Oct. 7, 1930. J. EAKINS 1,777,965

BUSHING FOR WOODEN LUG STICKS

Filed May 28, 1929

Fig. 1.

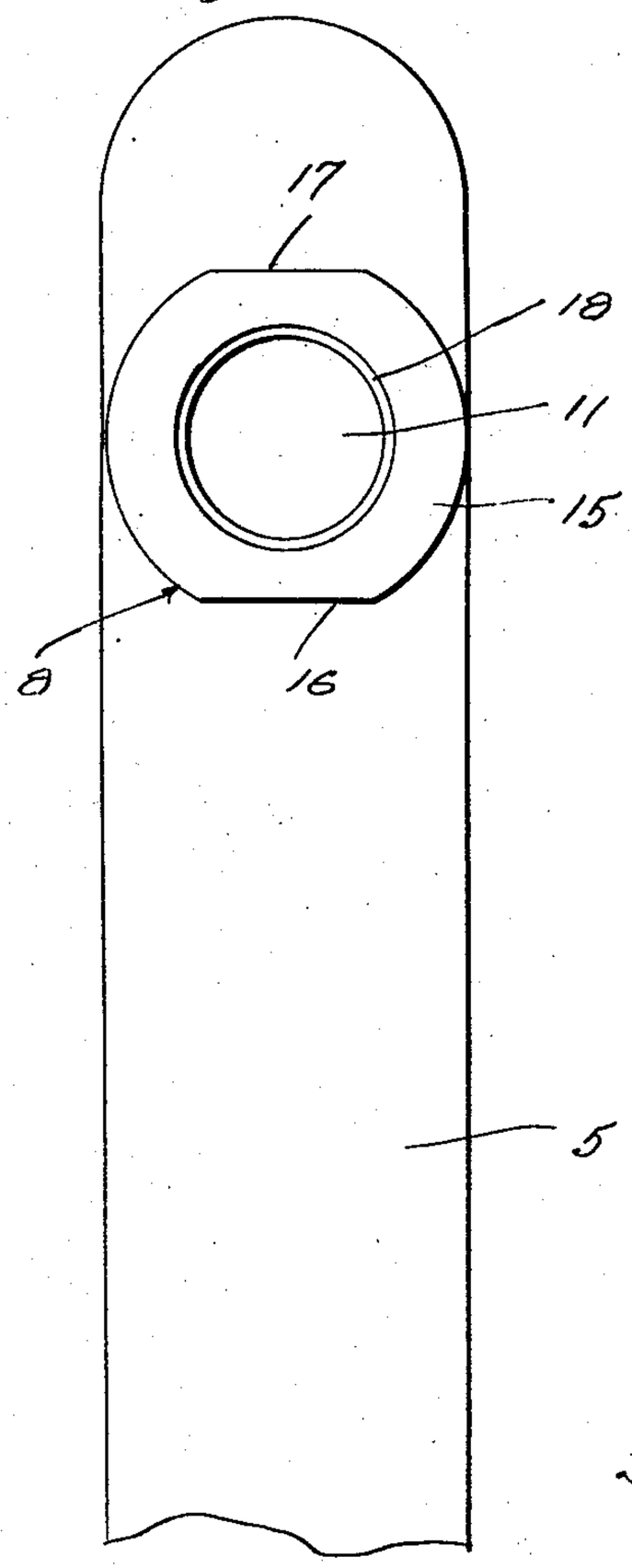


Fig. 2.

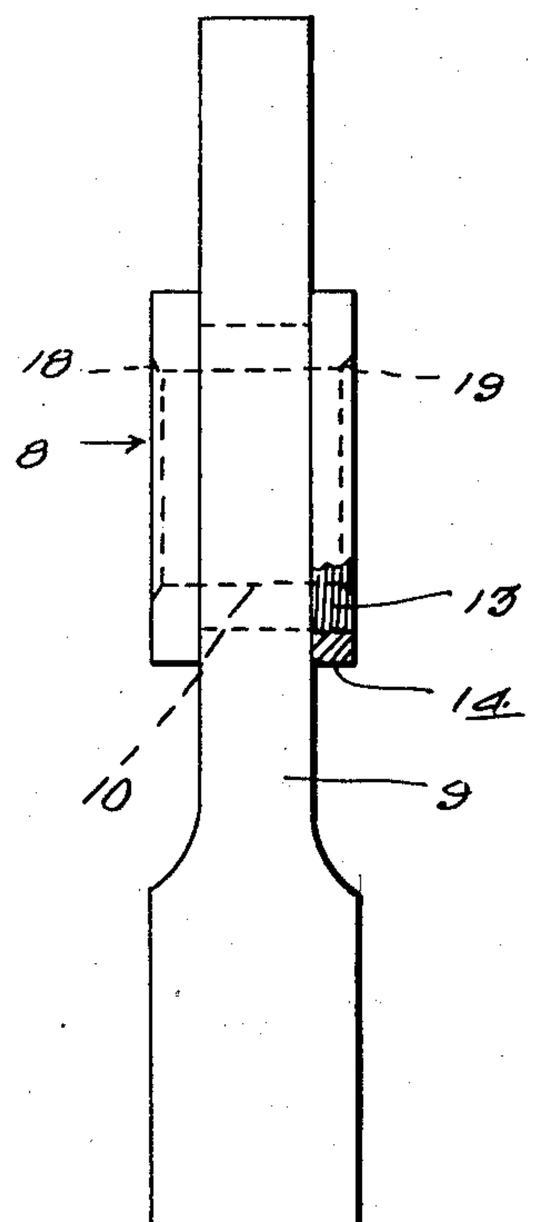


Fig. 4.

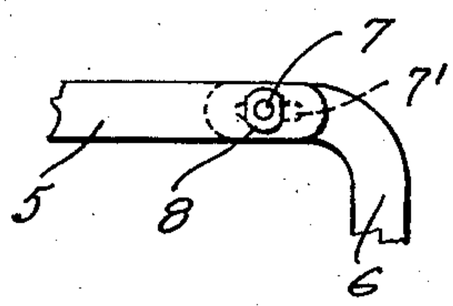
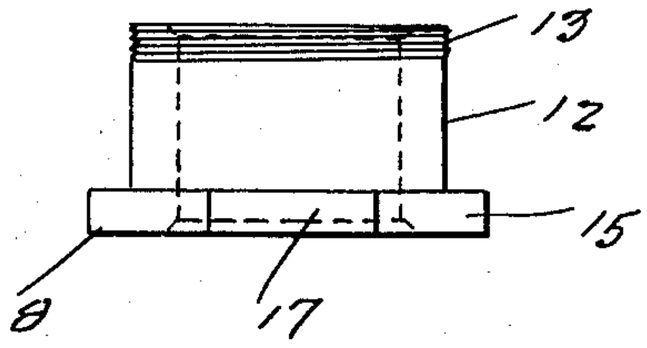


Fig. 3.



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Patented Oct. 7, 1930 1,777,965

UNITED STATES PATENT OFFICE

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BUSHING FOR WOODEN LUG STICKS

Application filed May 28, 1929. Serial No. 366,751.

This invention relates to a bushing for a wooden lug stick and an object of the invention is to provide a demountable bushing for the lug stick of a silk loom as to prevent wear and tear about the opening which connects the lug stick with the lug on a picker arm, and at the same time to prevent the stick from slipping.

Another object of the invention is to provide an easy means of detaching the bushing from the lug stick for the purposes of replacing the same when becoming worn.

Further objects of the invention are to provide a device of the character referred to, which is strong, compact and durable, thoroughly reliable in its operation, very easy in its method of assembly with a lug stick and comparatively inexpensive to manufacture and install.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts as will be hereinafter more specifically described and illustrated in the accompanying drawings, but it is to be understood that changes, variations and modifications may be resorted to, without departing from the spirit of the claim hereunto appended.

By reason of the character in the lightness in weight of silk, the loom used in the weaving thereof are constructed of very light materials. Wherever possible, it has been the custom of the loom manufacturers to substitute wood, such as hickory, ash or the like, wherever metal parts may be replaced.

It has been the practice of loom manufacturers and particularly the type of Crompton and Knowles silk loom and Northray Crompton loom made by Draper Corporation to make the lug stick used on this type of loom out of wood.

From long experience it has been found that wood such as ash, hickory or the like has the proper resiliency with a corresponding reduction in weight as compared with a metallic arm for the metallic lug sticks for the same purpose.

It has also been found that a metallic lug stick is insufficient for the purpose, because the nature of the operation of the lug stick requires the maximum of resiliency and lightness. Considerable difficulty has been experienced in the connection of the lug stick with the picker arm that imparts the motion thereto, by reason of the fact that the journal opening in the lug stick becomes worn to such an extent that considerable wobbling occurs in the stick, which causes many shutdowns for replacement and repairs to the loom. It has also been found that as soon as the opening becomes worn, the wobbling will cause the stick to split and cause a smash up in the loom structure.

Bearing the foregoing in mind and referring particularly to the drawings, wherein the foregoing defects are overcome by the construction in accordance with this invention, and wherein like reference characters denote corresponding parts throughout the several views:

Figure 1 is a fragmentary side elevation of a wooden lug stick, illustrating an adaptation therewith of the device in accordance with this invention.

Figure 2 is a fragmentary edge view of the wooden lug stick, illustrating the device adapted therewith.

Figure 3 is a side elevation of the bushing in accordance with this invention, detached from the lug stick and having the securing nut removed therefrom, and

Figure 4 is a fragmentary side elevation of the lug stick and the picker arm connected together by means of the present invention.

Referring to the drawings in detail, 5 indicates generally the inner end portion of a wooden lug stick and 6 indicates generally the upper end of a picker arm having a cylindrical lug or bolt 7 extending through a slot 7′ adjacent the upper end thereof. The inner end of the lug 7 projects laterally of the picker arm and is journaled in the bushing of the lug stick in accordance with this invention, and said bushing is indicated generally at 8. It is to be understood that the other end of the picker arm (not shown in the drawings) is connected with a cam of the usual type operated by machinery of the loom, whereby a rocking motion is imparted to the picking arm 6. The other end of the

lug stick, (not shown in the drawings) is connected to the picker stick which is rocked upon an axis by the motion imparted by 6 and 5 to impact with the shuttle whereby the same is driven back and forth across the silk loom. The impact caused by driving the shuttle back and forth causes considerable vibration of the rocking parts and requires the maximum of resiliency in the parts, while at the same time there is considerable wear and tear thereon.

From long experience in the construction of silk looms, almost universal adaption of wood, such as hickory ash in the formation of the lug stick, has resulted.

The lug stick is rectangular in cross section and has a reduced outer end 9 provided with a transversely extending opening 10, adjacent the outer end thereof. The bushing indicated generally at 8 is formed of soft bearing metals, such as bronze, brass or the like and is substantially tubular having a central opening 11 extending therethrough. The intermediate portion 12 of the bushing is snugly seated in the opening 10 and has a peripherally threaded portion 13 at one end which projects laterally from one side of the lug stick 5, to receive a nut 14 which abuts against the one side face of the lug stick, as will be clearly understood by reference to Figure 2 of the drawings. At the other end of the bushing it is formed with a substantially annular shoulder 15 which projects laterally of the intermediate portion 12 and abuts against the other face of the lug stick 5, whereby the bushing is securely held in detachable relation in the opening of the lug stick. The peripheral edges of the substantially annular shoulder 15 are flattened out as at 16, 17, on the diametrically opposite sides thereof to provide a means for gripping the shoulder 15 with the jaws of a wrench when it is desired to replace or insert the bushing. Surrounding the opening 11 at both ends thereof are bevelled as indicated at 18, 19 to provide a smooth working with the lug to which the bushing is journalled. The lug 7 is rockably journaled in the opening 11 in the bushing whereby the picker arm 6 and the lug stick 5 are connected together.

As brought out previously, the best results are obtained when the lug stick 5 is made of wood for the reason that this material has the advantage of lightness and sensibility and in order to avoid distortion of the bearing opening 11 and cracking of the lug stick as a result of the repeated reciprocation of the same under the influence of the rocking picker arms, the annular flanges 14 and 15 will be found to be in form pressure and breaking contact with the lug stick at opposite ends of the bearing opening to more firmly bind the constituent fiber of the stick and, therefore, enable the same to better resist shattering of the stick under the strain incident to the repeated rocking of the picker arms.

What is claimed as new is:

In a loom, a lug stick of wood having a transverse aperture, a metallic bushing having a pair of interfitting threadedly connected sections of soft bearing metal received in said openings and having the outer portions thereof formed with annular flanges, said interfitting sections of the bearing being provided with means whereby the flanges thereof may be brought into pressure contact with opposite surfaces of the wooden stick to bind and reinforce the constituent fibers of the stick adjacent the said aperture, a picker arm for reciprocating said lug stick, and a lug mounted on said picker arm and engaged in the aperture of said lug stick for actuating same.

In testimony whereof I affix my signature.

JOSEPH EAKINS.