

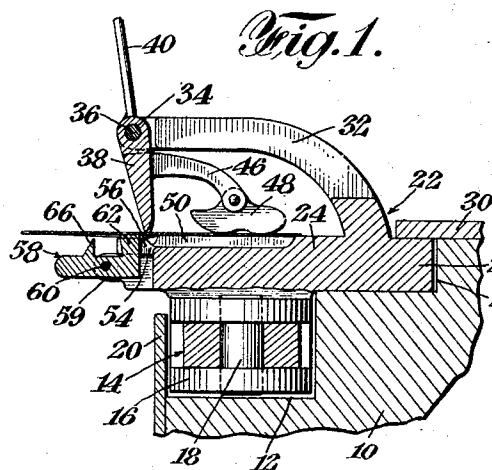
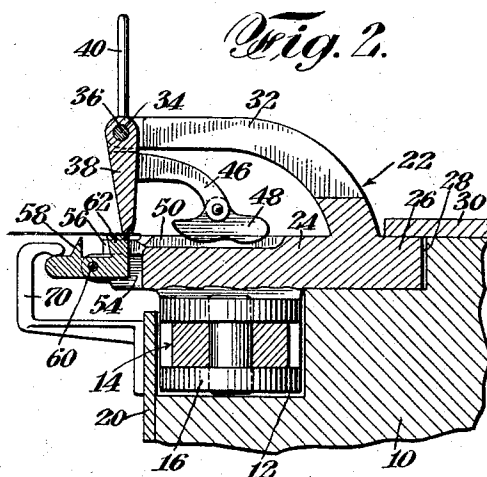
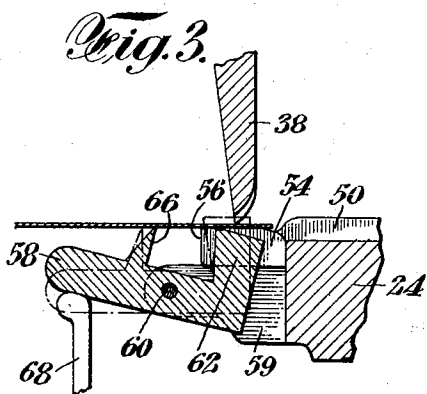
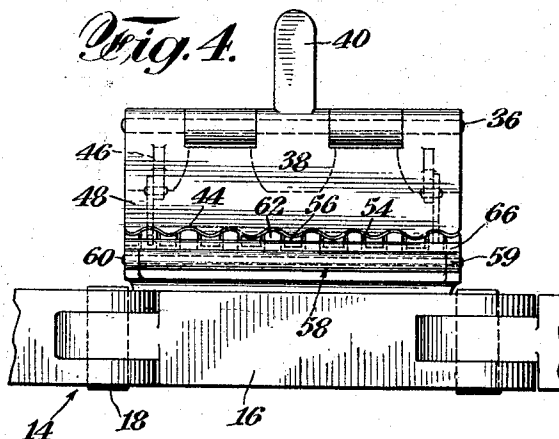
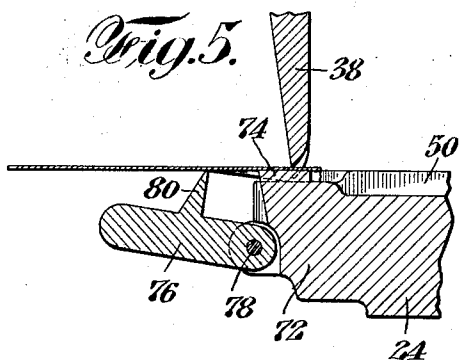
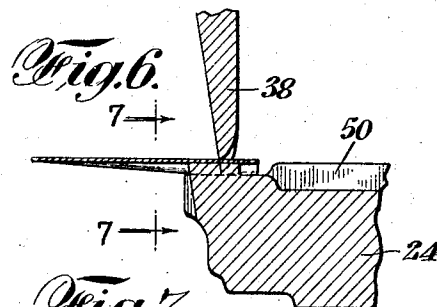
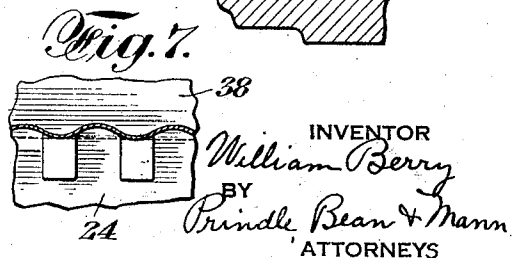
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CLIP FOR TENTERING MACHINES AND THE LIKE

Filed July 22, 1931



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CLIP FOR TENTERING MACHINES AND THE LIKE

Application filed July 22, 1931. Serial No. 552,461.

This invention relates to fabric clips generally and particularly to an improved clip for tentering apparatus of the usual type, wherein the cloth is carried between two substantially parallel elongated structures longitudinally by clips attached to endless chains. In handling certain fabrics on drying, conditioning and other machines, it is desirable to control the amount of fabric passing into the machine, thereby allowing the fabric to shrink lengthwise or with the warp. This shrinkage is necessary to produce certain finishes on crepes, linings, dress goods, shirtings and other fabrics, and is sometimes desirable in other ways. Heretofore it has been a source of great difficulty to control the shrinkage evenly, and various hook and clamping structures have been suggested, but these have resulted either in slow production or have caused uneven shrinkage, due to the uneven distribution of slack fabric.

Therefore, the object of my invention is the control of the linear amount of fabric passing through a tentering machine or a part thereof, by the provision of a plurality of clips, attached to, or forming an integral part of the moving chains, each of which clips may grip and hold a length of cloth greater than the length of the individual clips. This may be accomplished by corrugations or regular projections upon one or more edges of the clip. But I preferably make the clips automatically adjustable by cam means so that fabric held within corrugation recesses by a series of projections may be released a predetermined amount while the ridges of the corrugations hold the body of the fabric at uniform intervals, whereby the slack is available for shrinkage between such points of contact. The surplus amount of cloth gripped and released can be varied automatically in accordance with requirements. I further provide adjustable and automatic means adjacent the edges of the fabric for smoothing out the wrinkles caused by the corrugations and by shrinkage. It will be apparent that my invention may be employed in a variety of ways and is not to be limited to use in tentering machines.

My invention will be clear to those skilled

in the art from the illustrative examples shown in the accompanying drawing, and it is to be understood that the illustrative embodiments of my invention are in no way limitations of the same but that modifications and changes can be made without departing from the essence thereof.

In the drawing—

Figure 1 shows a vertical cross sectional view of part of a machine showing the chain and a clip embodying my invention before the jaw is closed.

Figure 2 is the same view of a clip after the closing of the jaw, also showing a means for adjustably controlling the clip.

Figure 3 is a similar view of the jaw of a clip showing adjustment means therefor.

Figure 4 is a front view of a part of a chain and a clip.

Figure 5 is a cross sectional view showing part of a modified form of a clip.

Figure 6 is a similar view of a further modification of the structure shown in Figure 5.

Figure 7 is a front elevation of the part of the clip shown in Figure 6, taken on the line 7—7 of Figure 6.

Referring to the drawing and first considering the preferred form of my invention shown in Figures 1—4, elongated frame 10 is formed with an elongated notch 12 on one side slightly below the top, in which notch a chain 14 runs. It is to be understood that there is an equivalent structure substantially parallel to frame 10 so that fabric may be suspended therebetween. Chain 14 is formed by a plurality of links 16 joined together by pins 18. Preferably a plate 20 will be mounted upon frame 10 over notch 12 so that it forms a guide for the chain 14.

A clip 22 is mounted upon or formed integrally with each of the links 16 and is provided with an extended base plate or member 24, the rear portion 26 of which is positioned within a runway 28 formed in the frame 10. Plate member 30 is mounted upon the top of said frame and extends over the runway 28 so as to guide and hold the rear end portions of the plate or base members 24 in proper position. A plurality of spaced arms 32 are

formed integrally with or mounted upon the base members 24 of the clips and extend upwardly and forwardly, their ends being bored as at 34 to receive the pintle or hinge member 36. The ends of these arms are positioned over the inside edge of the chain.

A nipper plate or member 38 has a hinged connection with said pintle 36 and is freely swingable thereon and depends therefrom. This nipper plate or member has an arm or bar 40 extending upwardly therefrom whereby it may be moved on its pivot or hinge manually or by mechanical means. The lower edge of this nipper plate or member is extended for substantially the full length of one of the links of the chains and is of corrugated formation having ridges or low points 42 and indentations or high points 44. A plurality of arm members 46 are mounted upon or secured to said nipper plate or member and extend inwardly therefrom and each of these arms 46 has a shoe member 48 pivotally connected at its end and positioned so as to rest upon part of the fabric being treated. The base plate or member 24 of each clip is provided with a suitable depression or recess 50 adapted to receive the shoes and permit the movement of the nipper plate or member to clasp the edges of the fabric being treated.

The outside edge of the base plate or member 24 of each clip extends beyond the edge of the chain and in substantial alinement with the ends of the arms 32 and is formed with a series of notches 54 and alternate projections 56. These projections 56 are in alinement or opposite to the ridges or low points 42 of the nipper plate or member 38 and may have their upper surfaces of concave formation.

An elongated plate or bar member 58 is pivoted between ears 59 extending from the ends of base member 24 by means of the pin or rod 60. This member 58 is provided with a plurality of spaced upwardly extending projections 62 which are arranged and positioned so as to extend into the notches or recesses 54 and above the top surfaces of the projections 56. The top surfaces of these projections 62 are convex or rounded whereby when in their uppermost position they fit within the indentations or high points 44 of the edge of the nipper plate or member 38. The plate or bar member 58 is also provided on the other side of its pivot with an elongated knife-like ridge 66 which is normally positioned below the plane of the fabric being treated and may be raised upwardly by suitable means such as a cam 68 to smooth out wrinkles or prevent the body of the fabric from wrinkling. The elongated plate member may be moved to force the projections 62 upwardly by any suitable means, a stationary arm member 70 being illustrated in Figure 2 for that purpose.

At the beginning of the operation, the cloth is fed into the machine with its edges

extending well within the clips, which have been opened by moving or throwing bar or arm 40 inwardly, thus raising shoe 48 and moving the nipper plate or member on its pivot upwardly and away from the fabric so as to permit the cloth to enter freely. At this time the projections 62 of member 58 are held above the level of the projections 56 of the base plate by means such as cam 70 so that a surplus quantity of fabric is loosely looped over these projections, see Figure 4. The shoes 48 rest upon the fabric, see Figure 1, and hold the clip in open position with the edge of the nipper member removed from the projections 62 of member 58. As the chains move longitudinally of the machine, they move apart drawing the cloth through the clips until the edge thereof passes from under the shoes 48 which then drop into the depressions 50 in the base plate and thus cause the nipper plates or members 38 to swing downwardly and toward the fabric so that the fabric is nipped at regular and uniform intervals in the clip between the ridges 42 of the edge of plate 38 and projections 56 of the base plate 24. The length of the fabric now held by the clip exceeds the length of the clip and the surplus fabric is held at regular and uniform intervals in the indentations and may be released in whole or in part by suitably dropping projections 62 downwardly from the indentations 44. As the surplus fabric is made available and wrinkles form in the edges of the fabric, member 58 is raised and the elongated knife-like ridge 66 bears against the fabric, and the more the projections 62 are lowered, the greater the tension of ridge 66 on the fabric, as ridge 66 and projections 62 are formed upon the same member 58 and are on opposite sides of the pivot 60. Cam 68 may act to move or adjust member 58 to different positions.

The two modifications in Figures 5, 6 and 7 are similar in action to the embodiment of my invention heretofore described, and vary only in the form of the lower jaw of the clip, or base plate 24. In Figure 5, the outer portion 72 is formed with corrugations 74 conforming and interfitting with the corrugations of the nipper plate 38 so that a surplus of cloth is carried by the clip. A member 76 is pivoted as at 78 upon plate 24 and may be adjusted by suitable cam action so that the elongated ridge 80 thereon tensions or bears against the wrinkled fabric and distributes the surplus fabric evenly lengthwise of the same for longitudinal shrinkage.

The structure shown in Figures 6 and 7 is the same as that of Figure 5 except that member 76 is omitted. Wrinkled cloth at the edge results and the wrinkles are evenly distributed and extend outwardly due to the tension caused by the corrugations, but in certain types of processes this is desirable to obtain desired finishes.

What I claim is:

1. A clip for allowing predetermined shrinkage in fabric, comprising a base member, a movable nipper plate with a corrugated edge, the ridges of which are adapted to bear against said base member when the clip is closed and a movable member provided with a series of projections conforming in shape with, and adapted to fit into, the indentations of said corrugated edge so that when the clip is open, fabric introduced therein may be pressed into the corrugations of the nipper plate, and means for lowering said projections when the clip is closed so that the fabric surplus within the indentations is available for shrinkage.

2. A structure as defined in claim 1, which further includes a movable member provided with means for engaging and smoothing out wrinkles in the fabric.

3. A structure as defined in claim 1 wherein the movable member is pivoted and further provided with a longitudinally extending projecting portion positioned on the opposite side of the pivot from the series of projections so that the projecting portion is adapted to bear against the fabric to smooth out wrinkles when the projections are lowered and so that the tension is increased as the projections are lowered.

4. In a tentering machine, a clip for fabric comprising two adjustable interlocking jaw members having uniformly spaced indentations and ridges between which the fabric is introduced and a member having a flat surface toward which the ridges of one of the interlocking members swing with the fabric therebetween so that the fabric is nipped and held when the jaws are closed and means for totally or partially releasing the interlock of the interlocking members so that slack is available for shrinkage while still holding the fabric between said ridges and flat surface member.

5. In a tentering machine, a fabric clip mounted upon longitudinally moving members, comprising a base member, a movable nipper member provided with a corrugated edge which is adapted to swing toward said base member and to hold the fabric therebetween, an elongated member pivoted adjacent said nipper member and provided with a series of projections, said projections corresponding to the indentations of said corrugated edge of the nipper member and means for moving said elongated member so that the projections thereof may extend a predetermined distance into said indentations or may be totally withdrawn therefrom.

6. A fabric clip comprising a base member, a nipper plate provided with a corrugated edge, means to move said nipper plate so that said corrugated edge swings toward said base member to hold fabric therebetween, an elongated member mounted adja-

cent said base member and provided with a series of projections corresponding in size and position to the indentations of said corrugated edge, means for varying the position of said elongated member so that the projections may be moved to various positions with respect to said indentations.

7. A structure as defined in claim 6, wherein the elongated member is provided with a projecting longitudinal ridge adapted to engage and smooth out wrinkles in the fabric and so related in movement to said series of projections that the smoothing action of the arm is more pronounced as the projections recede from the indentations.

8. A structure as defined in claim 6, which further includes means positioned adjacent the base member adapted to engage and smooth out wrinkles in the cloth, and means for adjusting said means.

9. In a tentering apparatus comprising substantially parallel tracks having chain conveyors moving therein and adapted to carry fabric between the tracks, clips mounted upon the links of the chain conveyors comprising a base member upon which the fabric rides, an adjustable nipper plate having a corrugated edge and adapted to swing toward the base member so that the ridges of said edge hold the fabric against the base member, and an adjustable elongated member mounted adjacent said base member provided with a series of projections corresponding to the indentations of said corrugated edge of the nipper plate, said elongated member adapted to swing so that its projections enter and press fabric into said indentations so that the total linear length of fabric introduced into and held by the clip exceeds the length of the clip, and means for adjusting said elongated member so that variations of the amount of fabric pressed into the indentations may be obtained and so that the projections may be swung away from the indentations when desired to leave slack in the fabric between the contact points of said corrugated edge and said base member.

10. In a tentering machine, a fabric clip comprising pivoted, corrugated gripping members positioned so that the ridges of one gripping member extend into the indentations of the other gripping member when in closed position in order that the linear amount of fabric held by the clip exceeds the length of the clip and an adjustable elongated member positioned adjacent the jaws of said clip and adapted to engage and smooth out wrinkles in the fabric resulting from the gathered-in fabric held by the corrugated gripping members.

11. In a fabric clip, a base member provided with a series of lateral notches and projections at its end portion, a movable nipper plate having a series of uniform projections and indentations upon its nipper edge and

positioned adjacent the base member so that its projections swing towards the projections of said base member so that fabric between them will be nipped, an elongated plate member provided with a series of uniform projections substantially conforming in shape to the shape of the nipper plate indentations movably positioned so that its projections may be raised and extended into the indentations of said nipper edge but normally positioned under the upper surface level of said base member so that when fabric is introduced between the nipper plate and the base member and the nipper plate swung towards the projections of the base plate, the elongated plate projections may be raised to press fabric into the indentations of the nipper plate, and automatic means for lowering the elongated plate projections partially or fully from the nipper plate indentations while the fabric is gripped between the nipper plate projections and the base member projections, whereby fabric slack is made available at uniform intervals longitudinally of the clip.

12. In a fabric clip, a base member provided with uniformly spaced notches in one end, a plurality of upwardly and outwardly extending arms mounted upon said base member, an elongated nipper plate swingably mounted upon said arms over the notched end of the base member and provided with a corrugated edge, the ridges of which are adapted to nip fabric introduced between the notched end of the base member and the nipper plate, said notches being aligned with the indentations of the nipper plate edge, an elongated plate member movably positioned and provided with fingers adapted to extend through the notches of the base member into the indentations of the nipper plate when the clip is open so that surplus fabric may be pressed into the indentations of the nipper plate and automatic means for lowering the fingers while the fabric is held at regular and uniform contact points by the nipper plate ridges and the base plate so that slack for longitudinal shrinkage is available within the clip at uniform intervals.

13. A clip for the chain of a tentering machine having means for gathering and engaging a length of cloth greater than the length of the clip itself, said means being movable to release desired proportions of such surplus cloth while the cloth is held by said clip so that the surplus portions may contract when subjected to the action of heat or other physical agents.

14. As an article of manufacture, a clip for the chain of a tentering machine comprising nipper jaw members adapted to engage and hold the edge of a length of cloth or fabric, means movable between said jaw members to gather surplus lengths of cloth within said clip, said last mentioned means being movable to release the portions of surplus cloth to per-

mit the cloth to contract during the travel of the chain.

15. As an article of manufacture, a clip for the chain of a tentering machine having jaw members for engaging and holding fabric therebetween, one of said jaw members being movable with respect to the other and adapted to contact with the other at spaced points only, another movable member mounted upon said clip and provided with a plurality of projections adapted to engage the under surface of the fabric and draw surplus lengths of the fabric between said jaw members, said movable member being adapted to be withdrawn to release said surplus lengths to permit the fabric to shrink while the edge is held between said jaw members.

16. As an article of manufacture, a clip for the chain of a tentering machine having jaw members for engaging and holding fabric therebetween, one of said jaw members being movable with respect to the other and adapted to contact with the other at spaced points only, another movable member mounted upon said clip and provided with a plurality of projections adapted to engage the under surface of the fabric and draw surplus lengths of the fabric between said jaw members, said movable member being adapted to be withdrawn to release said surplus lengths to permit the fabric to shrink while the edge is held between said jaw members, and means for engaging a surface of the fabric and smoothing out the wrinkles resulting from the gathering in of the surplus portions of the fabric.

17. As an article of manufacture, a clip for the chain of a tentering machine, comprising means adapted to engage and hold the edge of a length of cloth or fabric, means movable between said first mentioned means to gather or pull surplus lengths of cloth within said clip, said last mentioned means being movable to release the portions of the surplus cloth or fabric to contract during the travel of the chain when the clip is in use.

In testimony that I claim the foregoing, I have hereunto set my hand this 16 day of July, 1931.

WILLIAM BERRY.