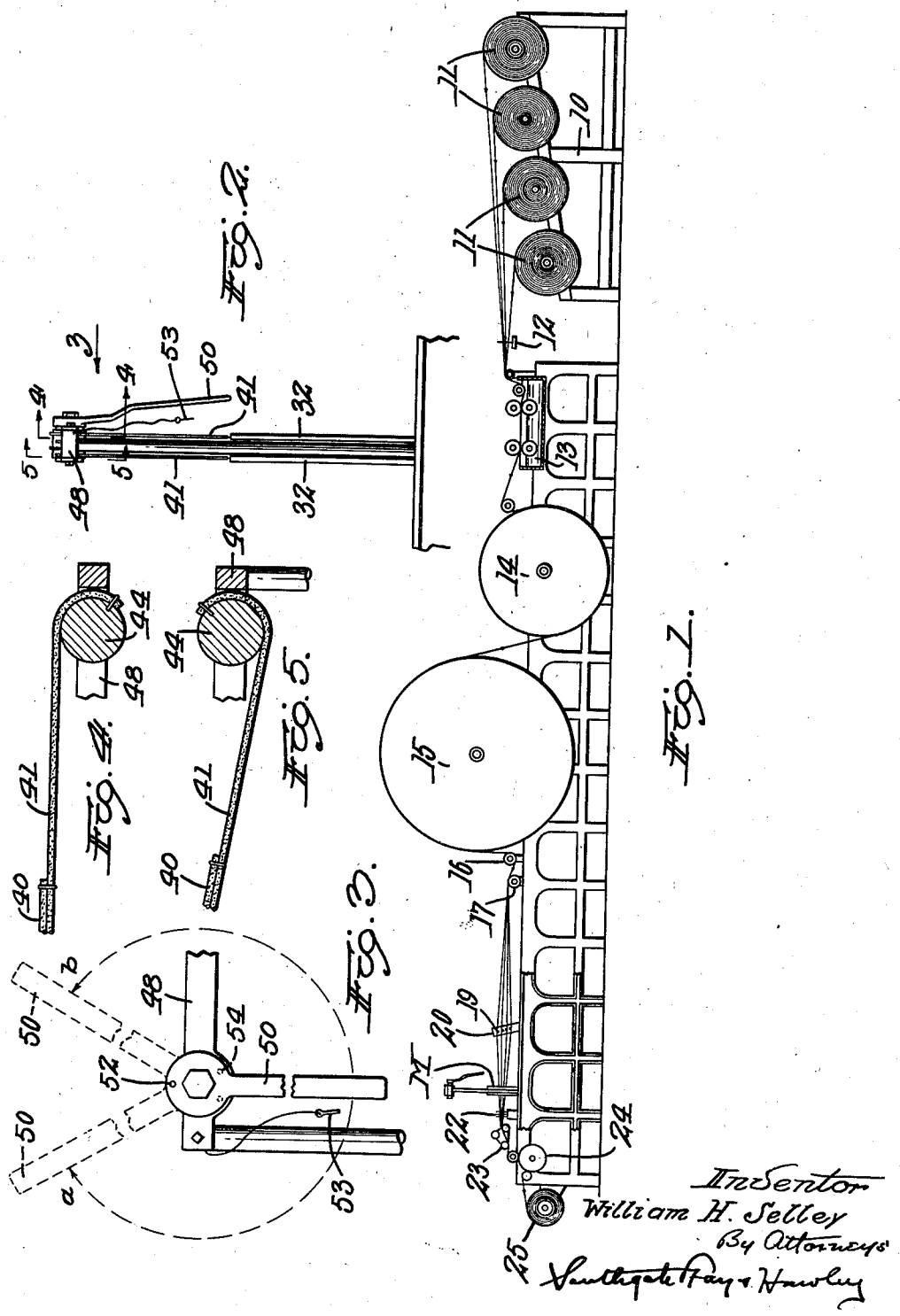
March 22, 1938. W. H. SELLEY 2,111,946

LEASE FORMING MECHANISM FOR SLASHERS

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LEASE FORMING MECHANISM FOR SLASHERS

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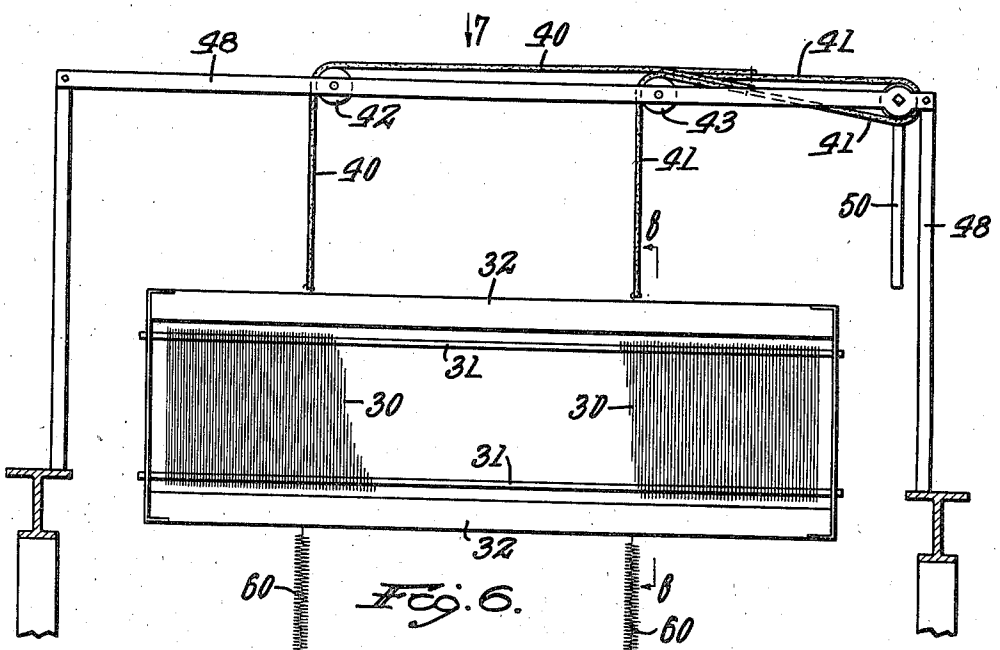


Fig. 6.

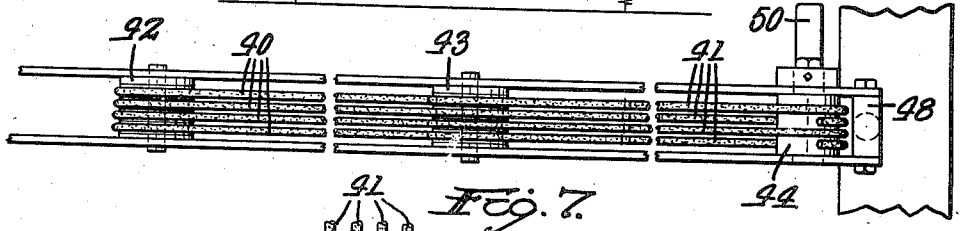


Fig. 7.

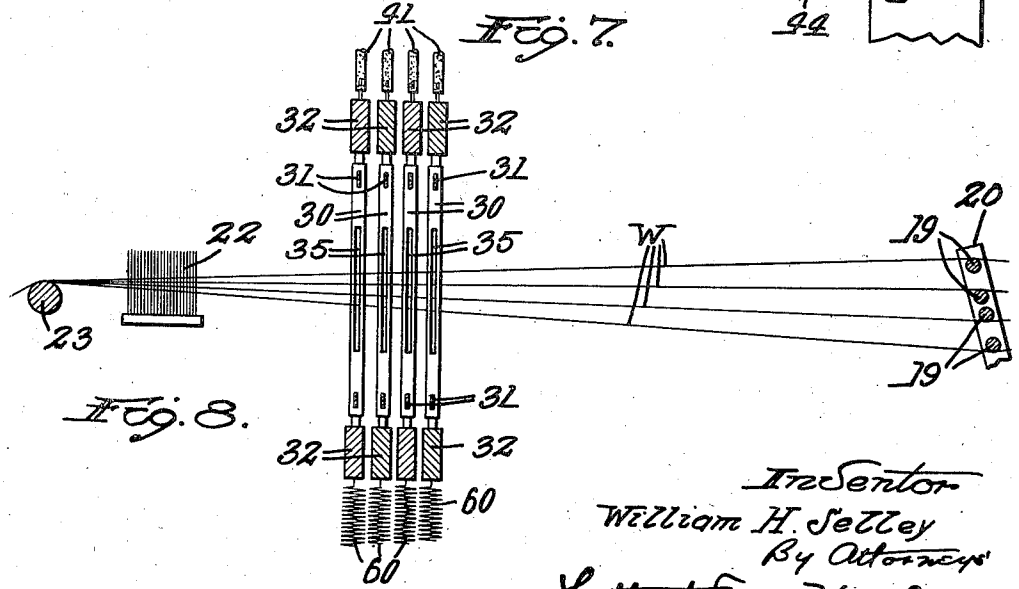


Fig. 8.

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LEASE FORMING MECHANISM FOR SLASHERS

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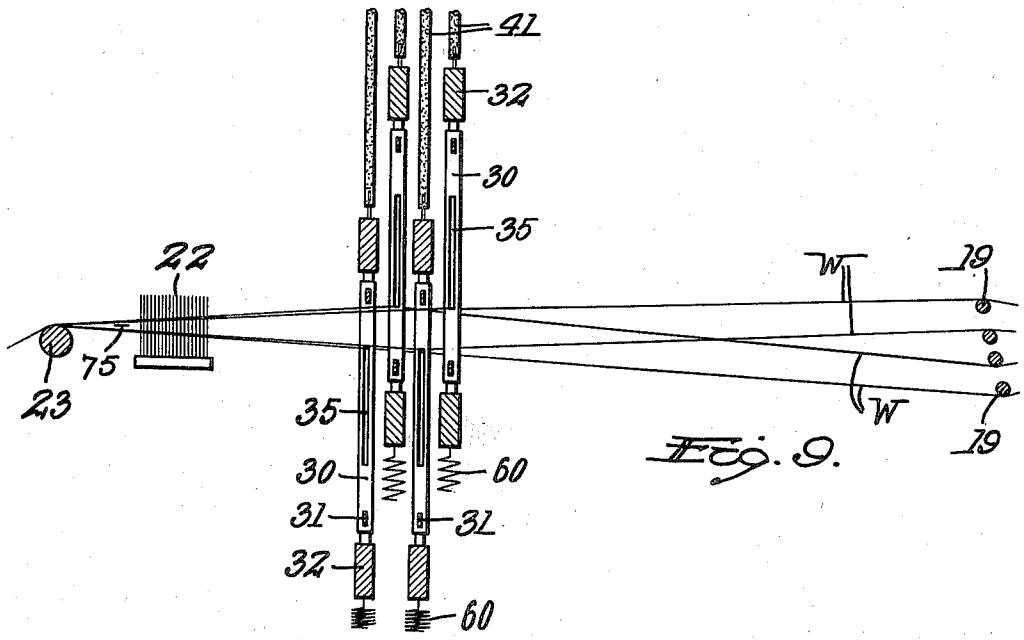


Fig. 9.

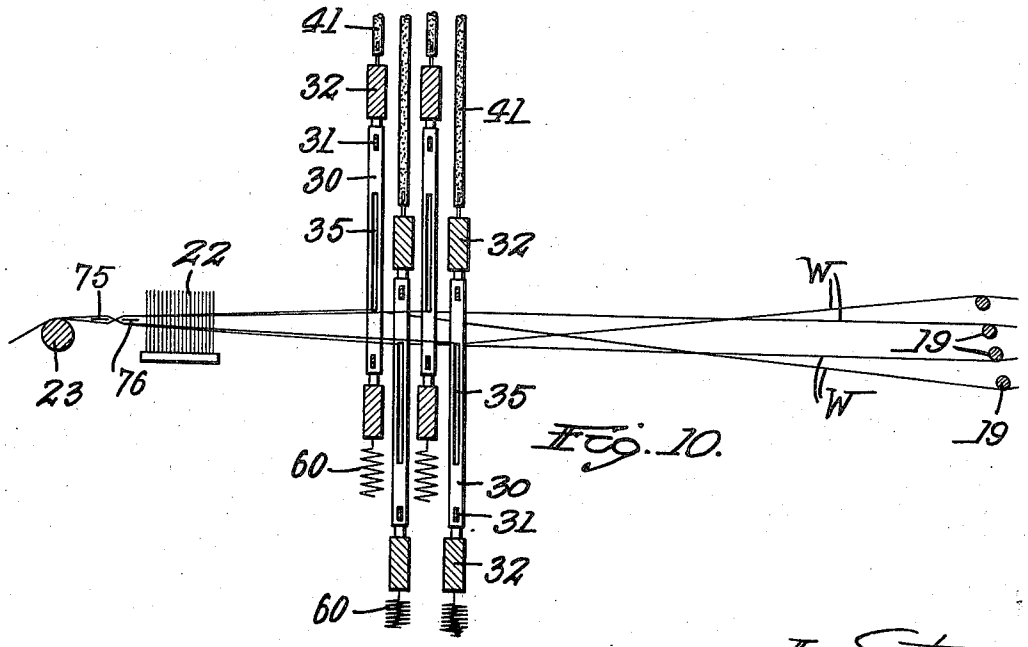


Fig. 10.

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2,111,946

LEASE FORMING MECHANISM FOR SLASHERS

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Application November 5, 1934, Serial No. 751,480

5 Claims. (Cl. 28—40)

This invention relates to machines for slashing and beaming fine yarn, such as rayon, and relates more particularly to the provision of means for straightening the warp threads and for forming a lease therein after the sizing and drying of the yarn has been completed.

In the preparation of fine warps such as rayon for weaving operations, it is very important to prevent adjacent warp threads from being crossed on the warp beam. Otherwise excessive wear and breakage of warp threads will occur as the crossed threads approach the loom harnesses or reed dents.

For this reason, correct leasing of fine warp threads is very important, and it is the general object of my invention to provide an improved lease-forming mechanism by which the warp threads may be conveniently leased in correct and parallel weaving relation.

A further object of my invention is to provide effective means for taking a lease during the operation of the machine, and to provide conveniently operated manual devices for raising one or more banks of heddles and for simultaneously depressing the remaining banks, and for thereafter reversely operating said banks.

Another feature of the invention relates to the operative relation of the lease forming mechanism to certain parts of the slasher on which it is used.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a side elevation of a slasher having my improved lease-forming mechanism embodied therein;

Fig. 2 is an enlarged end elevation of the lease-forming mechanism;

Fig. 3 is a further enlarged side elevation of the manual operating device, looking in the direction of the arrow 3 in Fig. 2;

Figs. 4 and 5 are sectional front elevations of certain harness connections and actuating mechanism, taken substantially along the line 4—4 and 5—5 in Fig. 2;

Fig. 6 is a front elevation of my improved lease-forming mechanism;

Fig. 7 is a plan view thereof, looking in the direction of the arrow 7 in Fig. 6;

Fig. 8 is a sectional side elevation, taken along the line 8—8 in Fig. 6, and

Figs. 9 and 10 are enlarged sectional side elevations similar to Fig. 8 but showing the parts in different operative relations.

In the drawings, I have shown a machine adapted for sizing and drying fine warp threads such as rayon and for delivering the same to a loom warp beam.

Referring to Fig. 1 I have indicated a frame 10 on which a plurality of section beams 11 may be conveniently mounted, preferably so that the sheets of threads from successive beams 11 will be superposed as they approach the back comb 12 and size tank 13.

I have also shown the usual drying cylinders 14 and 15, from which the sized and dried thread passes around and between guide-rolls 16 and 17 to a plurality of separator rods 19 mounted in fixed brackets 20. At this stage the threads comprise what is termed a "warp."

The warp threads then pass through my improved lease-forming mechanism, indicated generally at M, and then through a front comb 22, over or between suitable guide-rolls 23 and around a cylinder 24 to the warp beam 25.

I will now describe the details of construction of the lease-forming mechanism M. This mechanism comprises a plurality of vertical heddles 30 (Fig. 7) loosely mounted in separate banks on horizontal supporting bars or stringers 31 carried by harness frames 32 so that the planes of the heddles may be inclined to the direction of travel of the threads therethrough as the heddles swing on the bars, as known in the art.

Each heddle 30 is provided with a much elongated slot 35 in its longitudinally central portion. The warp threads W pass freely through the slots 35 in the heddles 30 during the normal operation of the machine, as clearly shown in Fig. 8, and ample clearance is provided both above and below the threads, it being understood that each slot receives only one thread, as plainly shown in Figure 8.

The harnesses 32 are preferably mounted on cords or straps 40 and 41 (Fig. 6) extending over guide-rolls 42 and 43. At the right of its guide-roll 43 each cord or strap 40 is preferably secured to the associated cord or strap 41, as indicated in Figs. 4 and 5, so that actuation of the straps 41 causes simultaneous actuation of the straps 40.

The straps 41 are secured to a roll or shaft 44, and alternate straps 41 are preferably partially lapped around the roll 44 in opposite directions.

The roll 44 is mounted in a fixed bearing on a frame 48 (Fig. 7) and at its outer end is provided with a handle 50 by which the roll may be

moved angularly in either direction, as indicated by the arrows *a* and *b* in Fig. 3.

The hub portion of the handle **50** is preferably provided with an opening **52** (Fig. 3) through which a pin **53** may be manually inserted, after the handle **50** has been turned to bring the opening **52** into alignment with one or the other of two openings **54** in a depending portion of the frame **48**.

Springs **60** yieldingly draw the harness frame **32** downward, and the straps **40** and **41** are so adjusted that when the harnesses are at rest they will occupy the normal mid-position shown in Fig. 8, with the warp threads W passing freely through the slots **35**, and with all of the heddles **30** at substantially the same elevation.

Having described the details of construction of my improved lease-forming mechanism, the operation of said mechanism and of the machine to which it is applied is as follows:

The sheets of warp threads W from the different section beams **11** are assembled in superposed relation at the back comb **12** and thereafter pass through the size tank **13** and around the drying cylinders **14** and **15** to the guide-rolls **16** and **17**. The warp threads then pass over or under the separator rods **19** as indicated in Figs. 8, 9 and 10, and are thus separated into a plurality of superposed warp sections or sheets each preferably corresponding to one of the section beams **11**.

Each section of warp threads is then drawn through the slots **35** of one bank of heddles **30**, from which the warp threads pass through the front comb **22** in carefully arranged order corresponding to the drawing-in of the threads in the heddles **30**. The comb **22** is preferably of the zig-zag type, with a separate space for each warp thread, although when handling a warp of fine threads it will be understood that several threads may occupy a single space in the comb, as known in the art.

From the front comb **22** the warp threads W are drawn downward and around the cylinder **24** and are delivered to the warp beam **25**.

During the normal operation of the machine, the heddles **30** and harness frames **32** are positioned as indicated in Fig. 8, and the heddles are out of operative relation to the warp threads. If, however, it is desired to form a lease, the handle **50** is swung in one direction to raise certain harness frames and to depress the remaining harness frames to cause the ends of the slots in the heddles to engage the threads and raise and lower them, respectively, to form a shed as indicated in Fig. 9 in which shed the first and third harness frames and associated warp threads are raised, while the second and fourth harness frames are correspondingly depressed.

A lease rod, cord or tape **75** may be inserted in the shed thus formed, preferably in front of the front comb **22**, after which the handle **50** may be swung in the opposite direction to form a second shed as indicated in Fig. 10, with the second and fourth harness frames raised and the first and third harness frames depressed.

A second leasing element **76** may then be inserted as indicated in Fig. 10, thus completing the forming of the lease. The pin **53** (Fig. 3) is preferably inserted in the holes **52** and **54** to lock the harness frames in raised or lowered position during the insertion of a leasing element.

After the lease has been thus formed and a few inches of warp has been drawn forward, a second pair of leasing elements **75** and **76** may be inserted, which second set is effective to hold the warp threads in predetermined and correct relation to each other when secured to the barrel of a new warp beam after the warp has been severed between the two sets of leasing elements.

The above described lease-forming operation may be very quickly and easily performed and all of the threads will be correctly leased, if the drawing of the threads into the banks of heddles has been correctly performed.

The location of the mechanism M in front of the separator bars **19** is important, as the sized and dried threads have then been separated, and their position in sheets between the several bars facilitates the forming of the sheds.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a warp-beaming machine, a drying drum over which the warp passes, a loom beam upon which the warp is wound after leaving the drum, a comb between the drum and beam and adjacent the beam, a lease-forming harness between the drying drum and the beam and adjacent the comb and extending the full width of the warp, said warp being of substantially constant width between the drum and the beam, said harness comprising a plurality of frames spaced lengthwise of the warp and each frame carrying a plurality of heddles swinging thereon, whereby the planes of the heddles may be inclined to the direction of travel of the threads therethrough, and each heddle having a centrally disposed elongated slot to receive a single thread, each thread normally being located out of contact with the ends of said slot when the threads are being wound on the beam, and means to raise or depress individual frames from normal position when the threads are not being wound, said slots having such length that the ends thereof will clear the threads therein when the frames are in their normal positions and threads are being wound on the beam and may engage and move said threads from their normal positions when the heddles are raised or depressed.

2. In a warp-beaming machine, a drying drum over which the warp passes, a loom beam upon which the warp is wound after leaving the drum, a comb between the drum and beam and adjacent the beam, a lease-forming harness between the drying drum and the beam and adjacent the comb and extending the full width of the warp, said harness comprising a plurality of frames spaced lengthwise of the warp and each frame carrying a plurality of heddles swinging thereon, whereby the planes of the heddles may be inclined to the direction of travel of the threads therethrough, and each heddle having a centrally disposed elongated slot to receive a single thread, each thread normally being located out of contact with the ends of said slot when the threads are being wound on the beam and the threads then running substantially freely through said slots, and means to raise or depress individual frames from normal position when the threads are not being wound, said slots having such length that the ends thereof will clear the threads therein when the frames are in their normal positions and threads are being wound on the beam and may engage and move said threads from their normal positions when the heddles are raised or depressed.

3. In a warp-beaming machine, a drying drum over which the warp passes, a loom beam upon which the warp is wound after leaving the drum, a comb between the drum and beam and adjacent

the beam, a lease-forming harness between the drying drum and the beam and adjacent the comb and extending the full width of the warp, said harness comprising a plurality of frames spaced lengthwise of the warp and each frame carrying a plurality of heddles swinging thereon, whereby the planes of the heddles may be inclined to the direction of travel of the threads therethrough, and each heddle having a centrally disposed elongated slot to receive a single thread, each thread normally being located out of contact with the ends of said slot when the threads are being wound on the beam and the threads then running substantially freely through said slots, and means to raise one frame and to depress another frame from normal position when the threads are not being wound, said slots having such length that the ends thereof will clear the threads therein when the frames are in their normal positions and threads are being wound on the beam and may engage and move said threads from their normal positions when the heddles are raised or depressed.

4. In a warp-beaming machine, a drying drum over which the warp passes, a loom beam upon which the warp is wound after leaving the drum, a comb between the drum and beam and adjacent the beam, a lease-forming harness between the drying drum and the beam and adjacent the comb and extending the full width of the warp, said harness comprising a plurality of frames spaced lengthwise of the warp and each frame carrying a plurality of heddles swinging thereon, whereby the planes of the heddles may be inclined to the direction of travel of the threads therethrough, and each heddle having a centrally disposed elongated slot to receive a single thread, each thread normally being located out of contact with the ends of said slot when the threads are being wound on the beam and the threads then running substantially freely through said slots, and means to simultaneously raise one frame and to depress another frame from normal position when the threads are not being wound, said slots having such length that the ends thereof will clear the threads therein when the frames are in their normal positions and threads are being wound on the beam and may engage and move said threads from their normal positions when the heddles are raised or depressed.

5. In a warp-beaming machine, a drying drum over which the warp passes, a loom beam upon which the warp is wound after leaving the drum, a comb between the drum and beam and adjacent the beam, a lease-forming harness between the drying drum and the beam and adjacent the comb and extending the full width of the warp, said harness comprising a plurality of frames spaced lengthwise of the warp and each frame carrying a plurality of heddles swinging thereon, whereby the planes of the heddles may be inclined to the direction of travel of the threads therethrough, and each heddle having a centrally disposed elongated slot to receive a single thread, each thread normally being located out of contact with the ends of said slot when the threads are being wound on the beam and the threads then running substantially freely through said slots, means for raising certain heddle frames and depressing others from normal position, and means for reversing said operations to depress said certain frames and to raise said other frames from normal position when the threads are not being wound, said slots having such length that the ends thereof will clear the threads therein when the frames are in their normal positions and threads are being wound on the beam and may engage and move said threads from their normal positions when the heddles are raised or depressed.

WILLIAM H. SELLEY.