Dec. 22, 1936. P. DOERSELN 2,065,364

WEFT THREAD CUTTER FOR LOOMS

Filed March 13, 1935

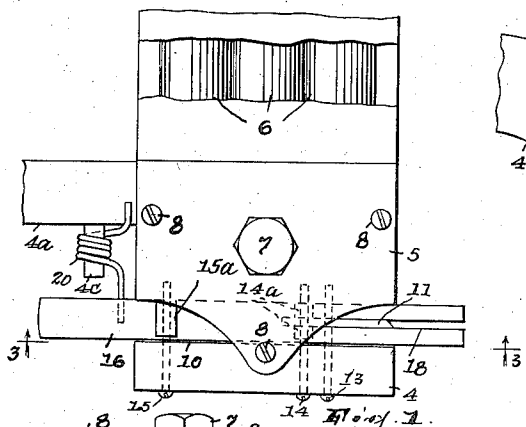


Fig. 1.

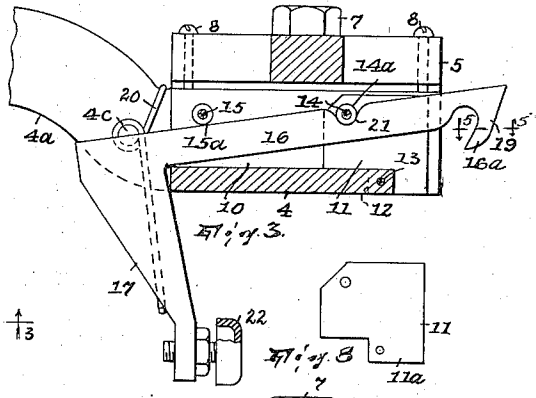


Fig. 3.

Fig. 8

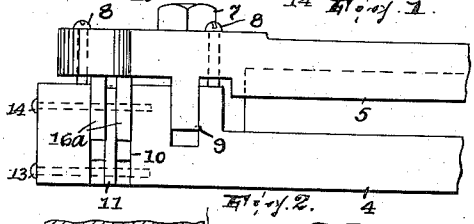


Fig. 2.

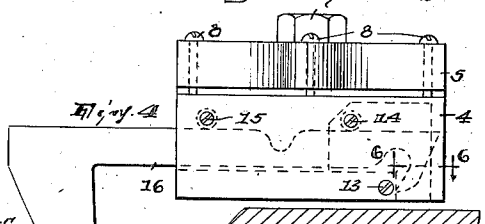


Fig. 4

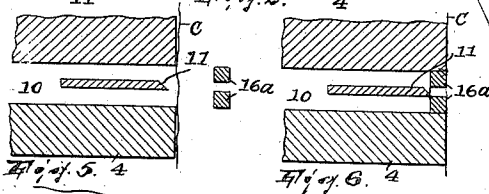
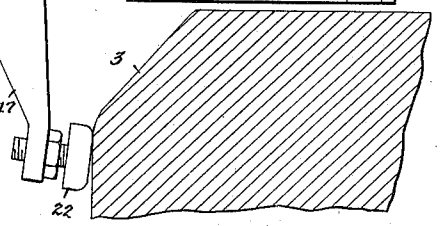


Fig. 5. Fig. 6.



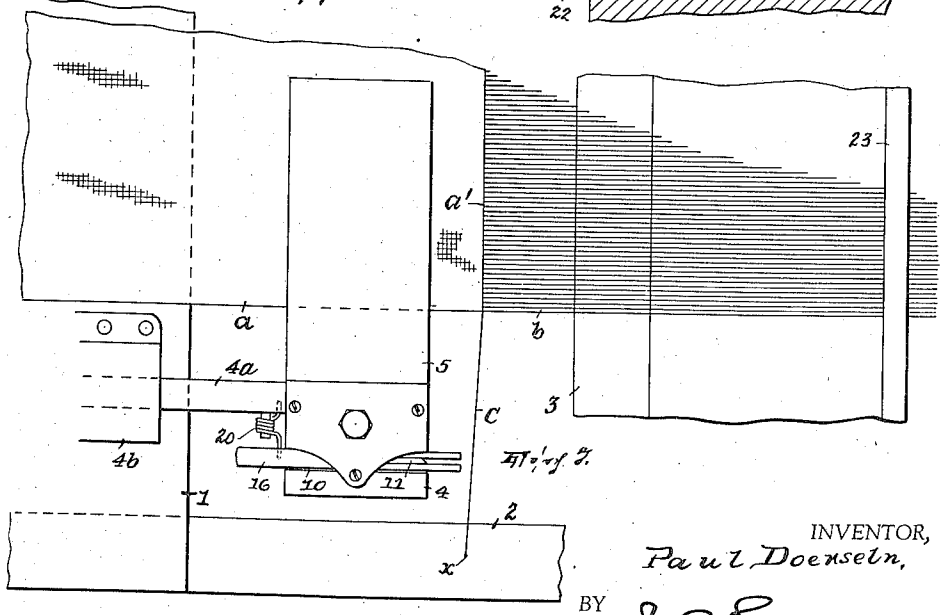


Fig. 7.

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WEFT THREAD CUTTER FOR LOOMS

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Application March 13, 1935, Serial No. 10,851

2 Claims. (Cl. 139—303)

In looms of the type provided with weft-replenishing equipment the free ends of the weft threads of the reserve shuttles or their equivalents are attached to some fixed part of the loom and after each such shuttle has been in action long enough for its weft thread to become properly incorporated in the cloth such thread is cut off. There is in use means for automatically severing such thread which comprises, with a suitable support (as the body or "pod" of one of the loom temples) having a passage therethrough extending parallel with the selvage of the cloth and vertical shearing edges at the relatively rear end of the passage, an element which is movable lengthwise in the passage and also lever-fashion to depress its rearward hooked end and thus catch the thread to be severed, said element having at its forward end a depending arm with which the batten or lay in beating up engages to cause such movement of said element and its hooked end to pass between said edges and coact therewith, according to the intention, in effecting the severing. But, in practice, this means is very inefficient and unreliable in several respects, not the least significant of which is that it is mechanically unsuited to effect the parting of the thread especially if the thread happens to be somewhat slack, as is frequently the case, and after the parts become so worn that a good shearing action no longer can occur.

It is the object of this invention to provide a weft thread parting means which shall be generally more efficient than the one first alluded to and which shall be adapted unerringly to part or disrupt the threads, even if slack, throughout a long period of its use without attention to keep it in condition for that purpose.

In the drawing,

Fig. 1 is a fragmentary plan view of a loom temple equipped with the improved weft-parting means;

Fig. 2 is a rear elevation of what appears in Fig. 1;

Fig. 3 is a section on line 3—3, Fig. 1;

Fig. 4 is an end elevation, with the movable member of the weft parting means in the position occupied thereby on the parting;

Figs. 5 and 6 are fragmentary sectional views on lines 5—5 and 6—6, Figs. 3 and 4, respectively;

Fig. 7 shows in fragmentary plan the structure shown in Figs. 1 to 6 in its relation to the warp and fabric and certain parts of a loom; and

Fig. 8 is a side elevation of the fixed member or blade of the parting means.

The breast-beam 1, one side 2 of the frame and the batten or lay 3 of a loom are shown in Fig. 7, together with the cloth *a* being woven, the warp *b* extending rearwardly therefrom and a weft thread *c* here assumed to have had its free end tied or otherwise secured, as at *x*, to the loom side and to have been started to be incorporated in the cloth *a* by its supply shuttle (not shown) recently established in operation on the batten 3, as automatically. Subject to the action of the take-up (not shown) of the loom the web of cloth and warp will be drawn gradually forward or to the left in Fig. 7 which will involve shifting of that stretch of weft *c* which extends from the fell *a'* of the cloth to point *x* around said point so as to bring such stretch in time within the range of action of the weft-parting means.

The support for the weft-parting means is here merely by way of example afforded by a temple such as is disclosed in my application Serial No. 722,546 and thus briefly described: The so-called "pod" or shell of the temple comprises a lower member 4 and an upper member 5 in which are journaled the cloth-gripping rollers 6, member 5 being secured to member 4 and maintained at the proper elevation by a screw 7 and a set of set-screws 8 arranged around screw 7, screw 7 being tapped into member 4 and screws 8 being tapped into member 5 and taking against member 4; there is also a transverse tongue-and-groove connection 9 between the two members. Member 4 has a stem 4*a* secured in a bracket 4*b* on the breast-beam, as usual.

Outward of connection 9 a deep groove 10 affording a guideway or passage is formed in member 4. In a vertical plane midway between the sides of this groove is arranged a parting device 11 which is a blade which preferably has its rear margin beveled to an edge, as shown. It has a depending tongue 11*a* engaged in a slit 12 at the bottom of the passage and it is held in place preferably by two screws 13 and 14, screw 13 being entered into the outer end of and screwed into member 4, traversing the guideway and penetrating the tongue of the blade, and screw 14 being likewise entered into said outer end of and screwed into member 4 and penetrating the blade at a suitable distance above the bottom of the guideway; the blade may be given increased stability by notching its inner lower corner, as shown in Fig. 8, so that it will be partially seated on the bottom of the guideway. Its said rear edge is here vertical and is preferably set back somewhat into the guideway for a purpose to appear. The blade forms the fixed one of the two ele-

ments directly concerned in the parting. On screw 14 is preferably a pair of rollers 14a, separated by the blade.

Traversing the guideway near its forward end and suitably above its bottom is an abutment 15, preferably consisting of a screw screwed into member 4 and equipped with a roller 15a; it serves as a fulcrum, as will appear, for the movable one of said two elements.

This movable element, 16, is an elongated slide having a forward depending arm 17 and it is arranged to move lengthwise of itself in the guideway under the abutment 15 and also under the abutment at 14. The rearward portion of said element is slitted at 18 in a vertical plane so as to be bifurcated and it straddles the blade, its rearward terminal forming a pair of hooks 16a open downwardly and preferably being beveled upwardly to its top edge, as at 19. The slide is normally retained in the position shown in Fig. 3, in which it bears upwardly against abutment 15 and downwardly against the front end of the passage, and its depending arm also bears against the front of member 4, by a spring 20 coiled about a stud 4c on stem 4a and having one end bearing against said stem and the other against the arm. To permit the slide to assume the tilted position shown in Fig. 3 it is formed with a notch 21 which accomodates the rearward one of the two mentioned abutments. The arm of the slide has an adjustable buffer 22 with which the batten is beating up contacts.

The support for the weft-parting means afforded by the temple in the present example occupies such position that the mentioned stretch of weft c extending from the cloth to point x shall lie somewhere between a horizontal plane occupied by the tip at the rear of the slide and the bottom of the guideway, so that as the web of cloth and the horizontal plane of warp is advanced by the take-up such stretch shall finally come within the range of action of the hook of the slide, being cammed down by its beveled end if necessary.

Operation: Each time the batten beats up it engages the buffer on the depending arm of the slide, thereby retracting the slide and also causing it to rock around its fulcrum abutment 15, thus assuming the position of Fig. 4 in which the bight of the hook has so far entered the guideway as to have passed more or less the rear or parting edge of the parting device 11. Due to the fulcrum at 15 the rocking of the slide is positively effected and is not a mere incident of the shock of the impact of the batten against a pendant, as the depending arm of the slide. This in itself is an important feature of my invention since it involves certain depression of the hook of the slide each time to a definite extent and hence the certainty that the thread c will be caught by the hook even if it is in a plane somewhat below its initial position. Of course, when the batten retracts the slide is caused by the spring to re-assume the position of Fig. 3.

Another important feature of my invention is involved in the use of a bifurcated hook with a parting device, as 11, which it straddles and past which its bight moves when the slide is actuated by the batten, taken with the fact that the parting device is arranged in the guideway. For then the thread undergoes a double bending, which not only insures parting of the thread but its parting definitely in substantial coincidence with the edge of the blade, a condition which is further insured if, as shown, the edge of the blade is set somewhat back from the mouth of the guideway, with the consequence that before the thread is brought against the parting device, and if it should perhaps be in more or less slack state as shown in Fig. 5, it is first rendered taut.

It is necessary for the impact by which the batten causes movement of the slide to occur at a precise point in the beating-up movement of the batten, else the slide will be actuated too early or too late for the hook to catch the thread. It is impracticable to adjust the temple rearwardly for this purpose since it would interfere with the forward movement of the reed 23. Hence the buffer 22 is made adjustable in the arm 17, to wit by forming it as a screw screwed into said arm.

Having thus fully described my invention what I claim is:

1. A weft-parting means comprising a support having a passage one end of which is open at a surface of the support, a device having a portion thereof coactive with the support to grip a thread interposed between them, said device being movable back and forth to enter and withdraw said portion to and from said end of the passage and said portion when entered into said end being formed to clamp the thread between itself and opposite sides of the passage, and a blade in the passage having a weft-parting edge presented toward and set back from said end, said portion of said device being bifurcated to straddle the blade upon entering the passage.

2. A weft-parting means comprising a support having a guideway open at one end at a surface of the support, a weft-parting blade in the guideway in a plane between and being spaced from opposite sides of the guideway and having a weft-parting edge presented toward and set back from said end, and a slide occupying the guideway and having a bifurcated hook-shaped end portion straddling the blade and being normally held with the hook of said end portion exterior of the guideway and being also slidably retractable in the guideway to retract the bight of the hook into the latter and past said edge of the blade, the bight of the hook in a section therethrough cutting the plane of the blade being formed to clamp a thread between itself and said sides of the guideway when said bight is retracted into the latter and before the bight passes said edge of the blade.

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