Sept. 8, 1970 A. V. ALEXEFF 3,527,394

WEB GUIDING APPARATUS

Filed Aug. 23, 1968

Fig. 1

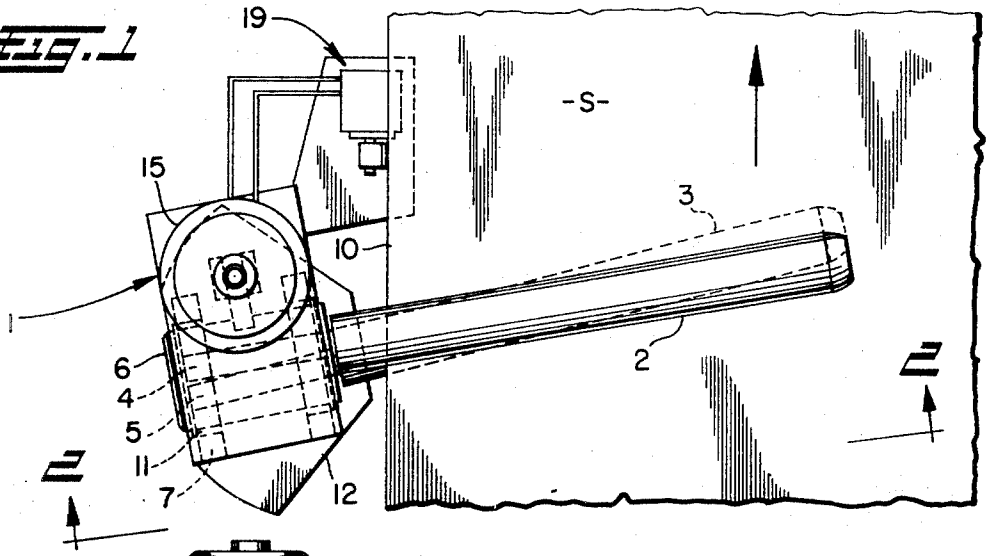
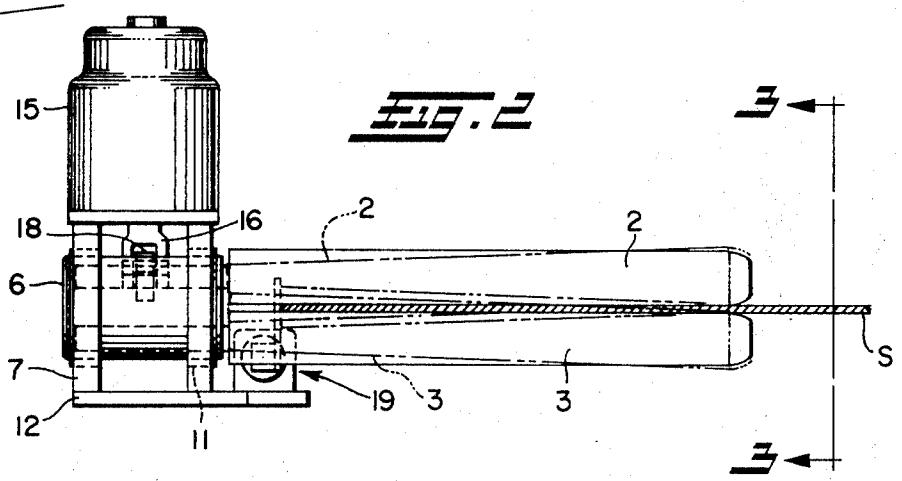


Fig. 2



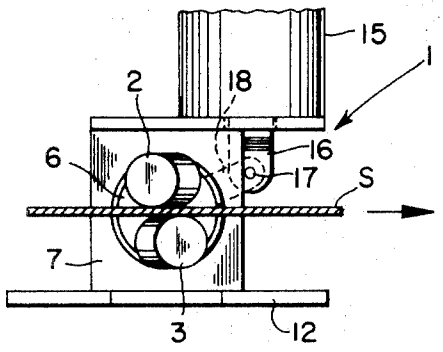


Fig. 3

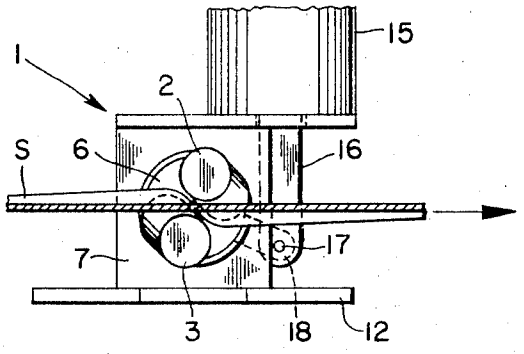


Fig. 4

INVENTOR

ALEXANDER V. ALEXEFF

BY Oberlin, Maky, Donnelly & Renner

ATTORNEYS

United States Patent Office 3,527,394
Patented Sept. 8, 1970

3,527,394

WEB GUIDING APPARATUS

Alexander V. Alexeff, Cleveland, Ohio, assignor to Alexeff-Snyder Enterprises, Inc., Cleveland, Ohio, a corporation of Ohio

Filed Aug. 23, 1968, Ser. No. 754,790
Int. Cl. B65h 25/26
U.S. Cl. 226—17 6 Claims

ABSTRACT OF THE DISCLOSURE

A web guiding apparatus including a pair of guide rolls adjacent one or both edges of the web material carried by a cylindrical mounting block journaled in a support stand, such guide rolls being angularly disposed in the mounting block in such a fashion that rotational movement of the cylindrical mounting block will effect angular displacement of the guide rolls into and out of engagement with the web material.

BACKGROUND OF THE INVENTION

The present invention relates generally, as indicated, to web guiding apparatus and more particularly to certain improvements in web guiding apparatus for guiding fabrics, strands, textiles, foils, film, and other such web material.

One type of web guiding apparatus in common use has a pair of guide rolls adjacent one or both edges of the web material being guided, one roll of each pair overlying the web material and the other roll underlying such web material. The rolls of each pair are angularly disposed with respect to each other and carried on a common support in such a fashion that when the support is moved through an angular distance, the rolls are angularly displaced into and out of engagement with the associated edge of the web material to guide the same. Although the results obtained by such guiding apparatus are generally quite satisfactory, the mechanism for effecting the required angular displacement of the guide rolls is relatively complex and costly, and causes the guide rolls to oscillate back and forth in a transverse direction toward and away from the web material during such angular displacement, which has been found to be unnecessary for effective guiding of the web material.

SUMMARY OF THE INVENTION

It is accordingly a principal object of this invention to provide a web guiding apparatus of the type generally described including a pair of guide rolls adjacent one or both edges of the web material mounted for simultaneous angular displacement into and out of engagement with the web material, but having a much more simple and less expensive mounting for the guide rolls.

A further object is to provide such a web guiding apparatus in which the rolls are not transversely shifted in and out with respect to the web material during such angular displacement.

These and other objects of the present invention are achieved by mounting each pair of guide rolls in a cylindrical mounting block journaled in a support stand. The rolls are angularly disposed in the cylindrical mounting block so that a simple rotational movement of the cylindrical mounting block will achieve the desired angular displacement of the guide rolls into and out of engagement with the web material for guiding the same during its longitudinal movement.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail a certain illustrative embodiment of the invention, this being indicative, however, of but one of the various ways in which the principles of the invention may be employed.

BRIEF DESCRIPTION OF THE DRAWING

In the annexed drawing:

FIG. 1 is a top plan view of a preferred form of web guiding apparatus constructed in accordance with this invention;

FIG. 2 is a rear elevation view of the apparatus of FIG. 1 as seen from the plane of line 2—2;

FIG. 3 is an end elevation view of the apparatus of FIG. 2 as seen from the right end thereof, the guide rolls being shown out of engagement with the edge of the web material; and

FIG. 4 is an end elevation view similar to FIG. 3, but the guide rolls are shown angularly displaced into engagement with the edge of the web material.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The web guiding apparatus **1** illustrated herein by way of example generally comprises a pair of guide rolls **2** and **3** journaled on shafts **4** and **5** whose ends are suitably mounted in a cylindrical mounting block **6** which is in turn journaled in a support stand **7** adjacent one edge **10** of web material S as by means of needle bearings **11**.

The guide rolls **2** and **3** are desirably sufficiently uniformly spaced apart such that when they are directly over each other on opposite sides of the web material S, there is sufficient clearance therebetween for the web material to pass therethrough without engaging the guide rolls. When in such position, the axes of the guide rolls **2** and **3** are disposed in planes parallel to the web material. However, the axes of the guide rolls are desirably not actually parallel to each other, but rather extend from the support stand angularly inwardly such that they cross each other intermediate the ends of the rolls, as best seen in FIGS. 1 and 3. Accordingly, when the cylindrical mounting block **6** is rotated, the guide rolls **2** and **3** are angularly displaced into engagement with the opposite sides of the web material with such engagement being greatest at the fabric edge **10** and progressively diminishing in the direction of the web center line as shown in phantom lines in FIG. 2 and also in FIG. 4 due to the angular inclination of the rolls, whereby the angle of wrap is the greatest at the fabric edge where more guiding is usually required.

Of course, the guide rolls must be canted in the direction of web flow to be effective in moving the web material in a transverse direction during such engagement between the guide rolls and web material, which may be controlled simply by adjusting the angular position of the support stand **7** with respect to its base structure **12**, as well known in the art. Rotational movement of the cylindrical mounting block **6** in the reverse direction will angularly displace the guide rolls **2** and **3** back toward the position illustrated in FIGS. 1 through 3 where the guide rolls are shown out of engagement with the web material.

From the above, it can now be seen that the desired angular displacement of the guide rolls **2** and **3** into out of engagement with the web material for controlling the edge movements thereof may be accomplished by a simple rotational movement of the cylindrical mounting block **6**, and for that purpose there is provided a fluid actuator **15** having an axially reciprocable output shaft **16** radially offset from the axis of the cylindrical mounting block **6** and operatively connected thereto by a pin **17** and connecting rod **18**. An edge sensor **19** of conven-

tional type located adjacent the edge of the web may be used to control in known manner the operation of the actuator **15**.

Although not shown, it should be understood that an additional web guiding apparatus **1** identical to that already described may be disposed adjacent the opposite edge of the web material for movement into and out of engagement therewith to guide the opposite edge movements as well.

I, therefore, particularly point out and distinctly claim as my invention:

1. Web guiding apparatus comprising a support stand, a cylindrical mounting block journalled for rotation in said support stand, a pair of shafts having one end mounted in said mounting block and the other projecting outwardly therefrom, guide rolls journaled on said shafts, and means for rotating said mounting block in opposite directions to cause angular displacement of said shafts and guide rolls carried thereby into and out of engagement with the edge of a web material interposed between said guide rolls.

2. The apparatus of claim **1** wherein the axes of said guide rolls are disposed in parallel planes, said axes extending from said support stand angularly inwardly so as to cross each other intermediate the ends of said guide rolls, whereby such engagement of the guide rolls with the web material progressively diminishes from the edge in the direction of the web centerline.

3. The apparatus of claim **1** wherein said means for rotating said mounting block comprises a fluid actuator having an axially reciprocable output shaft radially offset from the axis of said mounting block, and a pin and connecting rod between said output shaft and mounting block.

4. The apparatus of claim **1** wherein said support stand is angularly adjustable with respect to the edge of the web material for varying the cant angle of said guide rolls.

5. The apparatus of claim **1** further comprising means adapted to be located adjacent the edge of the web material for controlling the operation of said rotating means for said mounting block.

6. The apparatus of claim **1** wherein there are two of said support stands adapted to be disposed adjacent opposite edges of a web material, each of said support stands including such a mounting block journaled for rotation in said support stand, a pair of such shafts having one end mounted in said mounting block and the other end projecting outwardly therefrom on opposite sides of the adjacent edge of web material, guide rolls journaled on each of said shafts, and means for rotating said mounting blocks in opposite directions to cause angular displacement of said shafts and guide rolls carried thereby into and out of engagement with the adjacent edges of the web material.

References Cited

UNITED STATES PATENTS

3,100,069	8/1963	Richards et al.	226—17
3,156,396	11/1964	Snyder et al.	226—17
3,414,954	12/1968	Alexeff	226—17 X

ALLEN N. KNOWLES, Primary Examiner