

A. A. GORDON, JR.
WEFT REPLENISHING LOOM.
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932,119.

Patented Aug. 24, 1909.

2 SHEETS—SHEET 1.

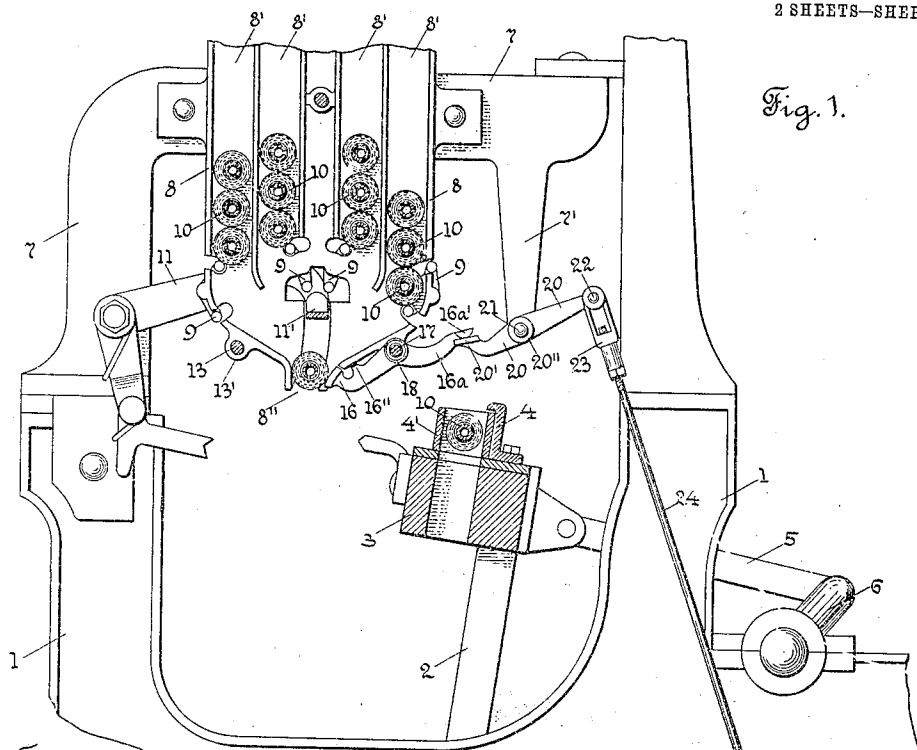


Fig. 1.

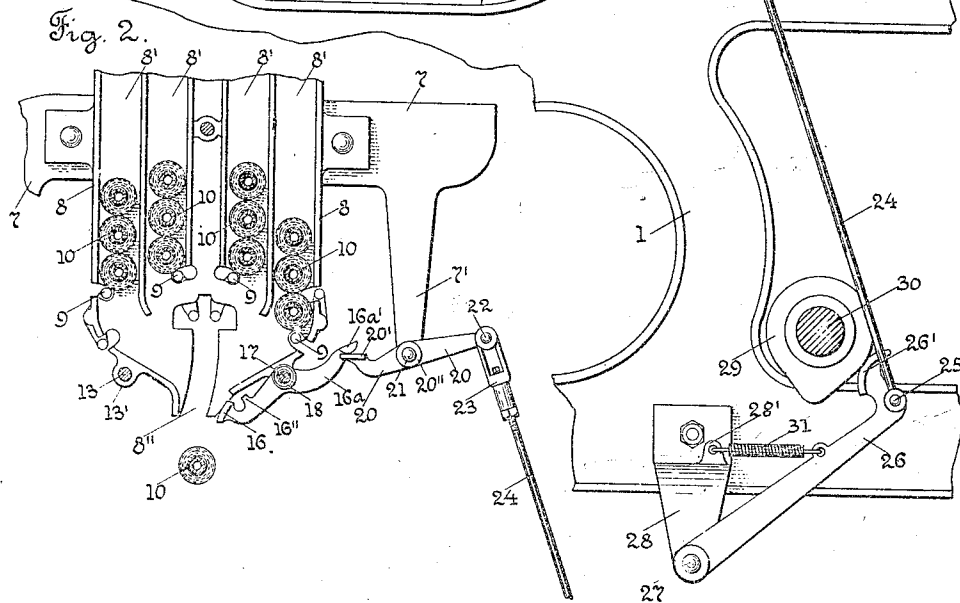


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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WEFT-REPLENISHING LOOM.

932,119.

Specification of Letters Patent.

Patented Aug. 24, 1909.

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To all whom it may concern:

Be it known that I, ALBERT A. GORDON, Jr., a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Weft-Replenishing Looms, of which the following is a specification.

My invention relates to weft replenishing looms, and particularly to the weft replenishing mechanism of a loom, or the magazine which contains the bobbins or filling carriers, one of which, at the proper time, on the substantial exhaustion of filling in the active shuttle, is released from the magazine, and transferred into the active shuttle, to take the place of the substantially exhausted bobbin.

My invention particularly relates to that class of weft replenishing looms which have at one end a stationary magazine with a plurality of compartments or guide-ways for the superposed bobbins or filling carriers, and in which each set of bobbins is supported in its compartment, and at the proper time the lowest bobbin of one set, is automatically released and drops down by gravity to the lower discharging end of the magazine, which end is common to all the compartments, and is yieldingly supported at said discharging end, preparatory to the operation of the transfer arm and the engagement thereof with the bobbin to force it into the active shuttle to take the place of the substantially exhausted bobbin therein, by retaining means, comprising a spring actuated lever or support at the head end of the bobbin, and a second spring actuated lever or support at the tip end of the bobbin, said levers supported at the lower end of the magazine, in the usual and well known way.

It has been found in practice in the class of magazines above referred to, that when a bobbin has been dropped to the lower discharging end of the magazine, and fails to be transferred into the active shuttle at the proper time, and another bobbin is released and drops upon the bobbin already at the discharging end of the magazine, that by reason of two bobbins at the discharging end of the magazine, a disarrangement or breaking of the transfer arm is liable to occur, when it is operated to transfer a bobbin into the active shuttle.

The object of my invention is to prevent the disarrangement or breaking of the transfer arm, as above referred to, and to provide mechanism combined with the bobbin retaining means, and positively operated every other pick of the loom, to operate said retaining means and release the bobbin remaining at the lower discharging end of the magazine, and allow it to fall by gravity, and drop away from the moving parts of the loom, into any suitable receptacle provided for it.

The operation of my releasing mechanism acts to remove from the transferring position in the magazine, any bobbin which may be left there for any cause, and which may interfere with the proper operation of the transfer mechanism.

I have only shown in the drawings, a detached portion of the magazine end of a loom, with my improvements combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is an outer end view of a portion of a loom frame or side, and a sectional view of the lower portion of the magazine and of the lay, showing my improvements combined therewith. Fig. 2 shows the lower part of the magazine shown in Fig. 1, with the bobbin releasing mechanism in a different position. Fig. 3 is a sectional side view of the lower part of the magazine detached, looking in the direction of arrow *a*, Fig. 4, and showing some parts broken away in Fig. 4. Fig. 4 is a front view of the parts shown in Fig. 3, looking in the direction of arrow *b*, same figure; some parts shown in Fig. 3 are not shown in this figure, and, Fig. 5 is a section, on line 5, 5, Fig. 4, looking in the direction of arrow *c*, same figure, and showing some parts not shown in Fig. 4.

In the accompanying drawings, 1 is a portion of a loom side or end frame, 2 the lay sword, 3 the lay, having a stationary shuttle box 4 thereon with a shuttle 4' therein.

5 is the connector to the crank shaft 6.

7 is a stand for the magazine 8. The magazine 8 is of the stationary type, and secured to the stand 7, and having a plurality of guide-ways or compartments 8', in

this instance four in number, for the heads and the tips of the bobbins. Each compartment is open at its lower end and leads to a central opening 8" at the lower discharging end of the magazine, which opening is common to all of the compartments. At the lower end of each compartment is a rocking lever or support 9, in this instance of the construction shown and described in the pending application for U. S. Letters Patent, Ser. No. 298,939.

The rocking lever or support 9 acts to support each set of bobbins 10, and on the partial movement of a lever or support 9, all of the bobbins in the compartment drop down and are held in their lowest position by the support 9, see Fig. 1, preparatory to the release of the lowest bobbin and its falling to the discharging end of the magazine, as shown in Fig. 1.

The transfer mechanism, partially shown in the drawings, is of the usual and ordinary construction and operation, and consists of the transfer arm 11 having the engaging end 11', which at the proper time is moved downwardly to engage a bobbin 10 and push it out of the discharging end of the magazine and into the active shuttle 4', to take the place of a substantially exhausted bobbin in said shuttle, in the usual and well known way.

At the lower end of the magazine, at the front part, is a lever or support 12 for the tip end of a bobbin 10. The lever or support 12 has in this instance a hub 12' which is loose on a shaft 13, which extends transversely through the lower part of the magazine, and is mounted in suitable bearings 13' on the magazine. A helically coiled spring 14 is secured by a collar 15 at one end on the shaft 13, and is attached at its other end to the hub 12' of the lever or support 12, and acts to yieldingly hold said support or lever in its raised position. The engagement of the lever 12 with a part of the magazine, as shown in Fig. 4, limits the upward movement of said lever. The free end of the lever 12 is located at the lower discharging end of the magazine, and in a position to extend in the path of and support the tip of a bobbin, see Figs. 3, 4, and 5, preparatory to the discharge of a bobbin from the magazine and its transfer by the transfer mechanism into the active shuttle.

At the lower inner part of the magazine is a second lever or support 16 for the head of a bobbin; said lever 16 has in this instance a hub 16' loose on a shaft 17 which extends transversely through the lower part of the magazine and is mounted in suitable bearings 17' on the lower part of the magazine. A helically coiled contraction spring 18 encircles the shaft 17, and is secured at one end to a collar 19 fast on said shaft, and is connected at its other end with the hub 16'

of the lever 16, and acts to yieldingly hold the lever 16 in its raised position, with its free end in the path of the head of a bobbin, as shown in Fig. 1. A projection 16" on the lever 16 is in this instance adapted to engage a part of the magazine, see Fig. 1, to limit the upward movement of said lever 16.

All of the above mentioned parts may be of the usual and well known construction in the class of looms referred to, or may correspond with similar and equivalent parts in the class of looms referred to.

I will now describe my improvements, which as above stated, relate particularly to means for operating the retaining mechanism for the bobbin at the lower discharging end of the magazine at predetermined intervals, to allow the bobbin to drop from the magazine. In this instance I have shown my operating or releasing mechanism for the retaining mechanism for the bobbins, combined with and adapted to operate the retaining lever for the head of the bobbin, said mechanism may be combined with and adapted to operate the retaining lever for the tip of the bobbin, if preferred. In this instance the retaining lever 16 for the head of the bobbin has an outwardly extending arm or extension 16^a thereon, with a side extension 16^{a'}, which is adapted to extend into the path of and be engaged by a side extension 20' on a lever 20, having a hub 20" pivotally mounted on a stud 21 on the lower end of an extension 7' on the stand 7. The outwardly extending arm of the lever 20 carries in this instance a stud 22, with which is connected, through a rod head 23, the upper end of a rod 24. The lower end of the rod 24 is connected with a stud 25 on a cam lever 26, which is pivotally mounted on a stud 27 on a stand or bracket 28 secured to the loom side 1. The lever 26 has in this instance a curved end 26' which engages a cam 29 fast on the bottom shaft 30. A spring 31, attached to the cam lever 26 and to a lug 28' on the stand 28, acts to hold the lever 26 in engagement with the cam 29.

The operation of my improvements will be readily understood by those skilled in the art.

At every revolution of the bottom shaft 30, which is revolved once for every two revolutions of the crank shaft 6, so that at every other movement of the lay, through the cam 29, cam lever 26, rod 24, rod head 23, and lever 20, the retaining lever or support 16 is positively operated, to move down its inner end which retains the head of the bobbin, as shown in Fig. 2, so that in case a bobbin fails to be transferred at the proper time by the transferring mechanism, from the magazine into the active shuttle, the head of the bobbin being released, will drop down and draw the tip of the bobbin away from its retaining lever 12, as shown in Figs. 3, 4, and 5, and allow the bobbin to drop down away from

the magazine, as shown in Fig. 2, and into some suitable receptacle, not shown, provided for it.

When the retaining lever 20 is not operated by the releasing mechanism, it is held in its normal position by the spring 18, to yieldingly support the head of the bobbin, and in case of the proper transfer of a bobbin, the action of the transferrer arm will move down the retaining lever 16 against the action of the spring 18, to release the bobbin in the ordinary way, independently of the releasing mechanism, and allow it to be transferred into the active shuttle.

It will be understood that the details of construction of my improvements may be varied if desired. I have shown and described herein bobbins in the magazine, but if preferred shuttles, or other forms of filling carriers may be used.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a weft replenishing loom, the combination with a magazine for bobbins or filling carriers, having yielding retaining means to support a bobbin or filling carrier in a position under the transferrer, of means to op-

erate said retaining means at predetermined intervals and allow a bobbin filling carrier to drop from the magazine.

2. In a weft replenishing loom having a magazine for bobbins or filling carriers, a retaining lever or support for a bobbin or filling carrier under the transferrer, and means to move said lever intermittently at predetermined intervals.

3. In a weft replenishing loom having a magazine for bobbins or filling carriers, a transferrer arm, and means to yieldingly retain the bobbin in the magazine at the discharging end thereof, and under the transferrer arm, and means to operate said retaining means and allow a bobbin to drop from the magazine.

4. In a weft replenishing loom having a magazine for bobbins or filling carriers, a transferrer arm, a retaining lever or support for a bobbin or filling carrier, under the transferrer arm, a cam, and intermediate connections, to move said retaining lever at predetermined intervals.

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Witnesses:

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