

B. F. McGUINNESS.
TAKE-UP MECHANISM OF LOOMS.
APPLICATION FILED JUNE 20, 1906.

954,127.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.

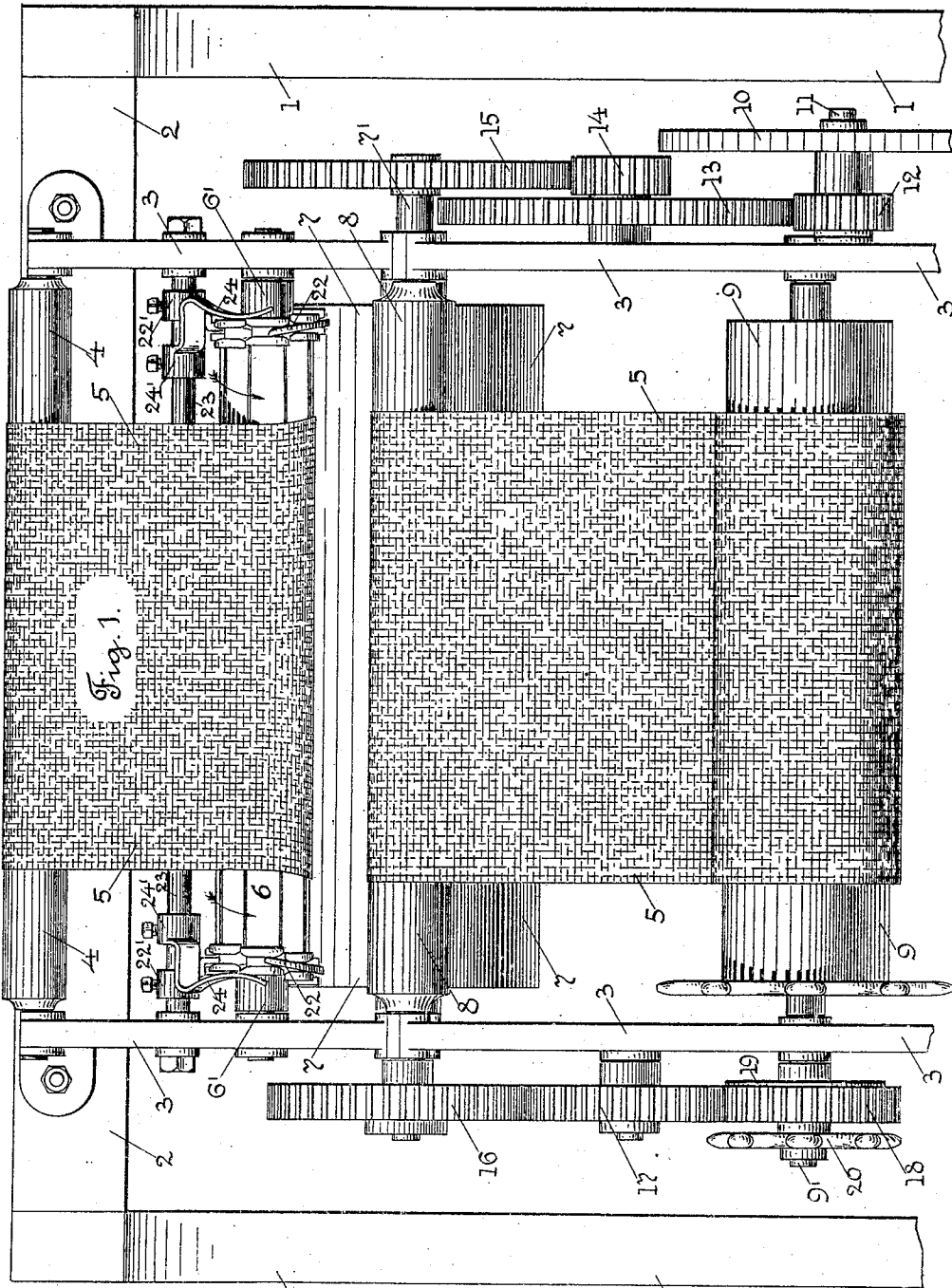


Fig. 1.

Witnesses

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W. H. Hoad.

Inventor

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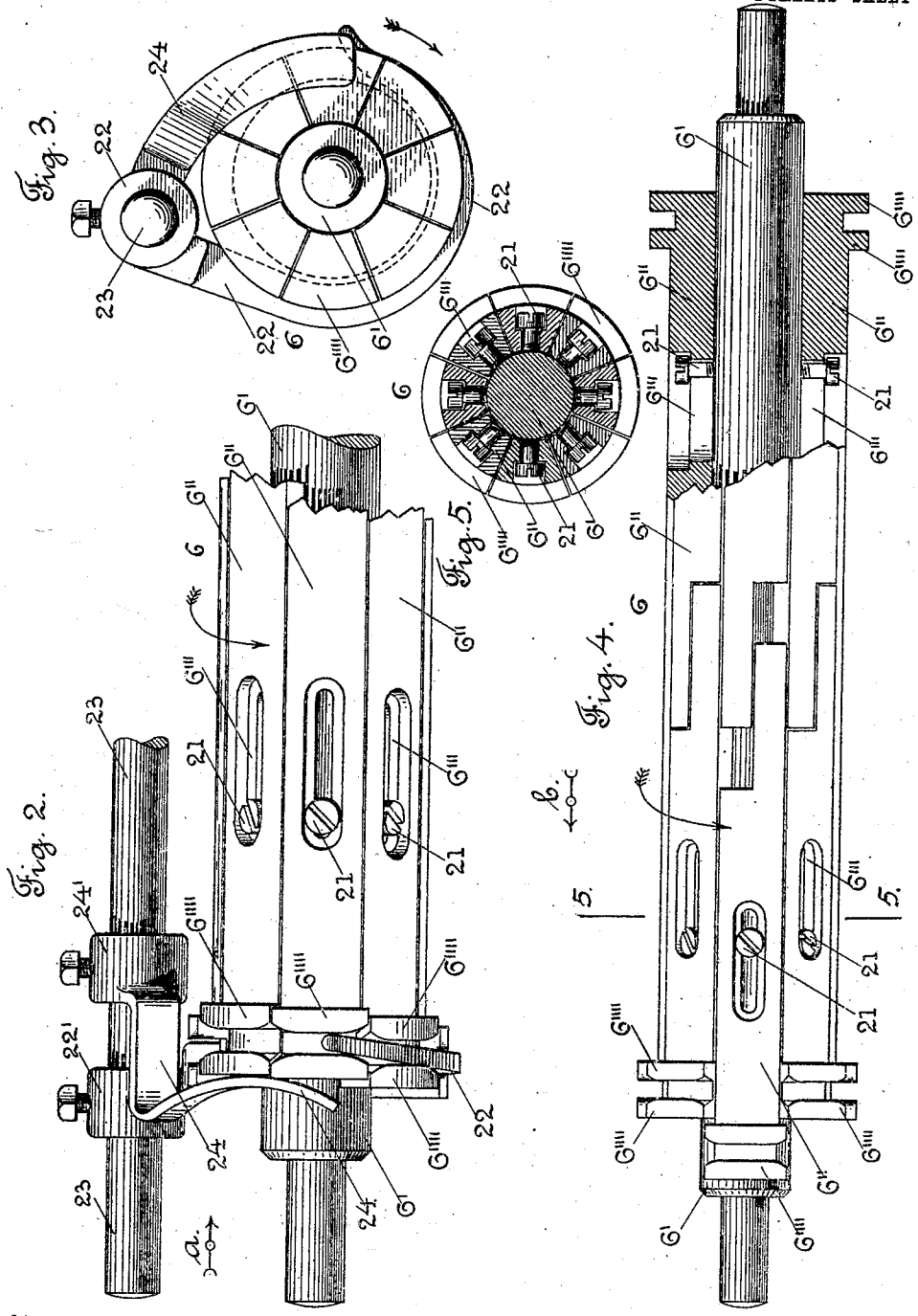
By John C. Dewey
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Witnesses
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UNITED STATES PATENT OFFICE.

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TAKE-UP MECHANISM OF LOOMS.

954,127.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BENJAMIN F. MCGUINNESS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Take-Up Mechanism of a Loom, of which the following is a specification.

My invention relates to the take-up mechanism of a loom, and more particularly to a spreader, for spreading or stretching the fabric, and particularly light and delicate fabrics of fine texture, as silk, etc., after they are woven, to prevent them from wrinkling or creasing, when they are wound on the cloth-roll.

The object of my invention is to provide an improved spreader, to be used in connection with the take-up mechanism, and more particularly a spreader made in the form of a roll, which has a rotary movement communicated thereto preferably by the woven fabric passing over said roll.

In my improvements I provide a spreader or expanding roll having a central shaft, and a series of separate strips of wood, or other suitable material, extending around said central shaft or journal, and in the direction of the length of the roll; and each strip separately attached to the central shaft or journal, and adapted to be moved longitudinally thereon, independently of the other strips, as said roll rotates; and I provide means for automatically moving outwardly the strips on the roll, in the direction of their length, so as to increase the length of the peripheral surface of the roll where the fabric passes over said roll, and also means to move the strips inwardly, to return them to their normal position.

I have shown in the drawings a take-up mechanism of well known construction and operation, with my improvements combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a front view of a take-up mechanism with my improvements combined therewith, showing the woven fabric as it comes from

the loom, and as it is wound on the cloth-roll. Fig. 2 shows, on an enlarged scale, one end of the spreader roll shown in Fig. 1, detached. Fig. 3 is an end view of the parts shown in Fig. 2, looking in the direction of arrow *a*, same figure. Fig. 4 shows, on an enlarged scale, the spreader roll shown in Fig. 1, detached, with one of the strips at one end drawn out, and the other end of the roll shown in section, and, Fig. 5 is a cross section, on line 5, 5, Fig. 4, looking in the direction of arrow *b*, same figure.

The take-up mechanism, shown in Fig. 1 of the drawings, may be of any usual and well known construction, and therefore will only need a brief description. In said figure, 1 are portions of the loom sides or end frames; 2 is the breast-beam, 3 are vertically extending stands secured at their upper ends to the breast-beam, and at their lower ends to a transverse girt of the loom, not shown, in the ordinary way.

4 is the breast-beam roll over which the woven fabric 5 passes from the loom, not shown.

6 is my improved spreader or expanding roll to be hereinafter described, under which the woven fabric 5 passes from the guide-roll 4 to the take-up roll 7. From the take-up roll 7, the woven fabric 5 passes over the guide-roll 8 to the cloth-roll 9. All of said rolls are journaled in suitable bearings in the stands 3.

10 is a ratchet wheel fast on a shaft 11, and is operated by a pawl, not shown, driven from some moving part of the loom in the usual way. A pinion 12 fast on the shaft 11, meshes with and drives a gear 13, and through pinion 14 drives a gear 15 fast on the shaft 7' of the take-up roll 7. On the opposite end of the shaft 7' of the take-up roll 7 is a gear 16 which meshes with and drives an intermediate gear 17, which in turn meshes with and drives a gear 18 loose on the shaft 9' of the cloth-roll 9. The gear 18 is clutched to and rotates the shaft 9' of the cloth-roll 9, through a friction disk 19, or any other suitable friction mechanism, the tension of which may be regulated by a hand wheel 20, in the usual way.

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All of the above mentioned parts, except the spreader roll 6, may be of the ordinary construction, and operated in the usual way.

I will now describe my improvements in spreader or expanding roll. The spreader or expanding roll 6 is in this instance located intermediate the breast-beam roll 4 and the take-up roll 7, and the woven fabric 5 passes over the underside of said roll 6, before it passes to the take-up roll 7. The spreader roll 6 has a rotary movement communicated thereto by the movement of the cloth passing over said roll, and said roll acts to spread or stretch the fabric before it passes to the take-up roll 7.

The spreader roll 6 is preferably made as shown in the drawings, and consists of a solid central shaft or axis 6', having in this instance reduced ends forming journals, which are mounted in suitable bearings in the upright stands 3. Extending around the central shaft 6', and forming the peripheral surface of the roll 6, are a series of strips 6'', preferably of wood, or other suitable material, in this instance eight in number. The outer surfaces of said strips 6'' are preferably covered with felt, or sandpaper, or some other suitable frictional surface. The strips 6'' are cut through their middle portions, preferably in the manner shown in Fig. 4, so as to form two separate sets of strips 6'', one for one-half of the roller, and the other for the other half. Each strip 6'' has one or more elongated slots or openings 6''' therethrough, to receive one or more headed screws 21, in this instance only one screw is shown for each slot 6'''. Each screw 21 is screwed into a threaded hole in the shaft 6', and has its head extend over a shoulder or projection around the opening 6''', as shown, to hold the strip 6'' in position on the central shaft 6', and allow free longitudinal movement of said strip. The outer end of each strip 6'' is provided in this instance with two outwardly extending projections 6'''' thereon, with a recess between them, as shown.

To cause the positive outward movement of the strips 6'', as the roll 6 rotates, through the movement of the woven fabric 5 passing around the same and on to the take-up roll 7, I provide in this instance a cam-shaped finger or bar 22, which extends into the recesses between the projecting portions 6'''' on the strips 6'', and has its hub 22' adjustably secured on a transverse rod 23, secured to the upright frames 3. As the roll 6 revolves, in the direction indicated by the arrow in the drawings, the engagement of the stationary cam fingers or bars 22, at each end of the roll 6, with each strip 6'', acts to move outwardly the strips 6'' as shown, and to lengthen or expand the peripheral surface of the roll 6, and to cause the

stretching of the woven fabric 5, as shown in Fig. 1. After the strips 6'' of the roll 6, in the revolution of the roll, have passed out of engagement with the cam fingers or bars 22, their outer ends are engaged by the stationary cam or curved shaped fingers or bars 24, the hubs 24' of which are adjustably secured on the transverse rod 23, and the strips 6'' are returned to their normal inward position.

The operation of my improved spreader or expanding roll will be readily understood by those skilled in the art. As the spreader roll 6 is revolved by the woven fabric 5 passing under the same and on to the driven take-up roll 7, the engagement of the cam fingers or bars 22 with the strips 6'' of the roll 6, move outwardly said strips, and cause the spreading or stretching of the woven fabric transversely, and after the strips 6'' have passed out of engagement with the cam fingers or bars 22, they are engaged by the cam fingers 24, which move said strips into their inward or normal position. The amount of outward movement of the strips 6'' of the spreader roll 6 may be varied, by adjusting the hub 22' of the cam fingers or bars 22.

It will be understood that the details of construction of my improvements may be varied if desired. A positive rotary motion may be communicated to the spreader roll from some driven part of the loom if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a take-up mechanism, a spreader for woven fabric, comprising a shaft having a rotary movement, and having a series of strips extending around it, and attached thereto and movable lengthwise with respect to said shaft, each strip having an elongated slot or opening therethrough for a headed screw, and said screw, and each strip provided at its outer end with two outwardly extending projections thereon with a recess between said projections, and means for positively moving said strips outwardly and inwardly, said means comprising a stationary cam finger or bar, extending into said recesses at the outer end of said strips, to move outwardly said strips, and also a stationary cam or curved shaped finger or bar, to engage the outer ends of said strips to move inwardly said strips.

2. In a take-up mechanism, a spreader for woven fabric, comprising a shaft having a rotary movement, two separate sets of strips extending around said shaft, one-half of said strips for one-half of the spreader, and the other for the other half of the spreader, each strip having an elongated slot or opening therethrough for a headed screw, and said

screw for attaching the strip to the shaft, and each strip provided at its outer end with two outwardly extending projections thereon with a recess between said projections, and means for positively moving said strips outwardly and inwardly, said means comprising a stationary cam finger or bar extending into said recesses at the outer end of said strips to move outwardly said strips, and also a stationary cam or curved shaped finger or bar, to engage the outer ends of said strips to move inwardly said strips. 10

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