

G. McNEILL.
FABRIC CENTERING AND STRETCHING DEVICE.
APPLICATION FILED APR. 2, 1915.

1,207,692.

Patented Dec. 5, 1916.
2 SHEETS—SHEET 1.

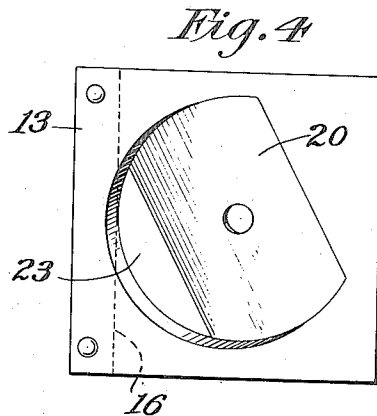
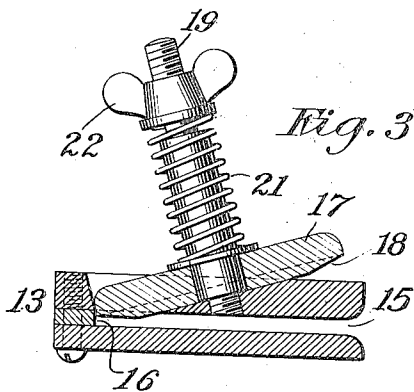
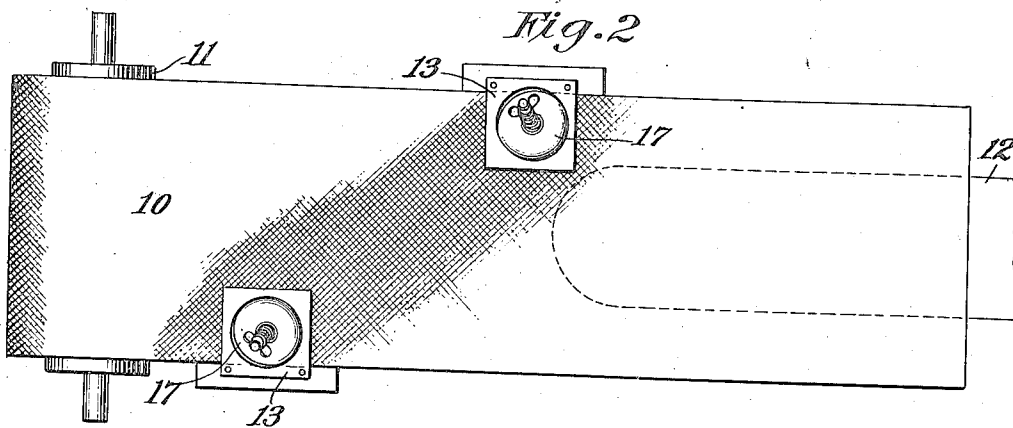
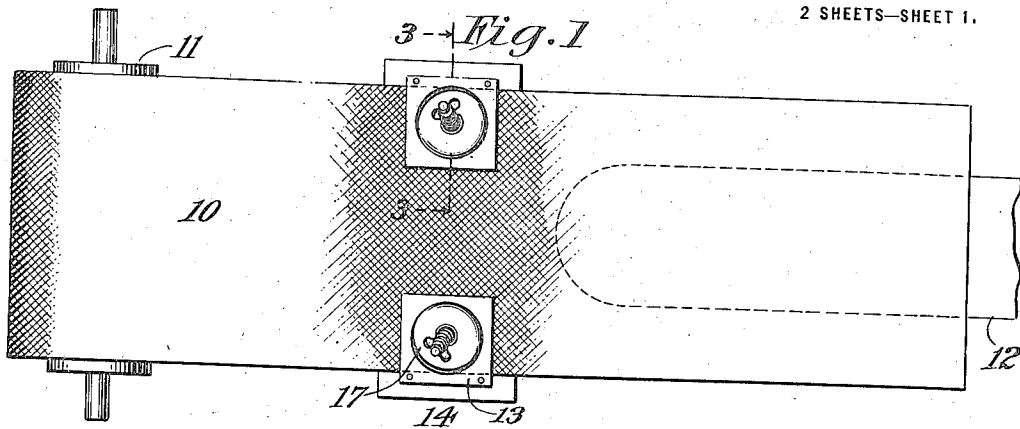
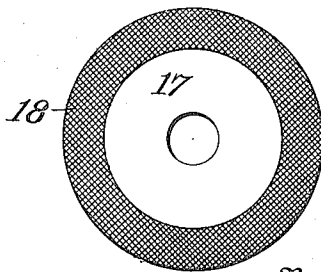


Fig. 5



Witness,
S. L. Taylor.

Inventor
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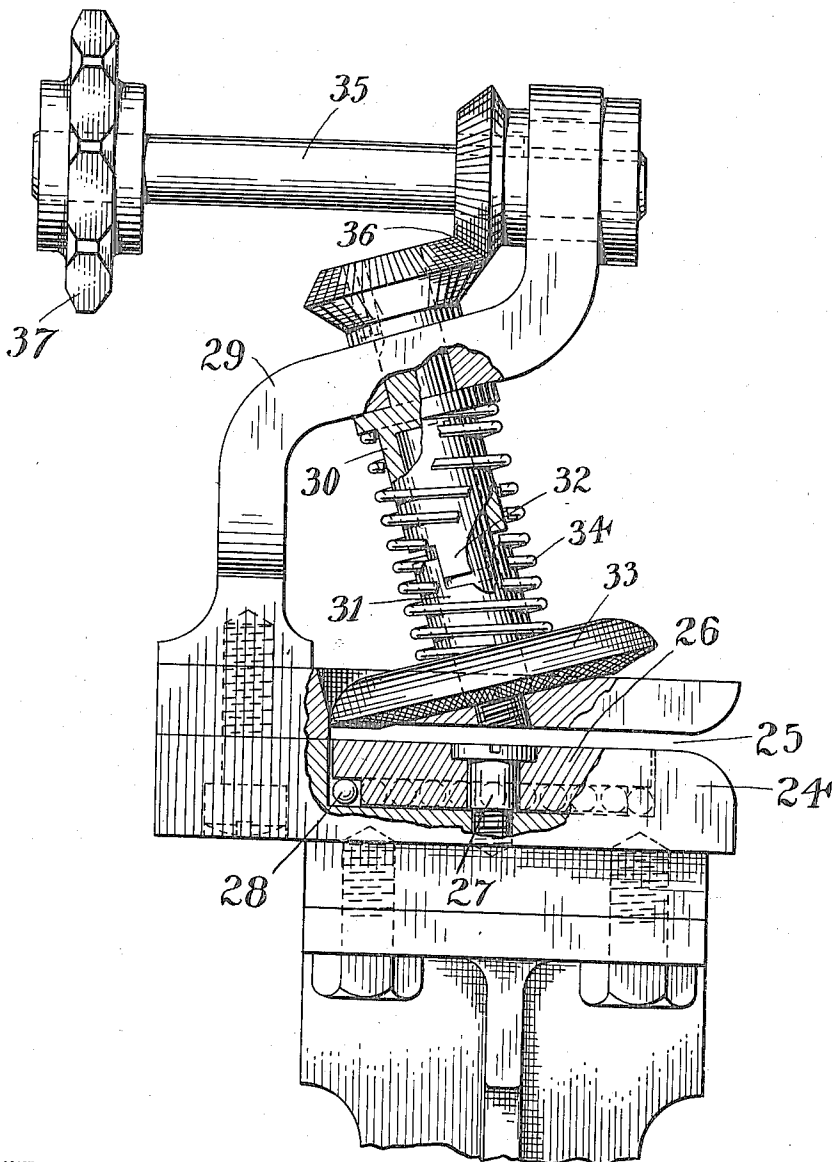
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Ernest J. Oppenheimer

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Fig. 6.



WITNESS;

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UNITED STATES PATENT OFFICE.

GEORGE McNEILL, OF DETROIT, MICHIGAN, ASSIGNOR TO MORGAN & WRIGHT, A CORPORATION OF MICHIGAN.

FABRIC CENTERING AND STRETCHING DEVICE.

1,207,692.

Specification of Letters Patent.

Patented Dec. 5, 1916.

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To all whom it may concern:

Be it known that I, GEORGE McNEILL, a citizen of the United States, and a resident of Detroit, county of Wayne, and State of Michigan, have invented certain new and useful Improvements in Fabric Centering and Stretching Devices, of which the following is a full, clear, and exact description.

This invention relates to devices for manipulating a sheet in a predetermined direction, more specifically to devices for operating upon sheets of bias cut fabric, and has for an object to provide a device of this character which may be selectively used either as a centralizer or as a transverse stretcher for a sheet of material, more particularly rubber treated bias cut fabric traveling from a stock roll to the ring core or other point where it is to be used.

In connection with the use of rubber treated bias cut fabric, for example in the manufacture of tires, it is customary to wind plies of the fabric from a stock roll on to a ring core. It is essential that this fabric be accurately centralized on the core to produce the best results, and it is sometimes desired that the fabric be also stretched transversely to foreshorten it in length, so that it will conform more readily to the configuration of the ring core.

Therefore, to attain the above ends I have provided a simple device adapted to be anchored in the path of and be frictionally operated by the fabric, a pair of the devices being preferably used in each instance, and the relative position of the devices to each other, that is whether they engage the same threads simultaneously or different threads, determining whether they operate as a centralizer only, or as a combined centralizer and transverse stretcher, as will hereinafter be fully explained.

With the above objects in view the invention consists in the novel details of construction and combination of parts hereinafter fully described and pointed out in the appended claims, it being understood that various modifications may be resorted to within the scope of the appended claims without sacrificing any of the advantages or departing from the spirit of the invention.

The invention will be easily understood from the following description taken in con-

nection with the accompanying drawing in which;

Figure 1 is a diagrammatic view showing devices embodying my invention operating upon different threads of bias-cut fabric to simultaneously centralize and stretch the fabric transversely; Fig. 2 is a diagrammatic view showing the devices operating upon the same threads to merely centralize the fabric; Fig. 3 is a cross-sectional view on the line 3—3, Fig. 1; Fig. 4 is a detail plan view showing the device with the revoluble member removed; Fig. 5 is an underneath view of the revoluble member. Fig. 6 is a view in elevation, partly broken away, showing a modified form of the invention.

Referring now to the drawing 10 indicates a sheet of material, in the present instance bias-cut rubber treated fabric, the same being shown as traveling from a stock roll 11 to a revoluble ring core 12 upon which a tire is to be built of successive plies of the fabric in the usual and well known manner.

The device comprising the subject matter of this invention comprises a support 13 which is designed to be anchored stationary adjacent to one edge of the traveling sheet of fabric 10, as shown at 14, and is provided in one side with a slot 15 which receives the adjacent edge of the fabric. The inner wall 16 of the slot forms a straight edge guide and abutment in coincidence with which the fabric is fed from the slot regardless of the angle at which the fabric enters the slot in case it is not centralized on the stock roll. This is accomplished by a revoluble presser member 17 which will now be described.

The presser member is in the nature of a disk having the margin beveled and roughened as shown at 18 to provide an annular frictional surface concentric with the axis of the disk and intersecting the plane of the disk at an oblique angle. The disk is mounted to turn on a spindle 19 which is secured obliquely on the support 13. The latter has a recess formed therein, the bottom wall 20 of which slopes obliquely downward and forms a rest for the disk 17, the latter being spring-pressed against said rest by a helical spring 21 the tension of which is regulated by a nut 22 threaded upon the spindle 19. Said recess opens into the slot 15 of the support as shown at 23 and per-

mits of the frictional surface 18 entering said slot, the recess, bottom wall 20 thereof, and opening 23, being so proportioned and relatively located and the axis of the disk being so inclined that all points on the frictional surface 18 will consecutively first engage the fabric, then push the same against the guide, and finally pass from the fabric, that is, said points will contact with said fabric only when moving toward the edge of the fabric or the guide.

In operation, when it is desired to merely centralize the fabric on the way to the core, a pair of devices constructed as above described are arranged to engage the opposite longitudinal edges of the fabric, the devices being arranged diagonally across the fabric with respect to each other so that they operate simultaneously upon the same threads as shown in Fig. 2. The tension of the spring 21 is then adjusted by the manipulation of the nut 22 until the disk member 17 frictionally bears with considerable pressure upon the fabric and presses the latter against the bottom face of the slot 15. Upon the ring core being started up, with the end of the sheet of the fabric stuck thereto, the revolving ring core will draw the fabric from the stock roll simultaneously rotating the disk member 17 through the instrumentality of the frictional engagement between the traveling sheet of fabric and the roughened face of the disk member, the latter by virtue of the angular inclination at which it is set relative to the path of the fabric, serving to urge the fabric bodily against the straight edge guide and abutment 16 whereby the sheet of fabric is fed from the devices perfectly centralized with respect to the core regardless of at what angle the fabric enters the devices should the fabric be imperfectly centralized upon the stock roll.

When it is desired to use the devices to transversely stretch the fabric as well as centralize it with respect to the core, it is merely necessary to anchor the devices directly opposite each other so that they operate upon different threads as shown in Fig. 1, whereby the normal angular inclination of the warp and weft threads of the fabric is changed, that is the fabric will be foreshortened in length while being simultaneously moved to pass from the devices in centralized relation with respect to the ring core.

In Fig. 6 I have shown a modified form of the invention, adapted more specially to be power-driven rather than frictionally operated. In this instance I provide a support 24 provided in one edge with a slot 25 to receive the edge of the traveling web. The bottom wall of this slot is recessed to receive a disk 26 that is revolvably mounted on a pin 27 and rides on ball bearings 28, as shown. Rising from the support is a

bracket arm 29 in which is journaled the shaft formed of two parts 30 and 31 having a tongue and grooved connection indicated at 32 to permit of the parts moving toward and away from each other. The part 31 is equipped with a presser member 33, similar to the presser member 17, above described. A helical spring 34 on the shaft normally holds the parts of the shaft extended and holds the presser member projecting into the slot 25, while at the same time permitting of the presser member moving upward against the pressure of the spring when fabric of increased thickness is passed into the slot 25. A drive shaft 35 is journaled in the bracket arm 29 and has a bevel gear connection 36 with said two-part shaft, and is also equipped with a drive sprocket 37, or other drive means. Although only the contact face of the presser member is shown as knurled, it is obvious that the contact face of the disk 26 may also be knurled to assist in engaging the fabric, or this action may be emphasized by providing one or both of said faces with pins or other engaging means, if desired.

Having described my invention, what I claim and desire to have protected by Letters Patent is:

1. In a device for manipulating fabric, a support for the fabric, and a revoluble member opposite said support having a marginal frictional surface adapted to contact with said fabric on said support, the axis of said member being inclined at such an angle as to cause said frictional surface to contact with said fabric only when moving toward the edge thereof.

2. In a device for manipulating fabric, a support for the fabric, and a revoluble member opposite said support having a beveled margin with a roughened surface adapted to frictionally contact with said fabric on said support, the axis of said member being inclined at such an angle as to cause said surface to contact with said fabric only when moving toward the edge thereof.

3. In a device for manipulating fabric, a support having a slot to receive the edge of the fabric, said slot terminating in a straight wall forming a guide, and a revoluble member on said support having a frictional surface projecting into said slot and adapted to contact with said fabric, the axis of said member being inclined at such an angle as to cause said frictional surface to contact with said fabric only when moving toward said guide.

4. In a device for manipulating fabric, a support for the fabric, a guide for the fabric, and a revoluble disk spring pressed toward said support and having a beveled margin with a roughened surface adapted to contact with said fabric on said support, the axis of said disk being inclined at such

an angle as to cause said surface to contact with said fabric only when moving toward said guide.

5 In a device of the class described, a support having a slot to receive the edge of a traveling sheet, a guide, and a spring-pressed member entering the slot and adapted to be frictionally driven from the sheet

and extending at an oblique angle to the sheet for feeding the sheet from the slot in 10 marginal coincidence with the guide.

Signed at Detroit, Mich., March 24th, 1915.

GEORGE McNEILL.

Witnesses:

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