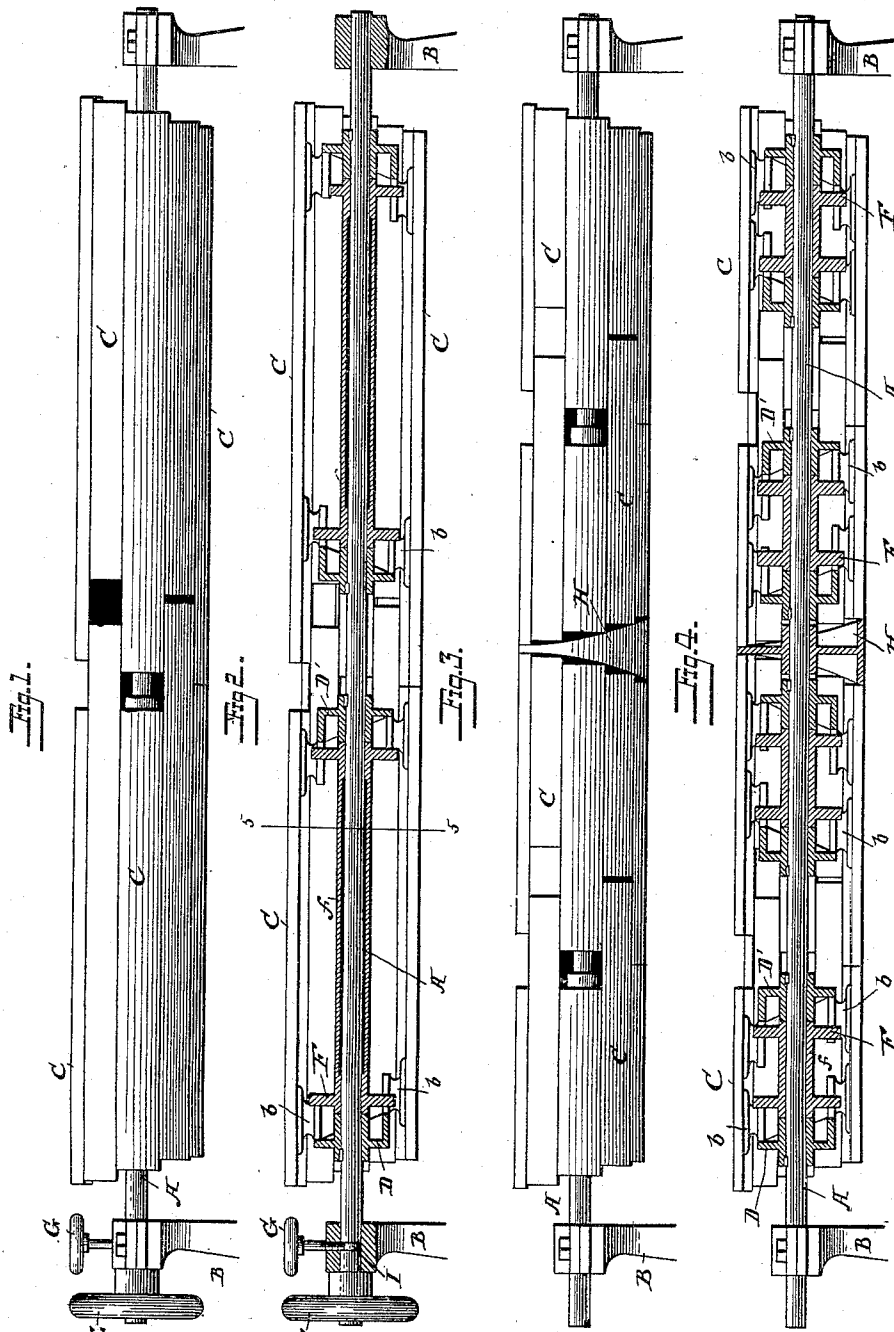


(No Model.)

G. W. MILLER.
CLOTH STRETCHING ROLL.

No. 417,264.

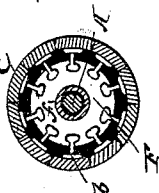
Patented Dec. 17, 1889.



Witnesses

W. S. McArthur
J. S. Barker.

Fig. 5.



Inventor

George W. Miller.
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Attorney

UNITED STATES PATENT OFFICE.

GEORGE W. MILLER, OF WOONSOCKET, RHODE ISLAND.

CLOTH-STRETCHING ROLL.

SPECIFICATION forming part of Letters Patent No. 417,264, dated December 17, 1889.

Application filed December 8, 1888. Serial No. 293,043. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MILLER, a citizen of the United States, residing at Woonsocket, county of Providence, State of Rhode Island, have invented a certain new and useful Improvement in Cloth-Stretching Rolls, of which the following is a full, clear, and exact specification.

My invention relates to improvements in cloth-stretching rolls of the general character of that shown in my patent, No. 392,051, dated October 30, 1888, wherein two or more sets of cloth-stretching bars are employed; and it consists of certain improvements whereby all the stretcher-bars are caused to revolve synchronously and in constant parallelism with the shaft or support around which they travel, and whereby the machine is improved in other respects, as will be hereinafter pointed out.

In the accompanying drawings, Figure 1 is a side elevation of a stretcher-roll embodying my invention. Fig. 2 is a longitudinal section thereof. Fig. 3 is a side view of a roll wherein more than two series of stretcher-bars are employed. Fig. 4 is a longitudinal section of the roll shown in Fig. 3. Fig. 5 is a transverse section on the line 5 5, Fig. 2.

In the drawings, A represents a shaft provided at one end with a hand-wheel E, by which it is adjusted in the bearings B, being held stationary therein after adjustment by means of the set-screw G, the end of which, entering a groove I, turned in the shaft, also prevents longitudinal movement thereof. Upon this shaft turn freely the supports F for the parallel sliding cloth-stretching bars C, which bars are covered with carpet or other rough material, or when not so covered are creased or otherwise roughened to cause them to have the requisite frictional engagement with the cloth being stretched. The supports for the opposite end of the bars are connected by a sleeve *f*, loosely surrounding the shaft A, or otherwise, so that they shall be caused to revolve in unison.

D D' are the circular cams for causing reciprocation of the stretcher-bars as they revolve past the inclined faces thereof, which cams are secured to the shaft and adjustable therewith. The hubs of these cams preferably form the bearings against which the ends of the sleeves *f* abut, and by which such sleeves

and their supports F are held in proper longitudinal position.

In my aforesaid patent the supports for the sliding stretcher-bars were independent of each other, and the cams which operated such bars were shown as bearing against the ends thereof to effect their longitudinal movement.

In practice it is found that the fabric to be stretched is seldom of equal tension throughout its entire width, and this often results in causing that end of the stretcher-bar engaging with the part of the cloth having the greatest tension to be carried ahead of or in advance of the other end thereof, which produces a twisting strain upon the stretcher-bars and their supports, which is at times so great that one support is moved in advance of the other, thus carrying the stretcher-bars out of parallelism with the shaft, and causing the cloth to move sidewise; and when once the fabric begins moving in this manner it will seldom regain its proper movement without the aid of the attendant. But by connecting the supports F in the manner shown and described this difficulty is overcome, since the sleeve *f* insures that the bars C shall rotate uniformly and in parallelism with the shaft A, no matter what may be the inequalities in the tension of the fabric.

Instead of making the cams D D' of a diameter equal to that of the cloth-stretching roll, and engaging the ends of the bars C, as in the machine shown in my said patent, I make them of less diameter than the roll and extend the ends of the bars over them. Between the bars C and their supports are arranged sliding connections which are carried by the bars and rest in guideways or slots in the supporting-plates, while the bars also carry inward projections or bearings which engage with the cam-faces. A practical and convenient arrangement is that shown in the drawings, where the guides *b*, carried by the bars C, and fitting in the slots or guides in the supporting plates or disks F, are arranged to engage with the cam-faces, and by reason of such engagement to cause the reciprocation or sliding of the stretcher-bars.

By reference to Figs. 2 and 4 it will be seen that the inclined faces of the cams D and D' are parallel with each other and engage the guides at the opposite ends of the bars. This

arrangement causes positive movement to be imparted to the bars in both directions, the cams D' separating the bars as they move upward from the bottom to the top of the roll, and the cams D forcing them toward each other during the half of their revolution.

The bars C are of two different lengths, the short and long ones alternating in position in the series, and the long bars of one series being in longitudinal alignment with the short bars of the adjacent series, as is indicated in Figs. 1 and 3, and are so arranged that the ends of the bars of the two adjacent series interlock even when the bars are separated by the cams D' to the greatest extent. This makes the roll a practically-continuous cylinder from end to end of the machine, and forms a clutch-coupling between the two series of bars, which coupling coacts with the sleeve f to maintain the bars in parallelism with the shaft A, and in unison of movement.

In Figs. 3 and 4 is shown a double roll, whereon two pieces of cloth may be stretched simultaneously, there being four series of bars C, arranged in two sets, each set forming a single stretcher and each stretcher operating independently of the other, as will be understood. In this double machine or roll the contiguous ends of the bars of the two stretchers might be made to interlock in the manner hereinbefore described; but I do not consider this the most advantageous arrangement, since the edges of the fabrics might in such cases become caught between the bars, and hence I prefer to employ a circular filling-piece H, preferably of cast metal, which is secured to the shaft between the two stretchers, and has its ends so shaped that the bars C travel close thereto as they are reciprocated by the cams throughout their entire revolution.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. In a cloth-stretching roll, the combination of the stationary shaft, a series of cams secured thereto in pairs, each pair having parallel inclined faces, the stretcher-bars in sets arranged to form a cylinder, the supports for each set of the said bars, said supports being connected to revolve together on the shaft, sliding connections between the bars and supports, and bearings on the bars bearing on the parallel inclined faces of the cams, substantially as set forth.

2. In a cloth-stretching roll, the combination of the stationary shaft, the series of cams secured thereto, the sliding stretcher-bars in sets arranged to form a cylinder, the guides b, carried by each bar, and the supports for the bars, said supports turning on the shaft in which said guides are mounted, the said cams engaging with the guides b to operate the stretcher-bars, substantially as set forth.

3. In a cloth-stretching roll, the combination of the shaft A, the cams secured thereto, the stretcher-bars in sets arranged to form a cylinder and moved longitudinally by the cams, and the supports for each set of bars, said supports turning on the said shaft and connected by a sleeve f, having its ends bearing against the hubs of the cams, whereby the supports for the bars are held against longitudinal movement on the shaft, substantially as set forth.

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

GEORGE W. MILLER.

Witnesses:

CHAS. E. BALLOU,
A. J. PORTNER.