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LOOM PICKER

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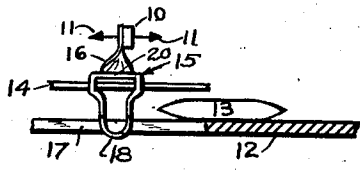


Fig. 1

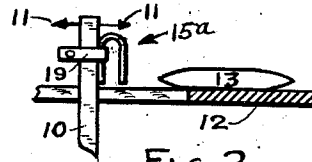


Fig. 2

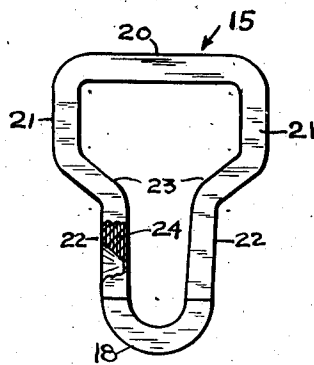


Fig. 3

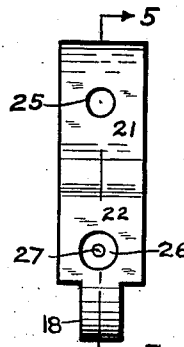


Fig. 4

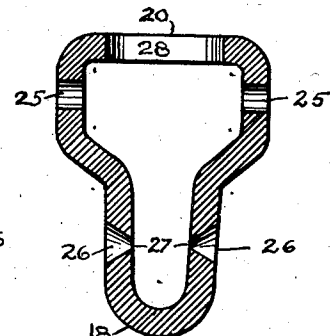


Fig. 5

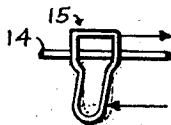


Fig. 6

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## UNITED STATES PATENT OFFICE

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## LOOM PICKER

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2 Claims. (Cl. 139—160)

This invention relates to improvements in loom pickers.

Power operated looms are provided with automatic means for tossing the shuttle from one side to the other and the mechanism employed for this purpose comprises a picker stick that is given periodic oscillatory motion which it transmits to a picker that engages the shuttle and imparts to the latter the required movement and velocity to pass it through the warp shed.

The shuttles reciprocate a large number of times every minute and are quite heavy and besides this, they are provided with sharp points that must be engaged by the picker. The repeated impacts between the picker and the shuttle produces strains which soon cause the picker to fail making it necessary to stop the loom to effect replacement.

A large number of pickers have been invented and used, all of which are more or less satisfactory, but none of which is ideal.

It is the object of this invention to produce a picker of a novel construction that can be manufactured at small cost, and which will have a longer life than the ordinary picker.

Another object of this invention is to produce a picker of such construction that it can be readily formed from plastic impregnated canvas or fabric and which will be highly resilient and resistant to wear.

The above and other objects that may become apparent as the description proceeds are attained by means of a construction and an arrangement of parts that will now be described in detail, and for this purpose reference will be had to the accompanying drawing in which the invention has been illustrated in its preferred form, and in which:

Figure 1 is a diagram showing the present picker applied to a British type of picker mechanism;

Figure 2 is a view similar to that shown in Figure 1, and shows the picker applied to an American type of picker mechanism;

Figure 3 is a plan view of the picker, which forms the subject of the present invention, a portion being broken away to better disclose the construction;

Figure 4 is a side elevation looking in the direction of arrows 4, Figure 3;

Figure 5 is a section taken on line 5—5, Figure 4; and

Figure 6 is a diagram showing the deformation of the picker during the shuttle engaging stroke.

In the drawing reference numeral 10 designates a picker stick which is oscillated or reciprocated by means of suitable mechanism and which therefore moves alternately in the direction of arrows 11. Reference numeral 12 designates a table on which the shuttle 13 is supported. In Figure 1, reference numeral 14 designates a guide bar that passes through suitable openings in the picker 15. A strap 16 connects the picker with the picker stick. The table is provided with a guide slot 17 for the reception of the guide lug 18 of the picker. In Figure 2 the guide bar 14 is not present, but the picker is attached to the picker stick 10 by suitable means, such as a strap 19.

The picker that forms the subject of this invention can be used in slightly modified form with the mechanisms illustrated in Figures 1 and 2. The picker, which has been designated in its entirety by reference numeral 15, in Figure 1 and by 15a in Figure 2 is made in the form of a loop, which may be closed as in Figure 1, or open as in Figure 2, has a top 20, from which two short sides 21 project downwardly and these are connected with other downwardly extending sides 22 by the inwardly curved portions 23. The sides 22 are preferably parallel and terminate in a downwardly extending semi-circular loop which forms the guide lug 18. Lug 18 is narrower than the picker, as can be clearly seen from Figure 4. The picker is constructed from fabric, such, for example, as canvas that has been soaked in a solution of urea formaldehyde, which is a thermo-setting plastic. The impregnated fabric is wound around a core having the shape of the opening in the picker as shown in Figure 3. The several layers of fabric have been designated by reference numeral 24. After the wall of the picker has been built up to its required thickness, it is compressed against the surface of the core by suitable means, such as an air or steam bag, which holds the material firmly against the core during the curing operation. It may also be produced by using a female metal mold of same shape as outside of picker and applying pressure to the inside by means of an inner bag. After the material has been cured by the application of heat and pressure, it is removed from the core or mold and cut into sections each of which has the proper width for a picker. The shape of the sections cut is shown in Figures 3 and 4. The two walls 21 are now provided with axially aligned openings 25 which serve to receive the guide bar shown in Figure 1. The walls 22 are provided with conical depres-

sions 26, whose purpose is to receive the conical end of the shuttle. It will be observed that depressions 26 terminate in small holes 27 that extend entirely through the picker wall. The width of the picker at the lower end is now reduced by saw cuts or in some other suitable manner so as to form a narrow guide lug 18 that is adapted to travel in the guide slot 17 of table 12. The end wall 20 is provided with an elongated slot 28 through which one end of the strap 16 passes and which adapts it to be operatively connected with a picker stick.

A picker constructed in the manner described is threaded onto the rod 14 and connected with the picker stick 10 by means of a strap 16. When the picker stick oscillates, it carries the picker and imparts to it a similar oscillatory motion. When the picker engages the shuttle in its movement towards the right, it causes the latter to travel and imparts to it a sufficient velocity to carry it through the warp shed to the other side of the loom where it comes into engagement with the picker on that side and is given a velocity in the other direction. The depressions 26 are so positioned that the openings 27 will be at the same height as the tip of the shuttle.

When the picker is applied to a picker stick like that shown in Figure 2, the guide lug or loop 18 is omitted and it is held in place by the strap 19; the guide bar 14 is not employed.

Attention is called to the fact that with either mechanism the picker projects downwardly below its point of support and the force transmitted from the picker stick to the shuttle by means of the picker body serves to flex the latter because it acts as a cantilever, the resisting force being applied at a distance from the operating force.

In Figure 6 a diagram of the displacement of the picker at the time that it is applying force to the shuttle has been shown. The dotted line shows the original outline while the full lines indicate the shape during that time that it is under stress and therefore slightly deformed. The cantilever properties and action of this picker convert it into a spring-like element in which the elasticity or resiliency of the material permits the picker to distort at the time of im-

pact and to gradually return this force to the shuttle as it moves the latter. The spring action, due to the resiliency, serves to impart a greater velocity to the shuttle than would be the case if the picker did not yield in the manner shown.

Attention is also directed to the fact that this picker is reversible so that, when one of the depressions 26, is worn out, the picker can be reversed and it will therefore wear twice as long as if it were not reversible.

In the description and the claims, the word "loop" is used in a broad sense as indicating either a closed loop as in Figures 1 and 3, or an open or U-shaped loop like that shown in Figure 2.

Having described the invention what is claimed as new is:

1. A loom picker comprising a loop having an open area enclosed by a wall composed of at least in part of resilient thermo-setting plastic, the wall of the loop being of equal thickness at all points and provided with opposed axially aligned openings adjacent one end forming bearings for a guide rod, the other end of the loop having a lug of less width and cross sectional area than the loop for engaging a guide slot, the outer surface of the loop wall adjacent the end having the guide lug having a depression for the reception of a shuttle point, the end opposite the guide lug having an opening for the reception of a picker stick strap.

2. A loom picker comprising a loop of resilient thermo-setting plastic having a greater width at one end than at the other, the wall of the loop being of equal thickness at all points the opposed portions of the wall at the wider end having axially aligned holes for the reception of a guide rod, the end wall, at the wide end, having an opening elongated in the plane of the loop for the reception of a picker stick strap, the outer surfaces of the spaced walls, at the narrower end, having depressions for the reception of the pointed end of a shuttle, the narrow end of the loop having a portion of decreased cross section and width forming a guide lug for engaging in a guide slot.

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