

A. A. GORDON, JR.
 THREAD CUTTING TEMPLE FOR WEFT REPLENISHING LOOMS.
 APPLICATION FILED DEC. 26, 1908.

961,439.

Patented June 14, 1916.

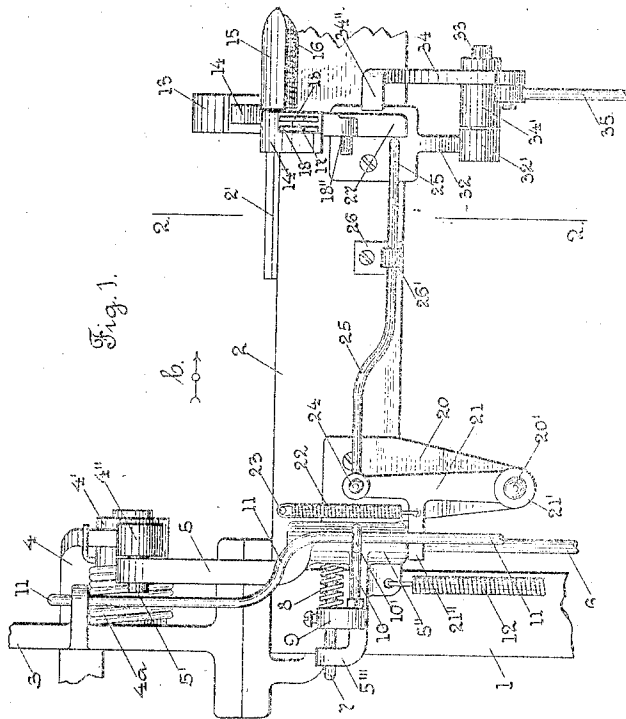


Fig. 1.

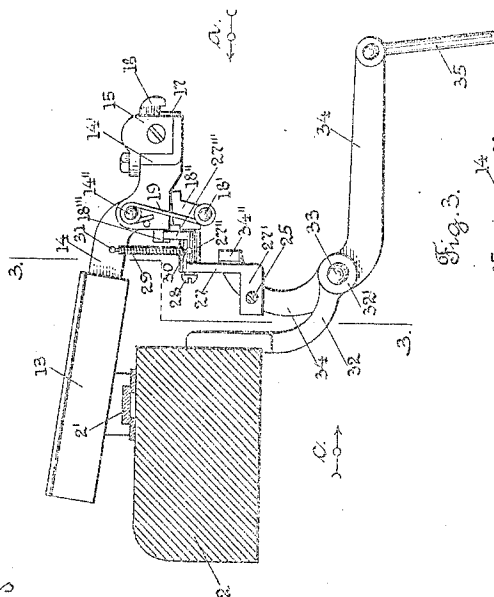


Fig. 2.

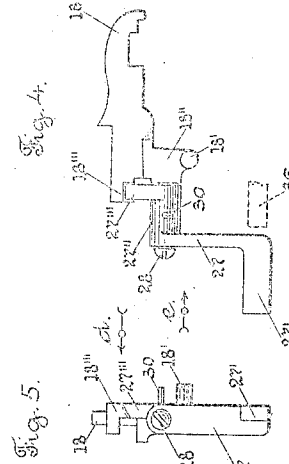


Fig. 3.

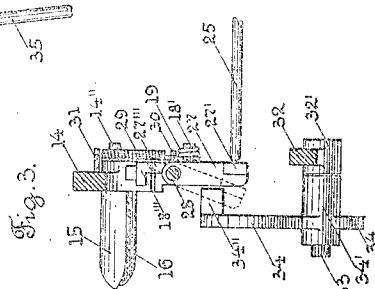


Fig. 4.

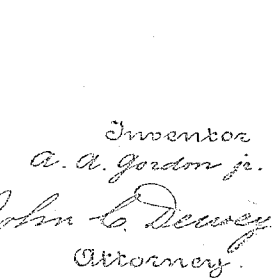


Fig. 5.

Witnesses
 M. B. Redt.
 W. K. Kear.

Inventor
 A. A. Gordon Jr.
 By John C. Dewey
 Attorney.

UNITED STATES PATENT OFFICE.

ALBERT A. GORDON, JR., OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

THREAD-CUTTING TEMPLE FOR WEFT-REPLENISHING LOOMS.

961,439.

Specification of Letters Patent. Patented June 14, 1910.

Application filed December 26, 1908. Serial No. 469,208.

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 Thread-Cutting Temples for Weft-Replenishing Looms, of which the following is a specification.

My invention relates to a thread cutting temple for weft replenishing looms, and particularly to the type of thread cutting temple shown in U. S. Letters Patent, No. 585,465, in which the filling or weft thread cutting mechanism is combined with the loom temple. In said patented cutting temple, the cutting mechanism comprises a stationary cutter or blade, and a movable cutter or blade; the movable cutter has a heel or extension thereon, which, on the forward movement of the lay, is engaged by a projection on the lay, and through said engagement said cutter is moved to cut the filling which extends out beyond the selvage of the goods, in case said filling has been caught by the hook on said movable blade, all as fully described in said patent.

It has been found in the practical use of the patented thread cutting temple above referred to, that the end of the filling extending out from the selvage or edge of the fabric, after the transfer of a bobbin from the magazine into the active shuttle, and the picking of said shuttle through the shed from the magazine end of the loom, and also particularly where a shuttle having a substantially exhausted bobbin is picked from the end of the loom opposite from the magazine, and said bobbin is then expelled from the shuttle by the insertion of a new bobbin, that the filling will not be cut by the cutting mechanism, because the forward movement of the lay has moved the movable cutter toward the breast beam, before the filling has been beaten up by the reed sufficiently to be engaged by said cutter, and consequently the filling end is left outside of the selvage, and is liable to be drawn into the shed by the shuttle, or by subsequent shots of filling.

To overcome this fault in, and objection to the patented thread cutting mechanism above referred to, it is necessary to add an independent cutting mechanism, between the temple cutting mechanism, and the

magazine, to cut the filling which is not cut by the temple cutting mechanism.

The object of my invention is to improve upon the type of thread cutting temples shown and described in said Patent, No. 585,465, and more particularly to do away with a second cutting mechanism, and to combine with the patented thread cutting mechanism, a supplemental mechanism, by means of which, on the transfer of a bobbin from the magazine into the active shuttle, and the expulsion of the substantially exhausted bobbin from said shuttle, the movement of the movable cutter will be delayed until the lay has advanced almost to its forward position, and until the filling is moved forward sufficiently by the reed, to be in a position to be engaged by said movable cutter, which is then moved, preferably independently of the movement of the lay, by a supplemental mechanism, the operation of which is controlled through connections to the transferring mechanism at the magazine end of the loom.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawing a detached portion of a weft replenishing loom, and parts of a weft replenishing mechanism, which are shown and described in U. S. Letters Patent No. 948,568, and also a thread cutting temple of the type shown and described in Patent, No. 585,465, above referred to, with my improvements combined therewith, sufficient to enable those skilled in the art to understand the construction and operation of my improvements.

Referring to the drawing: Figure 1 is a rear view of a detached portion of the breast beam of a loom, with a part of the weft replenishing mechanism thereon, and a thread cutting temple, and my improvements combined therewith, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 is a section, on line 3, 3, Fig. 2, looking in the direction of arrow *c*, same figure. Fig. 4 shows, on an enlarged scale, the cutter blade, and parts connected therewith, detached, looking in the direction of arrow *d*, Fig. 5. Fig. 5 is an end view of the parts shown in Fig. 4, looking in the direction of arrow *e*, same figure.

In the accompanying drawing, 1 is a detached portion of a loom side or end frame, 2 the breast beam, 3, Fig. 1, is the lower portion of the stand on which is supported the magazine, not shown, for the bobbins or filling carriers. The stand 3 carries a stud, on which is pivotally mounted the hub 4' of an arm 4 of the transferring mechanism. A boss 4'' on the arm 4 carries a stud 5', which is pivotally connected to the upper end of a vertically moving plate 5. A helically coiled tension spring 4^a, acts to move the arm 4 of the transferring mechanism, in the usual way.

The lower enlarged part 5'' of the plate 5 has loosely extending therein the upper end of the vertically moving rod 6, see Fig. 1.

7 is a longitudinal pin or rod, suitably supported and guided in a side extension or arm 5''' on the plate 5. The outer end of the longitudinal pin 7 is adapted to be engaged by a lever, connected with the filling detecting mechanism, and moved inwardly against the action of a helically coiled expansion spring 8 mounted on the pin 7, to bring the inner end of the rod 7 in the path of the upper end of the vertically moving rod 6. The pin 7 has a collar 9 fast thereon, which carries a wire 10 having an eye 10' on its inner end, through which loosely extends a vertically moving rod 11. Through the longitudinal movement of the pin 7 the rod 11 is moved out or in at its upper end.

All of the above mentioned parts are of the same construction and operation as the similar parts shown and described in the Letters Patent, No. 948,568, above referred to.

The upward movement of the rod 6, when the inner end of the pin 7 extends in the path of the upper end of said rod, will move upwardly the plate 5, against the action of the helically coiled contraction spring 12, to operate the arm 4 of the transferring mechanism, and through intermediate connections, not shown, raise the dagger, not shown, to cause the transfer of a new bobbin, in the usual way.

I will now describe the thread cutting loom temple shown in the drawing, and which in this instance corresponds to the loom temple shown and described in Patent No. 585,465, above referred to. The loom temple comprises the stand 13, see Fig. 2, which is secured to the plate 2' on the breast beam 2. The stand 13 is adapted to hold the slide bar 14 of the temple. The slide bar 14 has a head 14' on which is secured the cap 15. The temple roller or burr 16 is rotatably mounted within the cap 15. The head 14' is recessed to receive a stationary blade 17. The movable cutter or blade 18 is at its front end made of substantially the same shape as the movable blade in said patent. No. 585,465, the front end being slotted and of hook shape. The slotted end of the blade

18 straddles the stationary plate 17. In its normal or inoperative position, the inner or front end of the cutter 18 is, by the action of the spring 19, kept projecting through the slot in the head 14', and elevated.

The spring 19 is connected at one end with a stud 14'' on the bar 14, and at its other end with a stud 18' on a downwardly extending projection 18'' on the cutter 18, and as above stated, acts to yieldingly hold the cutter 18 in its elevated inoperative position, and return it to said position.

All of the above mentioned parts of the thread cutting temple are of the usual and well known construction, shown and described in said Patent, No. 585,465.

I will now describe my improvements combined with the parts of the thread cutting temple above described. On the breast beam 2 at the magazine end, is in this instance secured a downwardly extending stand or bracket 20 carrying a stud 20', on which is loosely mounted the hub 21' on the lower end of an upright lever 21, see Fig. 1. A side projection 21'' on the lever 21 extends in and is adapted to engage the lower end of the enlarged part 5'' on the vertically moving plate 5. A helically coiled contraction spring 22 is attached at one end to the side extension 21'' on the lever 21, and at its other end, in this instance to a pin 23 on the rear of the breast beam 1. Said spring 22 acts to yieldingly hold the side extension 21'' against the lower end of the enlarged part 5'' of the plate 5.

When the plate 5 is raised, during the operation of transferring a fresh bobbin or filling carrier from the magazine into the running shuttle, and the expulsion of the substantially exhausted bobbin from the running shuttle, the upper end of the lever 21 is moved to the right in Fig. 1, through the action of the spring 22. On the upper end of the lever 21 is a stud 24, to which is pivotally connected one end of a rod 25. The rod 25 is loosely supported in a boss or hub 26' on a bracket 26 secured to the rear side of the breast beam 1, and the inner end of said rod 25 is adapted to engage a side extension 27' on a downwardly extending arm or lever 27, which has its hub 27'' pivotally mounted on a bolt or screw 28, see Fig. 4. The bolt or screw 28 is fast in an extension or heel 18'' on the cutter blade 18. Extending upwardly from the hub 27'' of the lever 27, is an arm 27''', in this instance having a beveled upper edge which extends into a beveled recess in the end 18''' of the cutter blade 18, see Figs. 4 and 5, and acts to limit the pivotal movement of the lever 27 in one direction, as shown by full lines in Fig. 3.

A helically coiled contraction spring 29 is attached at its lower end to a pin 30 on the hub 27'' of the lever 27, and at its other end to a pin 31 on the slide bar 14, see Fig. 2; 130

said spring 29 acts to yieldingly hold the lever 27 in the position shown by full lines in Fig. 3, and to return it to said position.

A stand 32 is secured at its upper end on the inner side of the breast beam, see Figs. 1 and 2, and carries at its lower end a boss 32', in which is held a stud 33, on which is loosely mounted the hub 34' of a two-armed lever 34. The lower arm of the lever 34 is connected with the upper end of a rod or connector 35, which rod is operated through mechanism, not shown, preferably a cam lever, and a cam on the bottom shaft of the loom, to operate said connector 35 and the lever 34 every other pick of the loom. The upper arm 34 of the lever 34 has a side extension 34'' thereon, which is adapted to extend in front of the lever 27, see Fig. 2.

From the above description in connection with the drawing, the operation of my improvements, combined with the loom temple cutting mechanism shown in the drawing, will be readily understood by those skilled in the art.

In the normal operation of the loom, the arm or lever 27, supported on the rear end or heel of the movable cutter 18, will extend in the path of a projection on the lay, said projection is indicated by broken lines 36 in Fig. 4, and as the lay beats up, said projection 36 will engage the arm 27 and move backwardly the cutter 18, to cause it to engage and cut a filling or weft thread, in case there is any filling or weft thread under the hooked end of said blade, in the same manner as described in said Patent, No. 585,465. As stated above, this is the only backward movement of the cutter 18, in said patent, and this movement takes place on every forward movement of the lay, without regard to the transfer of a new bobbin from the magazine, and the expulsion of the substantially exhausted bobbin from the active shuttle.

In the operation of my improved construction of cutting mechanism, when the bobbin is to be transferred from the magazine into the active shuttle, and the substantially exhausted bobbin in said shuttle is to be expelled from the shuttle, the operation of the transfer arm 4, through the upward movement of the rod 6 and the plate 5, will release the lever 21, and allow the spring 22 to act to move the rod 25 to the right, Fig. 1, to cause it to engage the side extension 27' on the lever 27, and move said lever 27 to one side, as indicated by broken lines in Fig. 3, and out of the path of the projection 36 on the lay, so that as the lay advances on its forward movement, the projection 36 thereon will pass by the lever 27, leaving the movable cutter 18 stationary, and said cutter will remain stationary, and allow the filling extending out beyond the selvage to be beaten up by the reed and pass

under the hook end of said cutter. The lever 34, through the connector 35 is then operated, at a predetermined time, to cause the side extension 34'' thereon to engage the lever 27, which is in the position shown by broken lines in Fig. 3, and move said lever and with it the cutter 18 backward, causing the cutter 18, in connection with the stationary cutter 17, to cut or sever the filling. The return movement of the transfer arm 4 to its normal position, and the forward movement of the plate 5 and rod 6, will cause, through the engagement of the enlarged part 5'' on the plate 5 with the side extension 21'' on the lever 21, the movement of said lever 21 to the left, Fig. 1, against the action of the spring 22, and also the movement of the rod 25 to the left, Fig. 1, to release the lever 27, and allow the spring 29 to act, to return said lever to its normal position, and out of the path of the side extension 34'' on the lever 34, as shown by full lines in Fig. 3. The cutting mechanism will then continue to operate, that is the movable cutter 18 will be moved back at every forward movement of the lay, by the engagement of the projection 36, (see Fig. 4,) with the lever 27, until, on the transfer of another bobbin from the magazine into the active shuttle, my mechanism above described is again put into operation.

The advantages of my improvements will be readily appreciated by those skilled in the art.

It will be understood that in the normal operation of the loom, the movable cutter of the cutting mechanism has a movement communicated thereto by the forward movement of the lay, in the same manner as described in said Patent, No. 585,465, but that on the transfer of a new bobbin from the magazine into the active shuttle, and the expulsion of the substantially exhausted bobbin from said shuttle, the movement of the cutter 18 is delayed until the reed has moved forward the filling or weft thread sufficiently to be engaged by the hooked end of the cutter 18, and then the said cutter 18 is moved independently of the lay, to sever or cut the filling or weft thread. In this way I accomplish with one cutting mechanism, and my supplemental mechanism for operating the cutting mechanism, which supplemental mechanism is preferably operated independently of the lay, whenever there is a bobbin or filling carrier transferred from the magazine, what has ordinarily required two cutting mechanisms.

It will be understood that the details of construction of my improvements may be varied if desired. My supplemental mechanism is preferably operated independently of the lay, but it may be operated through connections to the lay.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. In a thread cutting loom temple, a stationary cutter, a movable cutter, a lever or arm on said movable cutter, extending in the path of and adapted to be engaged by a projection on the lay, to cause the movement of said cutter, and said lever or arm adapted to be moved out of the path of said projection on the lay, and into the path of an operating lever, and said operating lever, acting to move said lever or arm and the movable cutter, to cut or sever the filling or weft thread.

2. In a thread cutting loom temple, a stationary cutter, and a movable cutter, a lever or arm on said movable cutter extending in the path of and adapted to be engaged by a projection on the lay, to cause the

movement of said cutter, and adapted to be moved out of the path of said projection and into the path of an operating lever, and said lever, acting to move said lever or arm and the movable cutter, independently of the lay, to cut or sever the filling or weft thread.

3. In a thread cutting loom temple, a stationary cutter, a movable cutter, and means for moving said cutter at regular intervals, and means for delaying the operation of the cutter preparatory to the transfer of a bobbin, and means, independent of the lay, for operating the cutter on the transfer of a bobbin.

ALBERT A. GORDON, JR.

Witnesses:

JOHN C. DEWEY,
MINNA HAAS.