

B. ELMENDORF & J. GABLER.
WEFT REPLENISHING LOOM.
APPLICATION FILED FEB. 1, 1912.

1,042,774.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.

Fig 1

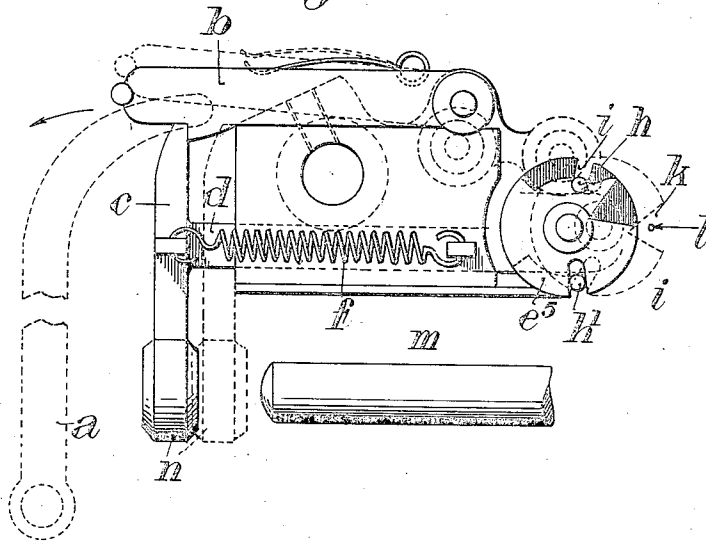
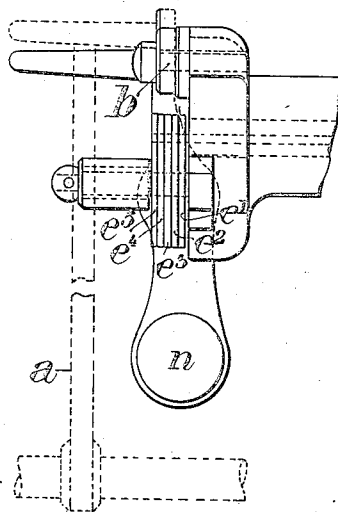


Fig 3



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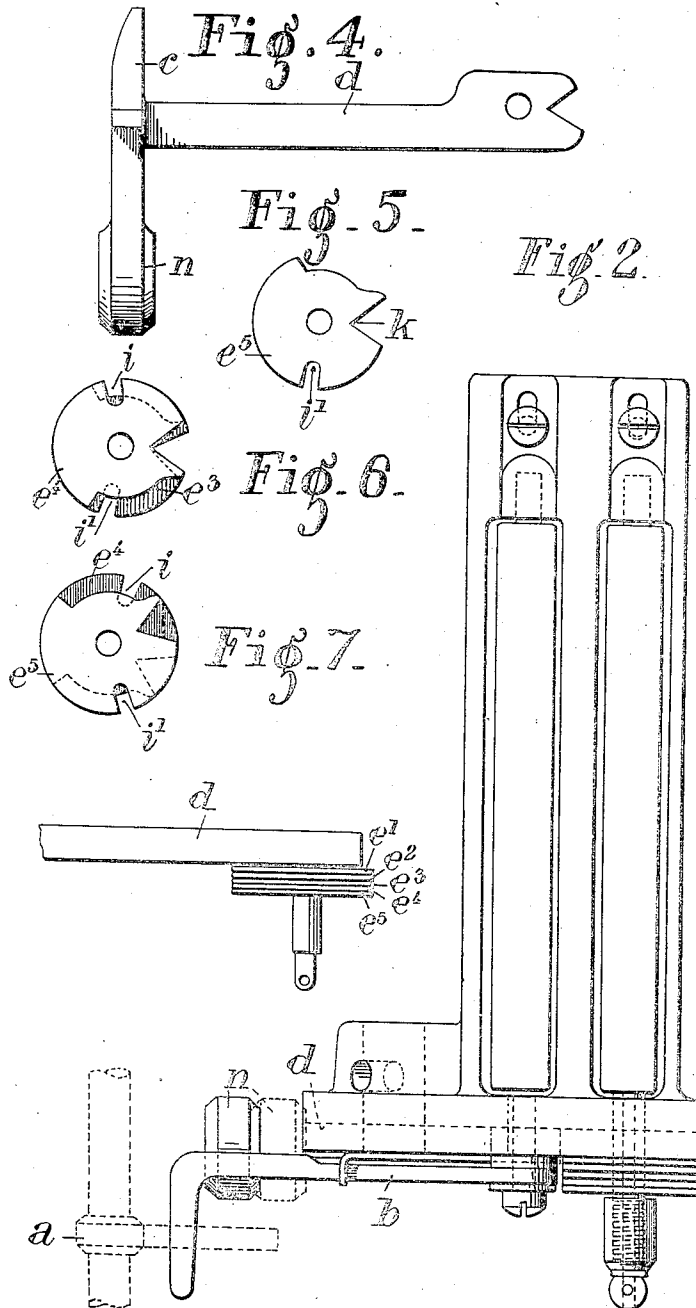
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UNITED STATES PATENT OFFICE.

BERNHARD ELMENDORF AND JOHANNES GABLER, OF ISSELHORST, GERMANY.

WEFT-REPLENISHING LOOM.

1,042,774.

Specification of Letters Patent.

Patented Oct. 29, 1912.

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To all whom it may concern:

Be it known that we, BERNHARD ELMENDORF and JOHANNES GABLER, subjects of the German Emperor, and residing at Isselhorst, Germany, have invented new and useful Improvements in Weft-Replenishing Looms, of which the following is a specification.

This invention relates to automatic looms, and more particularly to weft cutters for such looms.

Weft cutters comprising circular disks have already been proposed but in such apparatus the weft cutters have been arranged like ordinary scissors, one disk or limb being fixed, and the cutting of the thread being effected by the sliding together of the sharp cutting surfaces. In practice, however, it has been found that these cutting surfaces very soon become blunt and cease to cut the threads, which jam. Further the weft cutters hitherto employed in automatic looms can only be used in such manner as to sever the threads that have been left hanging at the edge of the fabric and are fed gradually (to the cutters) as the loom keeps on working; they cannot be arranged to cut off the last and first weft threads (that is to say, the thread of the emptied shuttle and the new thread end of the fresh shuttle) during the act of changing the shuttle, the only way in which this result can be obtained being for the device to grasp at the thread in question at the edge of the fabric and cut it through while returning to the position of rest. Weft cutters comprising several knives have also been proposed; but these have the great drawback that, in order to accomplish their purpose, they should be arranged to fit very exactly, so that the sharp cutting surfaces move into mutual contact, since otherwise they would not sever the thread, especially fine weft counts, but would merely jam the same and release it again completely. This is also the case as soon as the cutters have become slightly blunted, which frequently happens after a short period of use.

The chief object of the present invention is to obviate the defects mentioned above and to this end several movable disks (for example five) are mounted upon a pin carried by a push-rod and are pressed firmly together by means of a spring; the notches or recesses in some of the disks have such a relative intersecting movement relatively

to the notches in the other disks that the thread is certainly broken if not actually cut, since in closing, the recesses formed in for example the central and two outermost disks are caused to intersect with the recesses in the other disks to such an extent as to jam the thread with certainty, even if they do not sever it, so that the other disks also revolving, at the same time, between the said central and outermost disks in such manner, that their recesses overlap those of the adjacent disks, are bound to cause the thread to be cut through or broken without fail. This effect is still further facilitated by the fact that the entire surfaces of each disk is in contact with the adjacent disk or disks, being held in that position by a spring, so that, when in operation, the reciprocating rotary movement grinds the edges of the recesses automatically and they cannot therefore become blunt. The disks can also be easily interchanged.

In the accompanying drawing: Figure 1 is a side view of a portion of a shuttle changing loom fitted with one construction of weft cutter according to my invention the said weft cutter being shown in side elevation, Fig. 2 is a plan, and Fig. 3 is a front elevation of the same. Fig. 4 is a detailed view of the rod. Fig. 5 is a fragmentary view of the outer circular disk. Fig. 6 is a detailed view of the co-acting disks ready to operate upon the thread, and Fig. 7 shows another position of the co-acting disks.

In changing the shuttle, which is effected in the known manner by a weft fork or feeler, the lever *a*—which is connected to the weft fork or feeler in any suitable manner—moves backward in the direction of the arrow, as shown in Fig. 1. This raises the part *b* and releases the nose *c* of the rod *d*, carrying the disks *e'*, *e''*, *e'''*, *e''''* and *e'''''*, which disks are arranged coaxially; the rod *d* is acted upon by a spring *f*, which produces the displacement of the rod with the circular disks *e'*, *e''*, *e'''*, *e''''* and *e'''''*. During this forward movement the circular disks *e'*, *e''*, *e'''* and *e''''*—the shape of which is shown in the detail views—are rotated by the two pins *h* and *h'*, which are attached to the top and bottom of the temple roller and engage in the slots *i* and *i'* of the circular cutters. This rotary movement is of such a character that whereas, in the closed condition, the notches or recesses *k* in the disks

are masked, they coincide, in the opened condition after being moved forward, so as to form one recess *k*, as shown by the dotted lines in Fig. 1. In this open condition of the circular disks *e'*, *e³*, *e⁵* and *e²* and *e⁴*, the slay guides the thread *l* into the recess *k*. In the forward movement of the slay, the latter, to which is secured a pin *m*, causes this pin *m* to strike against the head *n* of the nose *c*. The nose *c* is carried by the rod *d*, and this rearward movement causes the circular disks to close again, *e'*, *e³* and *e⁵* turning around toward the left, and *e²* and *e⁴* toward the right, in consequence of which, the thread *l* lying in the recess *k* is gripped, and is cut off or broken through during the further rotation and closing of the opening. The lever *a*, in the position indicated by the dotted lines, now still keeps the pawl *b* in the raised position, while the slay, with its pin *m* returns and the rod *d* and circular disks *e'*, *e²*, *e³*, *e⁴* and *e⁵* are moved forward again under the influence of the spring *f*, whereby their recesses in the disks again coincide at *k* (as shown in Fig. 1). In the meantime the new shuttle has inserted a thread. The advancing slay brings this thread in turn into the recess *k*, and at the same time returns the rod *d* into the original position. This causes the circular disks to sever the portions of the new weft thread projection from the edge of the fabric and the pawl *b*, which has in the meantime been released by the lever *a*, locks the rod *d* by means of the nose *c* in its original position to which it has been returned by the pin *m* of the slay. The weft cutter does not begin to act again until the weft thread has run out and the weft fork operates the lever *a*, and it then acts twice in succession, so that the end of the newly inserted weft thread is cut off in addition to the end of the old weft thread. The certainty of the weft thread being severed or broken through by means of the smooth circular disks is insured by the intersection of the recesses in the disks and by their being pressed together by a spring.

We claim:

1. In an automatic loom, a weft cutter comprising a plurality of notched disks, means for pivotally supporting the said disks, means whereby when the supply of weft is automatically renewed the disks are rocked to bring their notches into coincidence until they form a groove adapted to receive the thread end, and means whereby the disks are again rocked relatively to each other so that the weft is cut off by the intersection of the various notches.

2. In an automatic loom, a weft cutter comprising sets of disks provided with notches, means upon which the said disks are pivoted co-axially, means whereby the various sets of disks are rocked relatively to each other to bring their notches into coin-

cidence to form a common groove for the weft, and means whereby the said disks are again rocked relatively to each other to sever the weft when the supply of the latter is renewed.

3. In an automatic loom, a weft cutter comprising a plurality of disks provided with notches, a reciprocating member upon which the disks are pivoted, stationary means for engaging with some of the disks, stationary means for engaging with the other disks independently of the aforesaid disk-engaging means, and means for actuating the reciprocating member whereby the disks are turned in opposite directions first to bring the notches of the disks into coincidence for receiving the weft and then to cause the said notches to again intersect for the purpose of severing the weft.

4. In an automatic loom the combination of a weft fork, and a weft cutter comprising a plurality of notched disks, a support upon which the said disks are pivotally mounted, means for rocking the disks to bring their notches into coincidence the said rocking means being brought into operation by the weft fork, and means for further rocking the disks to cause their notches to intersect and thereby cut off the weft.

5. In an automatic loom the combination with a weft fork, a slay, and a temple, of a weft cutter comprising a plurality of disks provided with notches, a sliding member upon which the disks are pivotally mounted, pins upon the temple each engaging with slots in some of the disks, means tending to move forward the reciprocating member, a latch normally preventing the said forward movement of the reciprocating member, means adapted to be actuated by the temple for releasing the said latch whereupon the reciprocating member pushes forward the disks and causes them to rock until their notches coincide to form a common groove adapted to receive the weft, and means actuated by the slay for moving back the said reciprocating member to its initial position whereby the disks are again rocked to sever the weft.

6. In an automatic loom, a weft cutter comprising a plurality of notched disks, means for pivotally supporting the said disks, resilient means for pressing the said disks together in an axial direction, means whereby the supply of weft is automatically renewed the disks are rocked to bring their notches into coincidence until they form a groove adapted to receive the thread end, and means whereby the disks are again rocked relatively to each other so, that the weft is cut off by the intersection of the various notches.

7. In an automatic loom the combination of a weft fork and a weft cutter comprising a plurality of notched disks, a support upon

which the said disks are pivotally mounted, resilient means for pressing the disks against each other, means for rocking the disks to bring their notches into coincidence the said
5 rocking means being brought into operation by the weft fork, and means for further rocking the disks to cause their notches to intersect and thereby cut off the weft.

8. In an automatic loom the combination
10 with a weft fork, a slay, and a temple, of a weft cutter comprising a plurality of interchangeable disks provided with notches, a sliding member upon which the disks are pivotally mounted, resilient means for pressing
15 the disks against each other, pins upon the temple and each engaging with slots in some of the disks, means tending to move forward the reciprocating member, a latch normally preventing the said forward move-

ment of the reciprocating member, means 20 adapted to be actuated by the temple for releasing the said latch whereupon the reciprocating member pushes forward the disks and causes them to rock until their notches coincide to form a common groove adapted 25 to receive the weft and means actuated by the slay for moving back the said reciprocating member to its initial position whereby the disks are again rocked to cause their notches to intersect and thereby to sever the 30 weft.

In testimony whereof we affix our signatures in presence of two witnesses.

BERNHARD ELMENDORF.

JOHANNES GABLER.

Witnesses:

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R. SCHUMANN.