Jan. 13, 1959 R. DEWAS 2,868,233

WEFT FEEDERS FOR WEAVING LOOMS WITH CONTINUOUS FEED

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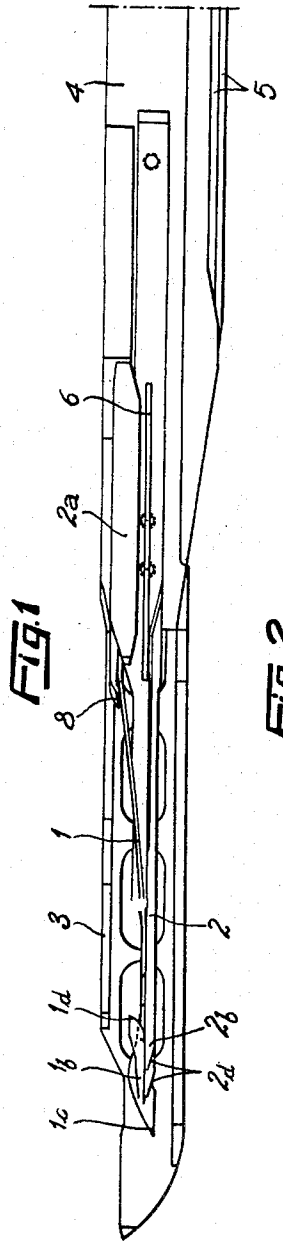


Fig. 1

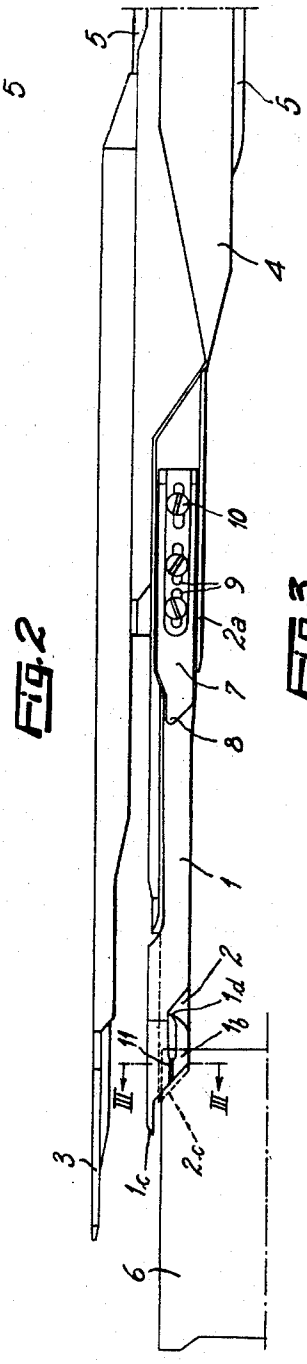


Fig. 2

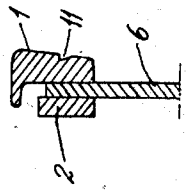


Fig. 3

INVENTOR:
R. Dewas
By
Richards & Geier
ATTORNESS

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WEFT FEEDERS FOR WEAVING LOOMS WITH CONTINUOUS FEED

Raymond Dewas, Amiens, France

Application October 18, 1956, Serial No. 616,681
Claims priority, application France October 26, 1955
1 Claim. (Cl. 139—123)

This invention relates to weaving looms in which the weft is fed continuously from large bobbins located externally on the shed. The invention refers to the weft feeders, notably to the heads mounted on the ends of the needles or bands, and in particular to the pulling heads having a gripping device, constituted by a clamp, the branches of which are in elastic contact with each other, and when the needle leaves the shed are separated by a blade fashioned to release the end of the weft thread gripped between them.

Now, in the known arrangements, when the pulling head completes the passing of the weft thread and leaves the shed at a high speed, the releasing blade separates the branches of the clamp, which releases the end of the weft thread, the necessary space for the deceleration of the needle ensuring that the clamp releases the blade. Afterwards the needle is accelerated in the reverse direction and the clamp, then empty of thread, passes over the releasing blade again and enters the shed.

As a result of the above, in each work cycle of the needle, the clamp due to its displacement is traversed twice by the releasing blade: first when engaging itself through its rear end, the clamp then getting disengaged through its front end; and second, inversely, when engaging itself through its front end, thus getting disengaged through its rear end. The engagement from the front end necessitates the arranging, on the front end of the clamp, of ramps having specially computed shapes to allow the blade to enter securely between the branches, this complicating the making of the clamps. Further, the fact that the clamp is opened twice and closed twice for each work cycle causes a straining of the branches of the clamp, it having been found that the opening and the closing when being effected from the front end cause excessive wear and tear.

The object of the invention is to simplify the construction of the clamps, to reduce their straining, to allow the selvage warp threads to close more rapidly to immobilize the end of the weft thread when being released from the nipping action of the clamp, and at the same time, to ensure great regularity in the tension of the shots.

To this end, the invention has for its purpose improvements consisting in principle, that the releasing blade is arranged in such a way that the necessity for its reintroduction into the clamp when the pulling head reenters the shed is avoided.

According to a preferred way of carrying the invention into effect, the releasing blade is of sufficient length so that it will remain engaged in the clamp when the pulling needle is in its extreme backward position outside the shed.

In order that the invention may be better understood, one way of carrying the invention into effect applied to a needle operated by a band is described hereinafter and diagrammatically shown as a simple example in the attached drawing in which:

Figure 1 is an elevation front view of a pulling needle showing the relative position of the releasing blade with reference to the needle corresponding to an intermediate

position of the needle going into and coming out of the shed and beyond the shed.

Figure 2 is a plan view of the pulling needle showing the relative position of the releasing blade with reference to the needle when in its extreme backward position outside the shed.

Figure 3 is a transverse section, on a larger scale, and taken on the line III—III of Figure 2.

As shown in the drawing: **1** is the elastic branch and **2** is the rigid branch of the elastic clamp; **3** is the guard; **4** is the pulling needle made for example of magnesium or of molded plastic material; **5** is the ribbon operating the needle; and **6** is the unusually long releasing blade, mounted on a support, not shown, situated beyond the shed and close to the selvage. The purpose of this blade is to separate the two branches **1** and **2** of the clamp and thus release the end of the weft thread gripped between them when the pulling needle passes out of and beyond the shed.

The rear part of the elastic branch **1** is fixed in the rear part **2***a* of the rigid branch **2** and its forward end **1***b* presses elastically against the forward end **2***b* of the rigid branch **2** to ensure the gripping of the weft thread.

The regulation of the gripping force of the elastic branch is obtained by a slidable backing plate **7** for securing the back part of the branch **1** on to the corresponding part of the branch **2**, and having a beak **8** and slots **9** traversed by the screws **10**. The beak **8** is in contact with the elastic branch **1** so that longitudinal displacement of the backing plate **7** modifies the curve of the elastic branch **1** and consequently, the gripping force.

When the pulling needle leaves the shed at a high speed, the releasing blade **6** separates the elastic branch **1** from the rigid branch **2**, releasing the gripped weft thread, not shown, from the gripping action of the clamp **1—2**.

The needle continuing its journey through the space necessary for its deceleration finally arrives, as shown in Figure 2, at its extreme outward position outside the shed, but the length of the releasing blade is such that it is still, at this moment, engaged in the clamp.

In prior art constructions the clamp closes after havmoved beyond the releasing blade. Then, at the beginning of the next reverse acceleration, the clamp must pass the releasing blade a second time in order to enter the next shed. Therefore, the fore portion of the clamp must be provided with inclined portions adapted to make this passage possible. On the other hand, in accordance with the embodiment of the present invention, such inclined portions are unnecessary and, therefore, the construction of the clamp is simplified. Furthermore, the distance between the end **1***c* of the resilient branch and its hook **1***d* may be substantially shortened.

Further, when a guard **3** is used, its length likewise is reduced, so that the end of the shot, after having been released from the gripping action of the clamp and unthreaded from the notch or guiding groove **11** under the control of the pressure exerted by the warp threads (not shown) of the divided upper sheet, is very rapidly locked while the shed closes, which ensures a very regular texture.

The end of the rigid branch **2** is cut on the bevel **2***c* and comprises a part **2***d* with the corners cut-off, which reduces the risk of catching of the warp threads.

The releasing blade on occasion may have grooves and/or openings in the part that contacts the branches of the clamp to facilitate, in case of need, the discharge of impurities which might collect between the branches of the clamp.

It is to be clearly understood that, without departing from the spirit of the invention, it is possible to introduce improvements, modifications and additions. Similarly, the employment of equivalent means is to be envisaged.

Thus, as another way of carrying the invention into effect, the releasing blade may be made its usual length but then it would be actuated by a movement diverting it from the path of the pulling needle when it reenters the shed, putting the blade back into said path when the pulling needle returns to the outside of the shed, or still, by a longitudinal movement which by shifting it more or less to or from the selvage would allow it to occupy different positions according to the nature of and the number of wefts successively woven in the same fabric.

Further, the guiding groove 11 can be widened at its forward end or receive any other appropriate form.

I claim:

A weft inserting device for a continuous weaving loom

of the type comprising a reciprocatory pulling needle fitted with a resilient clamp having two branches the tips of which are resiliently urged towards each other, and a stationary releasing blade located on the path of travel of said clamp adapted to slightly move said branch tips away from each other for opening said clamp and, thus, releasing the weft thread clenched therein, the length of said releasing blade and its location relative to the clamp in the extreme position thereof outside the shed being such that said releasing blade remains engaged between the branch tips of the clamp when said clamp is near, and in, said outermost position.

No references cited.