and 23 the obliquity of the axes of said rolls to the length of the fabric causes them to move the selvage outward against the control finger 27 and this action causes the motor device to act to lower the roll 23 to arrest the stretching of the fabric when stretched to the predetermined extent. As the selvage of the fabric moves inward, the control finger 27 follows it under the action of the counter weight 27<sup>a</sup> and the motor 25 is again put into action to raise the roll 23. In this manner the selvage of the fabric is required to run straight between very narrow limits and therefore in the finished fabric all portions of the selvage at the end of the roll are in practically the same plane. The same action and results take place with both of the guiders, but the two guiders operate in reverse directions.

I will now describe the particular means for supporting and adjusting the guiders. The guiders each have a main frame 29 which has at its lower end a collar 33 and a downwardly projecting stud 30, the latter received in a carriage 31 and clamped therein by a set screw 32. The carriage 33 supports the guider while permitting it to be adjusted about the axis of the stud 30 to change the obliquity which it assumes to the cloth. The carriage 31 is guided upon two transverse bars 34 which extend transversely between the two main frames 2, 2. 35 is a transverse screw shaft provided with right and left hand screw threads. The right hand thread engaging the carriage 31 of the upper guider in Fig. 1 and the left hand screw thread engaging the carriage 31 of the lower guider in said figure. This adjusting screw shaft 35 is provided with sprocket wheels 36 and operating chains 37 therefor which hang downward for operating the sprocket wheels and rotating the adjusting screw 35 in one direction or the other as required. By this means the guiders may be adjusted nearer together or farther apart as required to suit the different widths of cloth being finished. The screw shaft 35 is held in its own separate bearings 35<sup>a</sup> and in that manner positively positions the guiders in respect to the scroll rolls. When the machine is accurately adjusted, it is intended that the guiders shall be respectively arranged at equal distances to each side of the center of the scroll rolls. While I have shown a suitable manner of

supporting and adjusting the guiders, I do not restrict myself to this particular manner of accomplishing this result, as the guiders may be adjusted in any other suitable manner. I have also shown and referred to the preferred form of guider, but it is manifest that other constructions of these guiding rolls may be employed in lieu of those shown and I therefore do not confine myself to the specific construction of the guiders shown.

The various parts of the apparatus may be revolved in any suitable manner, but it is customary to provide transmission devices from the shaft 11 to both the beaters and scroll rolls and this may be accomplished in the manner shown, by way of example. Secured to draw roll shaft 11 is a belt wheel 10 and about this wheel 10 is arranged a belt 9 for driving a belt wheel 8 secured to the shaft 4 of the lower beater. The beater shafts 3 and 4 being geared together by gearing 7, the beaters are caused to revolve in opposite directions. The opposite end of the beater shaft 4 to that occupied by the belt wheel 8, is provided with a belt wheel 20; and a belt 20<sup>a</sup> extending about this belt wheel 20 drives the belt wheel 19 which is secured to the shaft of the scroll roll 16.

It will now be seen that, in the operation of the machine, that the cloth in the rope when fed to the machine passes between the beaters 5 and 6 and is shaken out, thence between the scroll rolls 15 and 16 where it is spread, thence over the guide plates 28 and between the rolls of the guiders, and finally between the draw rolls 13 and 14, from which the finished cloth is delivered to the means for winding it into a roll or for laying it in the form desired. The draw rolls 13 and 14 positively feed the cloth through the machine and press it before delivery, whereas the beaters and scroll rolls tend to put a drag upon the cloth to shake it out and stretch it. The guiders act upon the cloth close to the draw rolls to insure accurate guiding of the selvages and putting on more or less lateral stretching tension as may be required to insure the desired result, spreading the fabric or releasing it at either or both selvages at the same or different times as may be necessary, the operation being automatic and effective. The combination of the guiders with the scroll rolls and draw rolls is such that the cloth is properly stretched and positioned in passing from the scutcher so that the final product is straight and of uniform width; and when wound into a roll, all portions of the selvage at each end of the roll lie in the same plane and give a perfect condition and appearance.

It will now be apparent that I have devised a novel and useful construction which

embodies the features of advantage enumerated as desirable, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that I do not restrict myself to the details, as the same are susceptible of modification in various particulars without departing from the spirit or scope of the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a machine of the character stated, the combination of the scroll rolls and a pair of draw rolls for gripping and feeding the cloth under pressure, with two guider devices arranged between the said scroll and draw rolls and separated a distance substantially equal to the width of the fabric to be treated, said guiders comprising independent pairs of rolls having their axes respectively arranged at opposite oblique angles to the axes of the scroll and draw rolls and between which the selvages of the fabric respectively travel, and independent means for causing the said pairs of guider rolls to press upon the cloth and release it alternately said means arranged for being controlled as to time of action by the selvages of the fabric, whereby the said selvages are positively insured to pass between the draw rolls at substantially constant positions along their length.

2. In a machine of the character stated, the combination of the scroll rolls and a pair of draw rolls for gripping and feeding the cloth under pressure, with two guider devices arranged between the said scroll and draw rolls and separated a distance substantially equal to the width of the fabric to be treated, said guiders comprising independent pairs of rolls having their axes respectively arranged at opposite oblique angles to the axes of the scroll and draw rolls and between which the selvages of the fabric respectively travel, independent means for causing the said pairs of guider rolls to press upon the cloth and release it alternately said means arranged for being controlled as to time of action by the selvages of the fabric, whereby the said selvages are positively insured to pass between the draw rolls at substantially constant positions along their length, transverse guiding means arranged parallel to the scroll rolls, and separate carriages for respectively supporting the guider devices and adjustably supported upon said guiding means whereby the guider devices may be adjusted parallel to the axes of the scroll rolls.

3. In a machine of the character stated, the combination of the scroll rolls and a pair of draw rolls for gripping and feeding the cloth under pressure, with two guider de-

vices arranged between the said scroll and draw rolls and separated a distance substantially equal to the width of the fabric to be treated, said guiders comprising independent pairs of rolls having their axes respectively arranged at an angle to the axes of the scroll and draw rolls and between which the selvages of the fabric respectively travel, independent means for causing the said pairs of guider rolls to press upon the cloth and release it alternately said means arranged for being controlled as to time of action by the selvages of the fabric, transverse guiding means arranged parallel to the scroll rolls, separate carriages for respectively supporting the guider devices and adjustably supported upon said guiding means whereby the guider devices may be adjusted parallel to the axes of the scroll rolls, mechanical adjusting means for simultaneously adjusting the carriages in opposite directions upon the guiding means, and downwardly extending hand operable means for operating the mechanical adjusting means.

4. In a machine of the character stated, the combination of the scroll rolls and a pair of draw rolls for gripping and feeding the cloth under pressure, with two guider devices arranged between the said scroll and draw rolls and separated a distance substan-

tially equal to the width of the fabric to be treated, said guiders comprising independent pairs of rolls having their axes respectively arranged at opposite oblique angles to the axes of the scroll and draw rolls and between which the selvages of the fabric respectively travel, independent means for causing the said pairs of guider rolls to press upon the cloth and release it alternately said means arranged for being controlled as to time of action by the selvages of the fabric, transverse guiding means arranged parallel to the scroll rolls, separate carriages for respectively supporting the guider devices and adjustably supported upon said guiding means whereby the guider devices may be adjusted parallel to the axes of the scroll rolls, a transverse shaft having right and left hand screw threads for respectively engaging the two carriages, a sprocket wheel on the screw shaft, and a downwardly extending chain about the sprocket wheel for operating said sprocket wheel and screw shaft for adjusting the guiders.

In testimony of which invention, I hereunto set my hand.

WM. S. ROWLEY.

Witnesses:

WILBUR ALRICH,  
CHESTER COPELAND.