Sept. 29, 1942. A. E. BENSON 2,297,128

LOOM TEMPLE ROLL

Filed Sept. 10, 1941

Fig. 1

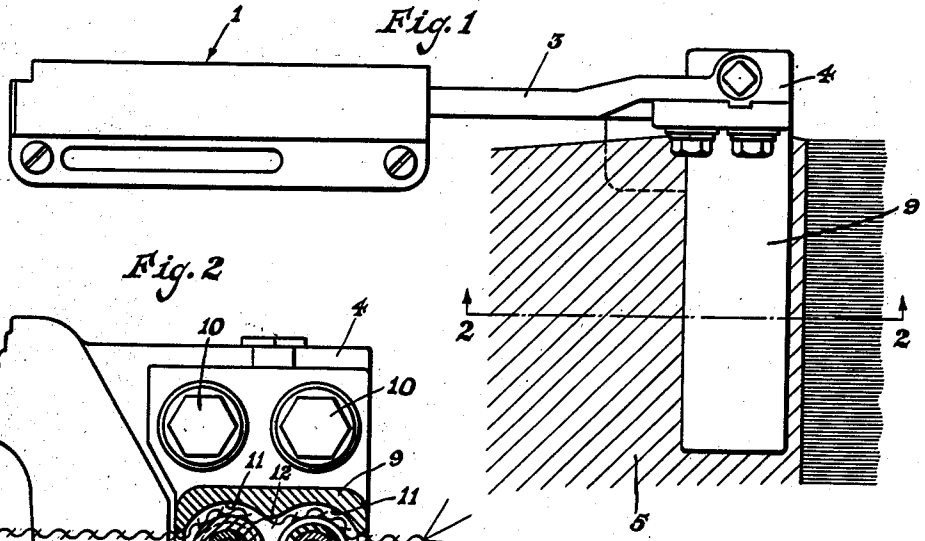


Fig. 2

Fig. 4

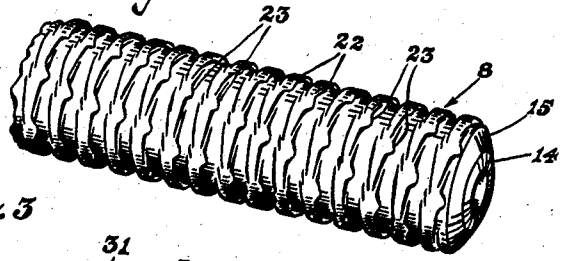


Fig. 3

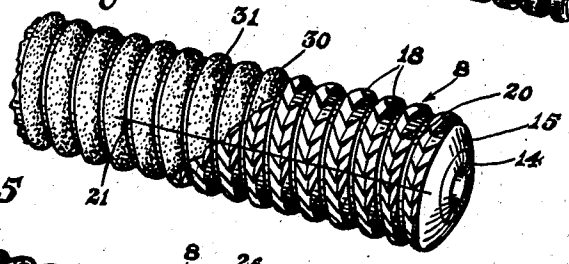
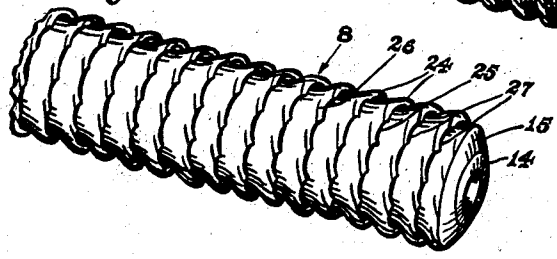


Fig. 5



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LOOM TEMPLE ROLL

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5 Claims. (Cl. 139—296)

This invention relates to improved loom temple rolls characterized by the provision of devices of this character which are adapted to engage and exert a drawing action upon the cloth without liability of creasing or injuring the same, and wherein the rolls themselves are not subject to excessive wear or injury as by the formation of glazed surfaces thereon through contact with the cloth.

One object of the invention is the provision in devices of this character of temple rolls having an exterior cloth engaging surface which is of a resilient character and which is provided with raised spiral ribs having resilient cloth engaging tongues formed thereon capable of providing means in engagement with the cloth for causing movement of the same in the direction of travel of the spiral ribs but of such a nature as not to break the threads or otherwise cause injury to fine fabric materials.

Another object of the invention is the provision in devices of this character of rolls having resilient cloth engaging surfaces provided with spiral ribs and in which the resilient material contains a tractive or frictional element adapted to prevent slippage of the cloth with respect to the roll surface, while at the same time being of such a nature as not to injure the fabric with which it comes in contact.

Other objects and advantages of the invention relate to various improved details of construction and novel arrangements of the parts as will be more fully set forth in the detailed description to follow.

Referring to the drawing:

Fig. 1 is a top plan view of a loom temple structure showing the position of the parts in operative relation with a portion of a fabric being formed,

Fig. 2 is a side elevational view of a portion of the temple, showing the location of the roll members in section, as taken substantially along the line 2—2 of Fig. 1,

Fig. 3 is a perspective view partially in section of one form of roll member embodying the invention,

Fig. 4 is a perspective view of a modified form of roll, and,

Fig. 5 is a perspective view of a further modified form of roll member.

Heretofore, loom temple rolls have been employed for tensioning the cloth and provided with raised spiral ribs extending longitudinally thereof with or without the formation of longitudinal grooves dividing the spiral ribs into projecting teeth. Such rolls have been used both in interfitting relation with other similar rolls for engaging the selvage edges of the cloth as it is passed between the roll faces, as well as in mounting the rolls to engage the cloth as the cloth is passed between the individual rolls and a surface of the roll holder or cover.

Such rolls have been made with the cloth engaging faces formed from resilient material but have not been entirely satisfactory as previously made for the reason that in the employment of the rolls so as to pass the edge of the cloth between mating spiral ribs formed upon adjacent rolls, the cloth passed therebetween is liable to be creased or torn between the interfitting ribs of adjacent rolls. In cases where the cloth is passed between one or more rolls and a firm surface, the teeth formed by grooving the ribbed surface tends to mar the cloth by imprinting the teeth thereon or even breaking threads in the cloth when fine fabrics are being formed. If the roll surfaces are made with the ribs or teeth sufficiently short or rounded to avoid forming impressions in or injury to the cloth, there is a tendency for the rolls to wear smooth and thus fail to grip the selvage edges with sufficient firmness to stretch the cloth.

The rolls shown herein are adapted to overcome these disadvantages by being provided with outer resilient faces having spiral ribs of a more or less resilient character formed thereon, which ribs are provided with slightly projecting resilient tongues or projections, which tongues may be of somewhat irregular shape and are preferably located irregularly in a direction circumferentially of the roll, so as not to lie in parallel paths longitudinally of the roll. The tongues formed on the spiral ribs are preferably of less extent than the ribs themselves to provide relatively slender, flexible projections of a character capable of gripping the cloth without injury thereto, so as to avoid any danger of injury to the finest fabrics.

The provision of these soft, flexible projecting tongues in irregular locations on the ribs insures a much more continuous and better gripping engagement of the roll surface with the cloth than has been possible heretofore, and without injury to the fabric. In order to still further increase the gripping action of the roll on the cloth surface and without injury to the cloth, I may add a tractive material, such as asbestos, preferably in a fibrous form, to the resilient material from which the roll surfaces are made, in such a manner that the asbestos fibres may project some-

what from the roll surface, as in the form of a fuzz, which through its inherent tractiveness will engage the cloth and cause the same to follow the spiral ribs without injury to the fabric.

In the embodiment of the invention illustrated herein, 1 designates a loom temple which may be secured to the breast beam of a loom in any suitable or desired manner. The loom temple may comprise a shank portion 3 carrying a roll supporting holder head 4 in position to engage the selvage edge of the fabric 5 in the process of its formation.

The holder head 4 may comprise a base portion 6 formed integral with or carried by the shank 3 and provided with bearings for supporting rotatably temple rolls 8 in substantial parallelism with each other. A cover 9 may be secured to the base 6, as by bolts 10, in such a manner as to be capable of being secured in any one of several adjusted positions towards or from the surfaces of the rolls 8. The cover 9 has the face thereof adjacent to the rolls 8 formed with parallel rounded recesses 11 connected by a rounded rib 12 adapted to lie between the rolls 8 in the assembled position of the parts and serve as a guide means for guiding the cloth in its engaging relation with the rolls. The curved faces of the recesses 11 serve to provide supporting means for the roll engaged fabric material to assist in its outward travel under the influence of the spirally ribbed roll surface, as the fabric web travels through the loom in the process of its formation.

The roll 8, as shown in Fig. 3, may comprise an inner tubular shell 14 of any suitable or desired material and has a tubular cloth engaging outer covering 15 of a resilient character carried by the tubular shell 14 and which may be secured firmly thereto. Each roll may be mounted for rotation on a shaft 16 carried by the base 6 and passed through the opening in the inner tubular shell 14 as is common in devices of this character, or otherwise supported rotatably in cloth engaging position as may be deemed expedient in practice.

The cloth engaging resilient outer portion 15 of the rolls may be formed of rubber, cork, "Buna," "Neoprene," "Koroseal," or any other suitable or desired natural or synthetic rubber or thermoplastic resilient material suitable for the purpose. In the form of the invention shown in Fig. 3 of the drawing, the roll 8 is provided with one or more raised spiral ribs 18 formed on the outer cylindrical surface thereof. A plurality of thin flexible tongues or projections 20 are formed upon and project outwardly from the ribs 18, being preferably so positioned as to be off-set regularly or irregularly from a line 21 formed in the surface of the roll and located in substantial parallelism with the roll axis. Such arrangement of the tongues provides for their continuous and uniform engagement with the fabric at all times. The tongues 20 being of a relatively thin, flexible character engage the cloth lightly and insure its movement in the direction of travel of the spiral ribs 18 without injury to the finest and most delicate fabric.

In the form of roll structure shown in Fig. 4 of the drawing, the roll 8 has the same general arrangement of parts as previously described, and the resilient outer cloth engaging portion 15 is similarly provided with a spiral rib or ribs 22. In this case, however, the resilient tongues or projections 23 formed on the spiral ribs 22 are located mainly adjacent to one side edge of each rib throughout its extent so that they may be employed to press more or less directly against the cloth to urge movement of the same in the direction of travel of the spiral ribs, especially when positioned upon the side edges of the spiral ribs facing the direction of travel of the ribs as the roll rotates in the holder.

In the form of the invention shown in Fig. 5 of the drawing, the roll 8, like those previously shown, comprises a resilient outer cloth engaging portion 15 which is provided with a spiral rib or ribs 24. The spiral ribs 24 differ from those previously shown in that they are undercut slightly upon one side edge thereof, as indicated at 25, to provide a flexible edge 26. The edge 26 is provided with thin, flexible tongues or projections 27, which project outwardly and laterally from the ribs, and may be irregularly positioned circumferentially of the roll, as previously described. The flexible edges of the undercut rib and the thin, resilient tongue 27 carried thereby engage the cloth surface to urge movement of the same in the direction of travel of the spiral ribs 24.

In each form of the invention shown, or in other conventional roll forms, when made from a natural or synthetic rubber or other material which permits of its incorporation therein, I may employ a tractive or frictional element, such as asbestos, preferably in a fibrous form, and incorporate the same into the material from which the outer cloth engaging layer of the roll is formed so that particles of the tractive element may project from the surface of the material or from the rib surfaces, as indicated by 30 on the plain spiral roll surfaced portion 31 as shown in Fig. 3, to engage the contacting face of the fabric and cause the same to follow the direction of travel of the spiral ribs.

In each form of the invention shown the flexible tongues or projections formed upon the raised spiral rib or ribs may be positioned in any desired location or arrangement with respect to the rib formation which is best adapted to secure a continuously effective resilient engagement of the flexible tongues or irregular projections formed on the rib surface with the fabric to insure travel of the fabric material in the direction of movement of the spiral rib without injury to the fabric material. The particular form, shape, size and arrangement of the flexible tongues and their location with respect to the ribs, that is, upon the raised face or side edges thereof, may be varied widely, dependent upon the character of the material with which the rolls are to be employed, the particular shapes of the tongues shown and their arrangement upon and with respect to the spiral rib or ribs herein being for the purpose of illustration and not to be regarded in a limiting sense other than as set forth in the appended claims.

The transverse contour of the rib or ribs may be varied as may be deemed expedient, it being regarded as necessary only that the tongues be formed and arranged on the ribs to make a more or less continuous and resilient engagement with the fabric for providing a tractive effect thereon to cause the fabric to follow the direction of travel of the spirally ribbed surface of the roll as they rotate under the influence of the moving fabric without causing injury to the fabric. A similar result may be obtained or enhanced by incorporating asbestos within the resilient material forming the outer contact face portions of the roll members.

In the use of the roll members above de-

scribed, two or more rolls may be mounted in opposed or contacting relation with each other to draw the fabric therebetween, or the rolls may be mounted in a holder, as shown, and the fabric passed either between the roll surfaces and the holder base or between the roll surfaces and the cover, as may be desired, for exerting a tractive action on the fabric material to move the same outwardly laterally in the process of its formation by the loom.

In its broader aspects, it is the purpose of the invention to provide means for exerting a tractive action on the surface of the fabric being formed in excess of or in addition to that capable of being exerted by the spiral ribs themselves and of a nature least likely to injure or mar the fabric, either by means of tongues or projections formed on the spiral ribs or by the incorporation of a definitely tractive friction material, such as asbestos, within the resilient material forming the outer contact surface of the roll, or by the use of both of these means together, as may be found desirable in practice.

One or more spiral ribs may be formed upon the outer contact surface of the rolls as may be found desirable in practice, and reference to a single spiral rib formed upon the roll surface is to be taken as including a single or multiple spiral ribbed surface.

What I claim is:

1. A loom temple roll comprising a core, a substantially cylindrical cloth engaging cover formed from homogeneous resilient material sleeved on said core and having a continuous raised rib of substantially uniform basic contour throughout formed in the outer face of and integral with said resilient cover and extending spirally of the roll, and slender frictional elements formed integral with the rib and projecting outwardly from the basic contour of the rib for lightly tractive engagement with the cloth being formed in advance of its engagement by the body portion of the rib.

2. A cloth tensioning roll for loom temples having a substantially cylindrical outer portion formed from a homogeneous resilient material and provided with an integral raised spiral rib formed in the outer face thereof and having a substantially uniform basic cross sectional contour throughout its extent, and a plurality of flexible tongues formed integral with the material of the rib and projecting outwardly from the basic contour thereof for lightly tractive engagement with the cloth being formed, the correspondingly positioned flexible tongues carried by adjacent convolutions of the rib being spaced from each other circumferentially of the roll to provide irregularly positioned contact points for engagement with the cloth.

3. A cloth tensioning roll member for loom temples having a substantially cylindrical outer portion formed from a homogeneous, plastic resilient material and provided upon the outer face thereof with a continuous raised spiral rib integral with said outer portion and of substantially uniform basic contour throughout having a substantially convex face area, and a plurality of tenuous friction tongues integral with said rib and projecting outwardly from portions of the convex areas thereof for exerting a lightly gripping action upon the cloth being formed to cause movement of the cloth in a direction longitudinally of the roll as the roll is rotated by frictional engagement with the cloth.

4. A loom temple roll comprising a core, a cover for said core formed from homogeneous resilient material of a rubber-like character having a raised spiral rib of continuous basic cross section formed in the outer face thereof and undercut upon one side, and a plurality of slender resilient tongues formed integral with said rib and cover and spaced from each other longitudinally of the rib to project outwardly from the outer peripheral portion of the rib adjacent to the undercut edge thereof to engage lightly the surface of a fabric being formed and move the same in a direction longitudinally of the roll as the roll is rotated by engagement with the fabric.

5. A loom temple roll having a substantially cylindrical outer portion formed from a homogeneous, resilient plastic material and provided with a raised spiral rib upon the outer face thereof, which rib is formed integral therewith and is of a continuous basic contour throughout its extent, and a plurality of thin, flexible, resilient tongues integral with said rib and projecting outwardly therefrom adjacent to one lateral edge of the basic portion thereof to engage lightly and resiliently the surface of a fabric being formed.

ARTHUR E. BENSON.