A. REGAL.

WEFT REPLENISHING DEVICE FOR WEAVING LOOMS.

APPLICATION FILED OCT. 4, 1910.

1,007,143. **Patented Oct. 31, 1911.**

2 SHEETS—SHEET 1.

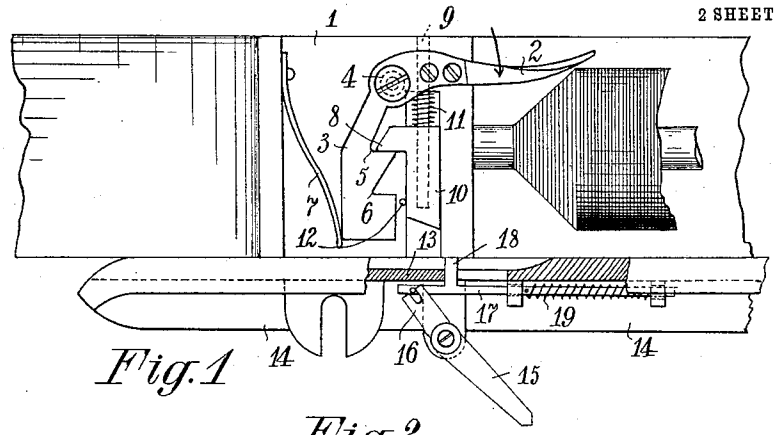
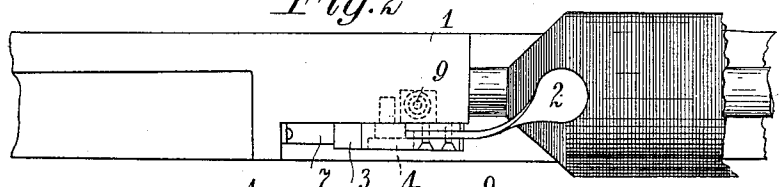


Fig. 1

Fig. 2



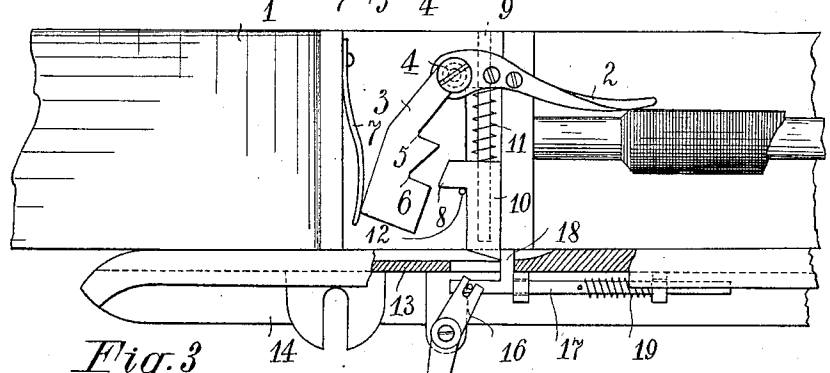


Fig. 3

Fig. 4

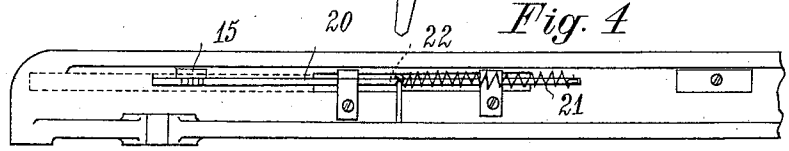
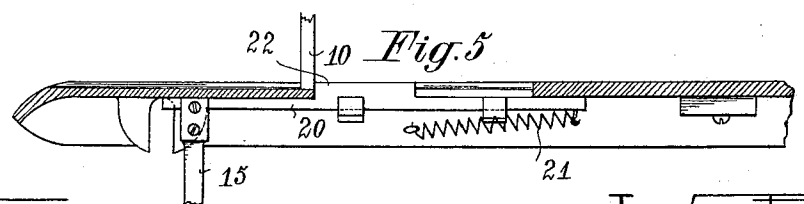


Fig. 5



WITNESSES

Wm. Orell.

Elsie Kaufmann.

INVENTOR,

August Regal

by Johnston Ward.

Attorney.

A. REGAL.

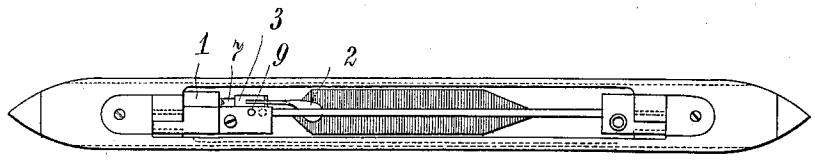
WEFT REPLENISHING DEVICE FOR WEAVING LOOMS.

APPLICATION FILED OCT. 4, 1910.

1,007,143. **Patented Oct. 31, 1911.**

2 SHEETS—SHEET 2.

Fig. 6



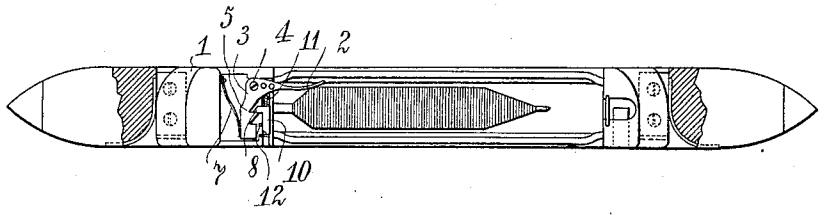


Fig. 7

Witnesses
Wm. Bell.
Elsie Kaufmann.

Inventor
August Regal
by Johnson Sinnard.
Attorney.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

AUGUST REGAL, OF VIENNA, AUSTRIA-HUNGARY.

WEFT-REPLENISHING DEVICE FOR WEAVING-LOOMS.

1,007,143. Specification of Letters Patent. Patented Oct. 31, 1911.

Application filed October 4, 1910. Serial No. 585,217.

To all whom it may concern:

Be it known that I, AUGUST REGAL, professor, a subject of the Emperor of Austria-Hungary, and resident of Vienna, Empire of Austria-Hungary, have invented a new and useful Improvement in and Relating to Improvements in Weft-Replenishing Devices for Weaving-Looms, of which the following is a specification.

Devices for controlling weft-replenishing devices for weaving looms in which, when the weft spool in the shuttle is exhausted, the device is started by means of a feeler device, have the disadvantage that the feeler lever is always in engagement with the cop and in contact with the latter so that when the thread is being drawn off, there is a considerable amount of friction to be overcome, with the result that the thread is under tension and frequently breaks. This disadvantage is obviated in the feeler of the device according to this invention, in which the feeler lever is mounted so that it can oscillate under the influence of its inertia, being normally held disengaged from the cop and feeling the cop only at every projection of the weft shuttle into the shuttle box.

A construction according to this invention is illustrated by way of example in the accompanying drawing, in which—

Figure 1 is a plan, Fig. 2 front elevation of the stop motion, Fig. 3 is a view of the stop-motion, similar to that shown in Fig. 1, but with a different position of the single parts, and Figs. 4, and 5 show a second construction of the lever starting the exchange of the weft spool casing. Figs. 6 and 7 are a side elevation and a top plan view, partly broken away, of a shuttle constructed in accordance with my invention.

The feeler device is arranged on the plate 1 of the weft spool casing, and consists of a feeler lever 2, 3 pivoted about a pin 4 of the plate 1, the end of said lever which feels the cop being made in the form of a spoon (Fig. 2). The arm 3 of the feeler lever is the heavier and is provided with two steps 5 and 6; the arm 2 being normally not pressed against the cop, the thread can be unwound from the cop without tension and the breaking of the thread which frequently occurs with ordinary feeler devices, as there is no friction to be overcome. Each time, however, that the shuttle is thrown into the shuttle box, the feeler lever 2, 3 owing to the action of its inertia, makes small oscillations in the direction of the arrow in Fig. 1 and feels the cop, the oscillations of the feeler lever 2, 3 being quickly damped by the spring 7. The length of the step 5 is such that, even during the oscillation of the feeler lever, it always engages under the projection 8 of a stop part 10 adjustably mounted on a bolt 9, and holds the said part 10 in its withdrawn position in opposition in the action of a helical spring 11 mounted on the bolt 9 (Fig. 1). As the number of windings of the weft spool decreases, the oscillations which the feeler lever 2, 3, effects, whenever the shuttle is projected into the shuttle box, gradually become greater. When only a few turns of thread are left on the cop, the step 5 of the feeler lever 2, 3, becomes disengaged, in its oscillation during the throwing of the shuttle into the shuttle box, from the projection 8 of the stop part 10, whereupon the latter is advanced from the shuttle by the action of the helical spring 11 until the projection 8 of the stop part comes to rest against a stop pin 12 (Fig. 3).

On the vertical supporting plate 14 forming one piece with the front wall 13 of the shuttle box, is fulcrumed a double-armed lever 15, 16, one arm 16 of which is bifurcated at one end and engages with an adjustable bolt 17 carrying a projection 18 passing through a slot in the front wall 13 of the shuttle box. After the unwinding of the cop, the advanced stop part 10 acts on the projection 18 of the bolt 17 and moves the latter and thus turns the lever 15, 16 into the position shown in Fig. 3, a spring 19 arranged on the bolt 17 being at the same time compressed. In that position, the lever 15, 16 brings about the exchange of the weft spool casing. After the stop part 10 has left the projection 18 during the further movement of the shuttle, the spring 19 returns the bolt 17, and with it the lever 15, 16 to its normal position.

Figs. 4 and 5 show a second construction of the lever starting the weft replenishing device. The lever 15′ which in this construction has only one arm, is secured to an adjustable latch or bolt 20 controlled by a spring 21 which keeps the bolt 20 together with the lever 15′, in its inoperative position (Fig. 5). The bolt 20 carries a projection 22 on which the stop part 10′ of the weft feeler acts in the advanced position,

and moves the bolt 20 with the lever 15′, into the operative position, while the spring 21 is extended at the same time. This spring during the further movement of the shuttle after the stop 10′ has left the projection 22, brings the bolt 20 in its guides and the lever 15′ back to their normal position. The operating lever 15, 16 or 15′ operated by the weft feeler device, is brought in both constructions into the operative position at the moment at which the shuttle with the weft spool casing is projected or shot into the shuttle box. During the advance movement of the lay, the lever 15 starts the exchange of the weft spool casing.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a means for controlling the weft replenishing mechanism of a loom, the combination of a shuttle and a controlling part and a controlled part each movable in the shuttle, the controlling part being inertia-actuated and pivotally movable on an axis extending crosswise of the shuttle into and out of controlling relation to the controlled part and having its heavier portion projecting laterally from said axis relatively to the longitudinal axis of the shuttle and also having its own movement controlled by the weft windings, substantially as described.

2. In a means for controlling the weft replenishing mechanism of a loom, the combination of a shuttle and a controlling part and a controlled part each movable in the shuttle, the controlled part being rectilineally movable and the controlling part being inertia-actuated and controlling the movement of the controlled part and having its own movement controlled by the weft windings, substantially as described.

3. In a means for controlling the weft replenishing mechanism of a loom, the combination of a shuttle and a controlling part and a controlled part each movable in the shuttle, the controlled part being rectilineally movable in one direction and the controlling part being inertia-actuated, normally retaining the controlled part against movement and controlled by the weft-windings, substantially as described.

4. In a means for controlling the weft replenishing mechanism of a loom, the combination of a shuttle, a controlled part normally movable rectilineally in the shuttle, and a controlling part for said controlled part movable in the shuttle into and out of retaining relation to the controlled part, said controlling part having contact with the weft package externally thereof and being thereby limited against movement out of retaining relation to said controlled part, substantially as described.

5. In a means for controlling the weft replenishing mechanism of a loom, the combination of a shuttle and an inertia-actuated controlling part pivotally movable in the shuttle on an axis extending crosswise of the shuttle and having a relatively heavy portion disposed laterally of said axis and substantially at a right angle to the longitudinal axis of the shuttle, substantially as described.

6. In a means for controlling the weft replenishing mechanism of a loom, the combination of a shuttle and an inertia-actuated controlling part pivotally movable in the shuttle into and out of contact with the weft windings on an axis extending crosswise of the shuttle and having a relatively heavy portion disposed laterally of said axis and substantially at a right angle to the longitudinal axis of the shuttle, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUST REGAL.

Witnesses:
GUSTAV WOLFF,
AUGUST FUGGER.