Sept. 27, 1938. G. E. ULRICH 2,131,679

SHEDDING MECHANISM

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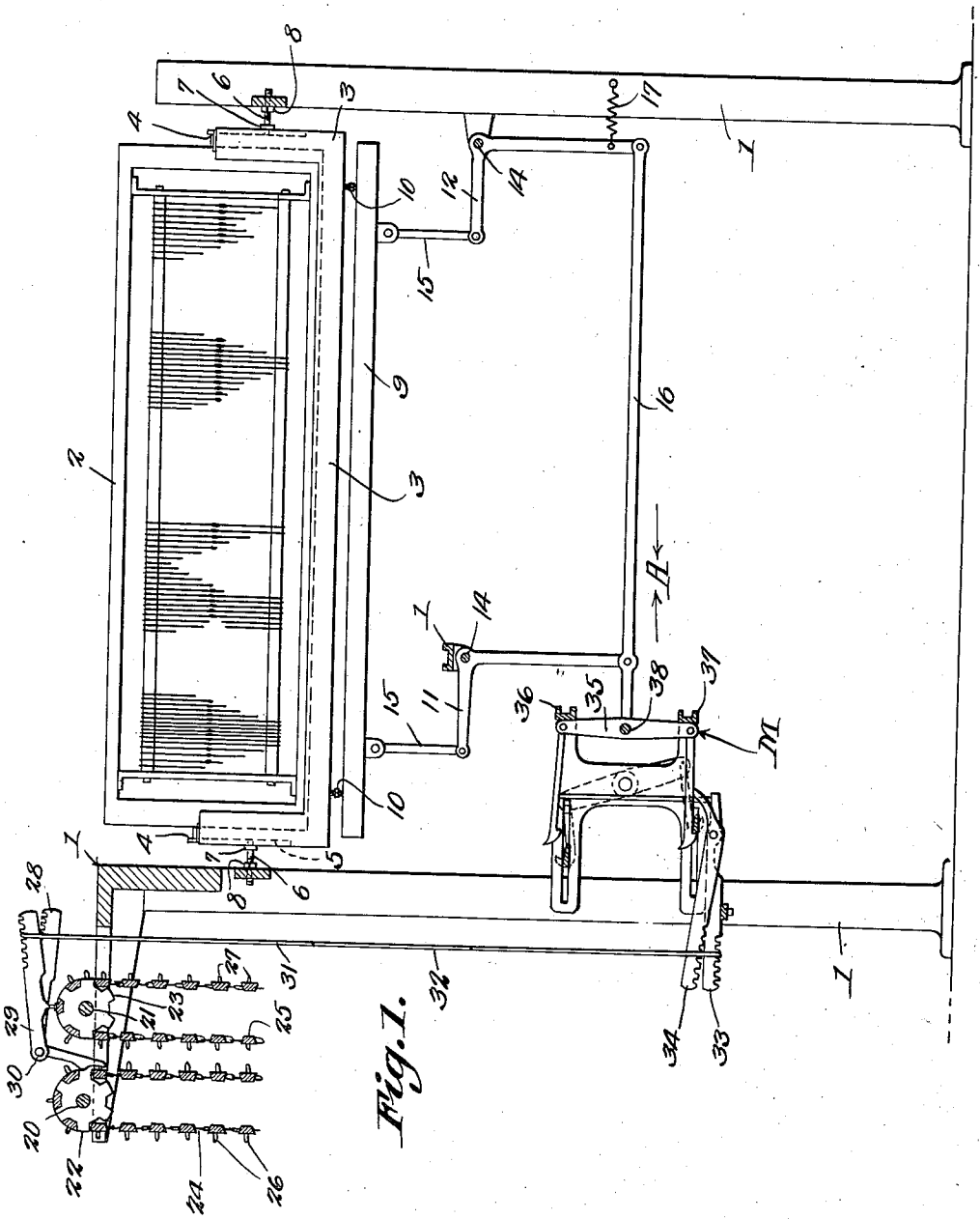


Fig. 1.

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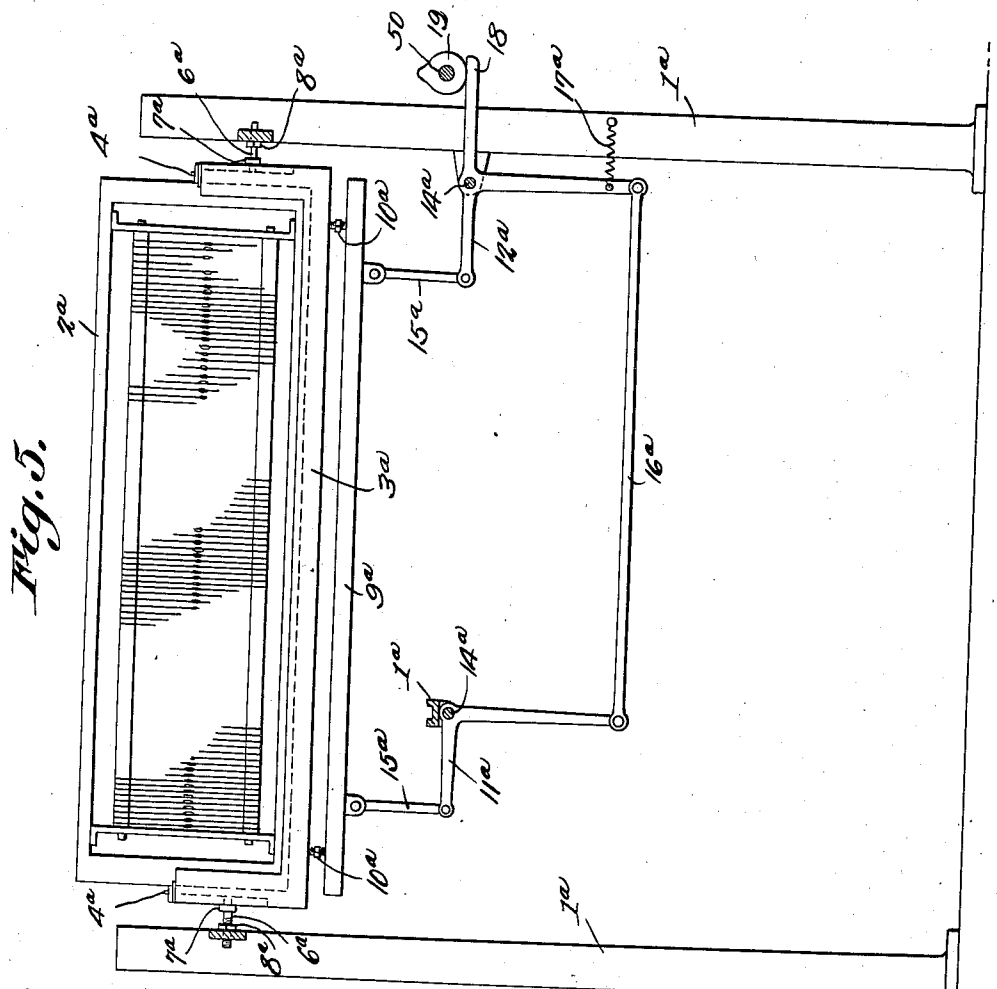


Fig. 5.

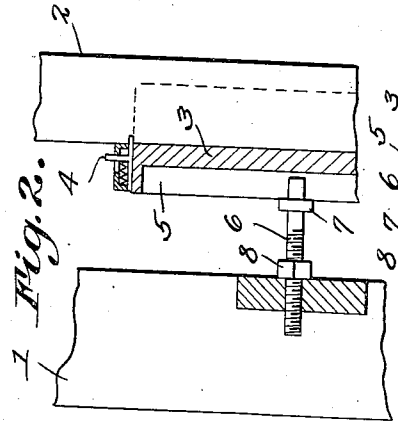


Fig. 2.

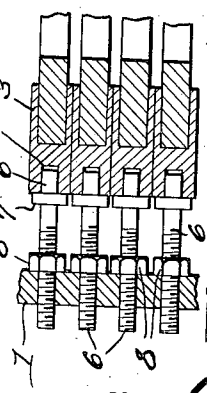


Fig. 3.

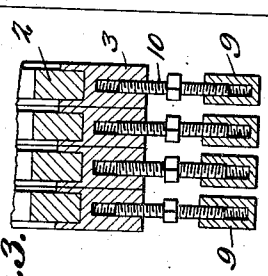


Fig. 4.

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UNITED STATES PATENT OFFICE

2,131,679

SHEDDING MECHANISM

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Application April 30, 1937, Serial No. 140,017

2 Claims. (Cl. 139—57)

This invention aims to provide novel means for eliminating the harness straps and the elevated dobby at one side of a loom, thereby giving the weaver more light and affording a better opportunity to oversee the warp and tie in broken ends. The structure shown in this application and hereinafter described will eliminate smashes and other difficulties caused by broken harness straps. Time is saved in changing the harness in a loom, since there are no springs to be tied in, and the harness will not have to be levelled, the harness always being in such a position that little if any adjustment will be required.

A further object of the invention is to dispense with uneven shedding in broad looms, caused by the difference in length of the harness straps.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows in elevation, a portion of a loom embodying the invention, parts being in section;

Fig. 2 is a vertical section showing the guiding means for the harness carrier;

Fig. 3 is a horizontal section taken through the structure depicted in Fig. 2;

Fig. 4 is a vertical section disclosing the adjustable connection between the harness carrier and the base bar which is beneath it;

Fig. 5 is an elevation showing a portion of a loom wherein the present improvements have been embodied, the loom being a cam loom, rather than a pattern loom of the type disclosed in Fig. 1.

In Figs. 1 to 5, the numeral 1 indicates the necessary parts of a loom frame, and the harness is shown at 2. The harness 2 is seated in a harness carrier 3, which is U-shaped in elevation, and channel-shaped in cross section. Spring actuated latches 4 on the upper ends of the side arms of the harness carrier 3 engage the end members of the harness 2 and hold it in the harness carrier. The side arms of the harness carrier 3 have external, vertically elongated guide slots 5, receiving the inner ends of guide pins 6 having shoulders 7 against which the outer edges of the harness carrier ride, as the harness carrier reciprocates vertically. The guide pins 6 are threaded for longitudinal adjustment into the loom frame 1, and are held in adjusted position by lock nuts 8. The numeral 9 marks a base bar located below the harness carrier 3. The harness carrier 3 is secured to the base bar 9, for vertical adjustment with respect thereto, by screws 10, which are right and left hand threaded into the base bar and into the lower member of the harness carrier.

The structure above described is such that the harness carrier 3 and the harness 2 will be so positioned that very little adjustment will be required to keep those parts in levelled position, for up and down movement responsive to a means which will be described hereinafter.

Bell crank levers 11 and 12 are fulcrumed at 14 on the loom frame, below the base bar 9, the upper ends of links 15 being pivoted to the base bar, and the lower ends of the links being pivoted to the laterally extended arms of the bell crank levers, those arms projecting in the same direction. To the lower ends of the depending arms of the bell crank levers 11 and 12, a rigid connection 16 is pivoted. Prompt downward movement of the harness 2 and the carrier 3 is promoted by a pull spring 17, connected to one side of the loom frame 1 and to the depending arm of the bell crank lever 12.

The structure hereinbefore described is common to the forms shown in Figs. 1 and 5. In Fig. 5, parts hereinbefore described have been designated by numerals already used, with the suffix "*a*". Another common feature is the provision, broadly considered, of means for raising the harness 2 from a place below the harness, the means to that end differing structurally in the two forms shown, depending upon whether the parts hereinbefore described are used upon a cam loom or upon a loom of the pattern chain type. Taking up first the simpler form of Fig. 5, it will be noted that the raising of the harness carrier 3*a* and the harness 2*a* is accomplished by providing the bell crank lever 12*a* with an outwardly projecting arm 18, cooperating with a cam 19 on a cam shaft 50.

In the form delineated in Fig. 1, driven shafts 20 and 21 are supported on the loom frame 1, at the top of the frame, and at one side of the frame, in the position ordinarily occupied by the dobby, a pattern roller 22 being secured to the shaft 20, and a pattern roller 23 being secured

to the shaft 21. The structure referred to presents less impediment to the weaver than does a dobby, located in a corresponding position. The pattern roller 22 carries a pattern chain 24, and the pattern roller 23 carries a pattern chain 25. The pattern chain 24 has removable and shiftable pins or projections 26, and the pattern chain 25 is supplied with like pins or projections 27. The pins 26 of the chain 24 cooperate with the depending arm of a bell crank lever 28, and the pins 27 of the chain 25 cooperate with a lever 29, the levers having a common fulcrum at 30 on the loom frame. A link 31 has its upper end engaged with the inner end of the lever 29 for adjustment along that lever, and a like link 32 has like assembly with the inwardly projecting arm of the bell crank lever 28.

The machine takes advantage of a mechanism M, known in the art and commonly forming part of a dobby located in the position occupied by the rollers 22 and 23 of the present disclosure, the mechanism M, in the machine under consideration, being located well below the harness 2 and associated parts, and out of the way of the weaver. Since the mechanism M forms part of the Hattersley dobby, introduced about 70 years ago, and therefore well understood by those skilled in the art, a lengthy description of the mechanism M is not necesary. Let it suffice to say that the said mechanism embodies vertically tiltable fingers 33 and 34, not actuated by the usual chain cylinder and chain, located closely adjacent to the fingers, but more remotely, from the pattern rollers 22 and 23. The lower end of the link 31 is assembled with the finger 33 for adjustment longitudinally of that finger, and the link 32 has a like relation to the finger 34. The jack 35 cooperates with the upper girt 36 and with the lower girt 37, to produce a reciprocatory movement in the direction of the arrows A of Fig. 1. Advantage is taken of that movement, not by connecting the intermediate portion of the jack 35 to the usual harness lever which operates the harness straps, but by joining the intermediate portion of the jack pivotally, at 38, to one end of the connection 16.

The cam 19 and the arm 18 of the bell crank lever 12*a*, together with the parts wherewith they are associated, raise the harness carrier 3*a* and the harness 2*a*, gravity and the effort of the spring 17*a* effecting a downward movement of the harness carrier and the harness.

The general construction of the device is such that the objects set forth in the opening portion of this specification will be consummated. The harness 2 is levelled easily by operating the screws 10, and the harness and the harness carrier 3 always have an accurate up and down movement. The space above the harness 2 is open, the weaver always being able to view his work and tie in the ends, or do whatever is desired. Since the dobby is displaced from the position occupied by the rollers 22 and 23, ready access is had to the corresponding side of the loom. Disorders resulting from the old time harness strap structure are avoided.

Having thus described the invention, what is claimed is:

1. In a device of the class described, a loom frame, a harness, a harness carrier extended beneath and supporting the harness, means for guiding the harness carrier for up and down movement on the frame, a base member located below the carrier, means associated with the base member and with the carrier for securing up and down adjustment of the carrier with respect to the base member, and said means for guiding the carrier for up and down movement comprising guide members having longitudinal adjustment in the frame and comprising parts which engage the ends of the carrier, the ends of the carrier having elongated guide elements cooperating with the guide members.

2. In a device of the class described, a loom frame, a harness carrier which is U-shaped in elevation and channel-shaped in cross section, a harness seated in the channel of the carrier, means for guiding the carrier for up and down movement on the frame, and latch means engaging the carrier and the harness to hold the harness releasably seated in the channel of the carrier.

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