

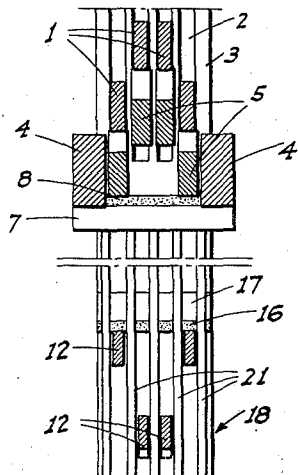
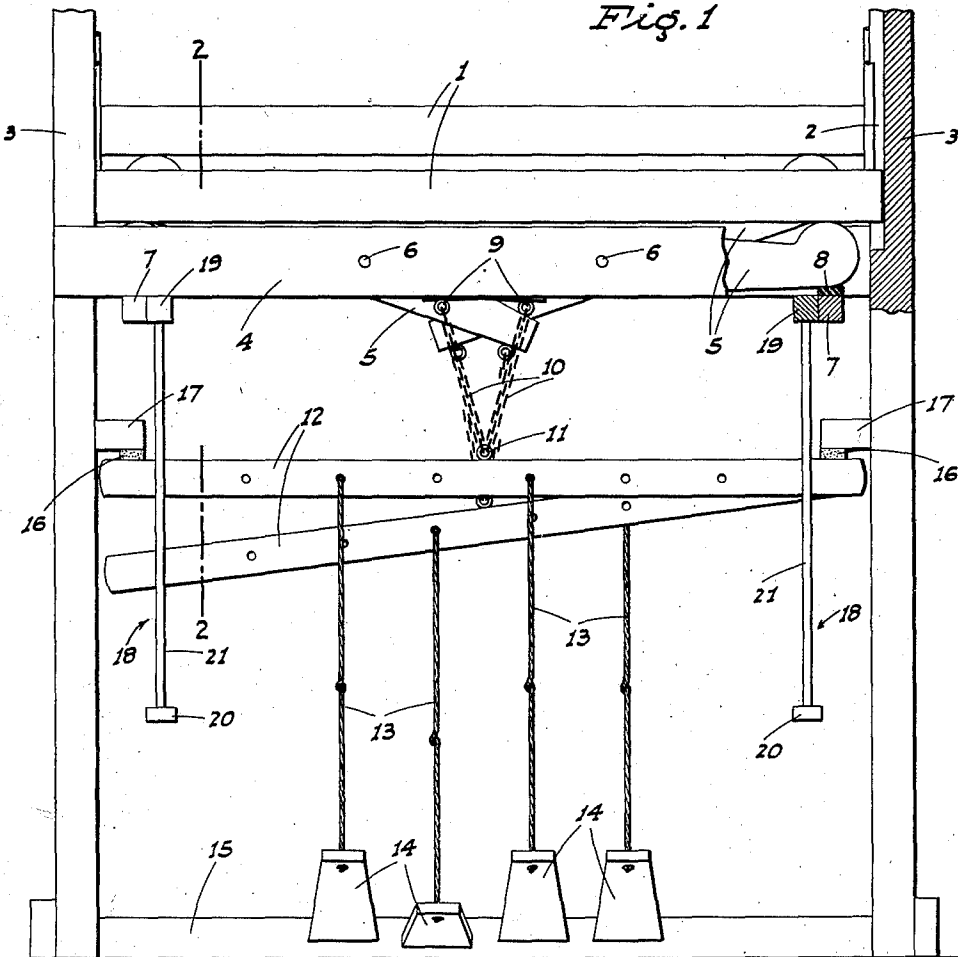
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LAM MOUNTING FOR LOOMS

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LAM MOUNTING FOR LOOMS

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This invention relates in general to improvements in loom harness operating mechanism, and in particular is directed to an improvement of the lam mounting arrangement shown in my United States Patent No. 2,250,061, dated July 22, 1941.

An object of the present invention is to provide a novel lam mounting arrangement designed to function easily and smoothly whereby to prevent unnecessary exertion and tiring of the operator.

A further object of the invention is to provide a lam mounting arrangement wherein the lams are not pivoted at the ends as in the previous patent and are free at said ends so that either end may lower; one end lowering upon depression of a treadle on the corresponding side of the central suspension chains, while the other end lowers upon depression of a treadle on the opposite side of said chains. With such arrangement an advantageous leverage is obtained on every lam when the corresponding treadle is depressed.

An additional object of the invention is to provide novel guides, and cushion stops, for the swingably mounted lams; the cushion stops being engaged from below by opposite end portions of the lams and each such stop forming a fulcrum for the adjacent end of each lam as the latter is swung downward at its opposite end.

A further object of the invention is to provide a simple and inexpensive lam mounting for looms, and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a front elevation of a loom harness operating mechanism embodying the present invention; said mechanism being shown partly in section.

Fig. 2 is a fragmentary cross section on line 2—2 of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, the invention is incorporated in a loom harness operating mechanism which includes a plurality of horizontal harness frames 1 disposed in normally side by side relation and arranged for independent vertical motion; the ends of the harness frames 1 being carried in corresponding vertical grooves 2 of uprights 3 included in the loom frame.

Below the assembly of the harness frames

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there are a pair of horizontal cross bars 4 connected between the uprights 3 on opposite sides thereof. Substantially longitudinally aligned pairs of normally horizontal jacks 5 are disposed in side by side relation between the horizontal cross bars 4 and in cooperative relation to corresponding ones of the harness frames 1. The jacks 5 are rotatably mounted, intermediate their ends, on pivot pins 6 which extend between the horizontal cross bars 4. The jacks 5 are thus mounted for upward swinging motion from their normally horizontal positions whereby to raise the corresponding harness frames 1. The pivots 6 are disposed relative to the ends of the jacks 5 so that the latter tend to lower at their outer ends, and said jacks are prevented from swinging, at said outer ends, below horizontal by suitable blocks 7 cushioned on top, as at 8. The stop blocks 7 are fixed in connection with, and extend transversely below, the horizontal bars 4.

Each pair of jacks 5 lap somewhat at their adjacent ends, and said lapped portions are provided with eyes 9, between which a chain loop 10 connects, said chain loop being dependent and extending through an eye 11 fixed on a corresponding one of the lams 12 of the loom centrally of the ends of such lam; there being a plurality of said lams 12 disposed in normally horizontal side by side relation corresponding to the jacks 5 and harness frames 1. A flexible pull cord 13 depends from each lam downwardly to connection with a treadle 14 hinged on a bottom cross bar 15 of the loom. The flexible pull cords 13 are spaced apart crosswise of the loom in generally symmetrical relation, and thus attach to the lams 12 at correspondingly spaced points; some of which are to the right and some of which are to the left of the eyes 11.

To this point the loom harness operating mechanism is much the same as in the identified patent, but the lams 12 are mounted in a modified manner, for more effective operation, as follows:

Each of the lams 12 is free at its ends for downward swinging motion but said ends normally abut, under the lifting action of the jacks 5, against cushions 16 on the bottom of stop blocks 17 projecting laterally inwardly from the uprights 3.

Between the cushioned stop blocks 17 and the chain connected eyes 11, the lams extend in guided relation through guide units 18 mounted in connection with, and depending vertically from, the stop blocks 7. Each such guide unit includes a head 19, a foot 20, and a plurality

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of spaced guide rods 21 disposed in vertical side by side relation transversely of said lams 12.

With the above arrangement, it will be seen that upon depression of any one of the treadles 14 the lam is swung downwardly at the corresponding end relative to the eye 11; such lam then bearing on the opposite end cushion 16 as a fulcrum. See Fig. 1 wherein a left-hand one of the treadles is depressed, causing downward swinging movement of the connected lam at the left-hand end and fulcruming of its right-hand end about the engaged cushion 16. Upon downward swinging of each lam 12, at one end or the other, the connected chain loop 19 swings the corresponding pair of jacks downwardly at their inner ends and upwardly at their outer ends to raise the engaged harness frame f.

With the above arrangement the lams 12 need no pivotal connection with the structure, as in the identified patent, and are free to swing downward at either end, depending upon which treadle is depressed. In the present embodiment the lam mounting arrangement is not only practical and simplified, but functions very smoothly and easily, minimizing tiring of the loom operator.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, a pull element depending from each lam, and a treadle attached to the lower end of each pull element.

2. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, a pull element depending from each lam, the pull elements being disposed with a number thereof on opposite sides of corresponding actuating elements, and a treadle attached to the lower end of each pull element.

3. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and

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the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, a pull element depending from each lam, the pull elements being disposed with a number thereof on opposite sides of corresponding actuating elements, a treadle attached to the lower end of each pull element, the jack units tending to lift the corresponding elements, and stops disposed above opposite end portions of each lam to limit lifting thereof.

4. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, a pull element depending from each lam, the pull elements being disposed with a number thereof on opposite sides of corresponding actuating elements, a treadle attached to the lower end of each pull element, the jack units tending to lift the corresponding elements, and stops disposed above opposite end portions of each lam to limit lifting thereof, each stop having a lam engaging cushion thereon.

5. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, vertical guide units through which the lams extend adjacent their opposite end portions, a pull element depending from each lam, the pull elements being disposed with a number thereof on opposite sides of corresponding actuating elements, and a treadle attached to the lower end of each pull element.

6. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, vertical guide units through which the lams extend adjacent their opposite end portions, a pull element depending from each lam, the pull elements being disposed with a number thereof on opposite sides of corresponding actuating elements, and a treadle attached to the lower end of each pull element; each vertical guide unit including a head, a foot, and a plurality of vertical guide rods connected therebetween in spaced relation in a plane transversely of the lams.

7. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with

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the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, a pull element depending from each lam, and a treadle attached to the lower end of each pull element; said actuating elements being flexible.

8. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, an actuating element connected between each lam at a point intermediate its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward vertical swinging motion at either end from a normally substantially horizontal position, a pull element depending from each lam, and a treadle attached to the lower end of each pull element; said actuating elements being chains, and an eye on each lam to which the corresponding chain is attached.

9. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, the loom having spaced uprights between which the jack units extend lengthwise, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, a flexible actuating element connected between each lam at a point centrally of its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward swinging motion at either end from a normally substantially horizontal position, the jack units tending to lift corresponding lams, cushioned stops on the uprights above the ends of the lams limiting lifting motion of the latter, a pull element depending from each lam, the pull elements

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being disposed with a number thereof on opposite sides of corresponding actuating elements, and a treadle attached to the lower end of each pull element.

10. Selective operating mechanism for a plurality of parallel, independently vertically swingable, harness frame actuating jack units of a loom, the loom having spaced uprights between which the jack units extend lengthwise, said mechanism comprising, in sets with the jack units, a lam disposed below each jack unit, a flexible actuating element connected between each lam at a point centrally of its ends and the corresponding jack unit, each actuating element suspending the corresponding lam for downward swinging motion at either end from a normally substantially horizontal position, the jack units tending to lift corresponding lams, cushioned stops on the uprights above the ends of the lams limiting lifting motion of the latter, a pull element depending from each lam, the pull elements being disposed with a number thereof on opposite sides of corresponding actuating elements, and a treadle attached to the lower end of each pull element; there being vertical guide units through which the lams extend adjacent but short of their opposite end portions.

11. A structure as in claim 10 including a cross bar connecting the uprights; the guide units being suspended from the cross bar and each including a head, a foot, and a plurality of vertical guide rods connected therebetween in spaced relation in a plane transversely of the lams.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
1,911,822	Gilmore	May 30, 1933
2,250,061	Gilmore	July 22, 1941