(No Model.) 2 Sheets—Sheet 1.

# C. L. DAWSON.

## CLOTH STRAIGHTENING MACHINE.

No. 543,084. Patented July 23, 1895.

*Fig. 1.*

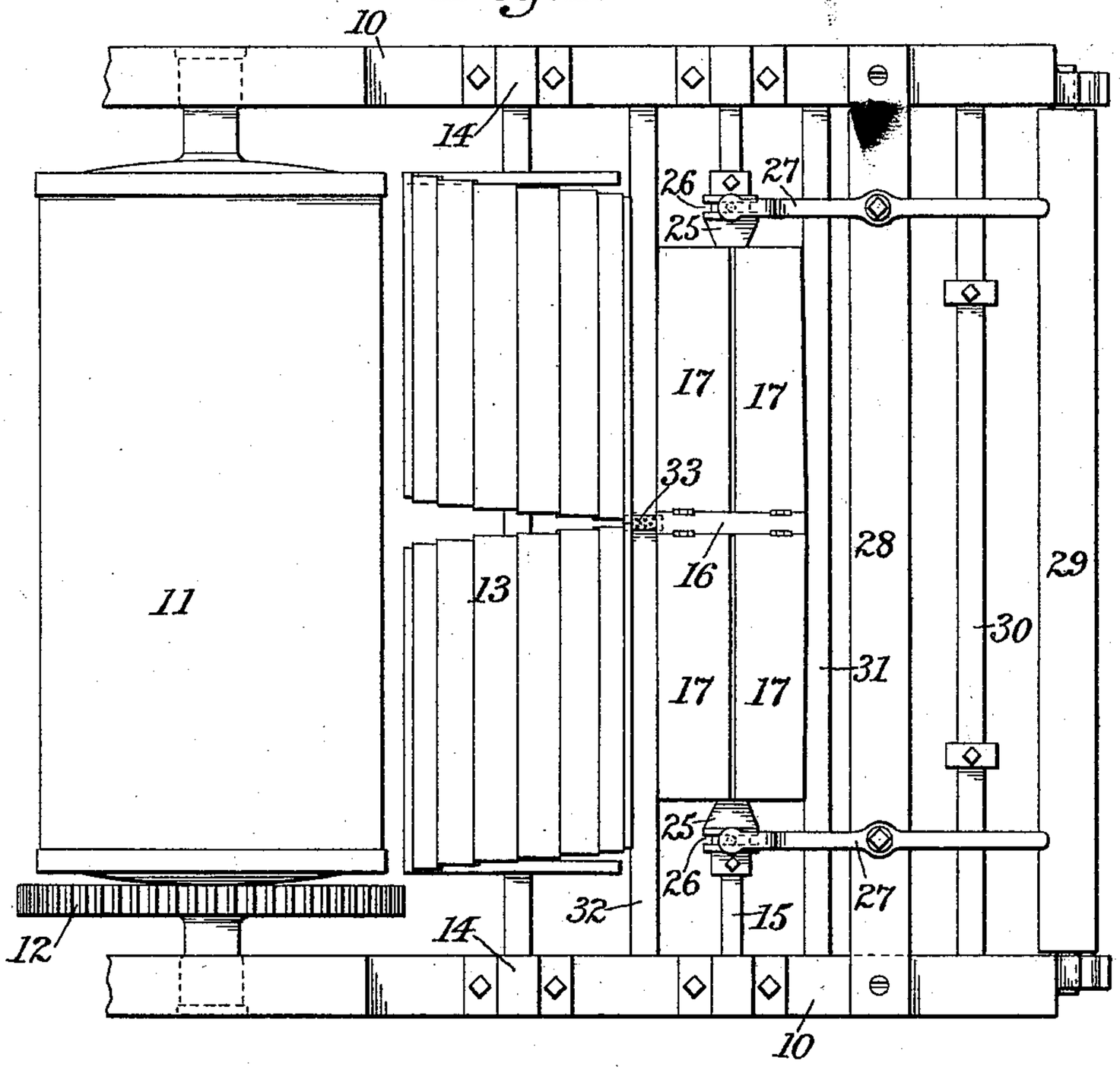
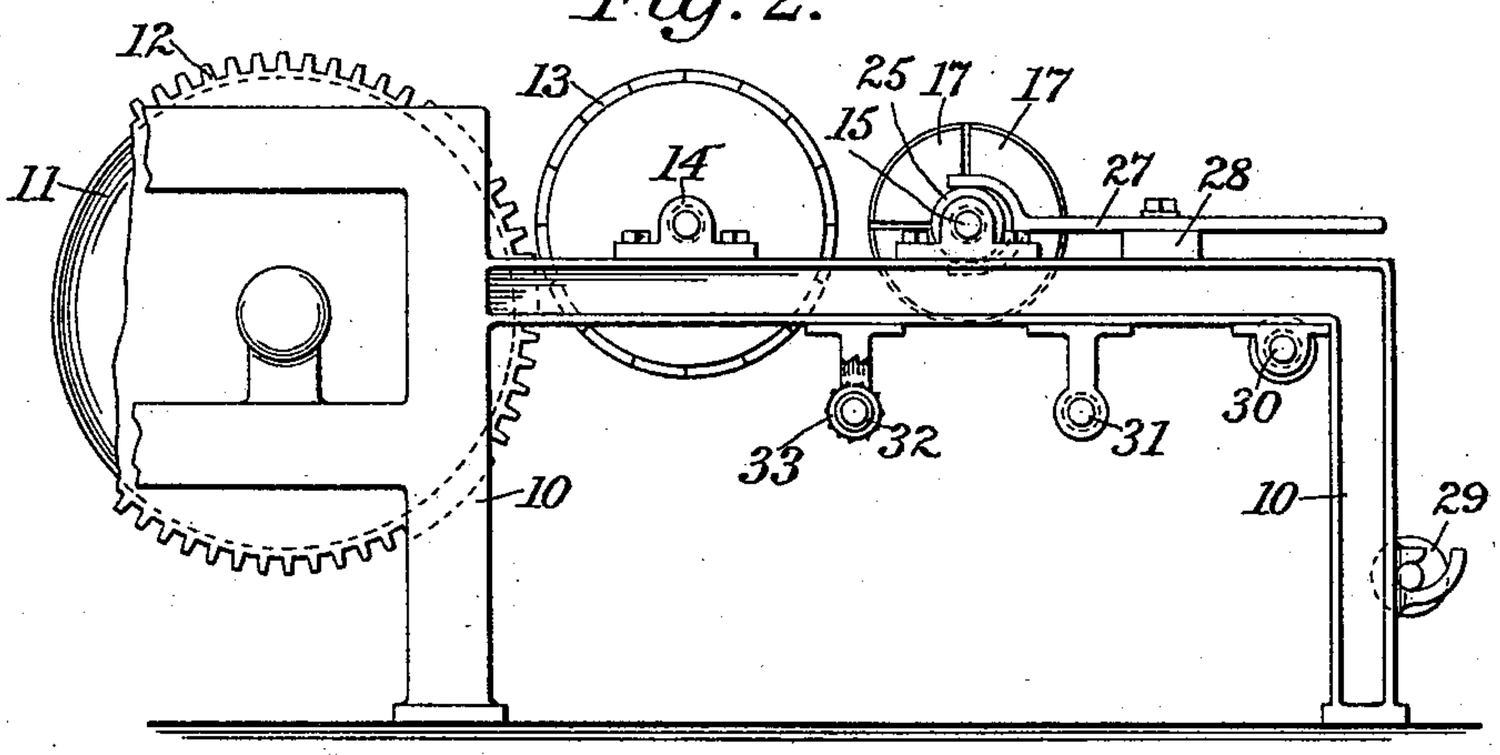



*Fig. 2.*




Attest:
A. N. Jesbera.
Eva Shuster

Inventor:
Charles L. Dawson
by William B. Greeley
Atty.

(No Model.) 2 Sheets—Sheet 2.

# C. L. DAWSON.

## CLOTH STRAIGHTENING MACHINE.

No. 543,084. Patented July 23, 1895.

Fig. 3.

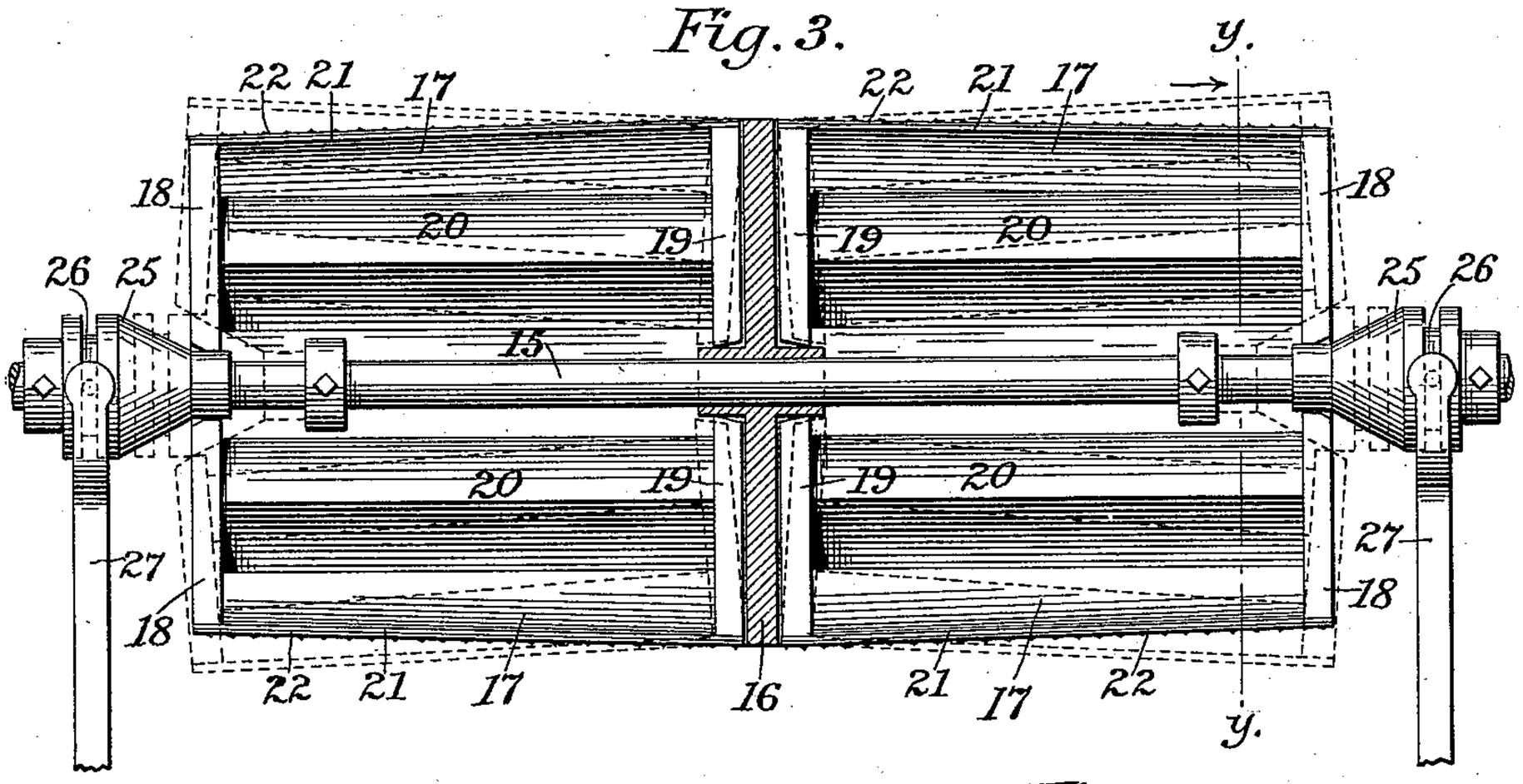



Fig. 4.

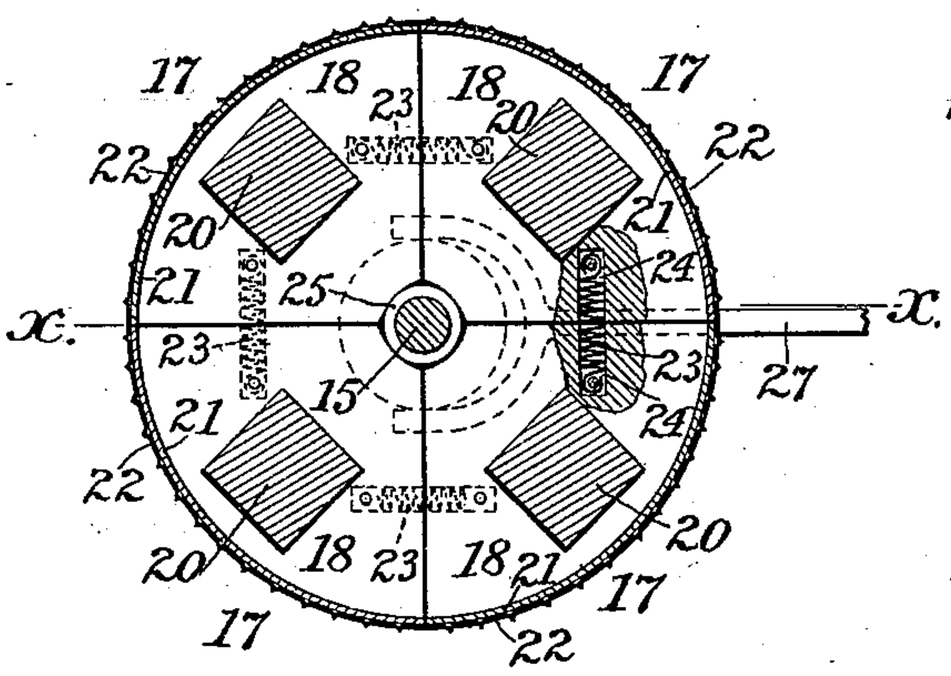



Fig. 5.

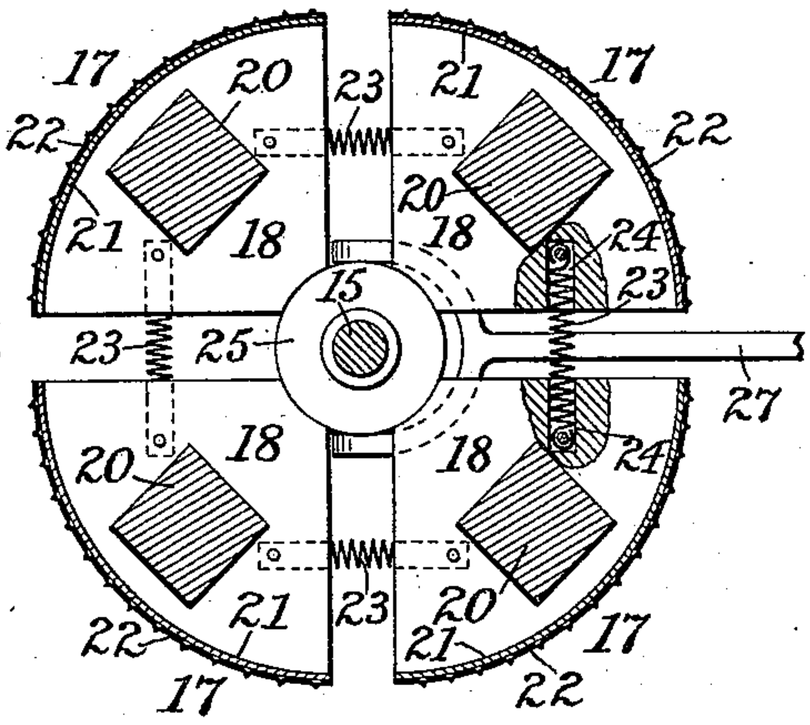
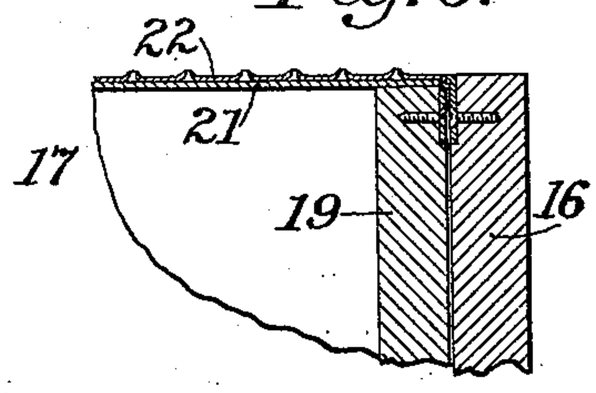



Fig. 6.




Attest:
A. N. Jesbera.
Eva Shuster

Inventor:
Charles L. Dawson
by William B. Greeley
Atty.

# UNITED STATES PATENT OFFICE.

CHARLES L. DAWSON, OF BROOKLYN, NEW YORK.

## CLOTH-STRAIGHTENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,084, dated July 23, 1895.

Application filed December 5, 1894. Serial No. 530,881. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. DAWSON, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Cloth-Straightening Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, making a part of this specification.

In finishing certain classes of fabrics, particularly those of light weight, the web or piece is more or less unequally stretched longitudinally. If the fabric has stripes or bars which are disposed at right angles to the length of the piece, such stripes or bars or other horizontal effects are distorted and it becomes necessary in the final finishing of the goods to manipulate the webs or pieces in such a manner as to restore them to their normal condition, so that the intended effect of the fabric may be preserved. Usually this straightening of the fabric has been effected by the aid of a tentering machine which occupies considerable floor-space, is more or less costly, and generally requires the attention of three operatives.

It is the object of this invention to produce a device or machine which shall be comparatively inexpensive, may be applied as an attachment to the ordinary transverse stretching and finishing machine, and will require the attention of but a single operative.

The construction of the improved device is fully described hereinafter, and in the accompanying drawings the device is shown as an attachment to a finishing machine of ordinary construction, but it will be understood that it might be built as a separate machine and so used if desired.

In the drawings, Figure 1 is a plan view of a portion of an ordinary stretching and finishing machine having the straightening device applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a horizontal central section through the straightening roll or device on the line *x x* of Fig. 4. Fig. 4 is a transverse section on the plane of the line *y y* of Fig. 3. Fig. 5 is a similar section, but with the roll expanded. Fig. 6 is a detail sectional view of a portion of the straightening-roll.

In the machine represented in the drawings, Figs. 1 and 2, a suitable framework 10 supports the heated finishing-drums, one of which is shown at 11 as provided with a gear 12, by means of which it is rotated. The fabric to be finished is drawn through the machine by the rotation of these drums, and the drum 11 therefore represents, in the machine shown, means for drawing the fabric forward. The fabric generally passes to the finishing-drums from the devices which stretch it transversely. This invention is wholly independent of the particular nature of such transverse stretching devices, and to represent them I have shown in Figs. 1 and 2 a stretching roll 13 of usual construction mounted in suitable bearings 14 14 upon the frame 10.

I prefer that my straightening device should act upon the fabric before it passes to the transverse stretching mechanism, and I have therefore represented it in the drawings as mounted upon the frame in advance of the stretching-roll 13.

The straightening device in which the improvement consists comprises a shaft 15, which is mounted in suitable bearings on the frame 10 to rotate freely therein. In the middle of the shaft is secured a disk or wheel 16, which forms the middle portion of a cylindrical body, the ends of which are made independently expansible to vary their circumference. Each end portion of the cylindrical body is made up of a series of sections 17 17, divided longitudinally, each section being separately hinged at its inner end to the disk or wheel 16. As represented in the drawings, each section 17 forms substantially one-quarter of a cylindrical body and is composed of quadrants 18 and 19, a longitudinal brace or stiffening-bar 20, and a shell 21, which is secured to the quadrants and is curved to conform to the curvature of the disk or wheel 16. This shell may have its own outer surface roughened, so that the cloth shall not slip upon it, or is covered with a shield 22, roughened by punching through from the under side. The several sections are held together normally at their outer ends by springs 23 23, which are preferably secured at their ends in holes 24 24, drilled into the opposing edges of adjacent quadrants, so that the springs themselves act as guides to bring the several

sections into true position. The outer quadrants 18 18 rest upon a sleeve 25, which is movable longitudinally upon the shaft 15 to a limited extent and is conical, so that as it is thrust farther in toward the center of the cylindrical body the outer ends of the sections shall be thrust apart against the tension of the springs 23 23 and the circumference of the cylindrical body at its end increases more or less. There is a conical sleeve 25 at each end of the cylindrical body, and each sleeve is movable independently of the other, so that either end of the cylindrical body may be expanded at will. For convenience in operation each sleeve 25 has a peripheral groove 26, which is engaged by a forked lever 27, pivoted upon a cross-bar 28 and having its outer and free end within easy reach of the operative, who stands in front of the machine.

The fabric to be finished is brought to the machine in a roll upon a spindle 29, which is mounted in suitable bearings. From this roll the fabric is led over and under suitable guide rolls 30 and 31, then around the straightening-roll above described, and under a guide-roll 32, from whence it may pass directly to the stretching-roll and the finishing-drums. As the cloth passes over the roll 30 under the observation of the operative, it is seen at once whether one side or the other should be held back more or less to restretch the fabric and bring its transverse bars again into parallelism. The operative accordingly causes the necessary movement of one or the other of the sleeves 25 toward the middle of the straightening-roll and produces a consequent and corresponding enlargement or expansion of that end of the roll. As the fabric is drawn forward beyond the straightening-roll the latter is rotated by the movement of the fabric itself, and an enlargement of one end of said roll stretches the corresponding edge of the fabric to a corresponding degree, the roughened surface of the movable sections engaging the fabric sufficiently for this purpose.

The operation of straightening the fabric is facilitated by guiding or steadying the web on its middle line, a roughened collar 33 being applied to one of the guide-rolls, as 32, for this purpose.

The device is easily controlled by one operative, who stands in front of the machine with a hand on each lever, thereby saving the expense of the other operatives usually required in machines heretofore used for the same purpose. The amount of floor-space consumed is practically nothing, the expense of the device is very slight, and the edges of the fabric are not perforated or otherwise mutilated, as they are apt to be by the pins, hooks, or clips of the old machine.

I claim as my invention—

1. The combination with a cloth straightening roll having expansible ends and means to expand said ends independently, of guide rolls to direct the fabric about said straightening rolls, a roughened collar applied to the middle of one of said guide rolls, and means to draw the fabric over said roll, substantially as shown and described.

2. A cloth straightening device comprising a shaft, a fixed middle portion, movable sections composing each end portion hinged to the fixed middle portion, conical sleeves upon which the outer ends of said sections rest, said sleeves being longitudinally movable, and independent levers engaging said sleeves respectively to effect longitudinal movement thereof, substantially as shown and described.

3. A cloth straightening device comprising a shaft, a disk or wheel fixed thereon, longitudinally divided sections composing each end portion and separately hinged to said disk or wheel, and conical sleeves upon which the outer ends of said sections rest, said sleeves being longitudinally movable, and springs normally drawing the ends of said section together, substantially as shown and described.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES L. DAWSON.

Witnesses:
JOHN G. FOLSOM,
W. B. GREELEY.