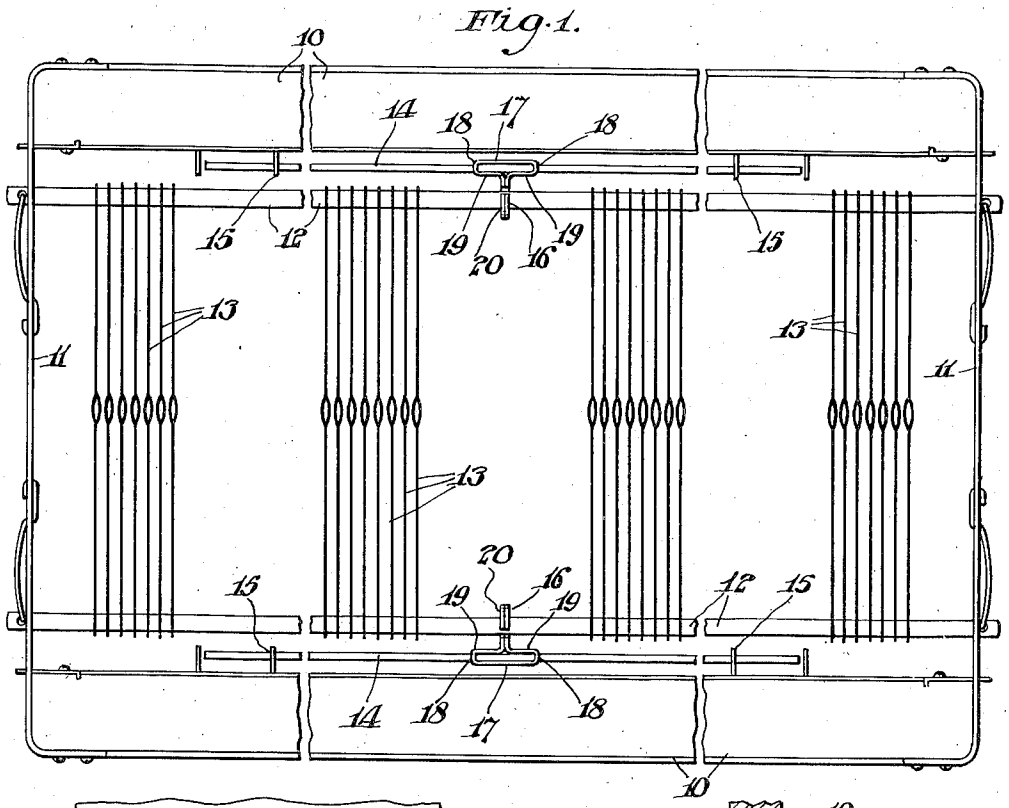
Aug. 12, 1941. J. J. KAUFMANN 2,252,183

HEDDLE FRAME

Filed Nov. 24, 1939

Fig. 1.



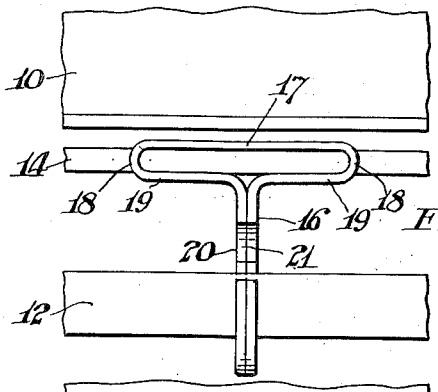


Fig. 2.

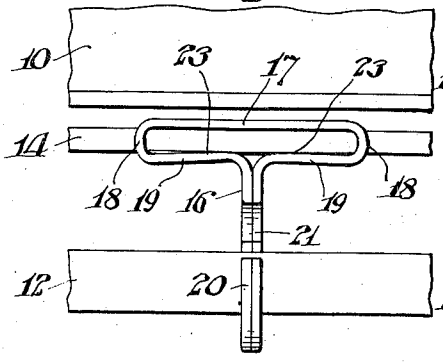


Fig. 5.

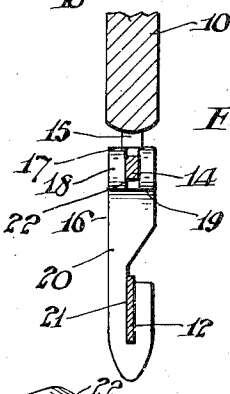


Fig. 3.

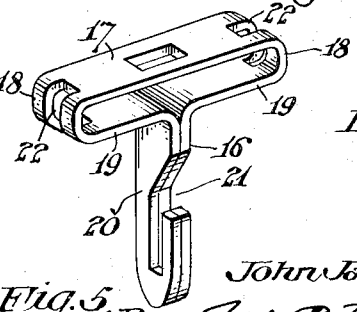


Fig. 4.

Inventor
John Jacob Kaufmann
By Jas. C. Hobenswith
Attorney.

Patented Aug. 12, 1941 2,252,183

UNITED STATES PATENT OFFICE

2,252,183

HEDDLE FRAME

John Jacob Kaufmann, Elkins Park, Pa., assignor to Steel Heddle Manufacturing Company, Philadelphia, Pa., a corporation of Pennsylvania

Application November 24, 1939, Serial No. 305,753

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 rods, which frequently results in warp streaks and in other defects in the weave. Recourse has therefore 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 to support the heddle bars has been their tendency to tilt and bind on their supporting rods and on the heddle bars, in which event they are more apt to cause defects in the weave than the permanently fixed but properly located hooks.

The principal object of the present invention is to provide a novel form of device for supporting the heddle bars intermediate their ends, in which device an auxiliary rod is employed having a hook member mounted thereon, which hook member may be made either freely slidable on said auxiliary rod, or which may be in such degree of frictional engagement therewith as to cause said hook member normally to remain in any given position to which it may be manually shifted.

A further object of the invention is to provide in a device of the character aforesaid a form of slide hook which when mounted on the auxiliary rod so as to be freely slidable thereon, there will be no tendency of the slide member to bind and be undesirably held in a fixed position.

A further object of the invention is to provide a form of slide hook for loom heddle frames which will have the aforesaid advantages, but which may also be interchangeably used in connection with the other parts of the loom harness frames at present in common use.

A further object of the invention is to provide a slide hook having the aforesaid advantages, in the use of which wear of the supporting rod, as well as of the heddle bars, will be reduced to a minimum.

A further object of the invention is to provide a form of slide hook which may be inexpensively made yet have the advantages above set forth.

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 thereof, 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, in front elevation, of 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, being shown in section;

Fig. 4 is a perspective view of one of the slide hooks, detached; and

Fig. 5 is a view simliar to Fig. 2 but 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 changes and modifications 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 thereof in the usual manner, are the heddle bars 12 upon which the heddles 13 are mounted.

The heddle frame is also provided with auxiliary supporting rods 14, each of said rods being preferably of non-circular cross section. The rods 14 are supported in the frame by means of screw eyes 15, which are mounted in the top and bottom rails 10 at the desired locations along the inner edges thereof.

Upon the rods 14 are mounted the slidable supporting members 16 comprising the principal novel part of the present invention. While in

Figure 1 of the drawing, there is shown but a single one of the slidable members 16 on each of the rods 14, it should, however, be understood that in actual practice a plurality of such slidable members is mounted on each of said rods, the number employed depending in each instance upon the conditions, such as the length of the frame and the amount of strain imparted by the warp when the shedding takes place.

The preferred form of slidable supporting member 16 is shown in Figs. 1 to 4 of the drawing. As there shown, the same is symmetrical and is preferably made by punching and forming from a single continuous flat metal strip.

The central part of the strip, from which the slidable hook member 16 is made, extends horizontally, as at 17, along one edge of the rod 14, preferably bearing against the same throughout its length. At each end of the horizontal portion 14, the strip is bent around vertically, as at 18, and then horizontally, as at 19, said horizontal portions 19 extending along and engaging the other edge of the rod 14.

The ends of the strip are bent to form a vertically extending portion 20 of double thickness, the two parts being secured to each other by spot welding, brazing, riveting or other permanent fastening means. These vertically extending portions 20 are suitably recessed in any preferred form, for example, as shown at 21 for the reception of the heddle bar 12 whereby said heddle bar, when seated in said recess 21, will be held against distortion or displacement in the frame.

The vertically extending portions 18 at the ends of the horizontal portions 17 and 19 are slotted, as at 22, to permit the mounting of the device on the rod 14 which extends through said slots. The slots 22 preferably extend into the horizontal portions 17 and 19 for a short distance for the purpose of facilitating the forming of the slide hook from the punched strip.

By the foregoing arrangement, the supporting member is provided with extended bearing surfaces which engage the respective edges of the rod, said bearing surfaces being of substantial area. There is thus assured, when desired, complete freedom of movement of the supporting member 16 on the auxiliary rod, so that whenever the heddles tend to crowd against the same, proper accommodation will automatically be made and the formation of warp streaks and other defects in the cloth, by reason of such crowding of the heddles against the supporting hook member, will be eliminated.

Likewise, the extended bearing surfaces provided will tend to reduce the wear to a minimum, and a longer life of the supporting member, as well as of the auxiliary rod and the heddle bars, will be obtained.

It is sometimes desirable that the hook member be shiftable yet be substantially fixed at a certain location longitudinally in the frame, and for this purpose the hook member of the present invention has been found particularly adaptable, it being necessary merely to locate and shape the horizontally extending portions, with respect to each other, so that the same will engage the two edges of the auxiliary supporting rod with a sufficient degree of friction whereby the same will remain fixed in any desired position, after being shifted manually upon said rod to such position whenever required. This feature is illustrated in Fig. 5 of the drawing wherein the horizontally extending portions 19 are bent toward the horizontally extending portion 17 bearing against the edges of the rod 14, as at 23, with the requisite degree of frictional engagement.

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 being symmetrical and each having horizontal portions engaging the respective edges of the auxiliary supporting rod upon which it is mounted, end portions connecting the horizontally extending portions and having slots through which the auxiliary supporting rod extends, and a vertically extending portion of double thickness recessed for the positioning of a heddle bar therein.

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 being symmetrical and each having horizontal portions engaging the respective edges of the auxiliary supporting rod upon which it is mounted, end portions connecting the horizontally extending portions and having slots through which the auxiliary supporting rod extends, and a vertically extending portion of double thickness recessed for the positioning of a heddle bar therein, the parts of said vertically extending portion being permanently united to each other.

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 being symmetrical and being punched and formed from a single integral and continuous strip of metal, each of said slidable members having horizontal portions engaging the respective edges of the auxiliary supporting rod upon which it is mounted, end portions connecting the horizontally extending portions and having slots through which the auxiliary supporting rod extends, and a centrally disposed vertically extending portion of double thickness recessed for the positioning of a heddle bar therein, the parts of said vertically extending portion being permanently united to each other.

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 being symmetrical and being punched and formed from a single integral strip of metal, the strip from which each of said slidable members is formed having its central portion extending horizontally and engaging one edge of the auxiliary supporting rod upon which it is mounted, portions at the ends of said horizontally extending portion bent around and having slots through which the auxiliary supporting rod extends, horizontal portions

extending inwardly from said end portions and engaging the other edge of the auxiliary supporting rod, and the end portions of the strip extending vertically from said last mentioned horizontal portions in contiguous relationship, said vertically extending portions being recessed for the positioning of a heddle bar therein.

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 being symmetrical and being punched and formed from a single integral strip of metal, the strip from which each of said slidable members is formed having its central portion extending horizontally and engaging one edge of the auxiliary supporting rod upon which it is mounted, portions at the ends of said horizontally extending portion bent around and having slots through which the auxiliary supporting rod extends, horizontal portions extending inwardly from said end portions and engaging the other edge of the auxiliary supporting rod, and the end portions of the strip extending vertically from said last mentioned horizontal portions in contiguous relationship, said vertically extending portions being permanently united to each other and recessed for the positioning of a heddle bar therein.

JOHN JACOB KAUFMANN.