

H. LINDSAY.

LOOM.

APPLICATION FILED MAY 23, 1908.

1,002,163.

Patented Aug. 29, 1911.

2 SHEETS-SHEET 1.

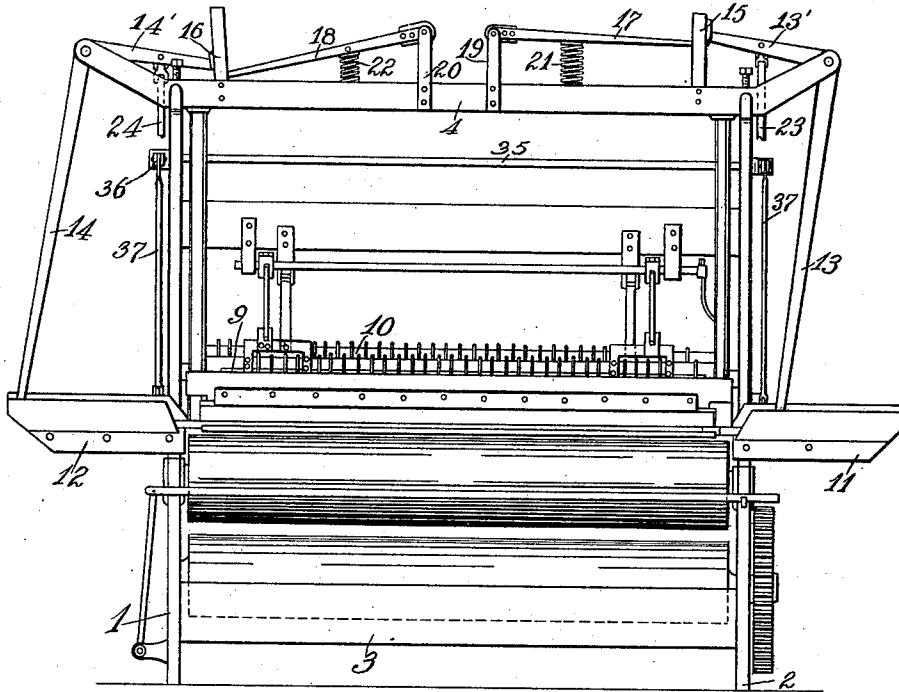


FIG. 1

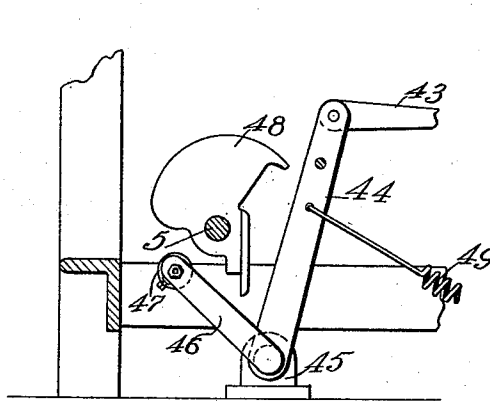


FIG. 5

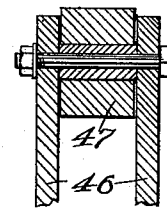


FIG. 7

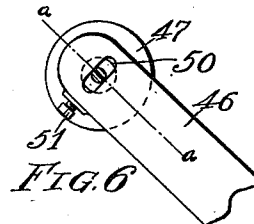


FIG. 6

WITNESSES:

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2 SHEETS—SHEET 2.

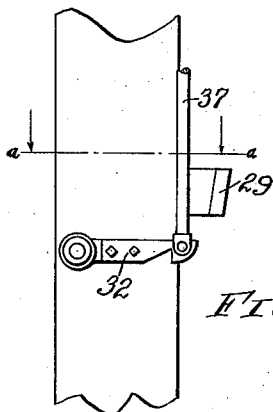
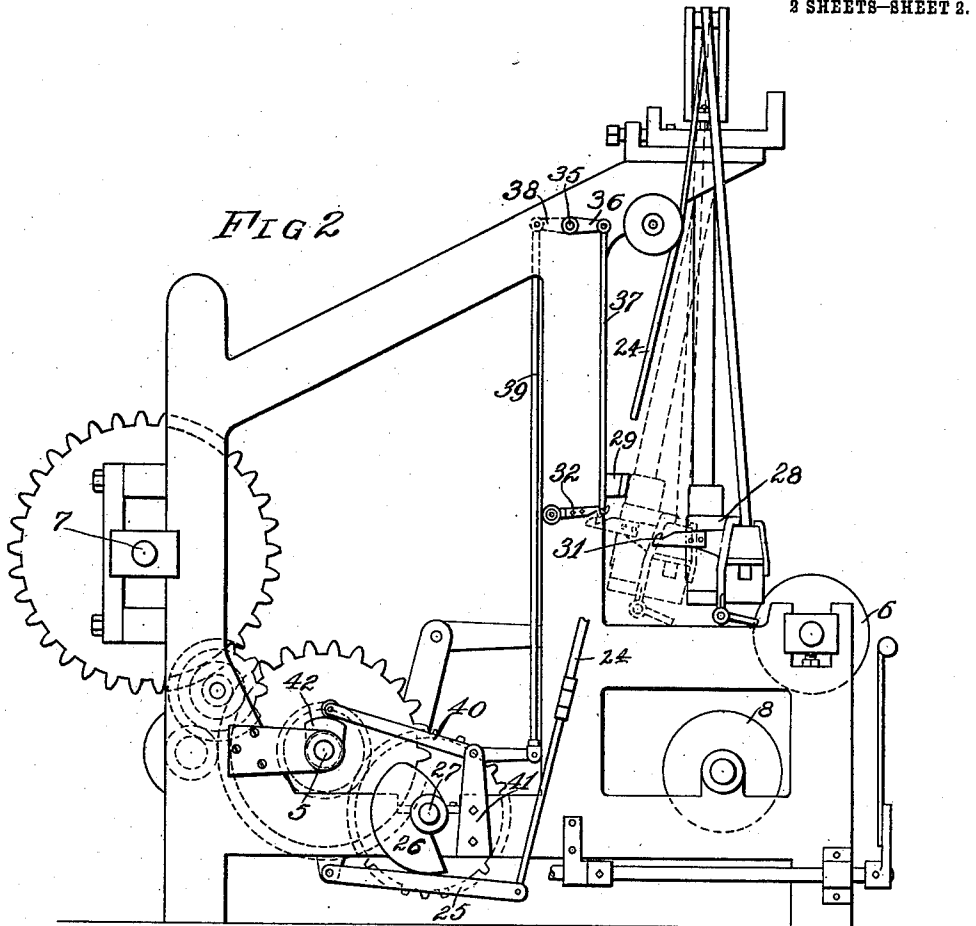


FIG. 3

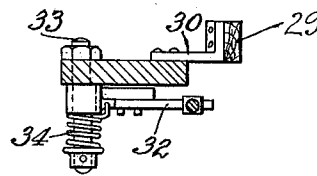


FIG. 4

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UNITED STATES PATENT OFFICE.

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LOOM.

1,002,163.

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Application filed May 23, 1908. Serial No. 434,489.

To all whom it may concern:

Be it known that I, HAMILTON LINDSAY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to shuttle looms, and has been designed more particularly for such looms adapted to weave wire cloth. It has been found in looms of this type designed to weave very wide pieces of material, the necessary length of the batten is so great, that it is quite difficult to keep it steady at the times the shuttle is thrown, the vibration of the long lay being sometimes sufficient to cause the shuttle to jump from the track in the course of its travel from shuttle box to shuttle box.

To provide means for obviating the vibration or wobbling of the batten is the purpose of this invention, and, briefly stated, comprises a mechanism adapted to catch and momentarily hold the batten when at the end of its rearward swing and to almost instantly release the same.

Again the invention comprises means for regulating the length of swing of the batten so that it will not impact against the stops, which limit its rearward swing, with excessive force, and at the same time will pull up tightly against the same.

Generally speaking, the invention comprises the elements and combinations thereof set forth in the claims.

Reference should be had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a front elevation of the loom embodying my invention; Fig. 2 is a side elevation of the loom shown in Fig. 1,—one of the picker staffs being removed; Fig. 3 is an elevation of a portion of the loom showing the latch used to retain the batten in its rearward position; Fig. 4 is a plan view taken on the line *a—*a** of Fig. 3; Fig. 5 is an elevation showing the operating mechanism for the batten; Fig. 6 is an elevation of the roller which bears upon the operating cam shown in Fig. 5; and Fig. 7 is a section on the line *a—*a** of Fig. 6.

The loom comprises the usual side frame members which are suitably braced and held

together by cross members, two of which are represented at 3 and 4. The side members are not shown, said side members affording a support for the various operating shafts, all of which are operated from a common drive shaft 5. The warp beams or rollers are presented at 6 and 7 respectively, and the woven fabric is wound upon the roller 8, all of which parts are operated by having suitably geared connections with the driving shaft 5.

The batten frame shown at 4 is suitably pivoted at the top of the frame, and carries the usual shuttle boxes and picker staffs, the latter being operated by cables 24 connected to levers 25 engaged by cams 26 carried by shafts 27, which are suitably geared to the main shaft 5. This arrangement forms no part of the present invention and is mentioned only for the sake of completeness.

The batten is represented generally at 28 and is adapted to swing from the front to the rear of the machine and back again. At the rear end of its travel are stops secured upon the frame, one of which is shown at 29. These stops are preferably formed from hard wood and are each mounted upon a bracket 30, as shown in Fig. 3, which bracket is secured to one of the side members of the frame. This construction permits of the renewal of the buffer portion of the stop, without furnishing a complete new stop when the parts become worn.

A member 31 is secured upon the lower part of the batten projecting therefrom in a rearward direction and formed with a hook at its outer end. There is also a latch 32 pivoted upon a stub shaft 33, which shaft is secured to the side frame of the loom. This latch is formed with a hook at its outer end, which hook is formed and positioned to engage the hook portion of the member 31. The latch 32 is normally depressed in a position to engage the member 31 by means of a spring 34, which spring encircles the shaft 33 having one end bearing upon the latch 32 and the other secured to the nut which is mounted upon the end of the shaft. It will be apparent that as the batten swings to its rearward position, as shown in dotted lines in Fig. 1, the hook members will engage with each other, and the batten will be held.

The outer or hook end of the latch 32 is hardened, as is also the entire member 31, so that the wear between the two members

will be greatly reduced. However, to maintain a perfect adjustment between the members 31 and 32, so that when the batten swings to its rearward position the hooks 5 will engage, without any lost motion, the latch 32 is eccentrically mounted upon the stub shaft 33, as shown in Fig. 3. The latch 32 may be adjusted either forwardly or rearwardly by rotating the shaft 33 and is 10 securely held in its adjusted position by means of a nut upon the inner side of the frame. In this manner, the latch 32 may be adjusted with relation to the member 31 so that there will be no lost motion between 15 these two members.

The release of the batten is secured in the following manner. Mounted in the frame, near the top portion thereof, is a shaft 35, from which projects an arm 36 and this 20 arm supports a rod 37 which is secured to the member 32. The shaft 35 extends across the loom and is connected with members upon the opposite sides of the loom, which members are in all respects similar 25 to members 31 and 32. The shaft has secured to it an arm 38 projecting in a rearward direction, which is in the same plane as the arm 36 and is connected by means of a rod 39 with a lever 40. The 30 lever at one end supports a roller which engages with cam 42 secured upon the main shaft 5 and as the said shaft rotates, the cam engaging with the roller, will rock the lever in upward direction, thereby pulling 35 the rod 39 downwardly, which will rock the shaft 35, elevating the lever 36 and rod 37, and thereby raising the latch 32 from its engagement with the member 31 upon the batten so that the batten may swing to its 40 forward position.

The batten operating mechanism is shown in Fig. 4. A lever 43 is suitably connected with the batten, and this lever has a hinged 45 connection with a lever 44, which in turn is pivoted at its lower end upon a bracket 45. The lever 46 is also hinged upon the same pivot as the lever 44 and the levers 44 and 46 are adapted to move simultaneously. The 50 arm 46 at its outer end carries a roller 47 which is engaged by a cam 48 secured upon the shaft 5. The cam engaging the roller will rock the levers 46 and 44, which will result in placing a tension upon lever 43 55 in a direction to pull the batten toward its rear position, shown in dotted lines in Fig. 2. As soon as the cam releases the roller, the batten will, of its own weight, tend to return to its original position. However, this tendency is made positive by a spring 60 49 which is secured to the lever 44 at one end and to the frame of the loom at the other.

It is very desirable that the batten should not come against the stops 29 with too great 65 force and therefore the pull upon the batten exerted by the above described mechanism

should be just sufficient to bring the batten against the stops firmly, yet without a bump. This result is secured by mounting the roller 47 upon the lever 46 in such a manner that it may be adjusted with relation to the cam 48. In carrying out this provision, the axle upon which the roller rotates is mounted in elongated slots 50 formed in the bifurcated end of the lever 46 and the position of the axle in the said slots is maintained by means 75 of a stop nut 51. By adjusting the position of the nut 51, the axle may be held in position upon either side of the median line *a-a*. When it is above the median line, the roller will be adjusted toward the cam so 80 that the lever will be depressed a greater amount than the normal, by its engagement with the cam, and vice versa. It is therefore seen by this provision, that the distance moved by the lever 46 may be adjusted, 85 which, in turn, will regulate the throw of the batten. Should the batten be hitting too hard against the stops 29, the roller 47 will be regulated so that its axle is slightly below the median line and thereby decreases 90 the swing of the batten. This regulation may be so nicely effected that the batten will engage the stop 29 firmly, yet without any shock. This construction has the further 95 advantage that any loose play resulting from the wearing of the stops 29 or from the wear in the batten operating mechanism may be taken up by an adjustment of the roller.

The position of the latch operating cam 42 upon the shaft 5 is so arranged with respect to the batten operating cam 48 that the batten will be held at its rearward position but momentarily before the latches are 10 released.

It will be evident from the foregoing description that the mechanism which has been set forth will efficiently prevent any vibration or wobbling of the batten, for at the end of its rearward stroke the batten will be brought to rest, and all parts of the batten will obtain an equal start, so that no portions 11 of the batten will vibrate. The mechanism for holding the batten in its rearward position operates but momentarily and does not interfere with the general operation of the machine in any manner whatsoever.

Having thus described my invention, I claim:

1. In a loom, the combination, with a batten, of stops against which the batten is adapted to strike, of means adapted to engage the batten at the end of its backward swing and momentarily hold it against said stops prior to its return swing, whereby the vibration of the batten is prevented, and mechanism for disengaging said means from said batten to permit its return swing.

2. In a loom, in combination, a batten, means for operating said batten, mechanism 13

independent of said operating means adapted to hold the batten at the end of its backward swing, and means for automatically releasing said holding mechanism after the batten has been momentarily held.

3. In a loom, in combination, a batten, means for operating said batten, and means carried by the loom frame in proximity to both ends of the batten adapted to automatically engage the batten and momentarily hold the same at the end of its backward swing and automatically release it for the forward swing.

4. In a loom, the combination, with a batten and a fixed support independent of said batten, of a spring pressed latch mounted upon said fixed support, and automatic means for operating said latch to cause it to engage and disengage the batten to momentarily hold the same at the end of its rearward stroke.

5. In a loom, the combination, with a batten and a fixed support independent of said batten, of a latch pivotally mounted upon said fixed support, a member upon the batten adapted to engage the latch, means for operating said latch to engage said member, and means for automatically operating said latch to release the batten immediately after the latches have engaged.

6. In a loom, in combination, a batten, a fixed support adjacent each end of said batten and independent thereof, a member mounted upon each of said fixed supports, other members mounted upon the batten at the opposite ends thereof, the first mentioned members being adapted to engage the members upon the batten and momentarily detain the batten at the end of its rearward stroke, means for automatically disengaging said members to release said batten after such momentary detention, and means for adjusting the members upon the fixed support with respect to the members upon the batten.

7. In a loom, a batten, a member carried thereby, a fixed support carried by the loom frame, a latch, means provided with an eccentric adjustment to pivot said latch to said fixed support, means adapted to move said latch into position to engage the member on the batten, and means to disengage said latch and member.

8. In a loom, the combination, with a batten, stops against which the batten is adapted to impact at the end of its rearward swing, fixed supports carried by the loom frame, latches mounted upon said fixed supports, said latches being adapted to automatically engage and momentarily hold the batten against the said stops, and means operated by the moving parts of the loom for releasing said latches.

9. In a loom, the combination, with a batten, of a fixed support, a pivoted latch

mounted upon said fixed support, said latch being formed with a hook portion at its outer end, a member mounted upon the batten formed with a hook portion at its outer end adapted to engage the hook portion upon the latch, whereby the batten will be held, and means for actuating said latch to release the batten.

10. The combination, with a loom frame, of a batten carried thereby, latches pivoted upon the frame and adapted to engage the batten at both its ends to hold it at the end of its rearward swing, and automatic means for disengaging the latches after the batten has been momentarily detained.

11. The combination, with a loom frame, of a batten carried thereby, latches pivoted upon the frame and adapted to engage the batten at both ends thereof, a rock shaft mounted in the frame, rods connecting the rock shaft with the latches, and means for operating the rock shaft, whereby the latches will disengage the batten.

12. The combination, with a loom frame, of a batten carried thereby, latches pivoted upon the frame and adapted to engage the batten at both ends thereof at the end of its rearward swing, a rock shaft mounted in the frame, rods connecting the rock shaft with the latches, a driving shaft, and means upon the driving shaft for operating the rock shaft whereby the latches will disengage the batten.

13. The combination, with a loom frame, of a batten carried thereby, a member pivotally mounted upon the frame and adapted to engage the batten at the end of its rearward swing, a drive shaft mounted upon the loom frame, and means actuated by the drive shaft for releasing said batten.

14. The combination, with a loom frame, of a batten carried thereby, a member pivotally mounted upon the frame adapted to engage the batten at the end of its rearward swing, a drive shaft, a cam mounted upon said shaft, connections between the said cam and pivotally mounted member whereby the cam will operate the said member to release the batten.

15. The combination, with a loom frame, of a batten carried thereby, latches pivoted upon the frame and adapted to engage the batten at both of its ends at the end of its rearward swing, a rock shaft mounted in the frame, rods connecting the rock shaft with the latches, a drive shaft, a cam mounted upon said shaft, connections between said cam and said rock shaft whereby the rock shaft will be operated to release the latches from their engagement with the batten.

16. The combination, with a loom frame, of a batten carried thereby, a drive shaft mounted upon the frame, connections between the said drive shaft and batten whereby the batten will be swung backward and

forward, a member pivotally mounted upon the frame adapted to engage the batten at the end of its rearward swing, and means actuated by the drive shaft for releasing
5 said batten.

17. The combination, with a loom frame, of a batten carried thereby, a drive shaft mounted upon the frame, connections between said drive shaft and the batten where-
10 by the batten will be swung backward and forward, latches pivotally mounted upon the frame adapted to engage the batten at the end of its rearward swing, and means actuated by the driving shaft for operating
15 the said latches.

18. The combination, with a loom frame, of a batten carried thereby, a drive shaft mounted upon the frame, cams mounted upon the said drive shaft, connections be-
20 tween one of said cams and the batten whereby the batten will be swung backward and forward, latches pivotally mounted upon the frame and adapted to engage the batten at the end of its rearward swing, and
25 connections between the other of the cams upon the drive shaft and the said latches whereby they will be operated for releasing the said batten.

19. In a loom, a batten, a drive shaft, a cam upon said shaft, a lever, connections 30 between said lever and the batten, a contact roller engaging the cam upon the shaft, means for adjusting the roller with relation to the cam, whereby the amount of swing of the batten may be varied, combined with
35 a latch for momentarily holding the batten at the end of its swing, and means for disengaging said latch after such momentary detention to permit its return swing.

20. In a loom, a batten, a fixed support in- 40 dependent of said batten, a member mounted upon said batten, an eccentric bearing secured upon said fixed support, a member pivotally mounted upon said bearing and adapted to engage the member upon the bat-
45 ten, said eccentric bearing being rotatable whereby the said members may be adjusted with respect to each other to take up wear.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

HAMILTON LINDSAY.

Witnesses:

A. J. HUDSON,
BRENNAN B. WEST.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents.
Washington, D. C."