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DEVICE FOR THE CLAMPING AND PULLING OF WEFT YARNS

Filed Sept. 16, 1964

FIG 1

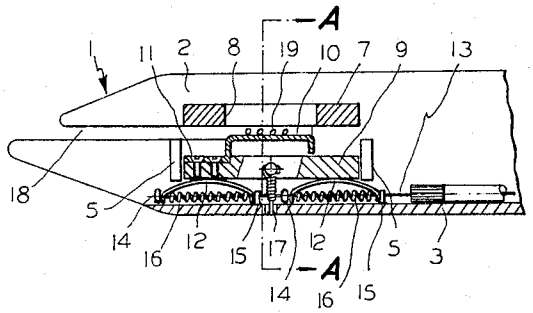


FIG 2

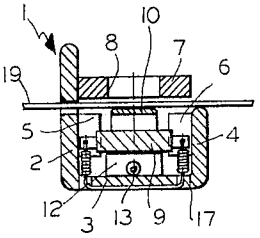


FIG 3

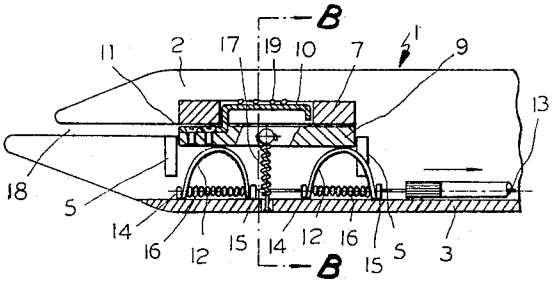
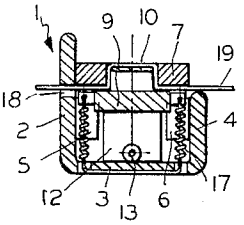


FIG 4



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DEVICE FOR THE CLAMPING AND PULLING OF WEFT YARNS

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1 Claim. (Cl. 139—122)

This invention relates to a device enabling one or more weft yarns to be clamped by the weft gripper of a weft-inserting element in order that single or plural strands of weft yarn may be pulled through the shed, in shuttleless looms.

The known system in which such vices are fitted to the end of the weft-inserting elements in shuttleless looms are not always fully satisfactory, particularly when the vice is required to pull various weft yarns simultaneously with the same tension.

As a rule, the number of weft yarns must be reduced to the number which the weft vice can pull and clamp. Various systems have been studied with a view to obviating these disadvantages but none of them is completely satisfactory, since when weft yarns are stacked one above another, gaps may be left by some other weft yarn which works fully or partly loose, with the result, of course, that the finished fabrics are unsatisfactory. To prevent the weft yarns clamped by the vice from slipping between the jaws thereof, the vice has been knurled or grooved, but the result of this step is to crush the yarns and to evolve loom fly or fluff or the like. Also, when the number of weft yarns is large, the continuous rubbing between the weft yarns and the vice during the rapid movements of the yarns makes fibres flake off continuously to form spongy fly or fluff which slows down the operation of the weft-inserting element.

This present invention obviates all these disadvantages and enables the vices of weft-inserting elements to operate satisfactorily. The various known systems are based on two weft-clamping elements resembling the elements of a vice or gripper which, with an attachment for hooking the weft yarn, clamp the same in order that single or plural strands of weft yarn may be pulled by the weft-inserting element to which such vices are secured at the weft-inserting end on the feed side of the loom.

According to the invention, either or both of the two jaws—the stationary jaw or the moving jaw or two moving jaws operated by known systems—of a weft-gripping vice is formed with a preferably rectangular window-like aperture engageable with slight clearance by a spring disposed on the other jaw, the external shape of the spring matching, but with slight clearance, the internal shape of the matching window.

The spring can be movable or stationary, depending upon which of the two jaws it is fitted to, and serves to clamp the weft yarns between the sides and corners which the clamping of the spring produces when the two jaws are closed throughout the internal contact of the window, so that a strong clamping is provided and the weft yarn or yarns cannot work loose. Also, of course, a clamping of this kind obviates any rubbing when the weft yarns are clamped and therefore obviates the evolution of fluff or the like which may upset loom operation.

According to another feature of the invention, of use when the loom is used exclusively for jute, baizes, or the like, the spring can be stationary or replaced by a stationary member which engages in the window, and the outside corners and sides of the stationary member, upon engagement with the inside corners and sides of the window when the two jaws are closed by the known system to provide satisfactory clamping of the weft thread or threads.

Specific embodiments of the invention, will now be described by way of example, with reference to the accompanying drawings wherein:

FIGURE 1 is a diagrammatic sectional view of the vice of a weft-inserting element before the weft yarn has been clamped by the two jaws of the vice;

FIGURE 2 is a section taken along the line A—A of FIGURE 1;

FIGURE 3 is a sectional elevation of the vice of a weft-inserting element, the two jaws of the vice clamping the weft yarn in order that the same way may be pulled through the shed, and

FIGURE 4 is a section taken along the line B—B of FIGURE 3.

The device as illustrated comprises a weft-inserting member **1** which may be of any kind and which may be operated by any known system. In the example shown, the member **1** has a first side portion **2**, a bottom portion **3** and a second side portion **4**. Each of the said side portions **2** and **4** is provided with a pair of transversally opposed guide members **5** and **6**. The side portion **2** is further provided with a stationary jaw **7** having a window-shaped aperture **8**. Between the two pairs of guide members **5** there is arranged a movable plate **9** provided with an U-shaped spring member **10** secured thereto by means of screws **11** and constituting the movable jaw of the vice. The said spring member **10** is adapted to move into the aperture **8** of the window portion **7**, such movement being caused by means of two arcate spring members **12** controlled by a cable **13** bearing two abutments **14** which actuate the said spring members in cooperation with two stop members **15** secured to the bottom portion **3**. The arcuate spring members **12** are completed by helical compression springs **16**, and the movable plate **9** is connected to the bottom portion **3** by means of a spring member **17**. The side portion **2** of the weft-inserting member **1** is provided at its pointed end with a slot **18** adapted to allow the insertion of the weft threads **19** to be clamped.

In operation, the movable jaw **9**, **10** is maintained normally in its open position, as shown in FIGURES 1 and 2, by the action of the spring means **16** and **17**. In this position, the weft threads may be passed through the slot **18** and clamped between the stationary jaw **7** and spring member **10** of the movable jaw, as shown in FIGURES 3 and 4. The movement of the movable jaw is caused by a traction exerted on the cable **13** by any known system, such traction giving rise to the elevation of the arcate spring member **12**, the weft threads being then clamped between the U-shaped spring member **10** and the window-shaped aperture **8**. The weft threads so clamped may be pulled thereafter by the weft inserting member **1** which travels along a line parallel with the direction of its pointed end, through the shed to form the fabric.

The constructional details and features used to carry the invention into practical effect are independent of the subject matter of the invention and the same can be modified or added to or be embodied by equivalent technical means without any departure from its underlying idea.

What I claim is:

In a shuttleless loom, in combination with weft-inserting means, a weft-gripping device carried by said weft-inserting means and comprising two jaws, at least one of said jaws being movable for engagement with the other jaw, one of the jaws being provided with a window-shaped aperture, the other jaw being provided with a U-shaped spring member adapted to move into said aperture and thereby to grip wefts placed on said spring.

(References on following page)

References Cited by the Examiner

UNITED STATES PATENTS

21,398	8/1858	Rogers	242—149
575,480	1/1897	Josephs et al.	24—137.5
2,072,155	1/1963	Pfarrwaller et al.	139—126
3,144,884	8/1964	Svaty	139—125
3,177,550	4/1965	Bargeson	24—245

FOREIGN PATENTS

657,694	9/1951	Great Britain.

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