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HARNESS FRAME FOR LOOMS

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Fig. 1.

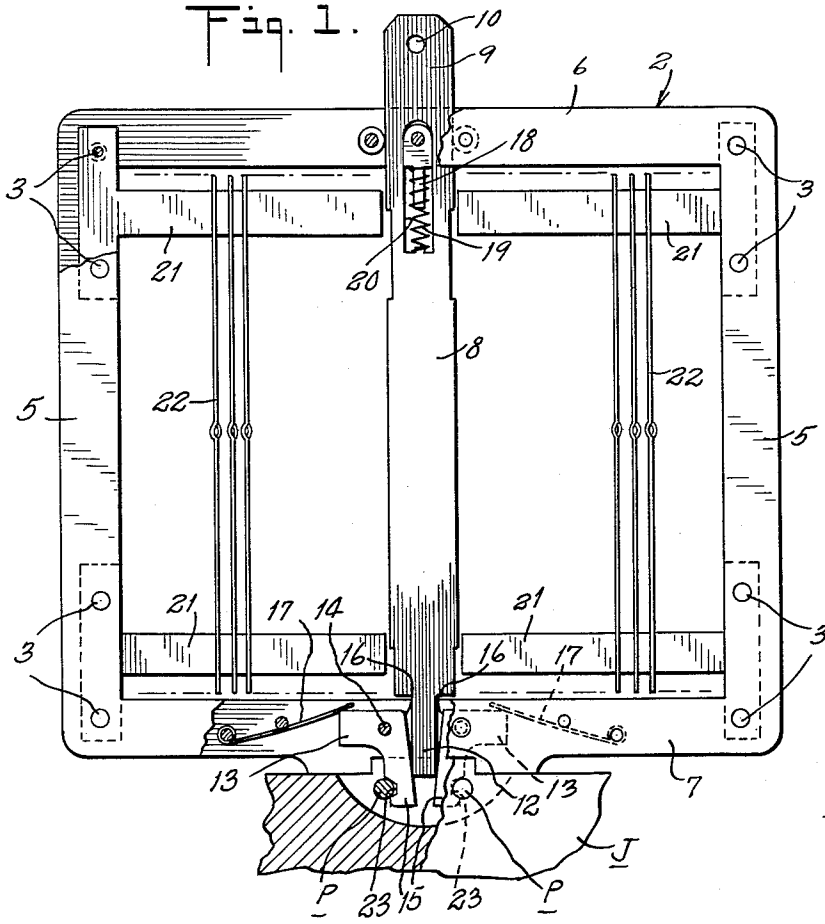



Fig. 2.

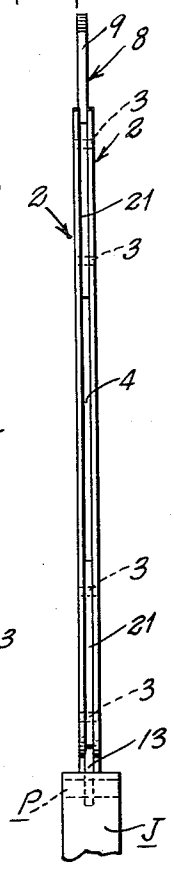
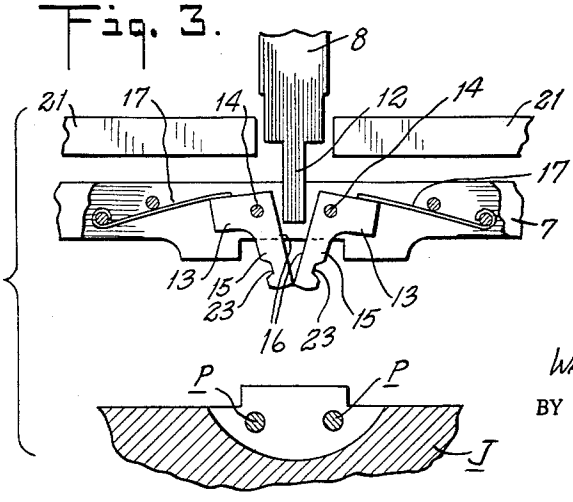



Fig. 3.




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# HARNESS FRAME FOR LOOMS

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This invention relates to harness frames for looms, and particularly to an improved harness frame for use with looms for weaving narrow fabrics, such as tapes, webbing and the like.

The harness or heddle frame of the present invention is particularly adaptable for looms of the so-called "shuttleless" or needle type, wherein the weft or filler thread is projected into and through the shed of the warp threads by a reciprocating filling finger or weft needle.

It is the general object of the present invention to provide an improved harness frame which may be easily and quickly connected to or removed from a jack of a loom with the least amount of effort.

It is another object of this invention to provide a new and novel harness frame which is light in weight and consists of a minimum number of parts which may be easily and conveniently assembled.

It is a further object of the invention to provide a harness frame having an improved detachable connecting means arranged therewith whereby the harness frame may be automatically connected to means carried by a jack of a loom for holding the harness frame securely and firmly in position thereon.

Various other objects and advantages of this invention will be more apparent in the course of the following specifications, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, an embodiment which our invention may assume in practice.

In these drawings:

FIG. 1 is a front elevational view, partly in section, of the improved harness or heddle frame in accordance with the present invention, showing it attached to a jack of a loom,

FIG. 2 is a side elevational view thereof,

FIG. 3 is a fragmentary view of the bottom portion of the harness frame, partly in section, showing it detached from the jack of the loom.

Referring more particularly to the drawings, the improved harness or heddle frame of the present invention consists preferably of a pair of identical rectangular-shaped frame or members **2** which are made preferably of flat metallic stock but may be made from any other suitable material. These members are positioned in superimposed relation and are preferably secured together by means of a plurality of rivets **3** so as to provide a space **4** therebetween. Thus, it will be seen that there is provided a rectangular frame having a pair of side portions **5**, a top portion **6** and a bottom portion **7**.

Centrally of this frame, there is arranged in the space **4** between the members **2**, a vertical bar **8** which is movable vertically relative to the frame for a purpose hereinafter to be described. The upper end of this vertical bar **8** extends above the top portion **6** of the frame, as at **9**, and has an aperture **10** arranged therein. On the lower end of this vertical bar, there is arranged an extension **12** which extends into the space **4** between the two members **2** at the bottom portion **7** of the frame.

There is arranged in the space **4** between the members **2** at the bottom portion **7** of the frame, a pair of spaced-apart opposed dog members **13** which are pivotally attached to this bottom portion by means of pins **14**. On the lower end of each of these dog members **13**, there is arranged a hook-shaped portion **15** which extends below the bottom portion **7** of the frame. The lower extension **12** of the vertical bar **8** is disposed between these pair of dog members **13** and cooperates with the opposed inner side walls **16** thereof to force these dog members **13** outwardly away from one another about their respective pivotal connections **14** against the action of the respective leaf springs **17** arranged therewith.



In the space **4** between the frame members **2** at the top portion **6** of the frame, there is arranged preferably a downwardly extending pin-like portion **18** around which there is arranged a coil spring **19** which is disposed in a slotted opening **20** in the vertical bar **8** and which cooperates therewith to urge this vertical bar downwardly at all times.

There is arranged in the space **4** between the members **2** at each side thereof four inwardly extending parallel horizontal cross-bars **21** which are secured to the side portions of the frame by the rivets **3**. The inner ends of each of these cross-bars terminate adjacent the sides of the vertical bar **8** centrally of the frame members **2**. There is arranged on these cross-bars **21**, a plurality of heddles **22** for guiding the warp threads into the loom in a manner well known to those skilled in the art.

On the outer side of each of the hook-shaped portions **15** of the dog members **13**, there is provided a notch **23** which cooperate with a pair of pins P carried by jacks J of the loom in a manner to be presently described.

Having described the construction of the improved harness or heddle frame of the present invention, it is assembled on a jack of the loom in the following manner. The extension **9** of the vertical bar **8** is grasped and moved upwardly against the action of the coil spring **19**. In such movement, it will be seen that the lower extension **12** of this vertical bar will be moved out of engagement with the inner sides of the dog members **13** thereby permitting these dog members to move toward one another about their respective pivotal connections at **14** until the inner sides abut one another due to the action of the leaf springs **17** as clearly shown in FIG. 3 of the drawings.

The harness frame is then positioned on top of the jack so that the lower ends **15** of the dog members **13** are positioned in the space between the pair of opposed pins P carried by a jack J. The vertical bar **8** is then released and the lower extension **12** carried thereby moves the dog members **13** about their respective pivotal connections **14** so as to position the notches **23** in the outer sides of the portions **15** in engagement with the respective pins P so as to lock securely the harness frame in position on the jack in readiness for operation. The reverse procedure is followed for removing and detaching the harness frame from the jack.

As a result of our invention, it will be seen that there is provided an improved harness or heddle frame which can be easily and quickly assembled on or removed from the jacks of the loom. It will also be seen that the harness frame of the present invention is provided with improved detachable connecting means whereby the harness frame is held rigidly and securely in engagement with the jack of the loom and, at the same time, may be conveniently manipulated to attach or remove the harness frame from its position on the jack.

While we have shown and described an embodiment which our invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and description, and that other forms may be devised within the scope of our invention as designed in the appended claims.

What we claim as our invention is:

1. A loom harness comprising a rectangular-shaped

frame consisting of a pair of flat members secured together in superimposed relation so as to provide a space therebetween, and so as to provide a pair of side portions, a top portion and a bottom portion,

a vertical bar arranged centrally of the frame in the space between said flat members, said vertical bar being movable vertically relative to said frame and having an extension arranged on the lower end thereof,

a pair of opposed spaced-apart dog members pivotally arranged in the space between the flat members at the bottom portion of the frame centrally thereof, said extension disposed between said dog members with which it is adapted to cooperate, said dog members adapted to engage means carried by a jack of the loom for removably connecting the frame thereto,

a pair of horizontal cross-bars arranged to either side of said vertical bar which are disposed in the space between the side portions of said frame and to which they are attached, and

a plurality of heddles extending between and carried by said cross-bars.

2. A loom harness, as defined in claim 1, including biasing means for urging the extension of said vertical bar into engagement with the dog members whereby the dog members are moved into engagement with the engaging means carried by the jack.

3. A loom harness comprising a rectangular-shaped frame consisting of a pair of flat members secured together in superimposed relation so as to provide a space therebetween, and so as to provide a pair of side portions, a top portion and a bottom portion,

a vertical bar arranged centrally of the frame in the space between said flat members, said vertical bar being movable vertically relative to said frame and having an extension arranged on the lower end thereof,

a pair of opposed spaced-apart dog members pivotally arranged in the space between the flat members at the bottom portion of the frame centrally thereof having hook-shaped portions carried thereby, said extension disposed between said dog members with which it is adapted to cooperate and with the hook-shaped portions of said dog members adapted to engage a pair of spaced-apart pins carried by a jack of the loom for removably connecting the frame thereto,

a pair of horizontal cross-bars arranged to either side of said vertical bar which are disposed in the space between the side portions of said frame and to which they are attached, and

a plurality of heddles extending between and carried by said cross-bars.

4. A loom harness, as defined in claim 3, including biasing means for urging the extension of said vertical bar into engagement with the dog members whereby the dog members are moved into engagement with the pins carried by the jack.



5. A loom harness, as defined in claim 3, including biasing means for moving the hook-shaped portions of the dog members into engagement with the pins carried by the jack.

6. A loom harness comprising a frame consisting of a pair of substantially identical rectangular-shaped members positioned in superimposed relation so as to provide a space therebetween and so as to provide a pair of side portions, a top portion and a bottom portion,

at least a pair of spaced-apart horizontal cross-bars extending between said side portions and disposed in the space therebetween and secured thereto,

a plurality of heddles extending between and carried by said cross bars and supported thereby,

means arranged centrally of said bottom portion for detachably connecting the frame to the upper end of a jack of the loom, and

a vertical bar arranged in the space between said members centrally of said frame which is movable vertically relative to said frame,

said vertical bar adapted to actuate said last mentioned means for attaching the frame to and detaching the frame from a jack of the loom.

7. A loom harness, as defined in claim 6, wherein the means arranged centrally of the bottom portion for detachably connecting the frame to the upper end of a jack of the loom consists of a pair of opposed spaced-apart dog members arranged in the space between the members at the bottom portion of the frame and pivotally attached thereto and which cooperate with the lower end of the vertical bar, each of said dog members having a hook-shaped portion carried thereby which engages a pair of spaced-apart pins carried by the upper end of the jack of the loom.

8. A loom, as defined in claim 7, including biasing means arranged with said frame for urging and holding the vertical bar in its downward position in engagement with said dog members and biasing means for moving the hook-shaped portions of the dog members into engagement with the pins carried by the jack.

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