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WEFT REPLENISHING MECHANISM.

APPLICATION FILED JAN. 12, 1912.

1,095,870. Patented May 5, 1914.

Fig. 1.

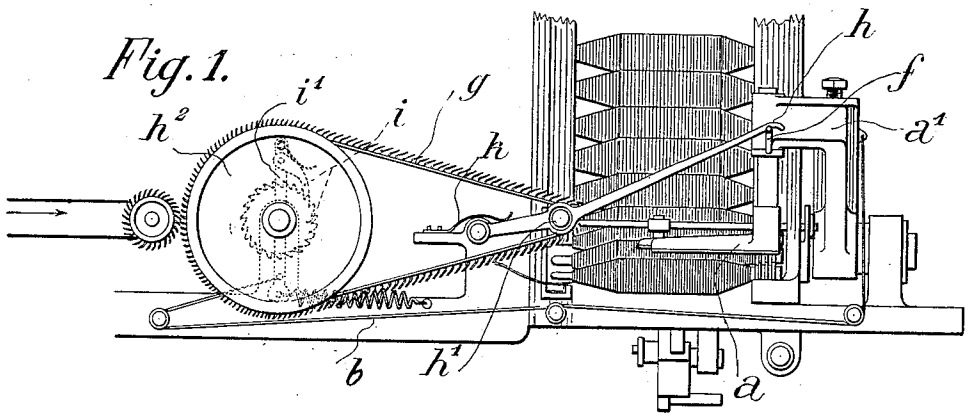


Fig. 2.

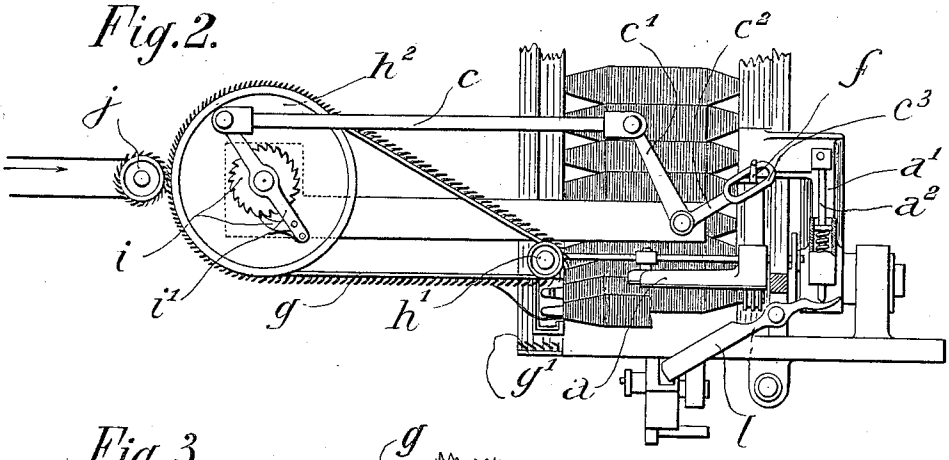
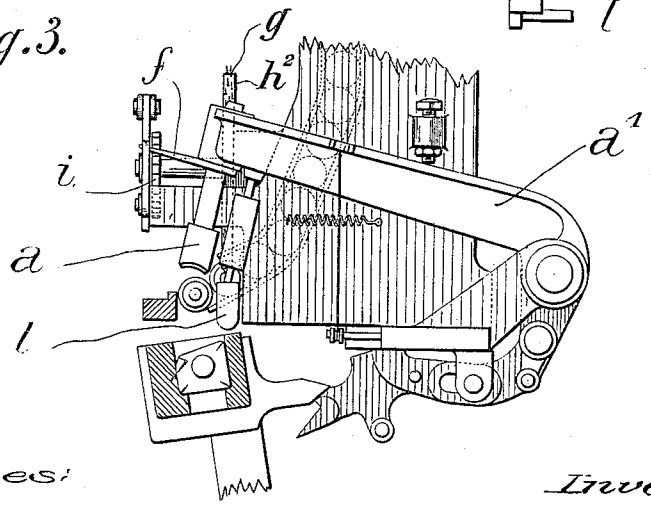


Fig. 3.



Witnesses:

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WEFT-REPLENISHING MECHANISM.

1,095,870. Specification of Letters Patent. Patented May 5, 1914.

Application filed January 12, 1912. Serial No. 670,944.

To all whom it may concern:

Be it known that I, IWAN IMBERT, engineer, a citizen of the Republic of France, residing at Ramonchamp, Vosges, France, have invented certain new and useful Improvements in Weft-Replenishing Mechanism, of which the following is a specification.

This invention relates to weft replenishing mechanism for weaving looms, that is, to mechanism for automatically effecting the substitution of a fresh bobbin for the bobbin in a shuttle, when the latter bobbin has become spent or exhausted.

The invention relates more particularly to that type of mechanism which insures, every time that a new bobbin is to be inserted, that the thread of the latter will be seized at its end, this being necessary in order to enable the weaving of the said thread to be started.

The object of the invention is to simplify the operation of weft replenishing mechanism.

The invention mainly consists in using a suitable device for seizing the thread of the bobbin, the said device being arranged in such a manner, in or near the path of the bobbins, that at the moment when a bobbin is caused to pass to a position vertically under it, such a relative movement of the said device and the said bobbin is produced that the end of the thread carried by the latter is seized, as is necessary in order to enable the weaving of the thread to be started.

The invention further consists in the construction, arrangement and combination of parts hereinafter more fully described and particularly pointed out in the appended claims.

The invention will be better understood from the following description taken in conjunction with the accompanying drawing in which, it has been assumed that the relative movement of the thread seizing device and the bobbin is obtained not by the necessary passage of the bobbins vertically below the said thread seizing device, but by the shifting of the thread seizing device itself, effected while the next succeeding bobbin is held fast.

Figures 1 and 2 of the said drawing show in front elevation two constructions of the invention with portions broken off and in the position of rest.

In both figures, the weft-replenishing mechanism is shown as associated with a suitable magazine, which, as usual, is constructed to permit the bobbins stored therein to successively assume the desired position for transfer to the shuttle, the device for effecting such transfer consisting, generally, of a striker-bar a, or the like, connected to an operating arm a^1. The parts a and a^1 may be of any preferred construction, and the first-mentioned part is arranged to travel in a substantially vertical path, when the part a^1 is actuated, so that during its descent it will effect the insertion of the lowermost bobbin in the magazine into the shuttle, in the ordinary manner, this bobbin having its thread previously engaged by the hereinafter-described weft-seizing device. Simultaneously with the transfer of the bobbin to the shuttle, the next succeeding bobbin assumes a position beneath the weft-seizing device and is held stationary, and the aforesaid seizing device is then operated to engage the weft-end thereof.

The improved weft-seizing device preferably consists of a band g of card-clothing, here shown as in the form of an endless belt that is passed around pulleys h^1 and h^2, a suitable doffer j being employed in connection with said belt. The pulley h^1 is intermittently rotated through the agency of a pawl-and-ratchet gear i which is operated from the transferrer at each actuation of the latter, its spring-controlled pawl-carrying lever i^1 being suitably connected with the afore-mentioned arm a^1. In the construction shown in Fig. 1, the lever i^1 has connected to it one end of a band b, whose other end is connected to a projection or lug on said arm, said band being supported and guided, intermediate its ends by rollers located at appropriate points on the frame-work. In the preferred construction, depicted in Fig. 2, lever i^1 is connected by a pitman c to one arm c^1 of a bell-crank lever, the other arm c^2 of which is provided with an eye c^3 wherein works a tappet f affixed to the transferrer arm a^1. Thus, in each instance, there will be imparted to belt g a forward movement during each actuation of the transferrer, such movement enabling its teeth to engage the weft-end of the then lowermost bobbin. The engagement of the weft-end by the belt is effected, as originally stated, consequent upon a movement of one of the two parts af-

fected, (*i. e.*, the belt and the bobbin), relative to the other, this movement being obtained through the agency of the transferrer at each actuation of the latter. In the first form of the invention, the belt pulley h^1 is carried by a lever h which is fulcrumed at one end on the framework and is extended at its other end for engagement with tappet f. as shown in Fig. 1. The said lever is pressed downwardly by a spring k which serves to hold its second-named end against said tappet, with the roller h^1 above the bobbin that is next to the one about to be transferred to the shuttle. During the descent of the striker-bar a and arm a^1, the former will effect the transfer of the lowermost bobbin, but the second bobbin will be held against movement into the position previously occupied by the transferred bobbin until the return or upward movement of the striker-bar and arm, as is customary. During the downward movement of said striker-bar and arm, the lever h will swing downward until its pulley h^1 is pressed against the second bobbin, with the result that the weft-end of the latter is engaged by the card teeth on the belt, and when the striker-bar and arm move upward, the advance of the belt takes place, the upward movement of the belt-end and pulley leaving the bobbin free to move into transfer position. This cycle of operations is carried out at each actuation of the transferrer, as will be understood, the weft-end of the bobbin next to the one to be transferred being engaged by the card teeth on the belt during the downward movement of the lever-carried pulley incidental to the operative movement of the transferrer, and before the bobbin in question occupies its transfer position, its passage to such position being cleared by the subsequent upward or return movement of the transferrer.

In the second or preferred form of the invention, the weft-seizing belt g, instead of being swung or rocked toward the bobbin whose weft-end is to be engaged, occupies a stationary position with respect to the magazine, and the bobbin itself is raised into position to permit the engagement to take place. This is effected by utilizing a pivoted spoon-like lever l which is so arranged that its spoon arm lies directly beneath the bobbin to be lifted, while its other arm is disposed in the path of a depending plunger a^2, or similar actuating element, connected to the arm a^1 of the transferrer, as shown in Fig. 2. Consequently, when the downward rocking movement of the transferrer takes place, this plunger will depress the second-named arm of lever l and will raise the spoon arm thereof, with the result that the bobbin is raised and pressed against pulley h^1. Simultaneously with this movement of the bobbin, the belt is advanced in the manner previously described, thus completing the seizing and retention of the weft-end. The bobbin is lowered during the return movement of the transferrer, and is then free to assume its transfer position. A small piece of card-clothing g^1 may be utilized, if desired, to retain the weft-end in the event of its being missed by belt g.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a weft-replenishing mechanism, the combination, with a bobbin magazine, and a bobbin-transferrer; of a band of card-clothing adapted to directly seize the weft-end of a bobbin and constituting a part companion to the bobbin; means for imparting an intermittent movement of said band; and means for shifting one of said companion parts toward the other into position for such seizure.

2. In a weft-replenishing mechanism, the combination, with a bobbin magazine, and a bobbin-transferrer; of a band of card-clothing adapted to directly seize the weft-end of a bobbin and constituting a part companion to the bobbin; means for imparting an intermittent movement of said band; and means operated by said transferrer during its actuation for shifting one of said companion parts toward the other into position for such seizure.

3 In a weft-replenishing mechanism, the combination, with a bobbin magazine, and a bobbin-transferrer; of a band of card-clothing adapted to directly seize the weft-end of a bobbin and constituting a part com- companion to the bobbin; means for imparting an intermittent movement of said band; and means for shifting one of said companion parts toward the other into position for such seizure, both of said means being connected with said transferrer for operation thereby during its actuation.

4. In a weft-replenishing machanism, the combination, with a bobbin magazine and a bobbin-transferrer; of an endless belt of card-clothing adapted to directly seize the weft-end of a bobbin; a pair of pulleys around which said belt travels, one of said pulleys and the bobbin constituting relatively-movable parts; means for intermittently rotating the other pulley, to effect the movement of said belt; and means for shifting one of said relatively-movable parts toward the other, to permit said weft-end to be seized.

5. In a weft-replenishing mechanism, the combination, with a bobbin magazine and a bobbin-transferrer; of an endless belt of card-clothing adapted to directly seize the weft-end of a bobbin; a pair of pulleys around which said belt travels, one of said pulleys and the bobbin constituting relatively-movable parts; means for intermittently rotating the other pulley, to effect the movement of said belt; and means connected

with said transferrer for operation thereby during its actuation, for shifting one of said relatively-movable parts toward the other, to permit said weft-end to be seized.

6. In a weft-replenishing mechanism, the combination, with a magazine adapted to contain a series of bobbins, and means for transferring said bobbins from said magazine in a determined path; of a pair of pulleys; an endless belt of card-clothing adapted to pass around said pulleys; means operated by the bobbin-transferring means for rotating one of said pulleys; and mechanism for moving each bobbin out of its path to engage its weft-end with said belt.

7. In a weft-replenishing mechanism, the combination, with a magazine adapted to contain a series of bobbins, and means for transferring said bobbins from said magazine in a determined path; of a pair of pulleys; an endless belt of card-clothing adapted to pass around said pulleys; means operated by the bobbin-transferring means for rotating one of said pulleys; and mechanism operated by said bobbin-transferring means for moving each bobbin out of its path to engage its weft-end with said belt.

8. In a weft-replenishing mechanism, the combination, with a magazine adapted to contain a series of bobbins, and means for transferring said bobbins from said magazine in a determined path; of a pair of pulleys; and endless belt of card-clothing adapted to pass around said pulleys; means operated by the bobbin-transferring means for rotating one of said pulleys; mechanism for moving each bobbin out of its path to a point adjacent the path of the card-clothing to permit the weft-end of the bobbin to be caught thereby; and means for catching said weft-end if missed by said card-clothing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

IWAN IMBERT.

Witnesses:
H. C. Coxe,
Paul Blum.

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