Dec. 13, 1938. C. D. BROWN 2,140,448

LOOM TEMPLE ROLL

Filed March 22, 1938

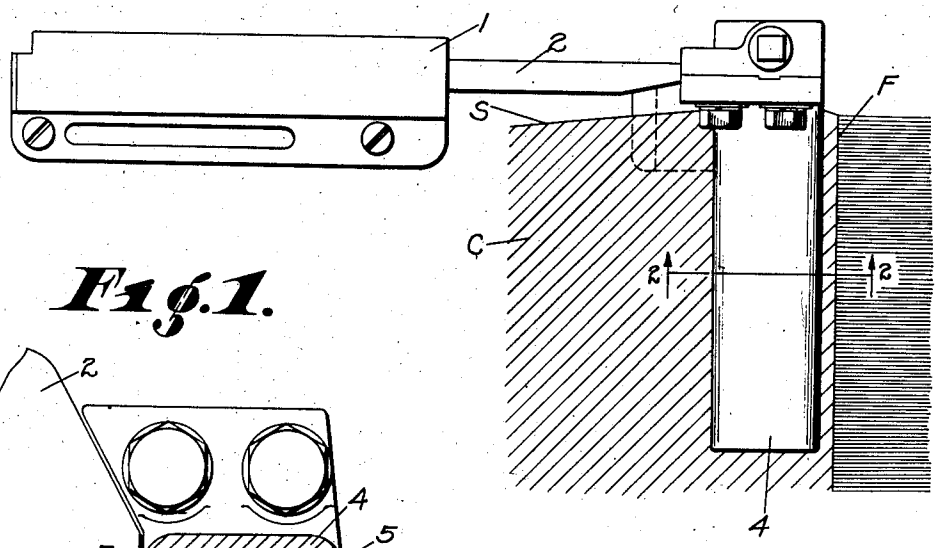


Fig. 1.

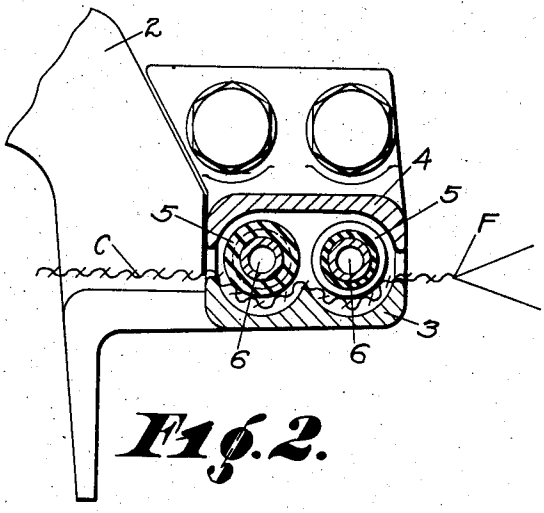


Fig. 2.

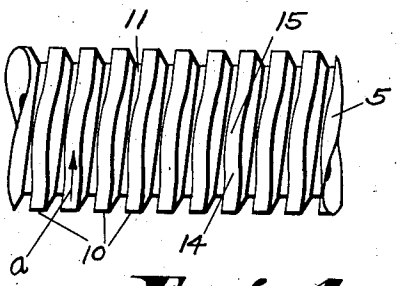


Fig. 4.

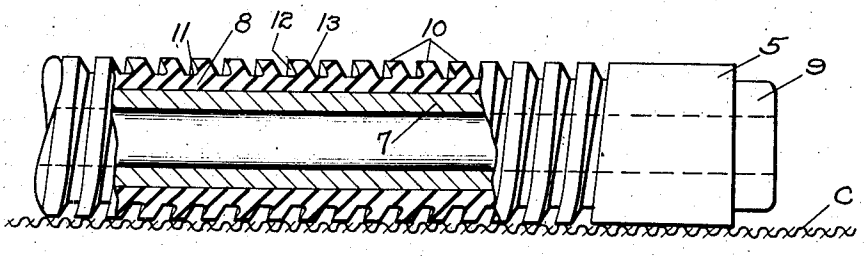


Fig. 3.

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LOOM TEMPLE ROLL

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6 Claims. (Cl. 139—296)

The present invention relates to temple rolls for loom temples and has more particular reference to the character and construction of the cloth-engaging surfaces of such rolls.

Loom temples as commonly constructed include a temple head, which may consist of a cap and pod, for receiving one or more cloth-engaging rolls. As heretofore constructed, such temple rolls have had their cloth-engaging surfaces constructed to hold the cloth to a given width without exerting any stretching action on the cloth. Thus, in prior temples, widthwise stretching of the cloth was obtained only by reciprocating the temples. Furthermore, prior temple rolls having friction cloth-engaging surfaces, as distinguished from the pin-studded rolls, are not capable of holding certain heavy rayon fabrics and the like to full reed width, but allow the cloth to slip and thus contract in width.

A principal object of the invention is to provide a temple roll which shall have resilient inclined cloth-engaging ribs thereon which shall be constructed and arranged to exert a strong stretching or holding action on the cloth independently of any reciprocation of the temple.

The foregoing and other objects of the invention are accomplished in the construction illustrated on the accompanying drawing, of which:

Fig. 1 is a plan view of a loom temple operatively related to cloth in the process of being woven;

Fig. 2 is a view in cross-section on line 2—2 of Fig. 1 and showing the preferred embodiment of my improved temple rolls;

Fig. 3 is a view partly in elevation and partly in section, and to an enlarged scale, of one of the said temple rolls; and

Fig. 4 is a bottom plan view of part of the temple roll shown on Fig. 3.

The temple shown on the drawing includes a housing 1 which is adapted to be fixed to a loom frame (not shown) and a bar 2 which is slidably mounted in the housing 1. The bar 2 extends longitudinally of the cloth C adjacent the selvage S thereof. The bar 2 is provided at its rearward end with a laterally extending head which includes a pod 3 and cap 4 for receiving the temple rolls to be hereinafter described. The particular temple shown is set or positioned so that the head thereof is appreciably forwardly from the fell F of the cloth C. When so set, the temple will not reciprocate, as is well known in the art.

It will be understood that another temple, which may be of similar construction, will receive the side or selvage of the cloth C which is not shown on the drawing, the cloth being held taut, widthwise, between the temples. Prior temples having the well known pin-studded rolls will, when constructed and set to reciprocate longitudinally of the cloth, exert a stretching action which tends to stretch the cloth to an equal or greater width than it has when first formed at the fell. Such stretching action is desirable in many instances but is not accomplished by prior non-reciprocating temples or by temples having prior forms of temple rolls of the friction type. Rolls of the friction type are required for use with rayon and other fabrics which would be damaged by pin-studded rolls.

Each temple roll 5 as shown comprises a roll body including a core 7 having a covering 8 thereon. The core 7 may be made of wood and is tubular in form except that it may have a head 9 at its inner end for preventing the covering 8 from being pulled inwardly off the core. The covering 8 is formed of suitable resilient cloth-gripping material such as one of the rubber or synthetic rubber compounds heretofore commonly used for temple roll coverings.

The aforementioned cloth stretching properties of my improved temple rolls are provided by means of resilient inclined cloth-engaging projections which are so constructed and arranged that they will be moved or tilted toward the selvage end of the roll by radial pressure of the cloth thereon. In the particular rolls 5 shown, such projections consist of ribs 10 which are formed integrally with the covering 8. The ribs 10 extend generally circumferentially of the roll and are conveniently formed by cutting a helical groove 11 in the external surface of the tubular covering 8. As thus formed, the roll presents to the cloth what are in effect separate cloth-engaging ribs, although the ribs if traced around the roll will be found to be but one helical rib (that fact being, however, of no particular significance as regards the mode of operation).

The ribs 10 are radially inclined toward the selvage end of the roll at an acute angle to the axis of the roll. The selvage end of the roll is the end which engages the selvage S of the cloth, which is the opposite end from that having the head 9. I prefer to incline the ribs 10 by making both side walls 12 and 13 thereof so inclined. However, the important feature is that the rib be inclined in such manner that its top, or cloth-engaging surface, is offset or displaced toward the selvage end of the roll. As thus constructed, the rib is unstable in that radial pressure of the cloth on the rib will move the cloth-engaging sur-

face thereof axially toward the selvage end of the roll. Such moving or tilting of the ribs will tend to stretch the cloth beyond its original width at the fell, as will now be described.

The cloth C is pressed or pulled radially against the bottoms of the rolls 5 as above described. The pressure of the cloth is received by the ribs 10 and results in the ribs assuming the general shape shown by Fig. 4. On this view, the cloth feeds and the roll revolves in the direction of arrow *a*. The cloth C first engages a given rib 10 at point 14. Then, the cloth and said point feed forwardly together and, simultaneously, the point 14 moves toward the left on Fig. 4 (which is toward the selvage end of the roll) to point 15. Since the cloth is frictionally held by the rib, it is pulled toward the selvage end of the roll. Each succeeding increment of cloth is pulled in a similar manner and direction.

The action of the temple rolls upon cloth C as just described takes place when the cloth is woven under moderate tension. Cloth of heavier construction is usually woven under substantially more lengthwise tension and also has a strong tendency to contract widthwise. The widthwise tension may be sufficient to prevent the ribs 10 from deflecting axially of the roll, so that the point 15 may remain in circumferential alignment with the point 14 above mentioned. Also, a considerable radial pressure of the cloth on the ribs 10 is found to depress the selvage edge of each rib radially appreciably more than the other edges thereof. This is presumably because the selvage edge of the rib overhangs a groove and is therefore relatively unsupported against radial pressure. Under such circumstances, the cloth-contacting surfaces are tilted in a manner to very effectively hold the cloth against slipping.

With a temple, having my improved temple rolls, at each side of the cloth, the effect is to feed the selvage edges of the cloth along forwardly diverging lines, rather than along parallel lines. Disregarding the possibility of slippage between the cloth and ribs 10, the continuing stretching action of the rolls is such as to tend to stretch the cloth until it is pulled apart. Actually, the rolls are so designed that the cloth may be stretched a predetermined amount or may be merely held to a given width without stretching, according to the construction and tension of the cloth, and the ribs will thereafter continue to tend to deflect axially of the roll but will slip on the cloth without further stretching of the latter.

The temple rolls of my invention may be readily designed to provide the required stretching or holding action for cloth of a given character. the degree of such action varying with the height and width of the projections, their angle of inclination and possibly the character of the material employed. I believe that my invention provides the first temple roll which is inherently capable of stretching the cloth, independently of any reciprocation of the temple. Furthermore, my improved temple rolls have stronger holding grip on the cloth than any prior temple rolls of the friction type of which I am aware.

Having fully disclosed the preferred embodiment of my invention, I claim:

1. A temple roll comprising a roll body having resilient cloth-engaging ribs extending circumferentially thereof, said ribs being inclined toward the selvage end of the roll at an acute angle to the axis of the roll.

2. A temple roll comprising a roll core having a covering thereon formed from a resilient cloth-gripping material, said covering having circumferential cloth-engaging ribs formed integrally therewith, the side walls of said ribs being inclined toward the selvage end of the roll at an acute angle to the axis of the roll, so that radial pressure of the cloth upon said ribs will move the cloth-engaging surfaces of the ribs toward said selvage end of the roll.

3. A temple roll comprising a roll core having a covering thereon formed from a tube of resilient cloth-gripping material, the external surface of said tube having a helical fabric-engaging rib the side walls of which are inclined toward the selvage end of the roll at an acute angle to the axis of the roll for the purpose described.

4. A temple roll comprising a roll body having resilient cloth-engaging ribs extending circumferentially thereof, said ribs each having side walls and a fabric-engaging top and said side walls being inclined toward the selvage end of the roll at an acute angle to the axis of the roll whereby the selvage edge of said top is relatively unsupported against radial pressure thereon.

5. A temple roll comprising a roll core having a covering thereon formed from a resilient fabric-gripping material, said covering having circumferential fabric-engaging ribs formed integrally therewith, each of said ribs having side walls and a fabric engaging top, and said side walls being inclined toward the selvage end of the roll at an acute angle to the axis of the roll.

6. A temple roll comprising a roll body having resilient cloth-engaging ribs extending circumferentially thereof, said ribs each having side walls and a fabric-engaging top, said ribs and their respective side walls on the side toward the selvage end of the roll being inclined toward said end at an acute angle to the axis of the roll whereby the selvage edge of said top is relatively unsupported against radial pressure thereon.

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