

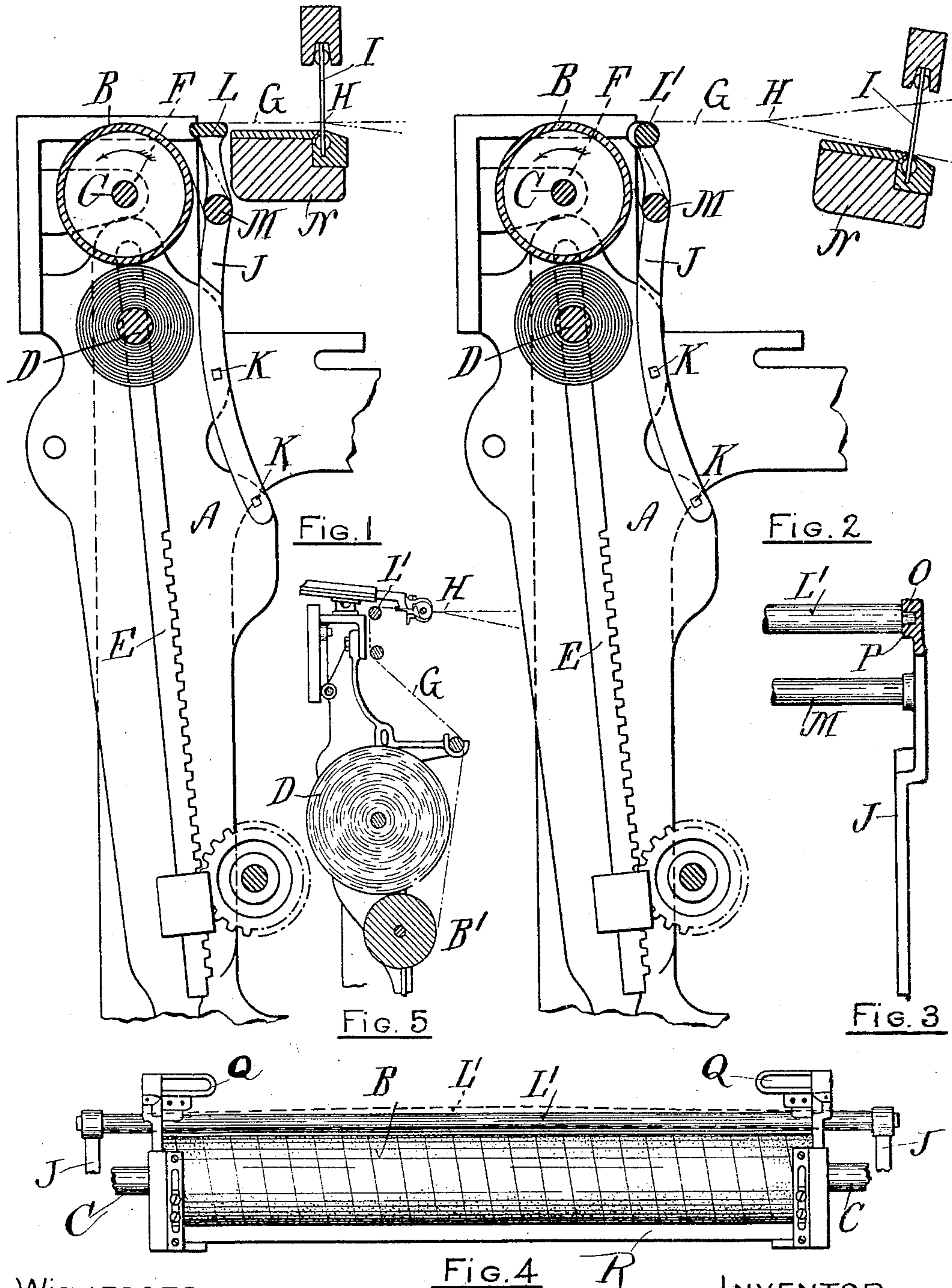
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CLOTH TENSION DEVICE FOR TAKE-UP MECHANISM FOR LOOMS.

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WITNESSES

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Fig. 4

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Specification of Letters Patent.

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Application filed February 24, 1904. Serial No. 195,065.

To all whom it may concern:

Be it known that I, CLINTON S. ANDEM, a citizen of the United States, residing at North Grosvenor Dale, in the county of Windham, in the State of Connecticut, have invented a new and useful Improvement in Cloth-Tension Devices for the Take-Up Mechanisms of Looms, of which the following is a specification.

In looms employing what is called the "high-roll take-up" the take-up roll is usually covered with a spirally-wound fillet of perforated tin, the rough surface of which engages with the cloth to draw it forward from the fell and transmit it to the cloth-roll; but the slackening of the tension of the cloth between the fell and the take-up roll at the beating up of the weft and the subsequent opening of the shed for the passage of the shuttle with the consequent tightening of the warp-threads causes the rubbing of the cloth over the rough surface of the take-up roll, whereby some of the weft-threads of the cloth may be completely severed, while others may be worn away and greatly weakened; and my invention consists in the employment of a primary cloth-deflecting guide-bar arranged to deflect the cloth downward from the plane of the fell between the take-up roll and the lay. It also consists in the employment for deflecting action upon the cloth of a resilient guide-bar, which is adapted for curved deflection under the increased tension of the warp-threads upon the opening of the shed, whereby in the operation of the loom the central warp-threads of the lower portion of the shed instead of being comparatively slack, as heretofore, at the open shed will be held in a tight condition, whereby the frictional obstruction of the warp-threads to the passage of the shuttle through the shed will be greatly lessened.

In the accompanying drawings, Figure 1 represents a transverse sectional view of a sufficient portion of a high-roll take-up mechanism to illustrate my invention, the guide-bar over which the cloth is primarily deflected from the plane of the fell being represented of rigid construction. Fig. 2 represents a transverse sectional view, as in Fig. 1, showing the employment of a flexible resilient guide-bar for primarily deflecting the cloth downward from the plane of the fell. Fig. 3 represents a detail view, partly broken away, showing one of the holding-arms for the parallel guide-bars over which the cloth

is drawn in its passage from the fell to the take-up roll. Fig. 4 represents a top view of the take-up roll and of the flexible resilient guide-bar by means of which the cloth is primarily deflected from the plane of the fell. Fig. 5 represents the application of my improvement to the "low take-up roll."

In the drawings, Fig. 1, A represents a portion of the frame of the loom, and B the take-up roll, the shaft C of which is to be actuated by means of suitable gearing. The journals of the cloth-roll D are mounted in downwardly-movable supports E, and the take-up roll B is mounted in fixed bearings F above said cloth-roll. The mechanism for operating these rolls may be the same as that shown and described in Letters Patent of the United States No. 643,284, to which reference may be made for a full description.

In the ordinary engagement of the cloth G with the high take-up roll B the cloth passes from the fell H direct to the top of the take-up roll and thence around the semicircumference of the said take-up roll to the cloth-roll D; but in this case it is found that the action of the reed I upon the fell H at the beating up of the weft causes the slackening of the cloth between the fell and the take-up roll, the cloth being again drawn tight at the subsequent opening of the shed, thus producing a rubbing action over the rough surface of the take-up roll, with consequent damage to the woven cloth by the wearing away of the weft-threads. In order to obviate this serious defect in the action of the high take-up roll upon the side of the cloth G which comes in contact therewith, I have preferably provided as guide-bar supports a pair of fixed arms J J, secured to the loom-frame A by means of the bolts K K, the said arms carrying at their upper ends the parallel guide-bars L and M, the upper guide-bar L being made of elongated cross-section, so as to be inflexible in the direction toward the fell, as shown in Fig. 1. In this case the cloth G passes from the fell H first over the rigid guide-bar L, thence downward around the guide-bar M, and thence to the periphery of the take-up roll, the resulting slack portion of the cloth at the beating up of the weft being in this case located over and between the guide-bars L and M and not over the surface of the take-up roll, and upon the backward movement of the lay N and the opening of the shed the strain upon the cloth will be sustained by the guide-bars L and M, whereby the former sud-

den strain and backward movement of the cloth over the roughened surface of the take-up roll B will be prevented.

Another desirable feature of my invention is developed when the upper guide-bar is made adapted for resilient curved deflection, as shown in Fig. 4, in which B represents the take-up roll, R the breast-beam, and Q Q the loom-temple, and in this case the guide-bar L', over which the cloth G primarily passes from the fell H, yields resiliently to the increased tension of the warp-threads at the opening of the shed, as indicated by the dotted lines, so that when it is fully opened the central warp-threads of the lower side of the shed will all be drawn tight, thus providing a floor of tightly-drawn threads for the passage of the shuttle, with the result that the power required for properly throwing the shuttle through the shed will be materially lessened.

By the employment of the guide-bar L', adapted for curved deflection, the selvage-threads of the warp will be maintained in a properly - tightened condition, so that the necessity for the employment of a band of sandpaper or other device for increasing the diameter of the take-up roll at its ends, as heretofore, will be obviated. The journals O of the flexible resilient guide-bar L' are preferably held loosely in the bearing-sockets P of the fixed arms J J, which are secured to the loom-frame.

The application of my invention to a loom having a low take-up roll is shown in Fig. 5, in which the cloth G passes downward from the flexible resilient guide-bar L' to the inner side of the take-up roll B'.

I claim as my invention—

1. In a cloth-tension device for looms, the combination of the high take-up roll, and the

roll upon which the cloth is wound, with a tension-bar which serves to deflect the cloth from its progressive plane extending outward from the fell, and is located between the vertical plane of the axis of the take-up roll and the plane of the front face of the lay-beam inside of the breast-beam.

2. In a cloth-tension device for looms, the combination of the high take-up roll and the roll upon which the cloth is wound with the parallel tension-bars which serve to deflect the cloth downward from its progressive plane extending outward from the fell, and thence to the take-up roll, and located between the vertical plane of the axis of the take-up roll, and the plane of the front face of the lay-beam inside of the breast-beam.

3. In a cloth-tension device for looms, the combination of a take-up roll, and a roll upon which the cloth is wound with a flexible resilient guide-bar, adapted for lateral deflection upon the opening of the shed, and over the surface of which the cloth primarily passes in its progressive movement from the fell to the take-up roll.

4. In a cloth-tension device for looms, the combination of a take-up roll, and a roll upon which the cloth is wound, with a flexible resilient guide-bar, for primarily deflecting the cloth from the plane of the fell.

5. In a cloth-tension device for looms, the combination of the high take-up roll, and the roll upon which the cloth is wound, with a flexible resilient guide-bar, which deflects the cloth from the plane of the fell, downward between the take-up roll and the lay.

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Witnesses:

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