A. G. KOECHLIN.

AUTOMATIC SPOOL CLEARING APPARATUS FOR WEFT REPLENISHING LOOMS.

APPLICATION FILED MAR. 18, 1911.

1,011,065. Patented Dec. 5, 1911.

Fig. 1

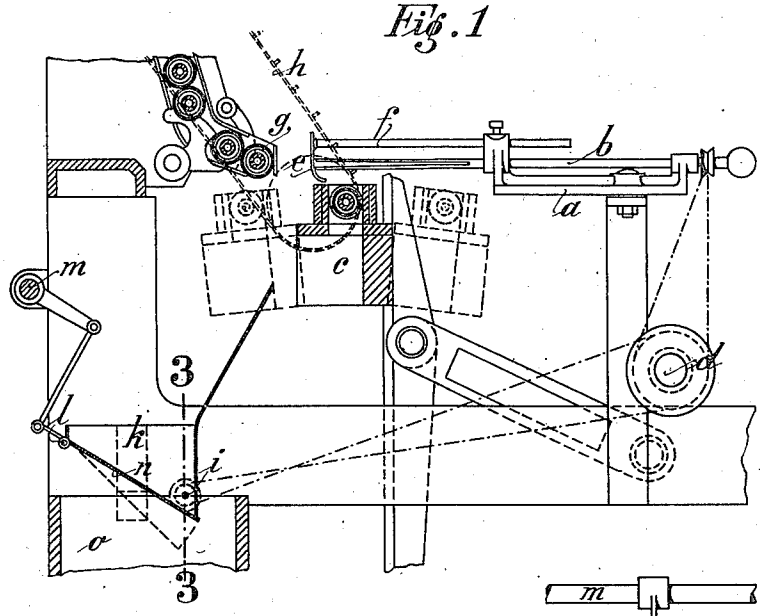

Fig. 2

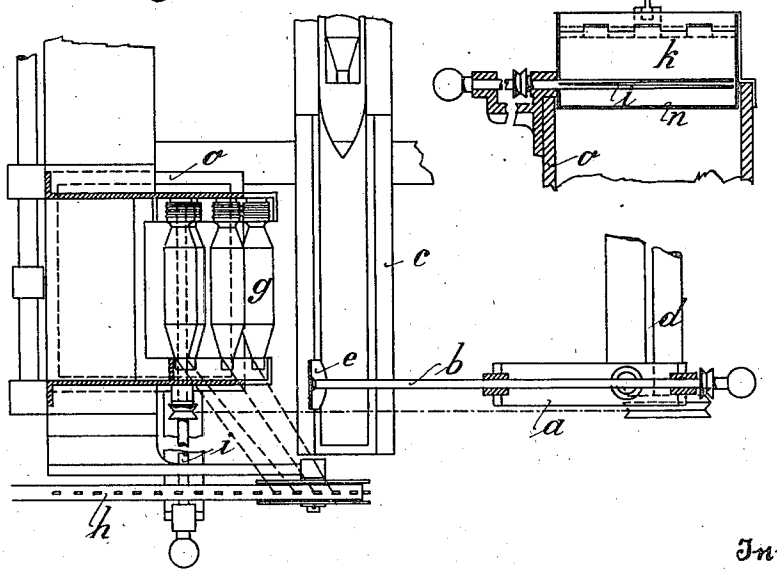

Fig. 3

Witnesses

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AUTOMATIC SPOOL-CLEARING APPARATUS FOR WEFT-REPLENISHING LOOMS.

1,011,065. Specification of Letters Patent. Patented Dec. 5, 1911.

Original application filed April 25, 1910, Serial No. 557,565. Divided and this application filed March 18, 1911. Serial No. 615,258.

To all whom it may concern:

Be it known that I, ALBERT GEORG KOECHLIN, a citizen of Switzerland, residing at Steinen, Grand Duchy of Baden, Germany, have invented certain new and useful Improvements in Automatic Spool-Clearing Apparatus for Weft-Replenishing Looms, of which the following is a specification.

This invention relates to automatic spool clearing apparatus for weft replenishing looms, and has for its object to provide improved means for removing the waste yarn remaining on the spools after being discharged from the loom shuttle.

The invention consists substantially in the arrangement of a rapidly revolving spindle with which the waste yarn on the spool comes in contact and is drawn off the spool by being coiled on the said spindle.

In the accompanying drawings which illustrate a preferred form of the invention:—Figure 1 is a side elevation partly in vertical section of the improved apparatus fitted to a weft replenishing loom. Fig. 2 is a corresponding plan partly in horizontal section; and Fig. 3 is a vertical section on the line 3—3 of Fig. 1.

a is a bracket fixed to the framing of the loom, and *b* is a spindle mounted slidably and rotatably therein with its length at right angles to the loom slay *c* close over the shuttle box. This spindle has fixed on it a small grooved pulley driven by a cord from a much larger grooved pulley fixed on the main driving shaft *d* of the loom. By this means the spindle *b* is continuously rotated at a high speed. A guard plate *e* projecting down in front of the end of the spindle *b*, is carried by a rod *f* which is slidably mounted in the bracket *a* and is thus capable of being adjusted longitudinally so as to bring the plate *e* at the proper distance from the full spool *g* which is about to be inserted into the shuttle. The length of yarn is drawn from the spool *g* for threading into the shuttle, and held in some way, so that when the said spool has been inserted into the shuttle, and the loom slay is making its backward stroke, the said length of yarn will be thereby drawn under the guard plate *e* and thus brought into contact with the rapidly revolving spindle *b* whereby the said length of yarn is torn from its holder and immediately coiled around the said spindle. The operation of the spindle *b* is not dependent in any way upon the manner in which the said length of yarn has been drawn from the spool and held. In the example shown, it is assumed that the length of yarn is drawn off by hand and attached to an endless band *h* which is adapted to advance through a distance equal to the thickness of a spool at each change of spool.

The spool which is discharged from the shuttle, has usually some waste yarn coiled around it. For the purpose of removing this waste yarn, there is provided a small receptacle *k* adapted to receive the discharged spool as it falls from the shuttle. This receptacle has a downwardly opening flap bottom *n* adapted to be rocked on a pivot *l* by the operation of a shaft *m* by means of a lever and connecting rod as shown. The flap bottom *n* has a downward slope and in the lower bottom corner of the receptacle *k*, there is arranged parallel to the loom slay a horizontal spindle *i* which is rapidly rotated by means of an endless cord and pulleys from the shaft *d*. The spindle *i* is also mounted so as to be capable of being slid into and out of the receptacle *k*.

o is a large receptacle located below the small receptacle *k*.

When the discharged spool falls into the receptacle *k*, it rolls on to the rapidly rotating spindle *i* which engages the waste yarn projecting from the spool and winds it around itself whereby the spool is entirely cleared of yarn. At the next change of spools, the flap bottom *n* of the receptacle *k* is opened by the operation of the shaft *m* to allow the cleared spool to drop out into the large receptacle *o*, after which the flap bottom *n* is closed again immediately in order to retain the spool which has just been discharged from the shuttle. This last spool is then cleared from its waste yarn by the spindle *i* and lies upon the flap bottom ready to drop out in its turn at the next shangle of spools. The waste yarn coiled on the spindles *b* and *i* is removed from time to time by drawing the spindles back through their bearings, whereby the waste yarn is pushed off and drops into receptacles placed underneath.

The spindles *b* and *i* are preferably split for the forward portion of their length in order that they may contract when pressed

together in being withdrawn through their bearings, and thus allow the waste yarn to be pushed off more readily.

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

1. In automatic spool clearing apparatus for a weft replenishing loom, the combination of a receptacle having a downwardly opening flap bottom for receiving the spools discharged from the loom shuttle, a rapidly rotating spindle in said receptacle adapted to coil up on itself the waste yarn on the discharged spools, and means for opening said flap bottom to allow a cleared spool to drop out each time before the discharge of the next spool from the shuttle, as set forth.

2. In automatic spool clearing apparatus for a weft replenishing loom, the combination of a receptacle having a downwardly opening flap bottom for receiving the spools discharged from the loom shuttle, a rapidly rotating spindle in said receptacle adapted to coil up on itself the waste yarn on the discharged spools, and means connecting said flap bottom to the loom shaft that starts the changing of the spools, whereby just before each discharge of a spool from the shuttle said flap bottom is opened to allow the cleared spool to drop out, and is closed again in time to receive the spool about to be discharged from the shuttle, as set forth.

3. In automatic spool clearing apparatus for a weft replenishing loom, the combination of horizontal bearings, a spindle having its forward portion split longitudinally so as to constitute resilient limbs, slidable and rotatably mounted in said bearings, and means for withdrawing said spindle through said bearings, whereby the waste yarn coiled on said spindle is pushed off same, as set forth.

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

ALBERT GEORG KOECHLIN.

Witnesses:

GG. WILDENSTEIN,

WILH. SCHULTHEISS.