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MEANS FOR PREVENTING CREASES IN FABRICS AS TAKEN UP IN LOOMS

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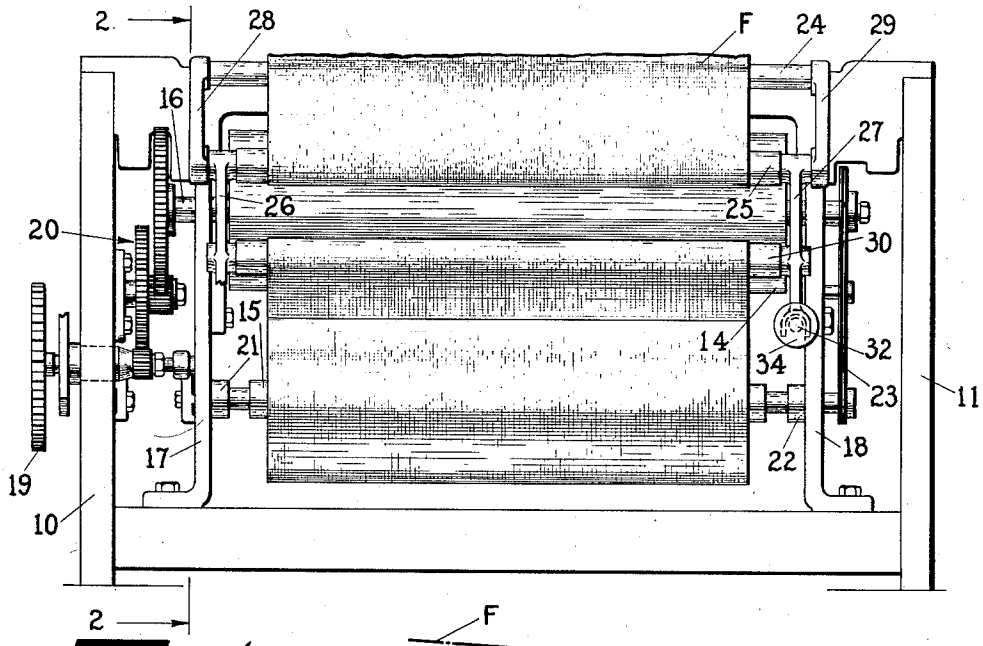


FIG. 1

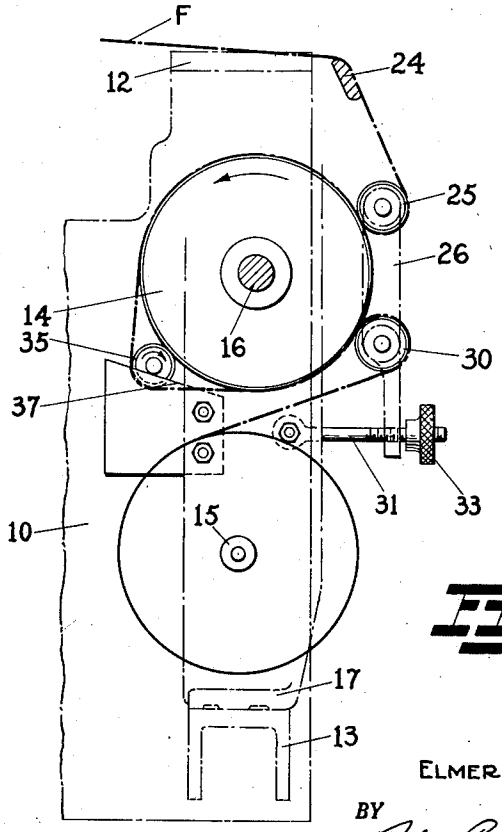


FIG. 2

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MEANS FOR PREVENTING CREASES IN FABRICS AS TAKEN UP IN LOOMS

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This invention relates to looms for weaving, and more particularly, to means associated with the fabric take-up means thereof for preventing the formation of creases or wrinkles in the fabric as it is taken up and wound.

It is a general object of the invention to devise a simple and effective means for preventing creases forming in fabrics as they pass through the take-up and wind-up means in the loom.

It is a more specific object of the invention to accomplish the above mentioned result by means adapted to be built in as a part of a new loom or to be installed as an attachment for looms presently in use and which shall accomplish its intended purposes without having any other and undesired effect upon the fabric.

Other objects will become apparent from the following more detailed description.

In weaving certain materials, it often becomes difficult to take up and to wind the fabric without its becoming wrinkled or creased, that being something which detracts from the appearance and general desirability of the fabric as it comes from the loom. Many devices have been suggested and used with varying degrees of success, but in no instance has any one of these been wholly acceptable to the industry nor have they come into use except in very isolated cases.

According to the invention a loom having the usual take-up and winding means for the fabric is so modified that the fabric is passed about a very substantial percentage of the circumference of the take-up roll and, at a point between that at which it is guided onto and from the roll, is passed about a roller driven adversely to the direction of movement of the fabric. This roller is preferably rotated by its contact with the take-up roll and is provided with a surface covering which frictionally engages the fabric to maintain its width.

The invention will be described by reference to a specific and preferred embodiment thereof as shown in the accompanying figures of drawing, wherein:

Fig. 1 is a front view of part of a loom to which the invention has been applied.

Fig. 2 is a section taken at line 2—2, Fig. 1, showing the invention in detail.

Now referring to the drawings, a loom of more or less conventional type includes loomsides **10** and **11**, a breast beam **12**, bottom girt **13** and a take-up roll **14** and wind-up or cloth roll **15**. The take-up roll and its shaft **16** are borne in bearings in cloth roll stands **17** and **18** and is driven in the usual way by a system of pawls (not shown) operable upon a pick wheel **19** in turn connected to the shaft and roll through a gear train generally indicated by numeral **20**.

The take-up roll is surfaced with some suitable material adapted to provide the necessary tractive effort to draw the fabric without slipping, cork being the preferred surface material.

Journaled in bearings **21** and **22**, the cloth roll or core **15** is driven by a chain or other drive **23** at the right end of the loom. This drive incorporates a slip clutch to take care of speed variance as the diameter of the wound package increases.

After formation, the woven material is drawn over a guide bar **24** and beneath a guide roll **25** the ends of which are freely rotatable in bearings at the upper ends of depending arms **26** and **27**. These arms in turn are pivoted in forward extensions **28** and **29** of the stands **17** and **18**. Roll **25** may be a plain steel roll or may be surfaced with cork or the like.

Adjacent the lower ends of arms **26** and **27** a roll **30** similar to roll **25** is provided for free rotation and this roll may likewise, be covered with cork or any similar traction surface. The arms **26** and **27** are forked at their lower ends and eye bolts **31** and **32** attached at the loomsides and carrying thumb nuts **33** and **34** serve to draw roll **30** into pressure engagement against the fabric between that roll and the larger roll **14**.

The fabric is threaded as shown in Fig. 2 over guide **24**, under roll **25**, about the take-up roll **14** and over roll **30** which is, in effect, a pinch roll. It then passes to the cloth roll below to be wound thereon.

As the fabric is passed about roll **14** it is also affected by a crease or wrinkle preventing roller **35** the reduced ends such as end **36** of which are supported upon inclined ways **37**, one of which is shown in Fig. 2, but it must, of course, be understood that the same is duplicated at the opposite end. This roller is preferably covered with a heavy napped fabric or other equivalent surface material and the fabric F is threaded about it being separated from take-up roll **14** at that general location. The pressure of the taut fabric against roller **35** forces it into engagement with the roll **14**, the inclination of inclined ways and convergence between them and the cylindrical surface of the roll all cooperating therewith to cause the roller **35** to be virtually positively driven from the take-up roll, but in the opposite direction as indicated by the arrows.

In operation, the fabric is drawn by the take-up means which really includes rolls **14**, **25** and **30** acting in conjunction with the crease preventing roller **35**. The angle of contact about roller **14** is relatively great due to use of rolls **25** and **30**, the latter of which acts as a pinch roll, even though continuity of engagement is broken. The more or less positive rotation of roller **35** oppositely to the direction of movement of fabric past it sets up a calendering action in combination with an action of the surface covering of the roller to prevent contraction or lateral disturbance of the passing material. While the complete theory of operation and full reasons for the success of the device may not be known, it is a fact that on those fabrics the weaving of which have so often been accompanied by considerable tendency to form creases, the device is notably effective. Most troublesome wrinkling has been eliminated and fabric of this sort is now made with virtually no losses from such defects. This is a particularly gratifying result since this fault has been more prevalent during weaving of many materials which are higher in price and therefore more critical.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive concept may be carried out in a number of ways. This invention is, therefore, not to be limited to the precise details described, but is intended to embrace all variations and modifications thereof falling within the spirit of the invention and the scope of the claims.

I claim:

1. In a loom the combination of a fabric take-up roll and other means on which the fabric is wound, guide means for maintaining the fabric in contact with the take-up roll over a substantial portion of its peripheral surface, and a means for preventing the formation of creases and

the like in the fabric as it is taken up which comprises a roller interposed between the fabric and the take-up roll as the fabric is wrapped about said roll and means cooperating with said fabric as it passes about said roller for causing the rotation of said roller in a direction opposed to the passage of the fabric thereover.

2. In a loom the combination of a fabric take-up roll and other means on which the fabric is wound, guide means for maintaining the fabric in contact with the take-up roll over a substantial portion of its peripheral surface, and a means for preventing the formation of creases and the like in the fabric as it is taken up which comprises a roller interposed between the fabric and the take-up roll as the fabric is wrapped about said roll, and means cooperating with the fabric as it passes about said roller for pressing it into driving contact with the surface of said take-up roll thereby to cause rotation of the roller in a direction opposed to the passage of the fabric thereover.

3. In a loom the combination of a fabric take-up roll and other means on which the fabric is wound, guide means for maintaining the fabric in contact with the take-up roll over a substantial portion of its peripheral surface, and a means for preventing the formation of creases and the like in the fabric as it is taken up which comprises a roller interposed between the fabric and the take-up roll, a means upon which said roller is rotatably borne and upon which it is forced by the passing fabric into driving engagement with the take-up roll, a surface covering on said roll and roller thereby to provide tractional driving of the roller by the roll in a direction opposed to the direction of movement of fabric past the roller.

4. In a loom the combination of a fabric take-up roll and other means on which the fabric is wound, guide means for maintaining the fabric in contact with the take-up roll over a substantial portion of its peripheral surface, and a means for preventing the formation of creases and the like in the fabric as it is taken up which comprises a roller interposed between the fabric and the take-up roll, means upon which said roller is rotatably borne comprising inclined surfaced supports the inclined surfaces of which and the adjacent cylindrical surface of said roll converging so that in conjunction with the force exerted by the passing fabric, the roller is pressed into

driving contact with the roll to be rotated reversely to the direction of movement of the passing fabric.

5. In a loom the combination of a fabric take-up roll and means upon which the fabric is wound, guide rolls for maintaining the fabric in contact with the take-up roll over a substantial portion of its peripheral surface which comprises rolls over which the fabric is passed, one at least of said rolls being positively pressed into engagement with the fabric to act as a pinch roll in conjunction with the take-up roll, and means for preventing formation of creases and the like in the fabric as it is taken up which comprises a roller interposed between the fabric and the take-up roll as the fabric is wrapped about said roll and means including the fabric and take-up roll for causing the rotation of said roller in a direction opposed to the passage of the fabric thereover.

6. In a loom the combination of a fabric take-up roll and means upon which the fabric is wound, guide rolls for maintaining the fabric in contact with the take-up roll over a substantial portion of its peripheral surface which comprises rolls over which the fabric is passed, depending arms in which said rolls are borne and adjusting means by which said arms are drawn to a position to develop pressure between the lower one of said rolls and the take-up roll, and means for preventing formation of creases and the like in the fabric as it is taken up which comprises a roller interposed between the fabric and the take-up roll, means upon which said roller is rotatably borne comprising inclined surfaced supports the inclined surfaces of which and the adjacent cylindrical surface of said roll converging so that in conjunction with the force exerted by the passing fabric, the roller is pressed into driving contact with the roll to be rotated reversely to the direction of movement of the passing fabric.

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