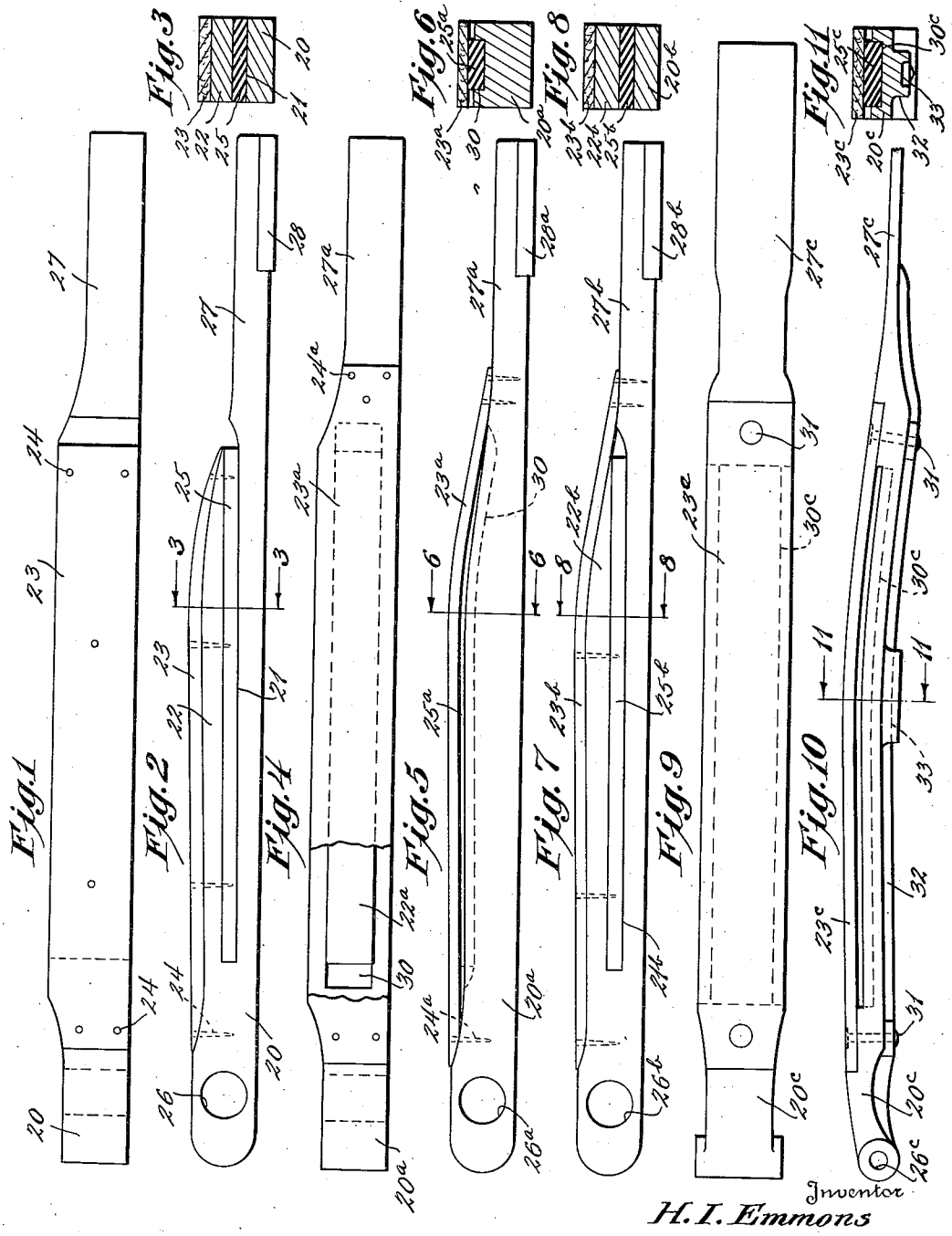
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LOOM BINDER

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LOOM BINDER

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1 Claim. (Cl. 139—185)

This invention relates to loom binders and, among other objects, aims to provide greatly improved shuttle cushioning means which can be manufactured at a relatively low cost and which is very effective and reliable in operation. The idea is to provide a simplified binder which will not quickly wear out or require repairs and which is so designed as to permit increased speed of the loom, to withstand considerable wear, and to minimize trap or kinky filling and other troubles usually caused by inferior binders.

This application involves certain improvements in the general type of binder shown in my Patent No. 1,472,296.

Other aims and advantages of the invention will appear in the specification, when considered in connection with the accompanying drawing, wherein:

Fig. 1 is a face view of a wooden binder embodying the invention;

Fig. 2 is a side elevation of the binder shown in Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a face view of a slightly modified form of the binder shown in Fig. 1;

Fig. 5 is a side elevation of the binder shown in Fig. 4;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 5;

Fig. 7 is a side elevation of another slight modification of the binder shown in Fig. 1;

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a face view of a metal binder also embodying the invention;

Fig. 10 is a side elevation of the binder shown in Fig. 9; and

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 10.

It is well known that many of the ordinary shuttle checks or binders now in use cause considerable loom troubles, such as the production of inferior cloth having trap or kinky filling, damaged shuttles, broken parts and loss of time required to make repairs. Moreover, the speed of looms is determined largely by the character and dependability of the binders. This invention, therefore, aims to provide a very rugged, simple and efficient type of binder capable of long wear and designed to speed up the operation of looms.

Referring particularly to the drawing, the binder shown in Fig. 1 has an elongated wooden body 20 in which a longitudinal groove in the form of a saw-cut or kerf 21 is cut intermediate the ends to provide a spring blade 22 having a feathered or tapered forward end against which the nose of a shuttle is adapted to strike. The kerf is preferably of uniform width throughout, but the thickness of the blade may vary, being determined by the required strength. The face of the blade is covered with yieldable and flexible, friction material such as a strip of leather 23 which extends rearwardly beyond the end of the saw-cut 21 and presents a feathered end at the forward end of the blade 22. This leather face is secured to the blade and the body 21 by means of tapered wooden pegs 24 instead of the ordinary nails, spikes or brads, so that the pegs will wear evenly with the leather and will not present any protruding metal heads to cut or damage a shuttle.

The width of the kerf 21 and the thickness of the blade 22 produced thereby are determined by the desired spring resistance to be offered by the binder. In this instance, the blade is cushioned by means of a strip of soft or sponge rubber 25 which entirely fills the saw-cut 21 throughout the width of the binder body. This strip of sponge rubber is held in place against lateral or endwise displacement by the wooden pegs 24 which project through the blade 22. This arrangement eliminates the necessity of securing the strip to the binder body by means of glue or other adhesive which is likely to melt when the binder gets hot or will break loose due to shocks.

The rear end of the binder body has a bearing opening 26 for an ordinary pivot pin or bolt which carries the usual adjustable eccentric or cam (not shown). The forward end 27 of the binder body is shown as having a soft rubber buffer or pad 28 on the back face to cooperate with the usual protector finger (not shown). This buffer or pad serves to minimize wear on the protector mechanism and thus enables it to be operated at much higher speed.

In Figs. 4, 5 and 6, the saw-cut and the finger are eliminated and the sponge rubber strip 22*a* is inserted in a longitudinal, channel-shaped groove 30 formed in the face of the binder body. The arrangement is such that the yieldable rubber strip is held in place to prevent lateral shifting by the leather strip or friction facing 23*a*. In this case, the back of the leather may be glued to the face of the sponge rubber. The leather strip is shown, in this instance, as extending beyond both ends of the groove and is secured to the binder body by means of wooden pegs 24*a* near the opposite ends. In some instances, it may extend to the free end of the binder body.

For some ordinary low speed looms, this type of binder has proved to be very satisfactory. The friction strip of leather or other flexible and yieldable material will conform to the side wall of a shuttle throughout a substantial portion of the length of the facing and will prevent recoil.

In Figs. 7 and 8, the saw-cut or kerf **21***b* and the spring finger **22***b* are formed in the same manner as explained in connection with the first form. In this instance, however, the friction facing or leather strip **23***b* extends beyond the forward end of the spring finger and the saw-cut or kerf, being secured at its forward end to the binder body by the wooden pegs. This form of binder is somewhat more rugged than the type shown in Figs. 1 to 6 inclusive, and eliminates any danger of damage by or to a shuttle.

In Figs. 9, 10 and 11, there is shown a metal binder embodying the invention. In this form, a longitudinal channel-shaped groove **30***c* similar to the groove **30** in Fig. 4 is formed in the binder body to receive the strip of sponge rubber and the leather facing strip **23***c* is secured at its opposite ends to the body beyond the ends of the groove by means of rivets **31**. The back face of the binder body is shown as having a boss **32** presenting a groove **33** to receive the end of the usual binder spring. This type of binder is well adapted to replace the ordinary metal binders now in common use and avoids many of the difficulties caused by using rigid, leather-faced, metal binders.

From the foregoing description, it will be seen that the improved cushioned binders may be made to apply to all ordinary shuttle boxes. In some instances, the shuttle boxes are equipped with offset brackets so that straight, wooden binders may be substituted for old, bent, metal binders. In all of the forms, the soft rubber cushions are so secured to the binder body as to prevent them from jarring out and causing serious trouble, loss of time and expensive repairs. Moreover, they do not damage the shuttles and minimize breakage of the pickers and protector mechanisms. Furthermore, they enable box looms to be run at relatively high speed without causing shuttle rebounds or lost motion of the pickers which result in the production of inferior cloth.

Obviously, the present invention is not restricted to the particular embodiments thereof herein shown and described.

What is claimed is:

A binder for box looms comprising, in combination, an elongated wooden body; a longitudinal kerf in the body providing a spring blade having a tapered free end spaced from the other portion of the body by the kerf; a cushioning strip of sponge rubber confined within the kerf; a friction strip of flexible material on the exposed face of the blade having a tapered end extending beyond the free end of the blade and secured to the body; and wooden pegs securing the facing strip to the blade and extending into the cushioning strip to hold the cushioning strip in the kerf.

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