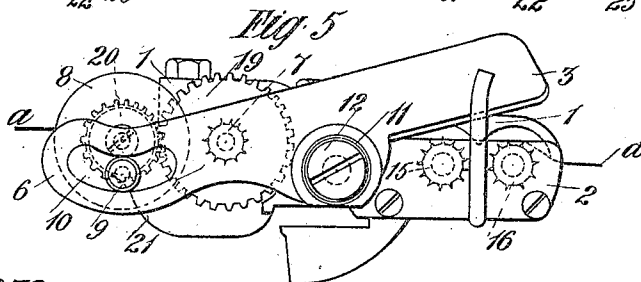
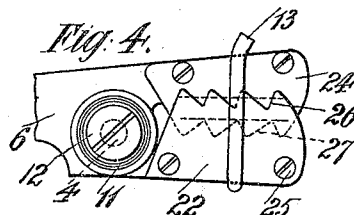
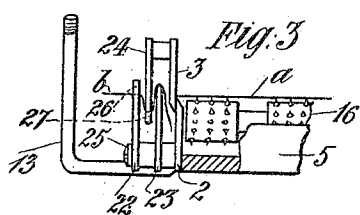
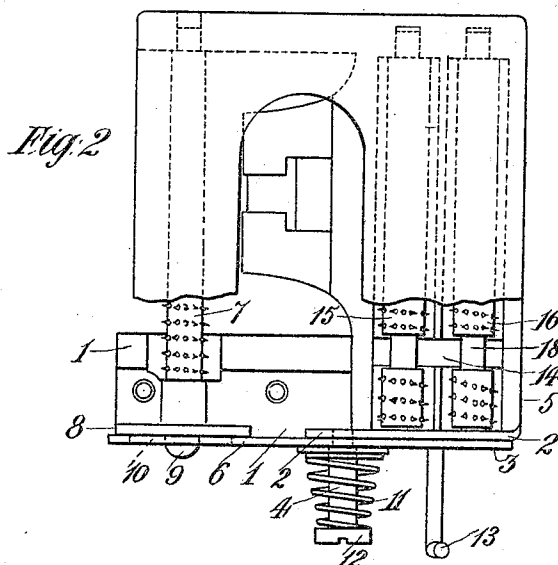
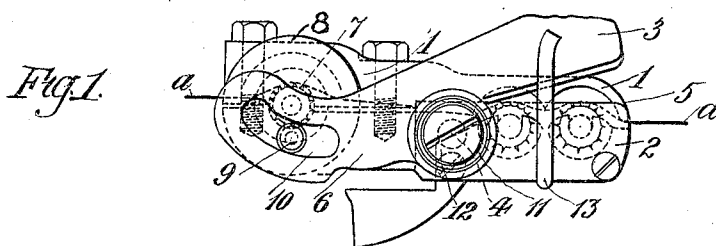


No. 822,169.

PATENTED MAY 29, 1906.

A. E., A. & G. WALKER.
 THREAD CUTTING DEVICE.
 APPLICATION FILED NOV. 18, 1904.



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UNITED STATES PATENT OFFICE.

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THREAD-CUTTING DEVICE.

No. 822,169.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed November 18, 1904. Serial No. 233,345.

To all whom it may concern:

Be it known that we, ALBERT EDWARD WALKER, ARTHUR WALKER, and GEORGE WALKER, subjects of the King of Great Britain, residing at Norwood Green, near Halifax, England, have invented a certain new and useful Improvement in Thread-Cutting Devices for Automatic Weft - Replenishing Looms, of which the following is a specification.

The invention relates to an improvement in automatic weft-replenishing looms, and has reference to means employed for severing at or near the selvage of the fabric the end of weft-thread left after a new shuttle has been supplied and the end of weft-thread left when a shuttle has been put out of use. The former length of thread occurs between the fabric and the peg around which the thread is coiled when the shuttle is placed in the supply-hopper and the latter between the fabric and the shuttle-box.

The object of the invention is to continuously sever during the process of weaving these two connections of the weft-supply with the fabric and keep the temple, shuttle-race, and shuttle-box clear of loose weft-threads.

In the operation of our present invention the severed thread from the new shuttle falls below the peg to which it is attached, and the severed thread from the used shuttle preferably passes along a groove formed in the shuttle-race of the loom at the side where the shuttles are put out of use and situated about midway between the edge of the fabric and the entrance to the shuttle-box and leaves the loom with the discharge of the shuttle.

In the accompanying drawings, Figure 1 is an end elevation of the cloth-temple, showing the cutting device mounted thereon. Fig. 2 is a plan thereof. Fig. 3 is a front view of part of a temple, illustrating a modification of the invention. Fig. 4 is an end elevation thereof, and Fig. 5 is an end elevation of a further modification.

Upon the outer edge of the frame 1 of the cloth-temple two cutting-blades 2 3 are mounted, the one, a lower blade 2, being stationary, and the other, an upper blade 3, being vertically movable thereon and having a

cutting action upon the lower blade. The movable blade 3 forms the front arm of a lever which has its fulcrum 4 at a suitable distance from the front edge 5 of the temple. The opposite arm 6 of the lever is extended horizontally to the rear of the fulcrum 4 and receives the power which actuates the lever and gives the cutting action to the upper blade 3. The actuating power is obtained by the rearward movement of the fabric *a* as it is being woven and slowly and regularly drawn upon the take-up beam. This movement of the fabric *a* is imparted to the cutting-blade 3, as follows: The fabric after it has left the ordinary temple is passed over a pin-roller 7, such as is used in roller-templates. A disk 8 is mounted upon the outer end of said roller 7 and contacts with the actuating-arm 6 of the cutting-lever. A small stud or wheel 9 is fixed in the face of the disk and passes through a cam groove or slot 10, formed in the lever. The groove 10 is formed eccentrically with regard to the center of the disk and of such a curvature as is necessary to give the desired degree of action to the cutting-blade 3, which is preferably a slow opening movement with a quicker closing action.

The upper cutting-blade 3 is kept in contact with the lower blade 2 by means of a conical spring 11, placed on the fulcrum-stud 12.

The top front corner of the lower blade is rounded, and the lower front corner of the upper blade is also rounded in order to guide the threads into cutting position upon the lower blade. A pin 13, vertically fixed opposite the blades, tightens the thread, which passes round it from the thread-holding peg.

The outer bearings 14 of the temple-rollers 15 and 16, when such are used, are removed a short distance inward, the rollers being turned down at 17 and 18 for this purpose, thus leaving the portion of the pin-roller which is beyond the bearing clear of the frame 1 of the temple. By this means any loose threads freely pass the roller instead of wrapping round the bearings and hindering the regular rotation of the rollers.

The modification illustrated in Figs. 3 and 4 consists in the addition to the cutting de-

vice above described of means for seizing, tightening, and securing the thread for the better performance of the cutting operations, comprising three auxiliary blades 22 23 24, two of which, the seizing and tightening blades, respectively, 22 and 23, are stationary and secured by studs or the like 25 to the lower cutting-blade 2, while the third or securing blade 24 is secured by similar means and moves with the upper cutting-blade 3.

The seizing-blade 22 is provided upon its upper edge with serrations 26 and is the outermost blade of the three, while the tightening-blade 23 has a plain edge and is the innermost blade of the device. The securing-blade 24, which moves in unison with the upper cutting-blade 3, is provided on its lower edge with serrations 27, which correspond with those upon the seizing-blade 22, between which and the tightening-blade 23 the securing-blade 24 reciprocates to secure the thread *b* of the fabric *a*.

The device operates as follows: When the cutting-blades 2 3 of the cutting device are open, the thread *b* is brought over the seizing-blade 22, as the going part of the loom comes forward and is caught upon one of the serrations 26 as it moves backward. The upper blade 3 then closes upon the thread *b* in the manner described in the cutting device, bringing down with it the securing-blade 24, which carries the thread *b* between the seizing and tightening blades 22 23, the former of which has also a tightening action, bending the thread over the edges of the blades, and thus putting a tension on said thread, which holds it perfectly tight outside the cutting-blades 2 3 during the cutting action, which now occurs.

The securing-blade 24 prevents the thread *b* from being pushed along the lower cutting-blade 2 as the upper cutting-blade 3 falls upon it by one of its serrations 27 falling in front of the thread and securing it upon the cutting-blade. Sufficient clearance is left between the blades 22, 23, and 24 and 2 3, so that their freedom of action is not interfered with by the thickness of the thread or yarn to be cut.

The further modification illustrated in Fig. 5 consists in the addition to the cutting device of means for accelerating the cutting action of the blades when the fabric passing over the temple-roller is a slowly moving one, its movement rearward not being sufficient to impart the necessary degree of action to the blades to enable them to sever the threads, and such means may, as shown, conveniently comprise the mounting of a toothed wheel 19 on the outer end of the pin-roller 7, which gears with pinion 20, fast to the disk 8, or to the spindle carrying the same, and which is carried independently of the pin-roller 7 in a separate

bearing 21, cast on or otherwise fixed to the frame 1 of the temple. By this means the cutting action of the blades may be increased in any desired degree, depending upon the relation between the toothed wheel 19 and the pinion 20, through which it drives the slotted arm 6.

What we claim is—

1. In cutting devices for automatic weft-replenishing looms and in combination, a temple, a pair of cutting-blades and means operated by the movement of the fabric for reciprocating one of said blades upon the other to sever the threads of the weft-supply from the fabric.

2. In cutting devices for automatic weft-replenishing looms and in combination, a temple, a pair of associated cutting-blades, and means operated by the movement of the fabric and coöperating with one of said cutting-blades to move same with an accelerated action upon the other of said cutting-blades for severing the threads of the weft-supply from the fabric.

3. In cutting devices for automatic weft-replenishing looms and in combination, a temple, a lower fixed cutting-blade, an upper movable cutting-blade, and means operated by the movement of the fabric for so reciprocating the upper blade upon the lower, that the blades have a slow opening action and a quickened cutting action.

4. In cutting devices for automatic weft-replenishing looms and in combination, a temple, a lower fixed cutting-blade, an upper movable cutting-blade fulcrumed to reciprocate upon said lower blade, a slotted arm on said upper blade, means eccentrically operated by one of the temple-rollers for engaging the slot in said arm, whereby the movable blade has an accelerated cutting action imparted thereto.

5. In cutting devices for automatic weft-replenishing looms and in combination a temple, a pair of cutting-blades, mounted thereon to sever the threads of the weft-supply from the fabric, a spring for keeping the one blade in contact with the other and a pin for tightening the weft-thread.

6. In cutting devices for automatic weft-replenishing looms and in combination, a temple, a pair of cutting-blades mounted thereon, auxiliary blades carried by each of said cutting-blades, and means for reciprocating the one set of cutting and auxiliary blades upon the other set to sever the connection of the weft-supply with the fabric by the cutting-blades while it is held and tightened by the auxiliary blades.

7. In cutting devices for automatic weft-replenishing looms and in combination, a temple, a movable cutting-blade, an auxiliary securing-blade connected to and movable

with same, a fixed cutting-blade, auxiliary
seizing and tightening blades connected there-
to, a thread-tightening pin adjacent to the
blades, and means operated by the rearward
5 movement of the fabric for reciprocating the
movable blades upon the fixed blades to seize,
secure, tighten and sever the connection of
the weft-supply with the fabric.

In testimony whereof we have hereunto set

our hands in the presence of two subscribing 10
witnesses.

ALBERT EDWARD WALKER.
ARTHUR WALKER.
GEORGE WALKER.

Witnesses:

RD. B. NICHOLLS,
W. H. KENNARD.