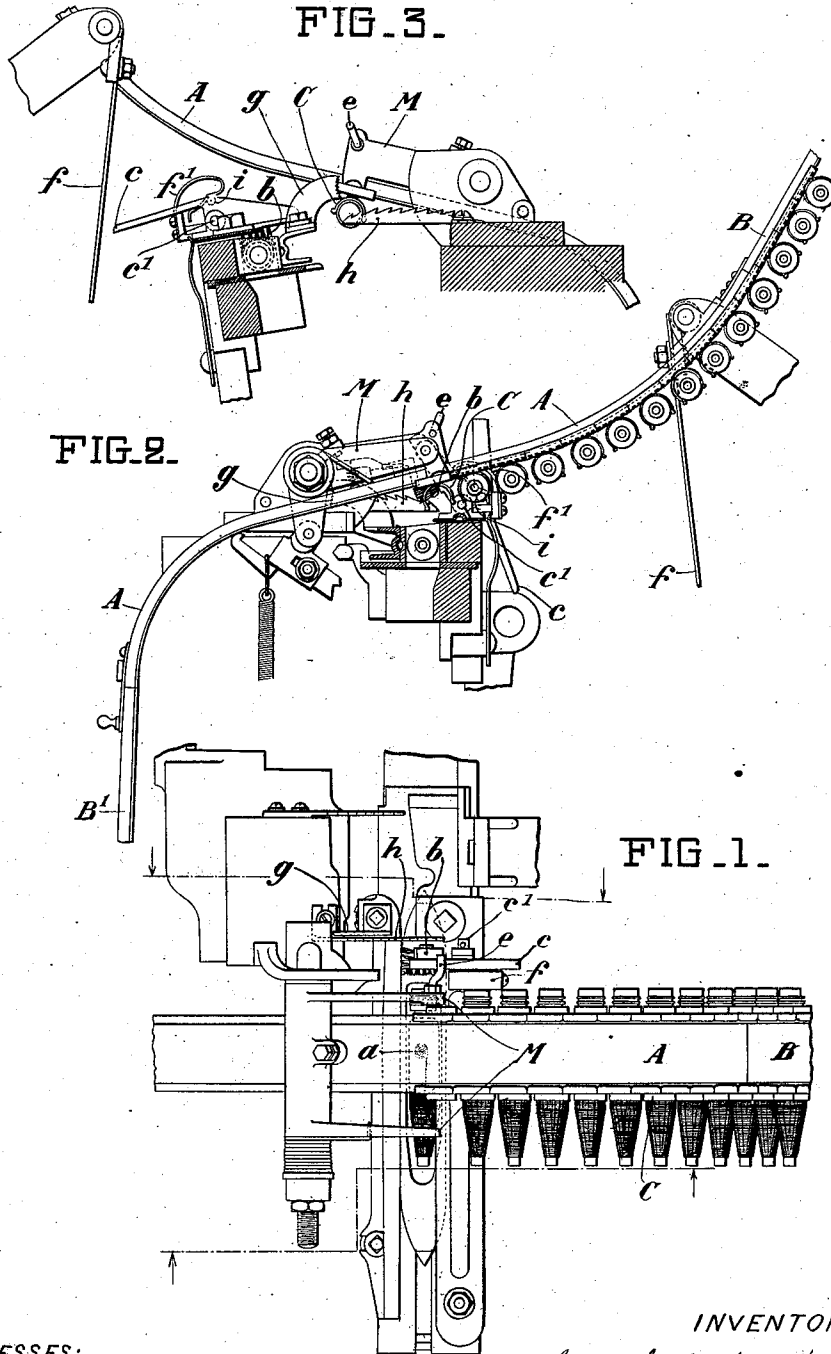


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 AUTOMATIC WEFT REPLENISHING MECHANISM FOR LOOMS.
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AUTOMATIC WEFT-REPLENISHING MECHANISM FOR LOOMS.

1,028,513.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed November 30, 1910. Serial No. 594,842.

To all whom it may concern:

Be it known that I, JEAN CHARLES ALFRED WENNING, a subject of the Emperor of Germany, residing in Mülhausen, Alsace-Lorraine, Germany, have invented new and useful Improvements in Automatic Weft-Replenishing Mechanisms for Looms, of which the following is a full, clear, and exact specification.

10 The present invention relates to automatic weft replenishing mechanisms for looms of the known kind comprising a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such
15 supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns and movably mounted on said removable
20 charger, said charger being adapted to direct said pirn carriers to said guide, and means for introducing the pirns from their carriers into the shuttle of the loom. Such a weft replenishing mechanism is described
25 for example in the United States Letters Patent No. 959,036. In looms with weft replenishing devices of this kind it is necessary as is well known, to attach the free end of the thread of the reserve pirns to a
30 fixed point, judiciously chosen, in order that the weft from the pirn when being introduced into the shuttle may automatically be threaded into the shuttle. In the arrangement described in said United States Letters
35 Patent the weft thread of the pirns was fixed by the operator to a projection on the pirn carriers leaving a reserve amount of thread between the full pirn body and the body of the pirn carrier. It may be understood that
40 this led to a great loss of time and moreover as the free end of the reserve piece of thread was fixed to the pirn carrier, this latter had to be freed from the ends of weft thread adhering to it after it had been
45 emptied of its pirn. The arrangement according to the present invention seeks to obviate this drawback and is characterized by the feature that it has, in combination with the pirn carriers, arranged to receive
50 a pirn with an end portion of thread entirely free, that is to say not fixed to any part of the pirn carrier, automatic means for seizing and retaining at least during the first pick the free thread end portion of the
55 new pirn introduced into the shuttle, when

the spent pirn of the shuttle is changed, so that the thread of the freshly introduced pirn can correctly be threaded into the shuttle. It may be seen that in this improved arrangement as the free end portion 60 of the pirn thread is no longer fixed to the pirn carrier, this latter may be loaded much more rapidly and easily and further, the empty pirn carrier does not require to be freed of any adhering ends of weft thread. 65 In a further improvement the subdivided box for receiving on the one hand the empty pirn carriers and on the other hand the empty spools expelled from the shuttle is replaced by a removable reserve charger 70 similar to that carrying the supplying full pirns and connected to the delivery end of the above said guide, so as to directly receive the empty pirn carriers and to thus be capable of being used as supplying 75 charger, after the empty pirn carriers placed thereon have been supplied with new or full pirns.

In the accompanying drawing: Figure 1 is a plan view of a convenient embodiment 80 of the present invention. Fig. 2 is an elevation, partly in section, of one side of the mechanism. Fig. 3 is an elevation, partly in section, of the opposite side of the mechanism, the different parts being in another 85 position.

A is a stationary guide-way arranged at the supply place of the loom and B is a removable charger placed in line or connected with said guide-way A so as to be capable 90 of being removed therefrom and provided with a series of independent pirn carriers C in the form of claws or the like, which can successively slide upon the guide-way A in order to be introduced one by one into the 95 loom shuttle when the latter is on the point of being exhausted. The removable charger B carries a supply of pirn carriers C and occupies an inclined position on the loom for the purpose of supplying its successive pirn 100 carriers to the said guide-way A.

Each of the pirn carriers C upon the guide-way A and the charger B is arranged to receive together with the full pirn, a mass of thread *a* (Fig. 1) placed between the full 105 pirn body and the body of the pirn carrier. This mass of thread *a* is obtained by stretching the thread end portion of the pirn until it breaks off at about 40 centimeters from the hand holding the thread near the pirn 110

body, and springs back, by reason of its elasticity onto the body of the pirn, thereby forming a mass of ragged thread. Should it not be desired to stretch this thread to its limit of elasticity, it can evidently be cut by means of a suitable instrument or apparatus. It need not be added that if the weft thread which is being used has not sufficient elasticity to allow of this procedure, the reserve of thread is then provided for by means of a special apparatus arranged for this purpose. Once this mass of thread is formed, the pirn is thrust into the pirn carrier, taking care to turn it in such a manner that the mass of thread *a* is caught between the pirn body and the body of the pirn carrier. Owing to this arrangement it results that when the pirn carrier is freed from its spool and the latter introduced into the shuttle by the double ejecting-feeding hammer *M*, the empty pirn carrier continues to slide on the stationary guide-way *A* and the mass or reserve of thread *a* appears on the top of the spool in the shuttle.

In order that the free end of thread of the mass or reserve *a* is kept so that the weft thread may be threaded into the shuttle, a small brush *b* formed of bundles of silk or like material is arranged to seize the mass of thread *a* and hold it during the first pick of the lay. This brush *b* may be replaced by any other retaining device (suction device or similarly acting mechanisms). The brush *b* is fixed on a bent lever *c* pivoted at *c*¹. Normally, the said brush occupies a position situated above the shuttle box of the loom. One of the parts of the ejecting-feeding hammer *M* carries a pin *e* which is brought into engagement with the lever *c* and lowers it when a fresh spool is introduced into the shuttle, that is to say when the hammer *M* is moved downward. The brush *b* is thereby also lowered and thus comes on a level with the top part of the spool or pirn introduced into the shuttle. The brush *b* and the lever *c* then take up the position shown in Fig. 3 with respect to the shuttle and the pirn placed therein. When the picker now acts and the freshly filled shuttle is again set in motion, the upper or top part of the spool or pirn in the shuttle rubs against the lowered brush *b*, and thereby the mass of thread *a* remains engaged with the bundles forming the brush, while the shuttle continues in its movement along the shuttle race to allow the weft thread to engage with the threading-in snail of the shuttle. In this manner the end of the pirn thread is retained in a practical and sure manner without having been first attached anywhere, this thread end remaining entirely free before being engaged by the brush *b*. As soon as the changing of the pirn in the shuttle has been effected, the lay

goes away from the breast-beam (Fig. 3) and one of the arms of the lever *c* strikes against a leaf-spring *f*, whereby said arm is lowered, while the other lever arm together with the brush *b* is raised. The brush carrying lever *c* is fixed in its end positions by a curved leaf-spring *f*¹ provided with two recesses which can be engaged by a lateral pin *i* of said lever. The raising of the brush *b* prevents it from again making contact with the pirn until this latter is exhausted, and on the other hand it facilitates the removal of the thread adhering thereto. To the end of said removal of thread, a toothed piece *h* fixed on the breast beam is arranged in such a manner that the raised brush, when the lay advances, is capable of putting the thread it retains, upon the first teeth of said toothed piece. On the next stroke of the lay, a pusher *g* fixed on the lay and provided with a fine indentation (not indicated) at its front part, meets with the weft thread, the free end portion of which lies on the first teeth of the toothed piece *h* when the lay advances toward the breast beam, and pushes it upon the rear teeth of said toothed piece, in order that it may be cut by the ordinary side shears arranged on the loom. The form of the pusher *g* allows it to pass underneath the thread when the lay moves back. The mass of thread is then entangled with the preceding thread masses having been brought from the foregoing changing operations upon the rear teeth of the toothed piece *h*, and the thus accumulated masses of thread may then be removed by hand, if necessary.

As will be seen from Fig. 2, the empty pirn carriers, that is to say the pirn carriers from which the pirn has been introduced into the shuttle, slide from the guide-way *A* upon a removable reserve charger *B*¹ similar to the charger *B* carrying the supplying full pirns and connected to the delivery end of the guide-way *A* so as to directly receive the empty pirn carriers as they come from the said guide-way. When thus being provided with empty pirn carriers, the said reserve charger *B*¹ can be removed and brought to the supplying place where its pirn carriers may be charged in the above described manner with fresh full pirns, whereupon the reserve charger *B*¹ thus freshly charged may be used as supplying charger in lieu of the exhausted charger *B*.

What I claim is:

1. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end

portion on the top of the pirn body and movably mounted on said removable charger, said charger being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom and automatic means for seizing and retaining at least during the first pick the free thread end portion of the new pirn introduced into the shuttle, when the spent pirn of the shuttle is changed, so that the thread of the freshly introduced pirn can correctly be threaded into the shuttle.

2. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end portion on the top of the pirn body and movably mounted on said removable charger, said charger being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom and an automatic movable retaining piece capable of being lowered into such a position with regard to the freshly loaded shuttle that it meets with the free thread end portion on the top of the full pirn in the shuttle when the latter, after its supplying, is actuated by the picker, in order to retain the said thread end portion and to allow of the threading-in of the shuttle.

3. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end portion on the top of the pirn body and movably mounted on said removable charger, said charger being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom and an automatic movable retaining brush capable of being lowered into such a position with regard to the freshly loaded shuttle that it meets with the free thread end portion on the top of the full pirn in the shuttle when the latter, after its supplying, is actuated by the picker, in order to retain the said thread end portion and to allow of the threading-in of the shuttle.

4. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers

toward such supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end portion on the top of the pirn body and movably mounted on said removable charger, said charger being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom, automatic means for seizing and retaining at least during the first pick the free thread end portion of the new pirn introduced into the shuttle, when the spent pirn of the shuttle is changed, and means for removing from said seizing and retaining means the thread portions which may adhere thereto from the preceding changing operation.

5. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end portion on the top of the pirn body and movably mounted on said removable charger, said charger being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom, an automatic movable retaining piece capable of being lowered into such a position with regard to the freshly loaded shuttle that it meets with the free thread end portion on the top of the full pirn in the shuttle when the latter, after its supplying, is actuated by the picker, in order to retain the said thread end portion and to allow of the threading-in of the shuttle, and a fixed toothed piece and a pusher mounted on the lay, adapted to remove from said retaining piece all of the thread which may adhere thereto, substantially as and for the purpose described.

6. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such supply place, a removable charger connected to said guide so as to be capable of being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end portion on the top of the pirn body and movably mounted on said removable charger, said charger being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom and a removable reserve charger arranged at the delivery end of said guide to receive the

empty pirn carriers and to thus be capable of being used as supplying charger after its empty pirn carriers have been charged with new pirns.

5 7. In an automatic weft replenishing mechanism for looms, the combination of a guide at the supply place of the loom, adapted to receive and feed pirn carriers toward such supply place, a removable charger connected to said guide so as to be capable of
10 being removed therefrom, a reserve of independent pirn carriers carrying full pirns with an entirely free thread end portion on the top of the pirn body and movably mounted on said removable charger, said charger
15 being adapted to direct said pirn carriers to said guide, means for introducing the pirns from their carriers into the shuttle of the loom, automatic means for seizing and retaining at least during the first pick the free
20 thread end portion of the new pirn introduced into the shuttle, when the spent pirn of the shuttle is changed, and a removable reserve charger arranged at the delivery end of said guide to receive the empty pirn carriers and to thus be capable of being used
25 as supplying charger after its empty pirn carriers have been charged with new pirns.

8. In a filling replenishing loom, a lay
30 having a shuttle-box thereon, a filling engaging and positioning member mounted on the lay adjacent the mouth of the shuttle-box and above the same, means independent of the fresh supply of filling to move said
35 member into position to engage the fresh filling end when filling replenishment is effected, to maintain the filling end in proper position for threading of the shuttle, and separate means to return said member there-
40 after to inoperative position.

9. In a filling replenishing loom, a lay having a shuttle-box thereon, a carrier pivotally mounted on the lay and normally extending over the shuttle-box, a filling engaging and positioning member on the carrier
45 and adapted to be moved by it into the box to engage the fresh filling end, means governed by operation of the replenishing mechanism to actuate the carrier and operatively position said member independently
50 of the incoming supply of filling, and separate means to thereafter return the carrier and said member to inoperative position independently of the shuttle or its movement.

55 10. In a filling replenishing loom, a lay having a shuttle-box thereon, a filling engaging and positioning member pivotally mounted on the lay adjacent the mouth of the box and movable into and out of operative position, means operative upon filling
60 replenishment to move said member into operative position, to engage the fresh fill-

ing end and position it as the shuttle is picked from the box, separate means independent of the shuttle to reset said member
65 thereafter, and a detent to retain said member in operative or inoperative position until moved positively therefrom.

11. In a filling replenishing loom, a lay having a shuttle-box thereon, a carrier pivotally mounted on the lay and normally extending over the shuttle-box, a brush depending from the carrier and adapted to be moved by it into position to engage the
70 fresh filling end and position the same when the shuttle is picked from the box, means actuated when filling replenishment is effected to rock said carrier and operatively position the brush, a tail depending from
75 the carrier, and a stationary lug to engage said tail when the lay swings back and thereby return the carrier and brush to inoperative position.

12. In a loom having a lay, a shuttle-box thereon, and filling replenishing mechanism,
85 including a rocking transferrer, in combination, a carrier movably mounted on the lay adjacent the shuttle-box, a filling engaging and positioning member on the carrier and adapted to be moved into the box into operative position, a depressing finger controlled by the transferrer, to engage directly and depress the carrier to operative position when filling is replenished, separate means independent of the shuttle to return the carrier and the member thereon to normal, inoperative position, and a yielding detent to retain the carrier in operative or inoperative position until moved positively therefrom.
100-

13. In a filling replenishing loom, a lay, a shuttle-box thereon, a filling positioning member carried by the lay and normally held in inoperative position above the shuttle-box, means governed by the actuation of the replenishing mechanism but independent of the fresh supply of filling to temporarily move said member into the shuttle-box into position to engage the fresh filling end and hold it in position for threading when the
105 shuttle is picked from the shuttle-box, and a device independent of the lay and its adjuncts to cooperate with and return said filling positioning member to normal position after the shuttle has been picked from
110 the shuttle-box.

In witness whereof I have hereunto signed my name this 15th day of November 1910, in the presence of two subscribing witnesses.

JEAN CHARLES ALFRED WENNING.

Witnesses:

GEO. GIFFORD,
AMAND RITTER.