Oct. 15, 1935. J. J. KAUFMANN 2,017,412

HEDDLE FRAME

Filed June 13, 1934

Fig. 1.

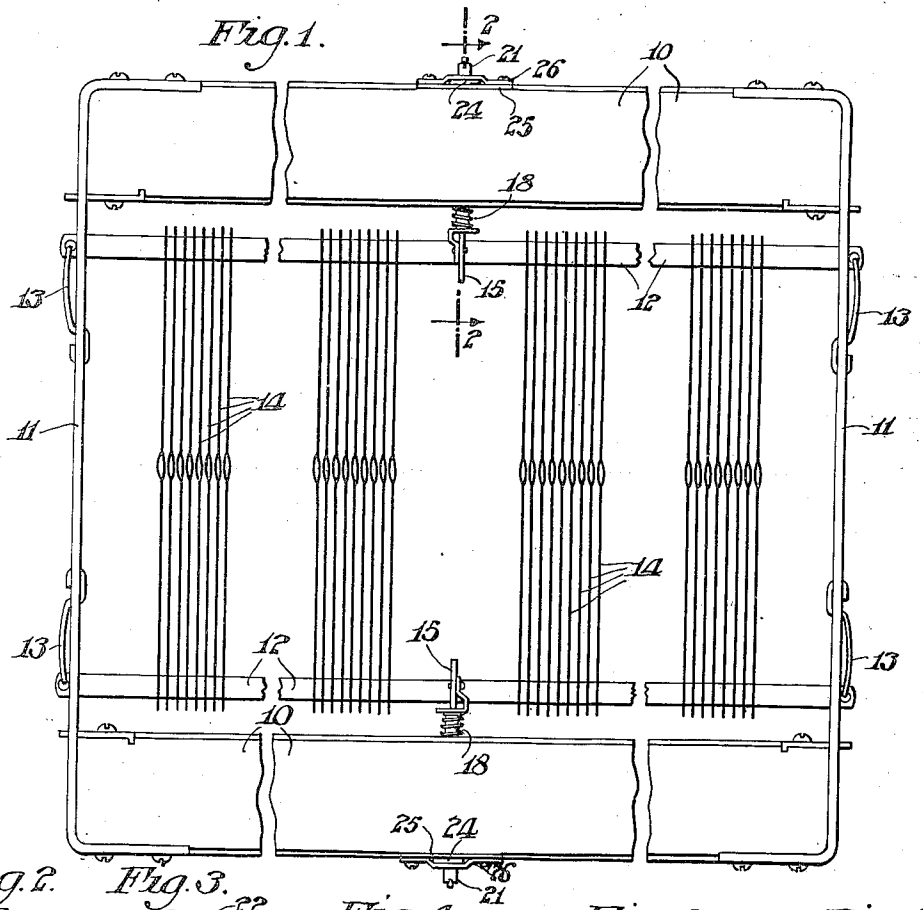


Fig. 2.

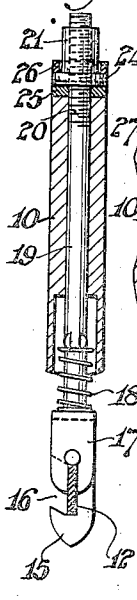


Fig. 3.

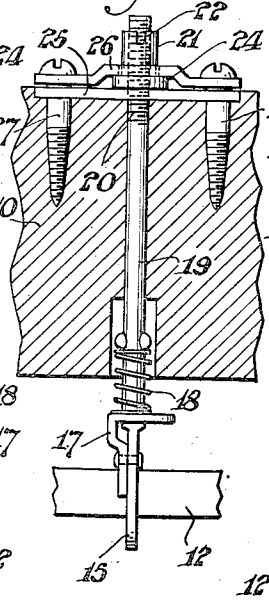


Fig. 4.

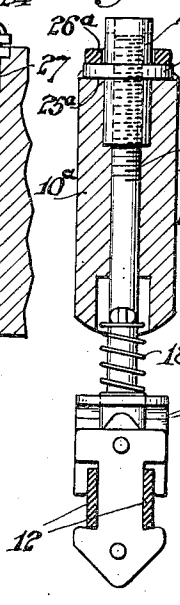


Fig. 5.

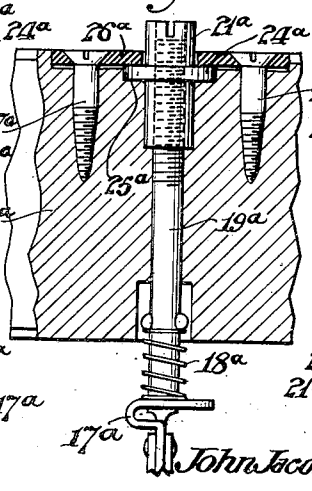


Fig. 6.

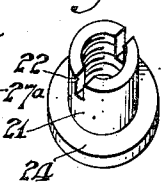
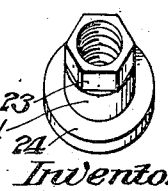


Fig. 7.



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UNITED STATES PATENT OFFICE

2,017,412

HEDDLE FRAME

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Application June 13, 1934, Serial No. 730,416

14 Claims. (Cl. 139—92)

My invention relates to heddle frames for looms, and relates more particularly to certain improvements in the devices for supporting the heddle bars intermediate their ends which are employed in heddle frames of the type at present most commonly used.

Heretofore, one of the principal difficulties encountered in the use of heddle frames in which the top and bottom rails are made of wood, in which devices are mounted for supporting the heddle bars intermediate their ends, has been that the wooden rails would become distorted and thereby disturb the alinement and parallelism of the heddle bars. It is, of course, well understood that the heddle bars must be maintained in the proper spaced and parallel relationship, as otherwise the heddles will bind on the bars and imperfections in the weave will result.

In the devices heretofore used, in which provision is made for adjustment of the heddle bar supporting device with respect to the rail in which it is mounted, it has been necessary to remove the heddle bars from the supporting devices while the adjustment is being made. This is awkward and unsatisfactory, as it will be readily seen that the adjustment can be accomplished more quickly and in a more satisfactory manner if done while the heddle bars are mounted in the supporting devices.

The principal object, therefore, of my present invention is to provide, in connection with devices for supporting the heddle bars intermediate their ends, improved means for adjusting said devices with respect to the top and bottom rails in which they are mounted, to the end that the heddle bars may readily be brought to the proper spaced and parallel relationship when required.

A further object of my invention is to provide, in connection with devices for supporting the heddle bars intermediate their ends, improved means for adjusting said supporting devices with respect to the top and bottom rails in which they are mounted, which will be simple and efficient, and which may be inexpensively constructed.

A further object of my invention is to provide, in connection with the heddle bar supporting devices, a means of adjustment of the same with respect to the top and bottom rails, which may be easily and conveniently actuated without removing the frames from the loom and without removing the heddle bars from the supporting devices in which they are mounted.

The nature and characteristic features of my present 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 provided with heddle bar supporting devices, having improved means for adjusting the same with respect to the top and bottom rails of the heddle frame, said means embodying the main features of my present invention;

Fig. 2 is an enlarged vertical section, taken approximately on the line 2—2 of Fig. 1;

Fig. 3 is a side elevation of the supporting device shown in Fig. 2, the rail in which the same is mounted being shown in section;

Fig. 4 is a view similar to Fig. 2, illustrating a modified form of my invention;

Fig. 5 is a side elevation of the supporting device shown in Fig. 4, portions being shown in section;

Fig. 6 is a perspective view, enlarged, of the adjusting nut or sleeve shown in Figs. 2 and 3; and

Fig. 7 is a similar perspective view of a modified form of said adjusting nut or sleeve.

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

Referring now more particularly to Figs. 1 to 3 of the drawing, the heddle frame there shown comprises top and bottom rails 10, usually made of wood and connected at their end portions by metallic end struts 11. The heddle bars 12 are mounted in the frame in the customary manner, with their respective end portions supported in the end struts 11 and secured therein in the usual manner by spring members 13. The heddles 14, which may be of any preferred type, are mounted on the heddle bars 12 in the customary manner.

The inner end portion of the supporting device which engages each of the heddle bars 12 may be of any preferred construction, such for example as that shown in my previous Letters Patent No. 1,709,583, comprising a flattened member 15 having a recess 16 to receive the heddle bar 12, the heddle bar being held in said recess by means of a locking member 17 which is impelled to the locking position by means of a coil spring 18.

In the present invention, the bolt 19, upon the inner end of which the flattened member 15 is integrally formed, extends entirely through the rail 10, the outer end thereof being suitably

threaded as at 20, over a substantial portion of its length. The threaded end 20 of the bolt 19 is engaged by a complementally threaded nut or sleeve 21. The exposed end of the sleeve 21 may be provided with a slot 22, for engagement by a suitable tool for the purpose of rotating said sleeve to effect the adjustment, as will be hereinafter more fully set forth, or it may be hexagonally shaped as shown at 23 in Fig. 6 of the drawing.

The sleeve 21 is provided with an annular shoulder 24, one face of which bears against a metallic plate 25, and the other face of which is engaged by another metallic plate 26. The plates 25 and 26 are secured on the outer edge of the rail 10 by means of wood screws 27, the arrangement being such that when the wood screws 27 are tightened in place the shoulder 24 of the threaded sleeve 21 will be frictionally gripped between said plates 25 and 26, and undesirable rotation thereof thereby prevented.

In the modified form shown in Figs. 4 and 5 of the drawing, the inner end of the bolt member 19a is shown as provided with a heddle bar engaging device of the type shown in my previous Letters Patent No. 1,821,647. A heddle bar engaging device of this general type is preferred where a pair of heddle supporting bars are mounted both at the top and at the bottom of the frame, for supporting a double set of heddles in a single frame, as is often done, particularly in looms for the weaving of fabrics of high count. In this type of frame, the top and bottom rails 10a are usually much thicker, so that a somewhat different form of threaded sleeve 21 may be employed for engaging the threaded outer end of the bolt 19a.

In the form as shown, the shoulder 24a of the threaded sleeve 21a is located intermediate the ends of said sleeve, and the rail 10a is counterbored complementally. There is also provided but a single plate 26a, for engaging one face of the annular shoulder 24a, the other face of said shoulder bearing against the seating surface 25a provided by the counterbore in the rail 10a. Here again, the arrangement is such that when the wood screws 27a are tightened the shoulder 24a of the threaded sleeve 21a will be frictionally gripped between the plate 26a and the seat 25a provided in the counterbore, and undesirable rotation of said sleeve will thereby be prevented.

It will be noted that the positioning of the annular shoulder 24 between the two plates 25 and 26, as in Figs. 2 and 3, or between the plate 26a and the seat 25a provided in the rail 10a, as in Figs. 4 and 5, results in the thrust in both directions on the bolt member 19 or 19a being taken up by the shoulder 24 or 24a. Hence the nut usually provided at the inner edge of the rail 10 is dispensed with, as is also the necessity for threading the bolt member 19 over a greater portion of its length.

The operation of the device will be readily understood. Should it be found, in the operation of the loom, that the heddles 14 are binding or are restrained against free sidewise movement on the heddle bars 12 at any particular point, by reason of distortion of one or the other of the rails 10, the threaded sleeve 21 is turned by means of a suitable tool to bring the heddle bar supported from said rail in proper parallel relationship with respect to the heddle bar supported from the other rail.

It will be apparent that this may be readily accomplished without removing the heddle frame from the loom, and without removing the heddle bar from the supporting device. The adjustment may be expeditiously accomplished, and no particular skill is required for effecting the same.

I claim:

1. A supporting device for the heddle bars of loom harness frames including a bolt member, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a pair of plates between which said shoulder is positioned, and screws mounted in the rail of the frame for securing said plates in position.

2. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, and gripping means mounted on the rail of the frame for restraining said threaded member against rotation.

3. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion and extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, and gripping means mounted on the rail for restraining said threaded member against rotation.

4. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, said member having an annular shoulder, a plate bearing against said shoulder, and means for imparting gripping tension to said plate.

5. A supporting device for the heddle bars of loom harness frames including a bolt member, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a plate bearing against said shoulder to restrain said member against rotation, and screws mounted in the rail for securing said plate in position and for imparting gripping tension thereto.

6. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, said member having an annular shoulder, a plate bearing against said shoulder, and means for imparting gripping tension to said plate.

7. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, said member having an annular shoulder, a plate bearing against said shoulder, and means mounted in the

rail for securing said plate in position and for imparting gripping tension thereto.

8. A supporting device for the heddle bars of loom harness frames including a bolt member extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a plate bearing against said shoulder, and screws mounted in the rail for securing said plate in position and for imparting gripping tension thereto.

9. A supporting device for the heddle bars of loom harness frames including a bolt member extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a pair of plates between which said shoulder is positioned and gripped, and means for imparting gripping tension to said plates.

10. A supporting device for the heddle bars of loom harness frames including a bolt member extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a pair of plates between which said shoulder is positioned and gripped, and means mounted in the rail for securing said plates in position and for imparting gripping tension thereto.

11. A supporting device for the heddle bars of loom harness frames including a bolt member extending entirely through the rail of the frame, said bolt member having a threaded end portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a pair of plates between which said shoulder is positioned and gripped, and screws mounted in the rail for securing said plates in position and for imparting gripping tension thereto.

12. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, and means engaging a portion of said threaded member to position said bolt member in the rail of the frame.

13. A supporting device for the heddle bars of loom harness frames including a bolt member provided with a heddle bar supporting portion, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member for adjusting the position of said heddle bar supporting portion, said member having an annular shoulder, and means engaging said shoulder to position said bolt member in the rail of the frame.

14. A supporting device for the heddle bars of loom harness frames including a bolt member, said bolt member having a threaded portion, a complementally threaded member mounted on said bolt member and having an annular shoulder, a pair of plates between which said shoulder is positioned, and means mounted in the rail of the frame for securing said plates in position.

JOHN JACOB KAUFMANN.