This invention relates to a picker stick check for looms and more particularly to an improved strap and support therefor whereby the picker stick is more effectively brought to rest at the limits of its stroke.

It is an object of this invention to provide an improved picker stick check comprising a loop strap which is pivotally secured to the loom lay and which has one or more relatively short parallel layers projecting from the pivot into the path of the picker stick. The free end of each layer is not attached to the check strap except at a point adjacent the pivot. Therefore, relative slippage or rolling action can take place between the strap and the layers and between the layers themselves when the picker stick bends the strap at the limits of its stroke, resulting in a more wear-resistant construction.

It is another object of this invention to provide a check strap of the class described in combination with means actuated by the movement of the stick away from the layer or layers for arresting the same at approximately a right angle position to the path of the picker stick. When the picker stick makes a right angle contact with the layers a more uniform and effective checking action will take place, thereby producing a better quality of woven fabric.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is an elevation of one end of a loom lay showing my improved picker stick check mechanism associated therewith;

Figure 2 is a sectional plan view taken along the line 2—2 in Figure 1, illustrating in bold lines the position of the strap when the picker stick is disposed at the limit of its outer stroke, and showing in dotted lines the position of the check strap when the picker stick is disposed at the limit of its inner stroke;

Figure 3 is a vertical transverse sectional view taken along the line 3—3 in Figure 1;

Figure 4 is a sectional view taken along the line 4—4 in Figure 3;

Figure 5 is an isometric view of a portion of the bracket which supports the ends of the flexible check strap;

Figure 6 is an end elevation of the bracket as shown in Figure 5;

Figure 7 is an isometric view with the central portion thereof broken away, illustrating the flexible check strap.

Referring more particularly to the drawings, the numeral 10 denotes an ordinary loom lay which has disposed on the upper side thereof a conventional shuttle box 11, said shuttle box being adapted to receive a shuttle 12 during the operation of the loom. The lay 10 has a longitudinal slot 14 therein for the reception of a suitable picker stick 15. This picker stick is oscillated back and forth in a well known manner between bold line and dotted line positions as shown in Figure 1. Upon the upper end of the picker stick 15, a suitable picker 17 is secured, and this picker is adapted to engage the nose of shuttle 12 during the aforementioned oscillation to thereby propel the shuttle out of the shuttle box. The picker also receives the shuttle when it enters the box.

Since a considerable momentum accompanies the oscillation of the picker stick 15, both during the expulsion of the shuttle and the reception of the same into the shuttle box, it is necessary to provide an effective means whereby the stick will be properly checked at the limits of its oscillation or stroke. This picker stick check mechanism, in part, comprises a suitable bracket 19 secured to the lower side of the loom lay by any suitable means such as bolts 20. Integral with the lower portion of the bracket 19, is a downwardly depending flat bar 21 against which one side of a plate 22 is adapted to be held by any suitable means such as a bolt 23. This bolt 23 penetrates a slot 22a in the plate 22 and also penetrates a hole in the downwardly depending portion 21, and a slot 24 in one end of a flexible check strap 25. The members 22, 21 and 25 are clamped together by the bolt 23, a suitable washer 26 and a nut 23a. It is evident that the length of the check strap 25 may be varied by adjusting the positions of slots 22a and 24 relative to bolt 23.

It will be seen by referring to Figures 1 and 2 that the check strap 25 passes from the bolt 23 around the picker stick 15 and then reversely on the opposite side of the picker stick to the far side of a downwardly depending leg 29a of bracket 29, said bracket being secured to the lower side of the lay 10. The strap then follows a circulatory course, engaging the near side of another downwardly depending leg of a bracket 30 which is adjustably secured for movement toward and away from the path of travel of the picker stick by any suitable means such as a bolt 31. This bolt penetrates bracket 30 and fits into a slot 32 in bracket 29. After leaving the bracket 30 the strap veers slightly outwardly from the path of the picker stick and around the far side...
of a second leg 220, which leg likewise extends downwardly from the bracket 29.

Then the strap 25 again traverses the path of the picker stick 15 and encircles a suitable pin 33. Pin 33 has a head portion 33a for engaging the upper side of the check strap, said pin having its lower end adjustable secured in lug 35 of the plate member 22 by any suitable means such as a set screw 36. After encircling the pin 33, the check strap 25 extends a short distance inwardly in parallelism with that portion of the strap previously described. In other words, the strap is doubled upon itself to form a laminated structure. This doubled layer of the strap which projects reversely from the pivot or pin 33 is designated by the reference character 25a. If desired there may be interposed between the layer 25a and the oppositely disposed portion of the check strap 25 another layer or lamination 37. This layer or lamination 37 is substantially the same length as the layer 25a and likewise is disposed in the path of the picker stick, said layers 25a and 37 being secured to the check strap 25 at a point adjacent the pin 33 by any suitable means such as rivets 38 or the like, thereby forming a hole 34 for reception of pin 33 and leaving that portion of each of the laminations 25a and 37 which is disposed beyond the rivets unattached to each other.

This construction of the check strap provides means whereby the wear produced by the impact of the picker stick will be reduced to a minimum. Since the laminations 25, 37 and 25a are unattached at the point where the picker stick engages the same, a certain amount of rolling action will take place as the check strap is bent by the picker stick. This rolling action will permit relative slippage between the laminations and prevent the strap from becoming easily broken.

In order to have a more effective checking mechanism with a strap of this type, it is very essential that the layers 25a and 37 and the adjacent portion of the strap 25 be disposed at substantially right angles to the path of the picker stick when the stick engages the same in receiving the shuttle. These layers are releasably held in the aforementioned position by means of a suitable beveled or cam surface 40 which is formed on the edge 35 of plate member 22.

In Figures 5 and 6, it is seen that the beveled surface 40 is disposed adjacent a substantially flat surface 41, said surface 41 being disposed opposite the head 32a of the pin 33 and being substantially parallel to the lower surface of pin head 32a. When the layers 25a, 37a and 37 are rotated to substantially dotted line position shown in Figure 2, very little if any of the layers will be disposed on the beveled surface 40, but instead will be resting upon the flat surface 41 and below the pin head 32a. However, when these laminations are rotated by the picker stick to the bold line position shown in Figure 2, when a shuttle is expelled, the bottom portions of these laminations and the check strap 16 will ride upon the beveled surface 40 to cause the portion of the strap to press more firmly against the bottom of pin head 32a and thereby cause a gradually increasing resistance to be offered to the rotation. Of course, it is only when the picker stick 15 moves to the outer bold line position that the portions 25, 25a and 37a are moved to the bold line position which positions is substantially at right angles to the path of the picker stick. When the laminations are moved to the proper position, a suitable stop 42 will serve to prevent further rotation and at the same time the cam surface 40 serves to hold the parts in this position. Then when the picker stick again moves from right to left, in Figure 2, the laminations will be in the proper position for effectively receiving the picker stick, as it is moved by an incoming shuttle.

If for any reason during operation, the amount of resistance offered by the cam surface 40 to the clockwise rotation of laminations 25, 25a and 37 is insufficient, it is only necessary to loosen the set screw 36 and lower the pin 33 until the proper initial pressure is exerted on the opposed sides of the end of the check strap. It is preferable to adjust the pivot 25a of the check strap while all portions of the check strap are removed from the beveled surface 40 and while resting between pin head 33a and the flat surface 41.

The members 25a, 30 and 220 are conventional structure, and work in conjunction with the previously described mechanism to afford resistance to longitudinal travel of the check strap 25 in.

In the drawings and specification, there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims. I claim:

1. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a hanger carried by said lay, a head pin adjustable mounted in said bracket at a point near one of the limits of oscillation, a loop strap surrounding the said stick, said strap being rotateably mounted upon said pin and confined thereon by said head, said hanger having a beveled surface disposed on the opposite side of said strap from said pin head, and said surface being engageable by the strap as it rotates about a pin, whereby an increasing resistance to said rotation will be produced as the picker stick approaches its other limit of oscillation.

2. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a hanger carried by said lay, a head pin adjustably mounted in said bracket at a point near one of the limits of oscillation, a loop strap surrounding the said stick, said strap being rotateably mounted upon said pin and confined thereon by said head, said hanger having a beveled surface disposed on the opposite side of said strap from said pin head, and said surface being engageable by the strap as it rotates about a pin, whereby an increasing resistance to said rotation will be produced as the picker stick approaches its other limit of oscillation, and a stop for arresting the rotation of that portion of the strap adjacent said pin in a position substantially at right angles to, and in the path of travel of the picker stick.

3. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a loop strap surrounding said stick and adapted to be engaged by the stick at the limits of its oscillation, said strap being double back upon itself at one end to form a vertically disposed hole, a bolt penetrating the hole pivotally mounting the strap at a point near one of the limits of the picker stick oscillation, the doubled back portion of the strap forming a buffer layer extending alongside the strap into the path of the picker stick, said layer having its outer end free from said strap.
4. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a loop strap surrounding said stick and adapted to be engaged by the stick at the limits of its oscillation, said strap being doubled back upon itself at one end to form a vertically disposed hole, a bolt penetrating the hole pivotally mounting the strap at a point near one of the limits of the picker stick oscillation, the doubled back portion of the strap extending alongside the inner surface of the strap into the path of the picker stick.

5. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a loop strap surrounding said stick and adapted to be engaged by the stick at the limits of its oscillation, means for securing one end of the check strap to the lay alongside the path of travel of the picker stick, a pintle carried by the lay also being disposed alongside the path of travel of the picker stick, the intermediate portion of said strap being rotatably mounted on said pintle by being doubled around the pintle and the other end of said check strap beyond said pintle being disposed against the intermediate portion of the strap to form a buffer layer extending into the path of the picker stick.

6. A check strap for loom lays comprising a flat flexible member doubled upon itself at one end to form two layers, a third layer of flexible material interposed between said first layers near one end of the strap, a pin around which the strap is doubled and forming a pivot for attaching one end of each of said layers to the loom lay, two of said layers each having a free outer end which extends past the path travelled by the picker stick.

7. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a bracket fixedly mounted on said lay immediately below and to one side of the shuttle box, a flexible strap encircling said picker stick and having one end thereof pivotally secured to said bracket at a point near the inner limit of the picker stick oscillation, the other end of the strap being fastened to the bracket adjacent the pivot point when the strap is secured to the bracket, said bracket having an outwardly and upwardly inclined surface disposed adjacent the pivot point and so positioned as to be engaged by the lower edge of the strap upon the outer oscillation of the picker stick for releasably arresting that portion of the strap adjacent said pivot in a position substantially at right angles to and in the path of travel of the picker stick.

8. In a loom having a lay and an oscillating picker stick, a picker stick check comprising a loop strap surrounding said stick and adapted to be engaged by the stick at the limits of its oscillation, means pivotally mounting one end of the strap at a point near one of the limits of the picker stick oscillation, and at one side of the path travelled by the picker stick, means securing the other end of the strap against movement, and a member having an upwardly and outwardly inclined surface disposed adjacent the point where one end of the strap is pivotally mounted for engaging the lower edge of the strap upon the picker stick reaching its outer limit of oscillation for releasably arresting that portion of the strap adjacent said pivot in a position substantially at right angles to and in the path of travel of the picker stick.

9. In combination, a loom having a lay and an oscillating picker stick, a picker stick check comprising a loop strap surrounding said stick and adapted to be engaged by the picker stick at the limits of its oscillation, a bracket fixedly mounted on the lay and disposed below the lay and to one side of the path travelled by the picker stick, means for pivotally mounting one end of the strap on said bracket at a point near the inner limit of the picker stick oscillation, means for fixedly securing the other end of the strap to said bracket, said bracket having a portion projecting towards the path travelled by the picker stick having an upwardly and outwardly inclined surface on its upper side for engaging the lower edge of the check strap upon outward movement of the picker stick for exerting a gradually increasing resistance to the rotation of the strap about said pivot as the picker stick approaches its outer limit of oscillation.

JOHN C. CROCKER.