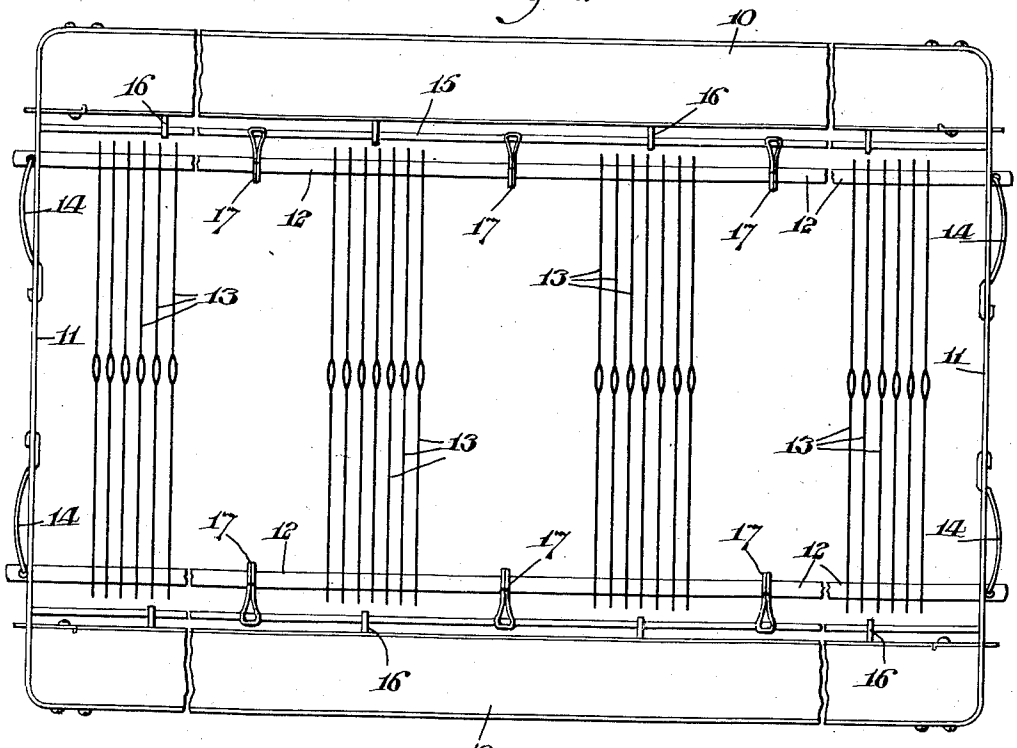
Nov. 10, 1942. J. J. KAUFMANN 2,301,628

HEDDLE FRAME

Filed May 8, 1941

Fig. 1.



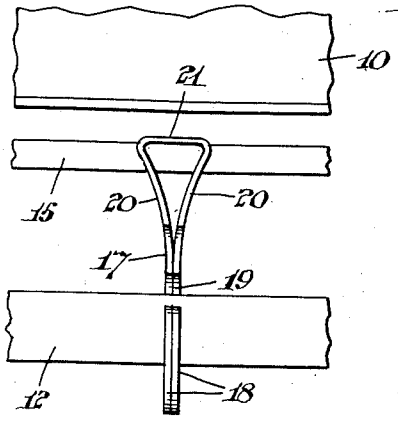




Fig. 2.

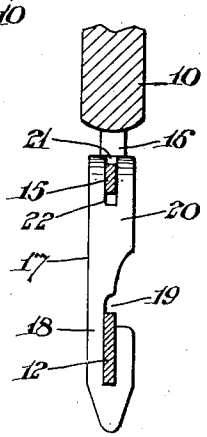



Fig. 3.

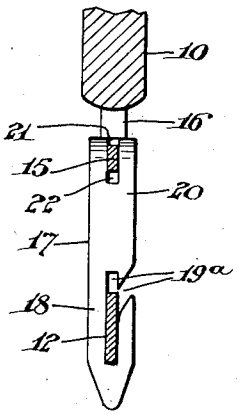



Fig. 4.

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2,301,628

## HEDDLE FRAME

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Application May 8, 1941, Serial No. 392,436

5 Claims. (Cl. 139—92)

This invention relates to heddle frames for looms and it relates more particularly to improved means for supporting the heddle bars intermediate the ends thereof.

Heretofore, various means have been employed to support the heddle bars of loom harness frames intermediate their ends, to prevent their displacement or distortion when subjected to the stresses and strains incident to the operation of the loom. The most common form of such devices comprises the so called "hook members" which are fixedly mounted in the top and bottom rails of the heddle frames at various places along the length thereof.

However, in the use of fixedly located hook members, the heddles are not permitted the requisite freedom of movement upon the heddle bars, which frequently results in warp streaks and in other defects in the weave. Recourse has been had to the so called "slide hooks" comprising supporting members slidably mounted on additional or auxiliary rods carried by the top and bottom rails of the frame. Various forms of such slide hooks have been devised, none of which, however, have proved entirely satisfactory.

One of the principal difficulties encountered in the use of slide hooks arises out of the wear caused by the movement of the slide hooks on the auxiliary bars. By reason of the relatively thin metal from which the slide hooks are made, very small bearing surfaces are provided at the places where they engage the auxiliary rods or bars. The slidable members soon wear through at this point and then become a source of danger when the shedding takes place.

The principal object of the present invention is to provide a form of slide hook which may be inexpensively made, but which will provide a relatively large bearing surface at the place where the same slides on the auxiliary rod.

A further object of the invention is to provide a simple form of slide hook which will not tend to turn or twist about its vertical axis, and thereby be caused to bind and become locked upon the auxiliary rod upon which it is mounted.

Further advantages obtainable by the invention will be readily apparent to those skilled in the art.

The nature and characteristic features of the invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

Figure 1 is an elevational view of a heddle frame, having mounted therein, heddle bar supporting devices embodying the main features of the present invention;

Fig. 2 is an enlarged fragmentary detail view showing, in front elevation and enlarged, a preferred form of slide hook as illustrated in Fig. 1, together with certain of the associated parts of the heddle frame;

Fig. 3 is a side elevation of a portion of the structure shown in Fig. 2, the rail, heddle bar, and auxiliary supporting rod, each being shown in section; and

Fig. 4 is a view similar to Fig. 3 illustrating a modified form of slide hook.

It will, of course, be understood that the description and drawing herein are illustrative merely, and that various modifications and changes may be made in the structure disclosed without departing from the spirit of the invention.

Referring to the drawing, the heddle frame there shown consists of the top and bottom rails or shafts 10, connected at their ends by means of the side strips 11. Extending from end to end of the heddle frame and arranged near the top and bottom rails 10 thereof, in the usual manner, are the heddle bars 12 upon which the heddles 13 are mounted. The end portions of the heddle bars 12 are mounted in the side strips 11 of the frame and are secured in place in the usual manner by the spring members 14.

The heddle frame is also provided with auxiliary supporting rods 15, each of said rods being preferably of non-circular cross section. The rods 15 are supported in the frame by means of screw eyes 16 which are mounted in the top and bottom rails 10 at the desired locations along the inner edges thereof.

Upon the rods 15 are mounted the slidable supporting members 17 comprising the principal novel part of the present invention. It should, of course, be understood that a number of said slidable members 17 is provided on each of the rods 15, the same being disposed thereon in suitable spaced relationship, the number employed depending in each instance upon the conditions, such as the length of the frame and the amount of strain imparted to the warp when the shedding takes place.

The preferred form of slidable supporting member 17 is shown in Figs. 1, 2, and 3 of the drawing. Said member as there shown, is preferably made by punching and forming the same from a strip of metal. Said member 17 has a vertically extending portion 18 of double thick-

ness, suitably recessed in any preferred manner, as for example, at 19 whereby said heddle bar when seated in said recesses 19 will be held against distortion or displacement in the frame.

Beyond the vertically extending portions 18 in which the recesses 19 are provided, the two sides are flared outwardly with respect to each other, as at 20, in a sweeping curve, and the ends of the flaring portions 20 are integrally united to a horizontally extending portion 21 which normally bears against one of the marginal edges of the auxiliary rod 15. Immediately adjacent the point of the joinder of the flaring portions 20 with the horizontal portion 21, said flaring portions are slotted as at 22 to permit the auxiliary rod 15 to pass therethrough. The slots 22 are preferably of somewhat greater depth than the width of the auxiliary rod 15 so as to insure complete freedom of movement of the hook member upon the auxiliary rod 15.

In Fig. 4 of the drawing there is shown a modified form of slide hook, the only difference being the shape of the recesses 19a in the vertical portions 18, which are provided to receive the heddle bars.

It will be seen that by the present invention there is provided a novel form of slide hook having many advantages over those at present commonly used. The horizontally extending portion will naturally cause the hook member to assume its proper position on the auxiliary rod, and will also provide an enlarged bearing surface which will not only serve to reduce wear at this point, but will also cause the hook member to be more freely moveable on the auxiliary rod.

The flaring of the side portions and the provision of the slots therein will effectively serve to prevent twisting and turning of the slide hook about its vertical axis and thus also act to insure greater freedom of movement when required. The form of the slide hook is also such that there is provided a double thickness of the vertical end portions, in the recesses of which the heddle bar is seated.

I claim:

1. In a heddle frame for looms comprising top and bottom rails, heddle bars upon which the heddles are mounted, auxiliary supporting rods carried by the top and bottom rails adjacent the inner edges thereof, and slidable members mounted on the auxiliary supporting rods for supporting the heddle bars intermediate their ends; said slidable members each comprising a unitary flat metallic strip bent and formed to provide a vertically extending portion which is recessed to receive the heddle bar, a horizontal portion extending along and bearing against one edge of the auxiliary supporting rod, and side portions flaring from the vertical portion and integrally joined to the respective ends of the horizontal portion.

2. In a heddle frame for looms comprising top and bottom rails, heddle bars upon which the heddles are mounted, auxiliary supporting rods carried by the top and bottom rails adjacent the inner edges thereof, and slidable members mounted on the auxiliary supporting rods for supporting the heddle bars intermediate their ends; said slidable members each comprising a unitary flat metallic strip bent and formed to bring the end portions of the strip together to provide a vertically extending portion of double thickness which is recessed to receive the heddle bar, a flat horizontal portion, and side portions flaring from the vertical portions beginning at a point between the heddle bar receiving recess and the auxiliary supporting rod and the ends of said flaring portions being integrally joined to the respective ends of the horizontal portion.

3. In a heddle frame for looms comprising top and bottom rails, heddle bars upon which the heddles are mounted, auxiliary supporting rods carried by the top and bottom rails adjacent the inner edges thereof, and slidable members mounted on the auxiliary supporting rods for supporting the heddle bars intermediate their ends; said slidable members each comprising a unitary flat metallic strip bent and formed to bring the end portions of the strip together to provide a vertically extending portion of double thickness which is recessed to receive the heddle bar, a horizontal portion extending along and bearing against one edge of the auxiliary supporting rod, and side portions flaring from the vertical end portions and integrally joined to the respective ends of the horizontal portion.

4. In a heddle frame for looms comprising top and bottom rails, heddle bars upon which the heddles are mounted, auxiliary supporting rods carried by the top and bottom rails adjacent the inner edges thereof, and slidable members mounted on the auxiliary supporting rods for supporting the heddle bars intermediate their ends; said slidable members each comprising a unitary flat metallic strip bent and formed to bring the end portions of the strip together to provide a vertically extending portion of double thickness which is recessed to receive the heddle bar, a horizontal portion extending along and bearing against one edge of the auxiliary supporting rod, and side portions flaring from the vertical end portions and integrally joined to the respective ends of the horizontal portion.

5. In a heddle frame for looms comprising top and bottom rails, heddle bars upon which the heddles are mounted, auxiliary supporting rods carried by the top and bottom rails adjacent the inner edges thereof, and slidable members mounted on the auxiliary supporting rods for supporting the heddle bars intermediate their ends; said slidable members each comprising a unitary flat metallic strip bent and formed to bring the end portions of the strip together to provide a vertically extending portion of double thickness which is recessed to receive the heddle bar, a horizontal portion extending along and bearing against one edge of the auxiliary supporting rod, and side portions flaring from the vertical end portions and integrally joined to the respective ends of the horizontal portion, said flaring portions having slots adjacent the horizontal portion through which slots the auxiliary rod extends.

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