

C. TIBERGHIEEN.
WEFT REPLENISHING LOOM.
APPLICATION FILED NOV. 3, 1903.

932,831.

Patented Aug. 31, 1909.

2 SHEETS—SHEET 1.

Fig 1.

Fig 2.

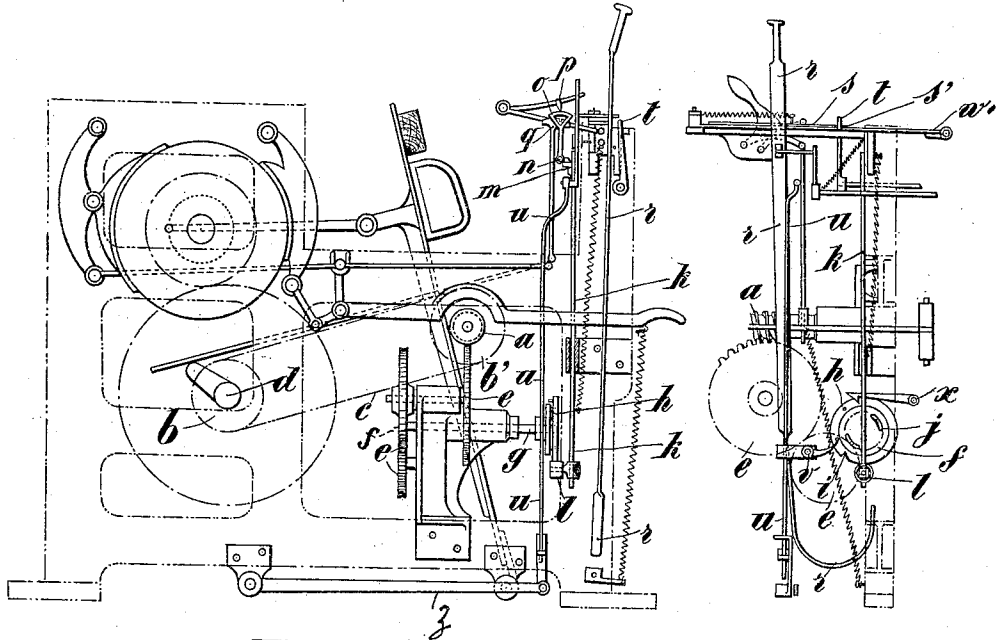
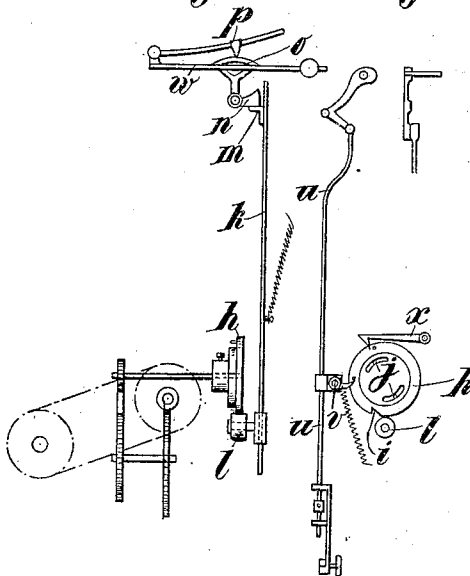


Fig. 3. Fig. 4.



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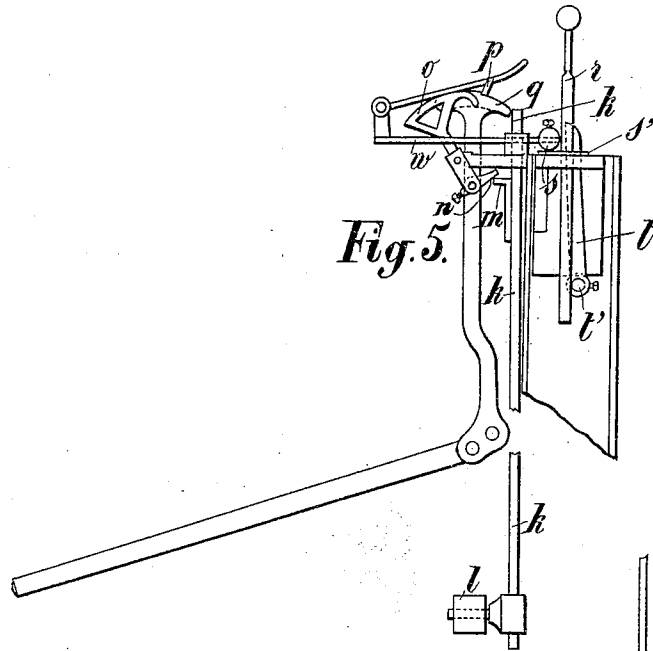


Fig. 6.

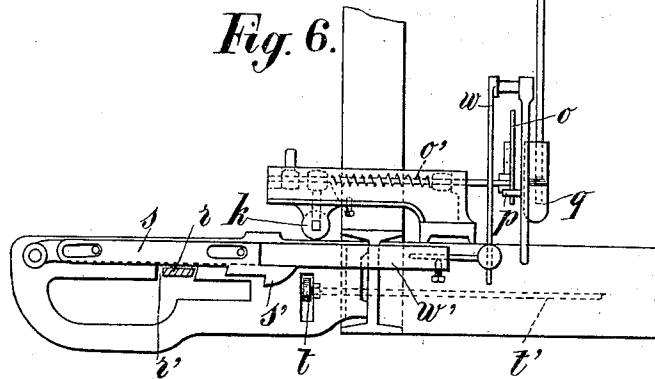
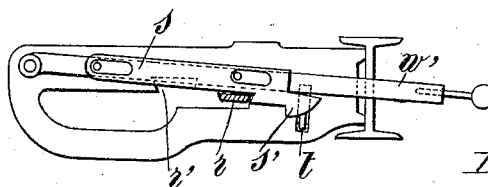


Fig. 7.



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CHARLES TIBERGHEN, OF TOURCOING, FRANCE.

WEFT-REPLENISHING LOOM.

932,831.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed November 3, 1903. Serial No. 179,724.

To all whom it may concern:

Be it known that I, CHARLES TIBERGHEN, manufacturer, a citizen of the French Republic, residing at Tourcoing, in the Department of the Nord, France, have invented certain new and useful Improvements in Weft-Replenishing Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to those looms with self-acting shuttle-changing mechanism which stop during the changing operation and which are again started as soon as the change of shuttles is effected.

In constructions heretofore in use the loom will be stopped by the weft-fork only when the filling is broken or when the bobbin is emptied. These constructions are defective in that one or more shoots of filling are then missing in the fabric, that is to say, defective goods with weft-marks are thus produced. In order to overcome this defect, shoot-counter is used, in the present invention, which has already been known by itself. This counter stops the loom and causes the shuttle-changing mechanism to act as soon as, after a certain number of shoots determined by experience the bobbin is almost empty. The change of shuttles having been effected, the loom is again started and the counting mechanism is returned into the working position by means of rotating a disk provided with a slit. The method, itself, of using shoot-counters for looms is already known, however such counters had merely the purpose of stopping the looms after a predetermined number of shoots. This apparatus is shown in the annexed drawings.

Figure 1 is a lateral view of the shoot-counter; Fig. 2 is a front view of the latter; Figs. 3 and 4 show individual parts; Fig. 5 shows the counting mechanism in the position for stopping the looms; Figs. 6 and 7 are plan views showing the parts on an enlarged scale.

Secured to shaft *d* is a chain wheel *b* which drives by means of chain *c*, the wheel *b'* and the endless screw *a* connected with the latter. This screw transmits the movement through a train of gear wheels *e* to the exchangeable counting wheel *f* which varies according to

the size of the bobbin. On shaft *g* of this provided with a notch *i*. Disk *h* contains counting wheel *f*, a disk *h* is fitted up and further two curved slots *j* which fit over stop-lugs of the coupling located in the rear, this coupling being keyed on the shaft *g* of the counting wheel *f*. Disk *h* acts upon a vertical rod *k* placed parallelly to the loom frame and having a small roll *l* which lies close to disk *h*. Rod *k* carries at its upper end, a tappet *m* which strikes against a small lever *n* as soon as roll *l* enters the notch *i* of disk *h*, thus causing the loom to be stopped. Consequently, every time the roll *l* enters the notch *i* of disk *h*, the loom will stop. As before stated, disk *h* is loosely mounted on shaft *g* and rotated by the stop-lugs of the coupling keyed on shaft *g* of the counting wheel *f*. This counting wheel, meshes with the train of wheels *e*, and is interchangeable so that wheels of varying sizes according to the size of the bobbin may be employed. With this accordance between the time necessary to empty the bobbin and the counting wheel used, said wheel will make one revolution only, as also will the coupling and the disk *h*. At the completion of the revolution of disk *h*, (which will consequently correspond with the depletion of the bobbin) the roll *l* will enter notch *i* and the loom will be stopped.

Lever *n* is located on a rotary shaft and turns a segment *o* (Fig. 6) on which rests, normally, a catch *p*. Catch *p* is rotatably mounted on the weft fork bearer *w* and falls into the hook of the weft-hammer *q* (Fig. 6) when segment *o* is turned. While hammer *q* travels forward, during the continued work of the loom the latter is stopped by the action of the tapered lever *r*, which springs toward the right (Fig. 7). The knock-off lever *w* having moved during its shifting motion the shipper lever, *r*, the latter contacts with the projections of a slide *s*, the movement of which is limited by studs on the lever *w* and the end of which has a wedge shaped surface *s'* (see Fig. 7). As member *r* continues to travel toward the right, said inclined surface *s'* strikes against lever *t* which causes, by means of shaft *t'* (Fig. 5) the shuttle changing mechanism to be thrown into gear in a well known manner. After the insertion of a new shuttle, the changing mechanism causes lever *z* and roll

u to move upward and the disengaging member *r* is therefrom again returned by angle lever *u'* to the notch *r'* (Fig. 7), whereupon the loom re-starts its functions.

- 5 Neither the device for lifting up lever *z* has been represented nor even the changing mechanism, as they form no part of this invention and may be of any preferred construction.
- 10 During the time that rod *u* is being moved upward, a latch *v* attached thereto engages a stud of disk *h*, thus causing a partial rotation of the latter (from left to right, Fig. 4). The partial rotation of disk *h* is permitted by means of the curved slots *j* and the lugs of the coupling which is keyed on shaft *g*, the disk *h* being loose on this shaft *g*. The partial rotation of disk *h* thus produced is sufficient to cause the pawl *x* to catch another lug higher up disposed on disk *h*, thus preventing this said disk from turning back. In that position, the roll *l* and rod *k* are thus depressed, lever *n* and segment *o* returned to their initial position (Fig. 3) and catch *p* is lifted upward and placed out of the reach of weft-hammer *q*. By means of the partial rotation of disk *h*, it will be easily understood that in case of delay in the starting or re-starting of the loom, the roll *l*, will not fall back into the notch *i*, thus causing a false stop. Once the loom started, even with some delay, the exchangeable counting wheel *f* will begin to rotate, also the coupling, which, by means of its stop-lugs passing through the curved slots *j* of disk *h*, will carry on this latter in its rotating motion. All the parts being again thrown into gear, rod *u* re-descends.

Having now particularly described and

ascertained the nature of my said invention 40 and in what manner the same is to be performed, I declare that what I claim is:—

1. In a loom, the combination of the main shaft, a cam driven thereby, a lever, a segment for holding said lever in raised position, means for throwing said segment out of contact with the lever so as to allow the lever to fall, said means operating on each revolution of the cam and means operated on the falling of the lever for stopping the loom. 50

2. In combination with a loom, a main shaft, a cam driven thereby, a segment, a lever supported by said segment, a rod having one end engaging with the segment, a roller on the other end of the rod, said roller engaging with the cam and being operated thereby to raise the rod to throw the segment from under the lever whereby the latter will fall, and means operated by the fall of said lever to stop the loom. 55

3. In a loom, the combination of the main shaft, a cam driven thereby, a lever, a segment for holding said lever in raised position, means for throwing said segment out of contact with the lever so as to allow the lever to fall, said means operating on each revolution of the cam and means operated on the falling of the lever for stopping the loom, and means for automatically starting the loom again. 65 70

In testimony whereof I affix my signature, in presence of two witnesses.

CHARLES TIBERGHIEU.

Witnesses:

ALFRED C. HARRISON,
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