Sept. 19, 1939. K. H. BOWEN 2,173,776

PICKER STICK CONNECTION

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Fig. 1.

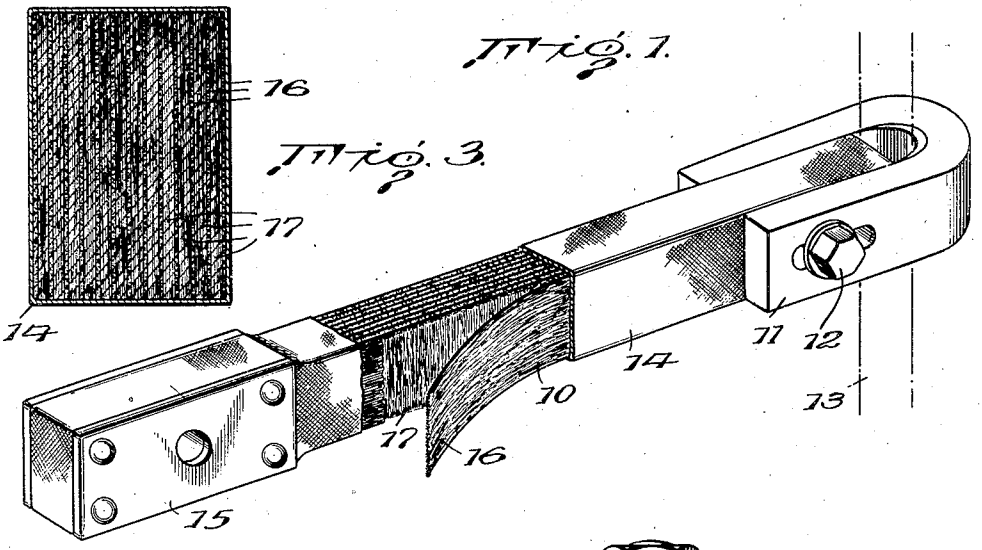


Fig. 3.

Fig. 2.

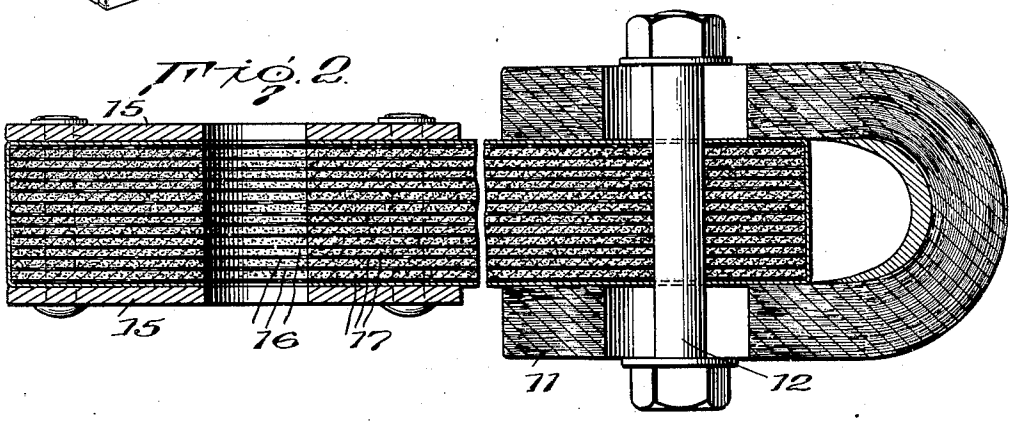


Fig. 4.

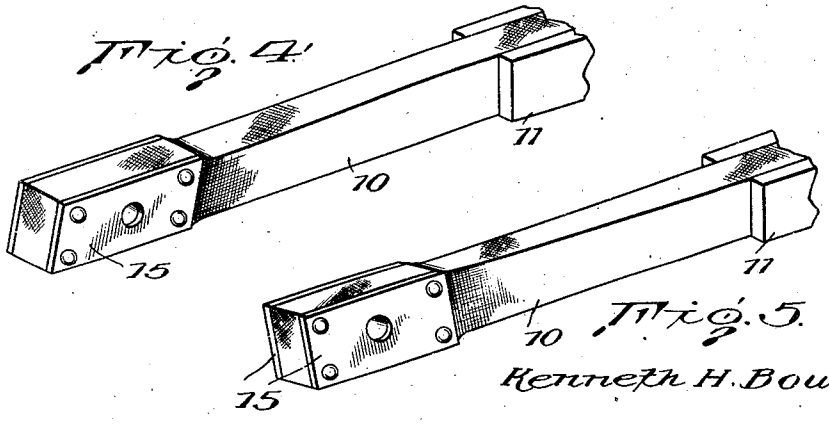


Fig. 5.

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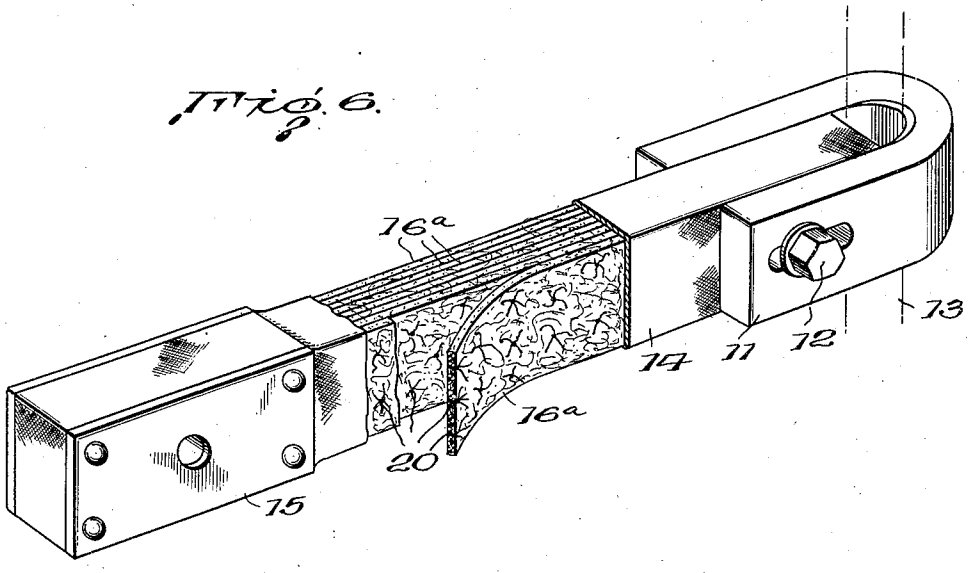
Attorneys

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PICKER STICK CONNECTION

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Fig. 6.



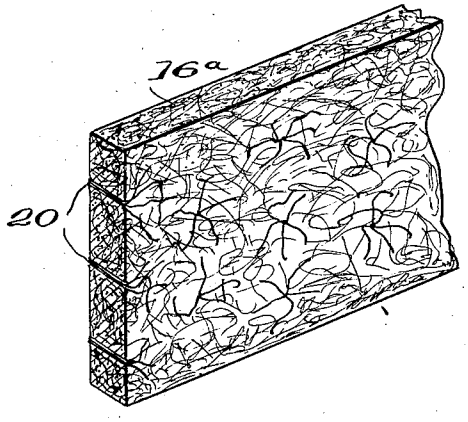


Fig. 7.

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UNITED STATES PATENT OFFICE

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PICKER STICK CONNECTION

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Application September 18, 1937, Serial No. 164,564

3 Claims. (Cl. 139—151)

This invention relates to improvements in certain operating elements of loom mechanisms and, particularly, to the operating connection, usually comprising a sweep stick and lug strap, for the picker stick.

As is well understood, the picker stick in a loom is the member which imparts the throw to the shuttle in projecting the shuttle back and forth across the loom. The picker stick operates with a rocking motion imparted to it through a connection to a power-actuated element of the loom-operating mechanism, and the primary object of the invention is to provide an efficient, but comparatively inexpensive connection for the picker stick.

Another object is to provide a sweep stick and lug strap which are individually and jointly capable of torsioning longitudinally, so that any undue lateral motion of either of the elements attached to the ends of the connection will be absorbed in the connection and not transmitted through the connection to the other of said attached elements.

A further object is to construct the sweep stick and lug strap of material which can be bound in a unitary mass by a binder which might be said to be moisture repellent, whereby the connection will not be detrimentally affected by the humidity of the atmosphere in the mills where the looms are used.

A still further object of the invention is the production of a sweep stick and lug strap at a comparatively low cost.

With these and other objects in view, the invention consists in certain details of construction and combinations and arrangements of parts, all as will hereinafter be more fully described and the novel features thereof particularly pointed out in the appended claims.

In the accompanying drawings—

Figure 1 is a perspective view of a sweep stick and lug strap constructed in accordance with the preferred form of the invention, the picker stick being indicated in dot and dash lines;

Fig. 2 is a longitudinal sectional view of the sweep stick and lug strap;

Fig. 3 is a sectional view taken transversely of the sweep stick;

Figs. 4 and 5 are perspective views illustrating the torsioning properties of the sweep stick and strap.

Fig. 6 is a perspective view of a picker stick illustrating a modified form of the invention; and

Fig. 7 is a detail view, on an enlarged scale, of a section of one of the laminations of the structure disclosed in Fig. 6.

Referring to Fig. 1, the sweep stick 10 is attached at one end to the lug strap 11, by a bolt 12. The lug strap encircles the picker stick 13, and the opposite end of the sweep stick is attached by suitable means to a power-driven element (not shown) of the loom-operating mechanism, whereby the connection formed by the sweep stick and lug strap will be reciprocated to rock the picker stick. The movements of this connection are, at times, abrupt and, in addition, the mechanisms attached to the opposite ends of the connection formed by the sweep stick and lug strap oftentimes are displaced laterally. Consequently, it is important that the sweep stick and lug strap be capable of absorbing, without undue wear, the shocks imposed thereon by such abrupt movement. It is also important that any lateral motion of either of the parts attached to the ends of the connection be absorbed. For these reasons, the sweep stick and lug strap are composed essentially of vegetable fibres. In the preferred embodiment illustrated, the sweep stick is formed of a plurality of layers or laminations of fibres cemented or bound together with the fibres of each layer or lamination arranged in parallelism with one another. If desired, this laminated body may be encased in a canvas cover 14, and the end of the stick remote from the strap may be protected on its opposite side surfaces by a wear-resistant material 15, usually rawhide.

The stick formed of the several laminations will be resilient and absorb shocks imparted thereto, the resiliency being determined by the density of the stick, it being understood that the laminated body is compressed to the proper extent to properly withstand wear. The stick will also readily torsion and, if desired, the torsioning properties of the stick can be regulated, so to speak, or varied, by arranging fibres of separate layers at an angle to each other. For instance, as illustrated in Figs. 1 to 3, the fibres of the layers indicated at 16 extend longitudinally of the stick, while the fibres of layers 17 are disposed transversely of those of layers 16, or what would be vertically or transversely of the stick. Usually, the layers 17 are thicker than layers 16 and constitute the major portion of the stick body, but by varying the relative thicknesses of the two sets of laminations, the torsioning properties of the stick may be altered.

As previously indicated, the humidity of the atmospheric conditions under which the looms

operate are such that the sweep stick and lug strap should be more or less water-repellent. Preferably, therefore, a latex cement is used for binding the fibres of the individual layers, and the several layers, together.

The lug strap may be formed, if desired, without crossing the fibres. For instance, all the fibres may extend in the same direction. A strap of this construction will torsion to a limited extent, but excessive torsioning of the strap is really not necessary, as the length of the sweep stick, and the torsioning properties thereof, are such as to completely offset or absorb any lateral motion of the members attached to the ends of the connection formed by said stick and strap. Where all the fibres extend in one and the same direction, the construction need not necessarily be laminated as a large sliver of fibres could be bonded and compressed to form the sweep stick or lug strap. However, even if laminated, the structure would be essentially one large sliver. Figs. 4 and 5 illustrate the ability of the sweep stick to torsion but, as indicated, such torsioning will not be confined entirely to the stick. In the construction of Figs. 6 and 7, the elements of the connection are formed of fibres promiscuously disposed with respect to each other with small groups or tufts of fibres projected or extending through the mass. The fibres are formed into a bat or web and the small groups or tufts of fibres punched through the bat by barbed needles on what is commonly known as a "needling machine". If the sweep stick or lug strap is to be laminated, the web or bat will be comparatively thin and a number of plies compressed together as shown in Fig. 6, the laminations being indicated at **16a** and the tufts of fibres at **20**. Instead of forming a laminated structure, a single comparatively thick bat of needled fibres can be compressed to form the sweep stick or lug strap. The fibres are, of course, bonded with the usual binder.

What I claim is:

1. In a picker stick connection, a longitudinally torsionable sweep stick formed of a plurality of laminations of fibres, the fibres of a number of said laminations being parallel to each other in one direction, and the fibres of the remaining laminations being arranged parallel to each other, but disposed transversely of the fibres of the first-mentioned group of laminations, the combined thicknesses of the laminations of one of said groups exceeding that of the other group with the degree of torsioning of said sweep stick depending upon the relative thicknesses of the two groups of laminations.

2. In a picker stick connection, a longitudinally torsionable sweep stick formed of a plurality of laminations of fibres, the fibres of a number of said laminations being parallel to each other in one direction, and the fibres of the remaining laminations being arranged parallel to each other, but disposed transversely of the fibres of the first-mentioned group of laminations, the individual laminations of one of said group being thicker than those of the other group with the combined thickness of the laminations of one group exceeding that of the other group and the torsionability of the sweep stick being dependent upon the relative thicknesses of the two groups.

3. In a picker stick connection, a longitudinally torsionable sweep stick formed of a plurality of laminations of fibres, the fibres of a number of said laminations being parallel to each other longitudinally of the sweep stick and the fibres of the remaining laminations being parallel to each other transversely of said stick, the individual laminations of transverse fibres being of greater thickness than the laminations of longitudinally disposed fibres with the combined thickness of the laminations of one group exceeding that of the other group and the torsionability of the sweep stick being dependent upon the relative thicknesses of the two groups.

KENNETH H. BOWEN.