

Jan. 7, 1930.

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1,742,891

LOOM

Filed July 6, 1927

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Fig. 1.

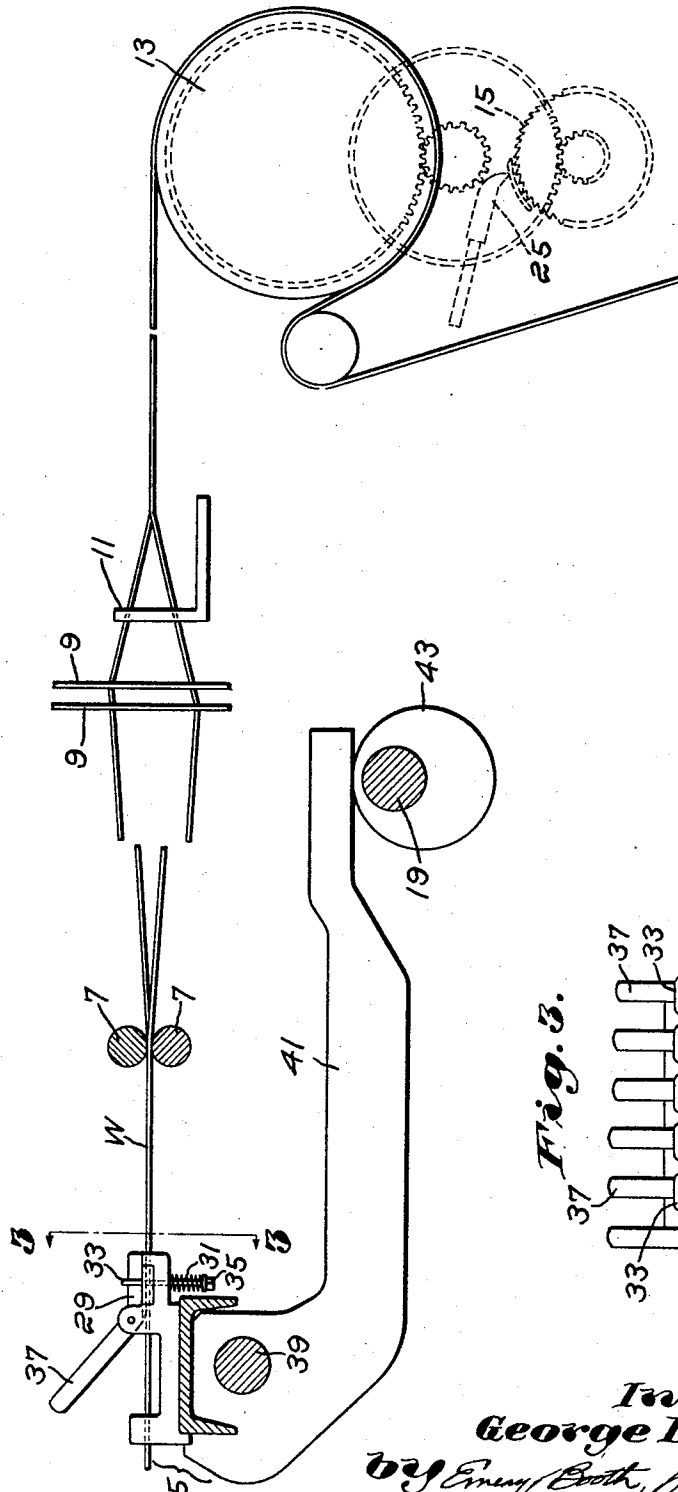
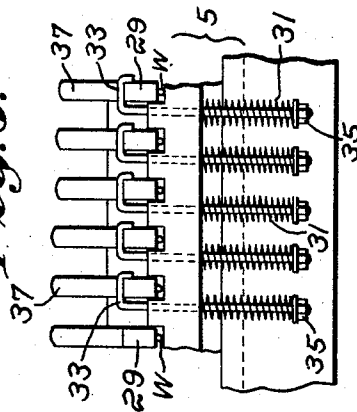


Fig. 3.



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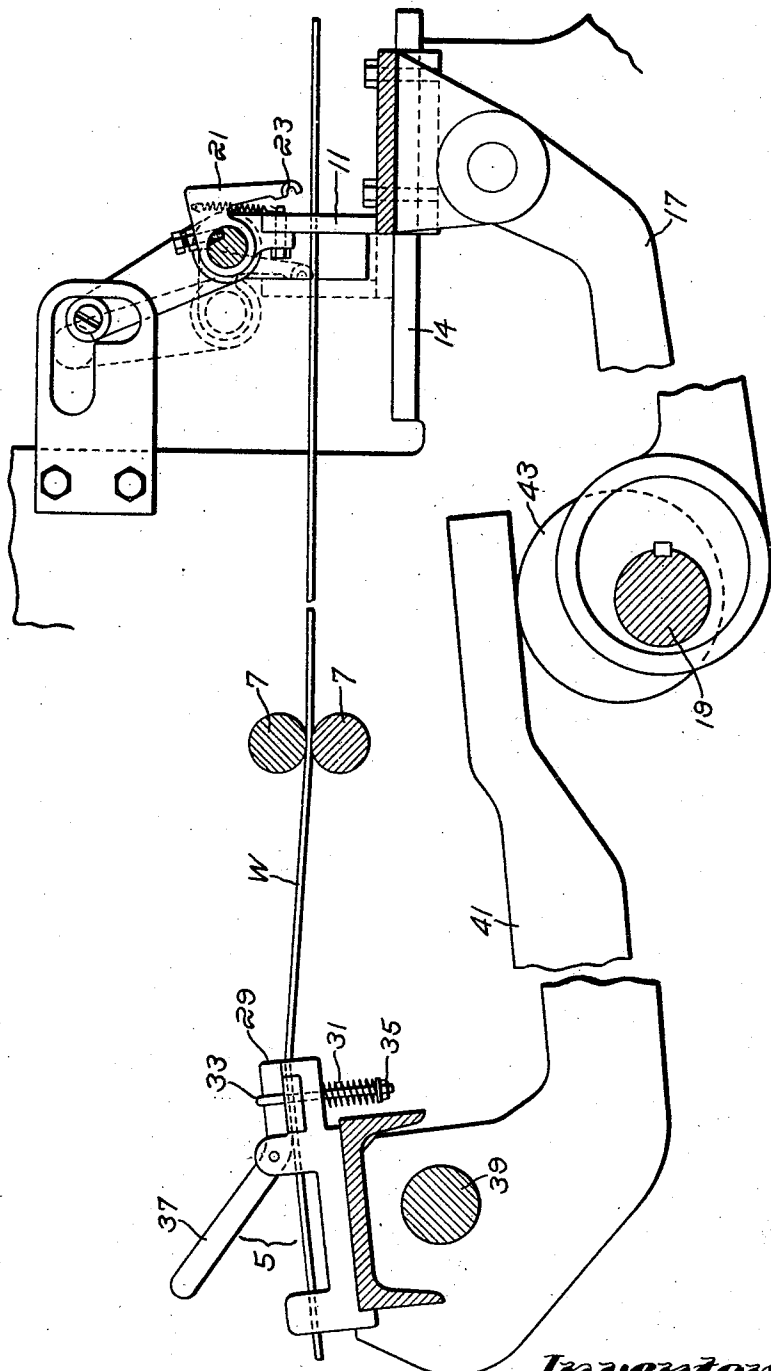
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Fig. 2.



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UNITED STATES PATENT OFFICE

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LOOM

Application filed July 6, 1927. Serial No. 203,778.

This invention relates to looms and more particularly to mechanisms controlling the warps. It finds a particular application to weaving fabric from heavy strands, such, for instance, as paper reed, to provide a fabric of the stake and strand type for use in the manufacture of baby carriages, wicker furniture, etc. Herein I have shown as embodying the invention a loom of the general type and embodying features of construction shown and claimed in my Patent 1,706,371, dated Mar. 19, 1929.

My invention will be well understood by reference to the following description of the embodiment thereof shown, for illustrative purposes merely, in the accompanying drawings, wherein:

Fig. 1 is a diagrammatic view with parts broken-away of such portions of a loom as are necessary to an understanding of the invention, the parts being in the position which they assume at the rearward position of the lay;

Fig. 2 is a similar broken view on an enlarged scale showing particularly the let-off beam and the reed; and

Fig. 3 is a detail on a still larger scale showing a portion of the let-off beam in front elevation as seen from line 3—3 of Fig. 1.

Referring to Fig. 1, the warps *w* may be stored on a warp beam, not shown, and led over a beam 5 with which is organized a let-off mechanism, the construction of which and the cooperative relation of which to the other elements of the loom are more particularly the subject of the present invention, and they pass between a pair of guide rolls 7, which in cooperation with the breast roll of the loom define the plane of weave; through harnesses 9 or similar suitable shedding means; through the reed 11, preferably of the type presently to be described; over the breast roll 13 which also serves as a take-up roll, being driven by gearing from the ratchet 15, to a cloth roll, not shown, on which the cloth is wound up in any customary or suitable manner.

The picking and beating up mechanism of the loom, as shown more particularly in Fig. 2, may be like that shown in my previous

application referred to, embodying the comb-like reed 11 which is adapted to be incessantly reciprocated on the ways 14 by means of the eccentric rods 17 connected to the cam shaft 19. With the dents of the reed there may cooperate fingers 21 having recesses 23 defining, when the fingers are in the dotted line position shown in the figure, openings which receive the end of the filling strand and prevent it from buckling or twisting and guide it through the shed to provide a pick or shot of filling. The filling strand may be projected through the eyes by means of feed rolls, as in my prior application referred to, and the pick preferably takes place during the major portion of the travel of the reed, the insertion starting as the reed retreats from the full line position shown and continuing through its rearward movement and for a portion of its forward movement. As the reed moves into the forward position (toward the right in the figure) the fingers 21 are swung to the full line position shown to release the pick of filling which is deposited therefrom and is beaten up by the dents of the reed into the fell of the cloth. Then as the reed retreats, the fingers are closed again to the dotted line position ready to receive a new pick of filling.

The take-up of the woven cloth is preferably timed to take place after the beat-up, that is, the take-up is literally such in that it takes up the portion of the fabric which has been formed and driven forward by the beating-up action of the reed. I have indicated this in Fig. 1 by showing the drive pawl 25 as away from the teeth of the ratchet 15, the parts in Fig. 1 being in the back center position of the reed after the take-up has operated.

In the case of a heavy fabric, such as the paper reed described, in which the elements of the fabric are about a sixteenth of an inch in diameter, the strands are heavy, stiff and springy. I provide means whereby the warps are suitably slack to permit the formation of the shed but are taut during the beat-up, and I provide for applying a frictional braking resistance to the warp strands serving as a let-off mechanism so that the beating

up action of the reed drags through the frictional means and against its resistance the desired length of warps. The operation, as I have observed it in practice in the case of paper reed, is that the pick of filling driven forward by the reed enters between the taut warps and momentarily wedges them apart vertically and that the spring of the warps acts to draw them through the frictional let-off.

Referring to Figs. 2 and 3, I will next describe the construction of let-off mechanism. As seen in Fig. 3, the forward edge of the beam 5 is crenellated, the warps *w* being received in the depressed portions or crenels, and may be frictionally pressed against the bottoms thereof by means of the pivoted fingers 29 drawn down against them by means of the springs 31 which surround wires 33 engaged with the ends of the fingers 29, the tension of which may be adjusted individually for each warp strand by means of the nuts 35. Extended ends 37 of the fingers provide for rocking them by hand to release the tension when desired and for threading up the loom.

The beam 5 may be moved bodily so that the warps will be taut at the beat-up so that they are dragged through the frictional mechanism described but slacken forwardly of the beam 5 to facilitate shedding and the take-up. This movement of the warp beam is preferably gradual in consonance with the action of the shedding means so that while ample slack is provided the warps will not hang unduly loose. Herein the beam 5 is pivotally mounted on a cross girt 39 of the loom and may be rocked thereabout between the positions of Figs. 1 and 2 respectively by means of the arms 41 connected thereto and cooperating with cams 43 on the cam shaft 19 of the loom. It will be clear from the figures that a movement to the position of Fig. 2, which takes place at the beat-up, is equivalent to a movement of the beam to the left rearwardly and will take up the slackness of the warps as released by the harnesses moving from the open shed position and will hold them taut so that the beating-up operation of the reed 11 will operate against the frictional resistance applied by the fingers 29 to the warp threads.

It will be noted that the guide rolls 7 maintain the plane of the warps so that the shed is formed forwardly of these guide rolls and the tensioning due to the tilting of the let-off beam is effected by drawing the warps out of line from the position of these guide rolls so that it does not interfere with the formation of the shed.

I have described in detail one embodiment of my invention shown by way of example in the accompanying drawings. Obviously the constructional details may be considerably changed without departing from the

principles underlying the same and the specific character of the description is therefore not to be taken in a limiting sense. What I claim as new and desire to secure by Letters Patent I shall express in the following claims.

Claims:

1. In a loom of the class described a let-off mechanism having means for frictionally clamping the warps and means for moving the same bodily in such manner that on the beat-up the warps are subject to the frictional retardation of said mechanism as they are drawn therethrough and are slack forwardly of the said mechanism during the shedding.

2. In a loom of the class described a let-off mechanism comprising adjustably tensioned fingers for frictionally clamping the individual warps and means for shifting said mechanism as a whole in such manner that on the beat-up the warps are subject to the frictional retardation of said mechanism as they are drawn therethrough and are slack forwardly of the said mechanism during the shedding.

3. In a loom of the class described a beam over which the warps pass, means on said beam to apply a retarding tension to the warps, beat-up means operating against said tension, shedding means and take-up means timed in alternation with the beat-up and means to shift said beam bodily after the beat-up to provide slack in the warps forwardly thereof without let-off of the same.

4. In a loom of the class described, in combination, means cooperating with the breast beam of the loom to define a plane of weave, a beat-up device, a beam rearward of said means having means thereon for frictionally retarding the warps and means for positively rocking the beam to take up slack of the warps at the beat-up to render said retarding means effective as a let-off device responsive to the beat-up.

5. In a loom of the class described, in combination, means cooperating with the breast beam of the loom to define a plane of weave, a beat-up device, a beam rearward of said means, spring tensioned fingers on the beam frictionally pressing the individual warps thereagainst and means for positively rocking said beam to take up slack of the warps on the beat-up and to render the pressure of said fingers effective as a let-off responsive to the beat-up.

6. In a loom of the class described, in combination, a reciprocating reed which receives and guides a filling strand and releases the same at its forward extreme of movement and beats it up into the fell, shedding means, a beam over which the warps pass having frictional retarding means through which they may be drawn and means for bodily moving said beam to and fro in consonance

with the reciprocation of the reed to give slack to the shedding means and to render said retarding means effective as a let-off at the beat-up.

5 In testimony whereof, I have signed my name to this specification.

GEORGE B. AMBLER.

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