This invention relates to improvements in picker stick checking mechanism for weaving looms.

An object of the invention is to provide picker stick checking means which will more effectively check the movement of the picker stick while reducing wear on the check strap itself due to friction, and which will also reduce vibration in the adjacent loom parts and tend to prevent objectionable whip action in the check strap.

A further object is to provide picker stick checking mechanism designed for the most efficient use of a double or pil layer check strap to thereby render the mechanism extremely sturdy and very long-lasting in trouble-free usage thereof.

A further important object is to provide improved check mechanism for picker sticks which requires substantially no alteration of the conventional loom structure and which may be provided by the addition of a simple modified strap engaging friction element on each side of the loom, for attachment to existing bracket structures without modification thereof.

Other objects and advantages of the invention will be apparent during the course of the following detailed description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

FIGURE 1 is a fragmentary perspective view of picker stick checking mechanism according to the invention at the left-hand side of the loom.

FIGURE 2 is a perspective view of a check strap engaging friction element for the left-hand checking mechanism in accordance with the invention.

FIGURE 3 is a bottom plan view partly diagrammatic and with parts omitted of the mechanism shown in FIGURE 1.

FIGURE 4 is a fragmentary perspective view of the right-hand picker stick checking mechanism according to the invention.

FIGURE 5 is a perspective view of a check strap engaging friction element for the right-hand checking mechanism shown in FIGURE 4.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates the lay of a conventional loom having the usual shuttle boxing means 11, FIGURE 1, at the opposite ends thereof for the filling carrying shuttle, not shown. The usual picker 12, FIGURE 1, is carried by the top of the left-hand and right-hand picker sticks 13 and 14 for propelling the shuttle in opposite directions longitudinally of the lay. This construction is all well known to those skilled in the art and conventional and need not be shown or described in further detail.

A conventional check mechanism bracket 15 is rigidly bolted at 16 against the bottom and one side of the lay 10 and has an integral horizontal outwardly projecting slotted lug 17 as shown in FIGURE 1. An inner pair of depending friction fingers or members 18 are formed integral with the bottom web 19 of the bracket 15 and are spaced apart laterally, longitudinally of the lay with their outer laterally curved faces 20, FIGURE 3, disposed in a common vertical plane beneath the bracket 15. The horizontal projections or feet 21 are integrally formed upon the outer edge of the fingers 18 to enable and support the check strap means to be described. This construction as thus far described is also conventional.

Horizontally adjustably mounted upon the bottom face of the lug 17, FIGURE 1, is a modified check strap engaging friction or snubbing member 22 according to the invention and shown in detail in FIGURE 2 of the drawings. The friction member 22 comprises an upper horizontal head portion 23, slotted at 24 to facilitate adjustment downward from the friction fingers 18 in assembly. The head 23 includes a raised pad 25 integral therewith and engageable within a mating groove in the bottom face of the lug 17. Bolt means 26 is employed for releasably rigidly securing the friction member 22 in the selected adjusted position upon the bottom of the lug 17.

The friction member 22 further comprises at the inner end of the head 23, a depending vertical bar or finger 27, integral therewith, and preferably transversely rounded upon its inner side as shown at 28. The opposite side or face 29 of the bar 27 may be substantially flat as shown in FIGURE 5. The lower end of the friction bar 27 has an integral short horizontal strap supporting web 30, extending outwardly from the bar 27 in spaced underlying parallel relation to the head 23. An outer, upwardly vertical friction bar 31 is secured integrally to the web 30 in spaced parallel relation to the bar 27 to provide a through passage or slot 32, FIGURE 2, for the check strap means to be described. The top of the bar 31 terminates somewhat below the fingers 23 and is preferably inwardly beveled as at 33. Thus, the friction bars 27 and 31 and the bottom web 30 constitute a substantially U-shaped loop to embrace a portion of the check strap means presently to be described. The friction member 22 in assembly is disposed midway between the conventional fingers 18 on the bracket 15 and outwardly or forwardly thereof as shown in FIGURES 1 and 3. The web 50 is disposed at the same elevation as the feet 21 to engage and support the lower edges of the check strap means. The friction member 22 is bodily adjustable toward and from the fingers 18 on the lug 17 as shown by the slotted connection.

The check strap means according to the invention comprises a pair of separately formed check straps 34 and 35 of leather or the like with the check strap 34 arranged intermost and paralleling the outer check strap 35 as shown in the drawings. The two check straps are formed into a horizontally elongated loop, FIGURE 3, with the opposite ends thereof securely connected at 36 by suitable nut and bolt means. Leather inserts or washers 37 are interposed between the connected end portions of the two check straps, as shown, and a flat metallic washer 38 on the outer side of the outermost strap is placed under the nut 39 to afford a secure connection. The picker stick 13 operates within the looped check straps 34 and 35 in a more or less conventional manner during the operation of the loom and is of course checked or retarded by the straps at each pick of the loom as is well known.

According to the invention and distinguishing it from the prior art devices for checking picker sticks, the outer longitudinal stretch or side 40 of the innermost strap 34 engages across and against the outer rounded faces 20 of the depending friction fingers 18 and has its lower edge riding upon the horizontal feet 21, FIGURES 1 and 3. The inner check strap portion 40 also has its outer face extending across and frictionally engaging the rounded face 28 of the friction bar 27, midway between the fingers 28, FIGURE 3. As stated, the bar 27 is shiftable toward and away from the fingers 18 so that the snubbing action of the two fingers and the bar 27 upon the inner check strap 34 may be varied within limits.

The outer side portion 41 of the outermost check strap 35, FIGURE 3, engages through the U-shaped passage 32 afforded by the friction member 22, and the vertical friction bar 27 of this member engages between the inner and outer check straps and maintains them sepa-
rated as clearly shown in the drawings. The outer check strap portion 41 has frictional engagement with the flat side 29 of the bar 27 but does not have frictional engagement with the fingers 18. The lower edge of the outermost check strap is supported by the horizontal web 30, as shown. The outermost check strap portion 41 may also frictionally engage the upstanding friction bar 31 of the member 4 and, said portion is substantially surrounded by the U-shaped structure afforded by the elements 27, 30 and 31 during operation.

By virtue of the arrangement shown and described, the inner and outer check straps 34 and 35 each serve to resist part of the shock caused by the stroke of the picker stick. The utilization of the two straps in the manner described prevents the straps from whipping, twisting or rebounding as conventional check straps are prone to do. The outer check strap will help to cushion the inner strap when the picker stick makes contact with the latter and this greatly increases the life and serviceability of the check strap means and increases the efficiency of checking the picker stick and boxing the shuttle, as has been proven in actual practice with this invention.

By maintaining the active portions 40 and 41 of the two check straps separated as shown in FIGURE 3 and described above, the straps are prevented from rubbing together and creating heat due to friction and this also greatly lengthens the useful life of the strap means. When the friction member 22 is adjusted upon the leg 47, both of the strap sections 40 and 41 are moved or adjusted and the checking or snubbing action of the two straps in conjunction with the fingers 18 and friction bar 27 may be varied as desired.

The importance of providing the U-shaped friction member 22 and particularly the arrangement of the friction bar 27 between the two strap portions 40 and 41 and between and outwardly of the friction fingers 18 constitutes a very important and essential part of the invention and cannot be emphasized too strongly herein.

At the right-hand end of the loom, companion checking mechanism is provided embodying the identical principles and mode of operation described above in connection with FIGURES 1-3. The right-hand side construction is shown in FIGURES 4 and 5, wherein a check mechanism bracket 42 corresponding to the bracket 15 is secured at 43 to the lay 10. A vertically disposed bracket part of lug 44 is adapted to receive and hold a vertical head portion 45 of a somewhat modified right-hand friction member 46, shown in detail in FIGURE 5. The identical spaced depending friction fingers 18 previously described are carried by the bracket 42 in FIGURE 4 for the described purpose. The identical inner and outer looped check straps 34 and 35 for the right-hand picker stick 14 are illustrated in FIGURE 4.

The friction member 46 has an upstanding vertical friction bar 47, integral therewith, and off-set from the head portion 45 and arranged midway between and outwardly of the fingers 18 and adjustable toward and from the latter in the same manner described in connection with the friction bar 27. The inner side of the bar 47 which engages the innermost strap 34 is rounded as shown at 48 and its outer side 49 is preferably flat, corresponding exactly to the construction of the previously-described left-hand friction bar 27.

The friction member 46 includes at the bottom of the bar 47 a horizontal ledge or web 50 to engage and support the outer edge of the outer strap 35. The bottom edge of the inner strap 34, FIGURE 4, engages and is supported by the previously-described feet 21 in the identical manner shown for the left-hand side or unit of the invention.

An intermediate upstanding vertical wall portion 51 of the friction member 46, at right angles to the head portion 45 and spaced from and parallel to the friction bar 47 is provided, and serves the same general purpose as the bar 31 of friction member 22. That is to say, the bars 47 and 51 and the web 50 form an upwardly opening U-shaped friction member to receive the outer strap 35 as clearly shown in FIGURE 4. However, in the right-hand unit, the elements 47 and 51 are laterally offset from each other due to the different nature of the attaching bracket means on the right-hand side of the loom.

In this connection, it will be noted said friction members 22 and 46 which constitute the heart of the invention are specifically designed to avoid the necessity for altering the conventional brackets 15 and 42 of the loom.

The purpose and mode of operation and the advantages of the invention in connection with the right-hand mechanism, FIGURES 4 and 5, are all identical to those described for the left-hand mechanism and therefore need not be repeated in detail, and this will be understood by those skilled in the art. Suffice it to say that the upstanding friction bar 47 has the same relationship to the two check straps and the friction fingers 18 during operation as described for the corresponding elements of the left-hand unit.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts in the invention may be resorted to, without departing from the spirit of the invention or scope of the subjoined claims.

Having thus described my invention, I claim:

1. A picker stick checking mechanism for looms comprising a lay supported bracket having longitudinally spaced depending substantially vertical friction rigid therewith and having corresponding friction sides arranged in substantially a common vertical plane, a substantially horizontal lug on said bracket projecting laterally from one side thereof, a generally U-shaped friction member arranged intermediate said fingers and including inner and outer spaced substantially vertical friction bars and a connecting horizontal web at the bottoms of said bars, the inner bar of said U-shaped member projecting above the top of the outer bar, a horizontal lateral head carried by the top of the inner bar and extending over and spaced above the top of the outer bar, said head adapted to underlie and engage the bottom of said lug, means adjustably interconnecting said head and lug and allowing the U-shaped member to be shifted laterally toward and from said corresponding friction sides of the fingers and locked in the selected adjusted position, said friction fingers having outwardly projecting horizontal feet upon their lower ends at substantially the elevation of said web, and a pair of continuous closed loop check straps arranged one within the other and adapted to embrace a picker stick for checking it and having corresponding active side portions, said inner bar of the U-shaped member engaging between said active side portions of said straps and maintaining them separated and frictionally engaging the inner face of the active side portion of the outermost check strap, said friction fingers frictionally engaging the inner side portion of the innermost check strap and said inner bar frictionally engaging the outer face of the active side portion of the innermost check strap between said fingers, said web and feet engaging and supporting the lower edges of the check straps, the active side portions of both straps being longitudinally shiftable in unison across said fingers and U-shaped friction member in response to engagement by the picker stick with said loop check straps.

2. A picker stick checking mechanism for looms comprising a pair of continuous closed loop check straps arranged one inside of the other and adapted to be moved longitudinally as a unit by a picker stick engaging through the same, said straps having corresponding active longitudinal side portions, longitudinally spaced parallel substantially vertical friction fingers arranged in substantially a common vertical plane and having horizontal feet at their lower ends and secured to and depending from a bracket on the lay of the loom, said friction fingers
frictionally rubbing the inner face of the active side portion of the innermost strap to retard longitudinal movement of such strap, the lower edge of the innermost strap resting upon said horizontal feet and supported thereby, an intermediate substantially vertical friction bar substantially midway between said fingers and laterally outwardly thereof and extending between the active side portions of the innermost and outer straps and frictionally rubbing the inner face of the outer strap and the outer face of the inner strap, means adjustably connecting said friction bar to said bracket so that the friction bar may be shifted inwardly or outwardly toward and away from said fingers and releasably locked in the selected adjusted position, said friction bar coating with said fingers to frictionally retard longitudinal movement of said active side portions of the innermost and outer straps when the side portions move in unison longitudinally with the picker stick, a horizontal ledge portion on the bottom of said friction bar underlying the lower edge of the outer strap and supporting it, and an upstanding extension on said ledge spaced from and parallel to the friction bar and serving to retain the outer strap on said ledge.

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