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TAKE-UP MOTION FOR LOOMS FOR WEAVING

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This invention relates to take-up motions for looms for weaving more particularly applicable to looms for weaving heavy-wide fabrics, such as described in our concurrent application of even date, Serial No. 59,737.

According to the invention between a lap roller and the breast beam of the loom, a pair of plain rollers one above the other in a vertical plane and an idle nip roller are interposed, the nip roller resting against the peripheries of the other two, nipping the cloth against both to prevent it moving backward suitable intermittent gearing being provided to drive the lap roller and the intermediate nip rollers.

The invention will be fully described with reference to the accompanying drawings.

Fig. 1 is a transverse section through the nip rollers and lap rollers.

Fig. 2 is a side elevation showing gearing for operating the rollers.

Fig. 3 is a plan of Fig. 2.

Fig. 4 is a front elevation of the rollers provided to drive the lap roller and the drawings.

Fig. 2 is a side elevation showing Fig. 4 is a front elevation of with the idlenip roller D removed. Below or in front of the breast beam A of the loom two plain rollers B and C are mounted in a vertical plane one above the other in suitable bearings some distance apart on the gable end of the loom and geared so as to rotate in the same direction.

A nip roller D is so placed in relation to the two rollers B and C as to bear against the periphery of both and is maintained in position in a bearing bracket E in which it is free to move to and from the rollers.

In front of the nip rollers B, C and D is a lap roller E freely mounted in a suitable frame F and driven by a roller G.

The cloth z from the breast beam A passes partly around the roller B and back and over and under the roller C forming a loop or pocket at one side around the nip roller D or into which the nip roller D is placed; when the cloth is taut it is drawn tightly upon the rollers B and C and nipped against their peripheries by the pressure of the cloth on the nip roller D.

The take-up motion is driven from a wheel a on a fixed stud in the frame revolving at crank speed geared with wheel b on the cam or tappet shaft (not shown). The wheel a is employed to drive the take-up gear, instead of the crankshaft itself for two reasons, the facility of timing the moment of the take-up with relation to the remaining operations of weaving, and for convenience, since the wheel a is more easily connected to the take-up mechanism than the crankshaft would be.

The wheel a carries a crank pin a with a reciprocating connecting rod d to the free end of which a pawl e is pivoted to drive a ratchet wheel f. The pin a with which the connecting rod d is pivoted is adjustable for throw so that any number of teeth from one to five or six on the ratchet wheel f may be taken up at each revolution of the wheel a. The ratchet wheel f is keyed on to the shaft y revolving in bearings provided in a bracket h bolted to the outside of the end frame A. The pawl e is carried by an oscillating arm l on the shaft y and a check pawl k prevents any backward movement of the wheel f. Upon the shaft g is a pinion m driving spur wheel n keyed to shaft o which passes through the end frame of the loom and carries the pinion p. The pinion p gears with two spur wheels p^1, p^2 one on each of the take-up rollers B and C. In this manner the rollers are intermittently rotated the required amount in the direction indicated by the arrows.

The roller G upon which the lap roller rests is positively driven simultaneously with the rollers B and C by a connecting rod q, pawl r, and ratchet wheel s and the compound spur train t.

The cloth passes from the breast beam A around the take up and nip rollers B, C and D to the lap frame F where it is wound on the lap roller E resting by gravity on the driving roller G.

The rollers are normally smooth and they drive the cloth by virtue of the large total angle of contact provided between the cloth and the rollers. The cloth passes under and partially around the driven roller G and this is a matter of some importance in securing a good drive of the lap roller E, since there may be an appreciable tension in the cloth passing from the loom to the lap frame and some reliance is placed upon this tension increasing the efficiency of the drive between the cloth and the take-up rollers B, C and D. The roller G may be driven at a greater peripheral velocity than the rollers B and C either to ensure the tension in the cloth at X or to actually stretch the cloth lengthways before it is wound on the lap roller.

What we claim as our invention and desire to protect by Letters Patent is:

1. A take-up motion for looms comprising
two rollers placed vertically one above the other below the breast beam of equal diameter driven in the same direction at equal speed in combination with a jockey nip roller held in a loop of the cloth tightly against the peripheries of the other two rollers, a lap roller to take up the cloth therefrom, a frame in which the lap roller is mounted, a driving roller journalled in the same frame upon which the lap roller is rotated and means to drive the rollers substantially as described.

2. In a take up motion for looms the combination with the breast beam of two take up rollers journalled below it one above the other in a vertical plane, a nip roller pressing against the peripheries of the two rollers, a train of gears operated by a paw and ratchet wheel to impart an intermittent motion to the rollers, a lap roller to receive the cloth, a driving roller in surface contact therewith and a train of gears to rotate the rollers operated by paw and ratchet from the gears of the take up rollers.

In testimony whereof we have hereunto set our hands.

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