

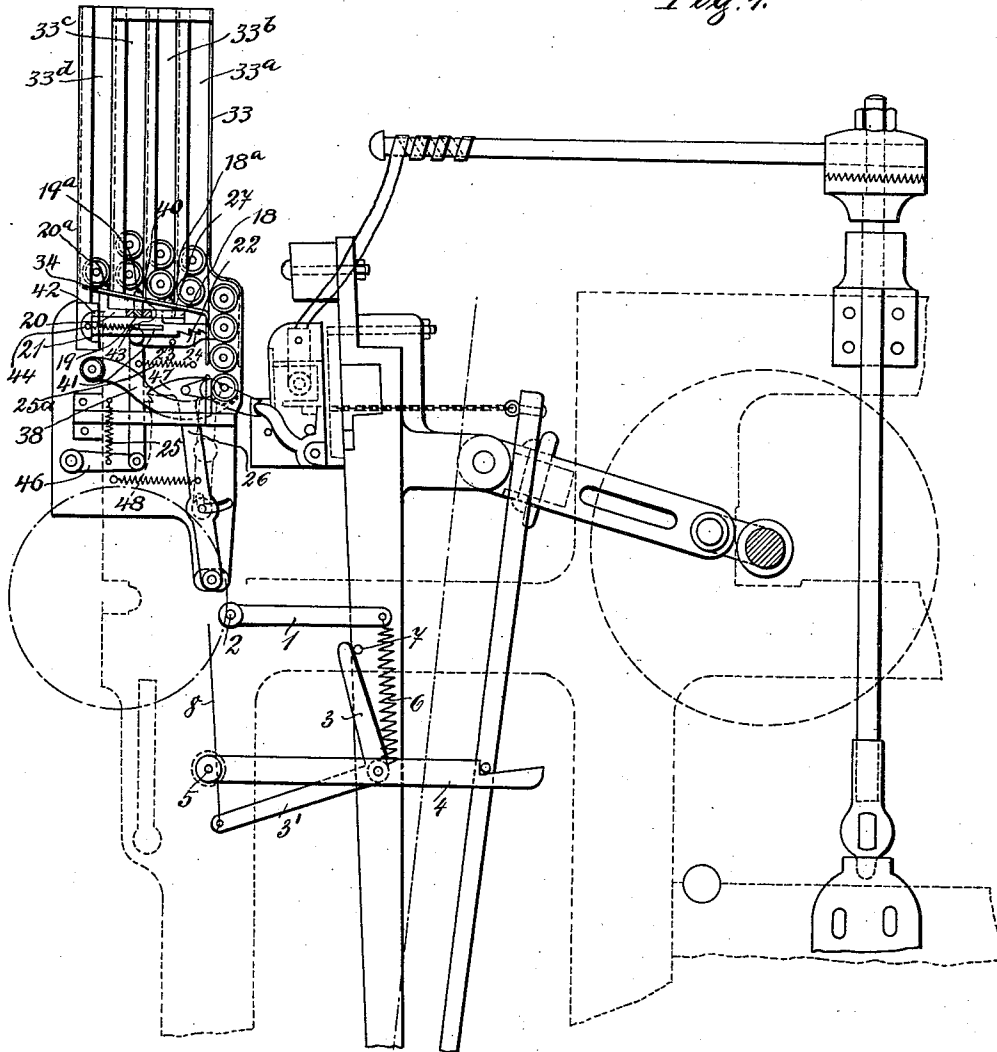
B. ELMENDORF & J. GABLER.
 AUTOMATIC WEFT REPLENISHING MECHANISM FOR LOOMS.
 APPLICATION FILED DEC. 19, 1910.

1,060,830.

Patented May 6, 1913.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
 Corinne Myers.
 Vera Paulsen

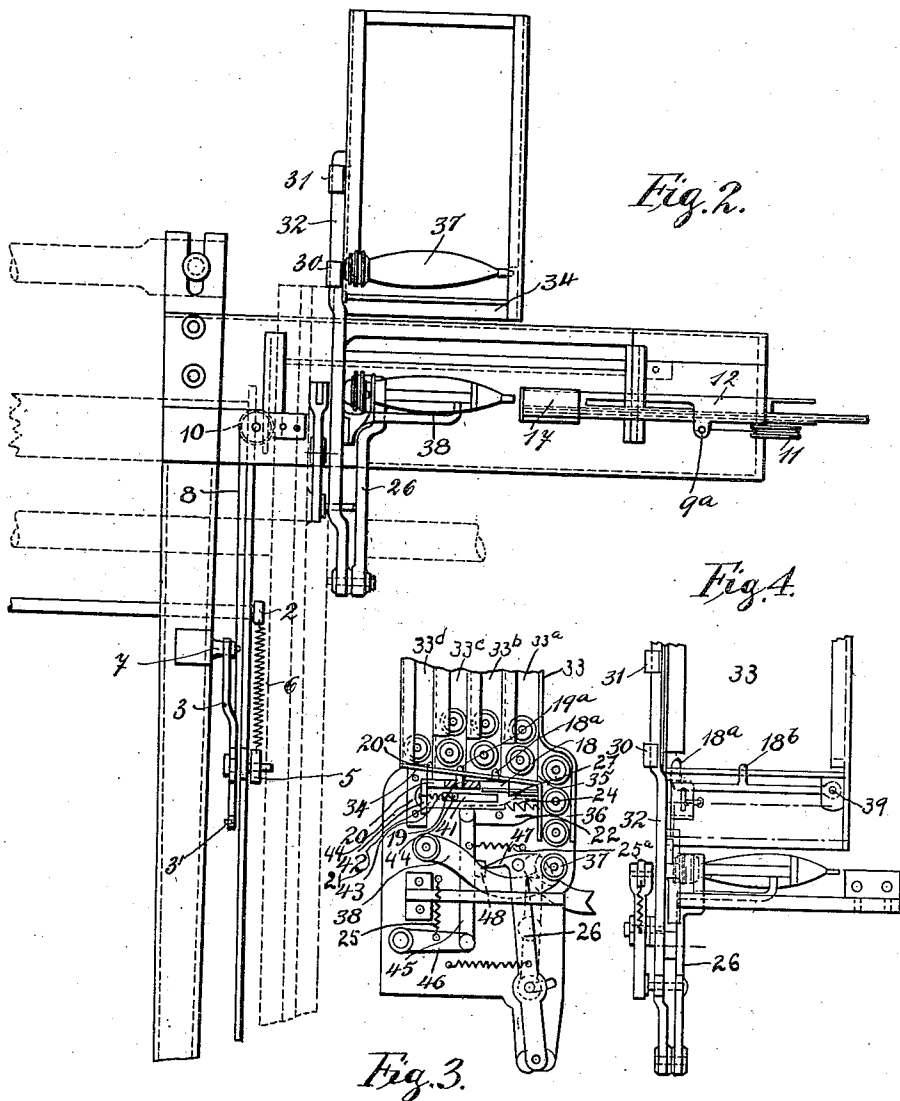
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3 SHEETS-SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 5.

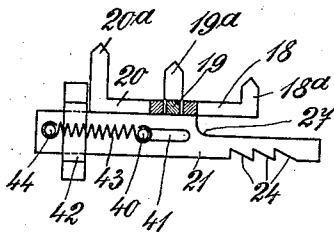


Fig. 7.

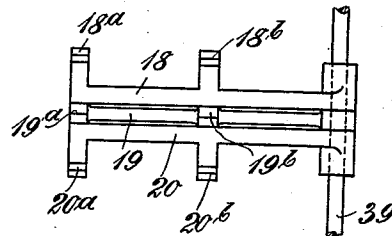


Fig. 6.

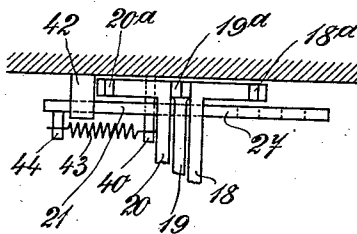
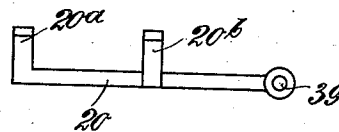


Fig. 8.



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UNITED STATES PATENT OFFICE.

BERNHARD ELMENDORF AND JOHANNES GABLER, OF ISSELHORST, GERMANY.

AUTOMATIC WEFT-REPLENISHING MECHANISM FOR LOOMS.

1,060,830.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed December 19, 1910. Serial No. 598,055.

To all whom it may concern:

Be it known that we, BERNHARD ELMENDORF and JOHANNES GABLER, subjects of the King of Prussia, both residents of Isselhorst, Westphalia, in the German Empire, have invented certain new and useful Improvements in Automatic Weft-Replenishing Mechanism for Looms, of which the following is a specification.

This invention relates to an improved automatic weft replenishing mechanism for looms, of the type in which the weft carriers are stored in a stationary magazine having a plurality of compartments adapted to be successively opened so as to admit the weft carriers from the different compartments successively to the shuttle weft replenishing hammer.

According to the present invention one or more of the compartments of the magazine which is stationary and removably arranged in position, are normally locked so as to retain the weft carriers in the compartments by means of a series of pivoted locking catches adapted to be released in succession as one compartment after the other is emptied.

In the drawings a structural form of the invention is shown by way of example.

Figure 1 is a side view of the mechanism mounted on a loom, the loom frame being shown in dotted lines. Fig. 2 is a front view of the mechanism shown in Fig. 1. Fig. 3 is a side view of the magazine for the cop or bobbin with the feeler and the locking device for the compartments of said magazine. Fig. 4 is a front view of the parts shown in Fig. 3. Fig. 5 is a detail side view of part of the locking mechanism. Fig. 6 is a plan view of the parts shown in Fig. 5. Fig. 7 is a plan view, and Fig. 8 a side view of the locking catches.

A lever 1 is mounted at 2 on a rotatable shaft oscillated by the weft fork on the failure of the weft. This lever 1 is connected by means of a spring 6 with a lever 4 pivotally mounted at 5 to the loom frame and carrying a pivoted bell-crank lever 3 3', the arm 3 of which engages a pin 7 carried by the lay and the arm 3' of which is connected to a weft-end detacher 12 by means of a chain, cord or the like 8 passing over pulleys 10 and 11, the chain 8 being connected to an eye 9^a on the detacher 12 (see Fig. 2).

The detacher 12 carries at its forward end

the gripping device 17 which may be of the type described in the specification of our concurrent United States Patent application Serial No. 670,612, filed January 11th, 1912. A hammer 26 of the usual type is provided for inserting the weft-carrier into the shuttle of the loom, this hammer 26 being operated by the forward motion of the lay on the failure of the weft in any known manner, such as that described in the specification of the prior United States Patent No. 1,005,017 dated October 3rd, 1911.

The magazine 33 for the weft-carriers is provided with a plurality of compartments 33^a, 33^b, 33^c and 33^d, four compartments being shown on the drawings although of course any desired number of such compartments may be employed according to the storage capacity required. The magazine 33 is stationary and removably mounted on the loom frame by means of eyes 30 and 31 fitting over upwardly projecting rods 32 secured to the loom frame, said magazine having a sloping bottom 34 and a front aperture 35. A fixed compartment 36 is secured to the loom frame by the frame of the sloping bottom 34 and to said compartment 36 the weft carriers are fed from the compartments of the magazine 33.

On the drawings the weft carriers 37 are shown supported in the compartment 36 by means of a supporting arm 38 and adapted to be removed therefrom and inserted in the shuttle by means of the pivoted hammer 26, which in its forward position also supports the weft-carriers in the compartment 36, but it will of course be understood that this forms no part of the present invention and that any other desired type of shuttle weft replenishing device and weft-carrier supporting means, may be employed.

The weft-carriers in the compartments 33^b, 33^c and 33^d are respectively locked therein by means of a series of pivoted catches 18, 19 and 20 respectively, said catches being pivoted upon a rod 39 and each being provided with upwardly projecting fingers 18^a and 18^b, 19^a and 19^b and 20^a and 20^b respectively, said fingers projecting through corresponding apertures in the sloping bottom 34 of the magazine 33 and bearing against the lowermost weft carrier 37 in their respective compartments 33^b, 33^c, 33^d. The catches 18, 19 and 20 are normally maintained in their raised position so as to lock the compartments 33^b, 33^c, 33^d by means

of a sliding plate 21 guided by means of a pin 40 carried by the loom frame, said pin 40 working in a slot 41 in the slide plate 21 and the latter being further guided by means of an eye 42 through which the slide plate 21 slides. The slide plate 21 is normally projected forward by means of a spring 43 secured at one end to the pin 40 and at the other end to a pin 44 carried by the slide 21, and the slide 21 is provided with a cut-away part 27, so that when the slide plate 21 is rearwardly moved, the catches 18, 19 and 20 drop in succession into the cut-away part 27. The slide plate 21 is adapted to be operated by means of a feeler 22 carried by pivoted levers 45 and 46, and normally adapted to project through an opening in the front compartment 36, so as to bear against one of the weft carriers 37 therein by means of springs 25 and 25^a, and said feeler 22 carries a pin 23 adapted to engage with teeth 24 formed on the under side of the slide plate 21.

The operation of the device is as follows:—The weft carriers 37 are first of all supplied to the compartment 36 by way of the compartment 33^a and the weft replenishing hammer 26 comes into operation as often as desired until only two weft carriers 37 are located in the compartment 36, one of which is supported by the arm 38 and is in position for supplying to the shuttle. On the next operation of the weft replenishing hammer 26, which normally holds back the feeler 22 by its rearward nose 47 engaging a stop or projection 48 on the lever 45, the feeler 22 moves forward into the magazine, owing to the absence of a weft carrier 37 in front of the feeler. As the feeler 22 moves forward its projecting pin 23 engages the ratchet teeth 24 of the slide 21 and on the return movement of the weft replenishing hammer 26 its nose 47 engaging the projection 48 returns the feeler 22 to its normal position at the same time carrying back the slide plate 21 to such an extent as to release the catch 18 and allow the latter to fall by its own weight, the fingers 18^a and 18^b being thus withdrawn from the magazine compartment 33^b and releasing the weft carriers 37 contained therein, the weft carriers thereupon rolling down the sloping bottom 34 into the front compartment 36. On the compartment 33^b being emptied and when again only two weft carriers are left in the compartment 36, the feeler 22 again comes into operation and as the fallen catch 18 prevents the return movement of the slide plate 21 with the feeler 22, the projecting pin 23 thereon rides over the ratchet teeth of the slide plate 21 and engages in the next tooth so that on the return movement of the feeler 22 the catch 19 falls and opens the compartment 33^c so that the weft carriers roll into the compartment 36. The same

operation takes place on the compartment 33^c being emptied.

It will of course be readily understood that the feeler 22 may be caused to come into action when more than two weft carriers are in the compartment 36 by suitably arranging the feeler 22. It will also be seen that the front compartment 36 serves as a magazine for supplying the weft replenishing hammer 26 with weft during such time as the magazine 33 is removed from the loom for refilling.

When the refilled magazine 33 is again placed in position, the operator can bring the catches 18, 19 and 20 into their raised position again and on raising the catches 18, 19 and 20 the slide plate 21 automatically returns to its normal position under the action of the spring 43.

We claim:—

1. An automatic weft replenishing mechanism for looms comprising a magazine, a plurality of compartments in said magazine for the weft carriers, a plurality of pivoted locking catches for separately locking said compartments so as to retain the weft carriers therein and for successively unlocking said compartments so as to release the weft carriers, an apertured front compartment fixed on the loom and communicating with said magazine, a spring actuated feeler passing through the aperture in said front compartment so as to bear against a weft carrier therein, means for connecting said catches with said feeler, said feeler passing through said front compartment when no weft carrier is in front of the feeler so as to release said catches successively, and a shuttle weft replenishing device for passing the weft carriers from said front compartment into the shuttle.

2. An automatic weft replenishing mechanism for looms comprising a magazine, a plurality of compartments therein for the weft carriers, a plurality of gravity catches adapted, when raised, to retain the weft carriers in said compartments, a spring-actuated slide for supporting said catches in raised position, an apertured front compartment fixed on the loom and communicating with said magazine, a spring-actuated feeler passing through the aperture in said front compartment so as to bear against a weft carrier therein and to pass through said front compartment when no weft carrier is in front of the feeler, means for returning said feeler after moving through said front compartment, means for coupling said feeler and slide during the return movement of said feeler so as to remove said slide from beneath said catches and allow the latter to fall successively and thereby successively release the weft carriers in the compartments of the magazine, and a shuttle weft replenishing device for passing the

weft carriers from said front compartment into the shuttle.

3. An automatic weft replenishing mechanism for looms comprising a magazine having a sloped and apertured bottom, a plurality of compartments in said magazine for the weft carriers, said compartments communicating with one another at the bottom so as to enable the lowermost weft carriers to roll down the sloping bottom, a chamber receiving the weft carriers from the lower end of said sloping bottom, a shuttle weft replenishing device for passing the weft carriers from said chamber into the shuttle, a plurality of gravity catches having pro-

jections adapted to pass through the apertures in said sloping bottom when the catches are raised, so as to retain the weft carriers in the compartment of the magazine, and means for normally supporting said catches in raised position and for releasing said catches in succession.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

BERNHARD ELMENDORF.
JOHANNES GABLER.

Witnesses:

H. W. LUSEBRINK,
RICH. SCHUMANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."