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 DEVICE FOR PREVENTION OF ARBITRARY REGISTRATION IN COUNTERS FOR MECHANICAL LOOMS.
 APPLICATION FILED MAR 6, 1908.

943,948.

Patented Dec. 21, 1909.

2 SHEETS—SHEET 1.

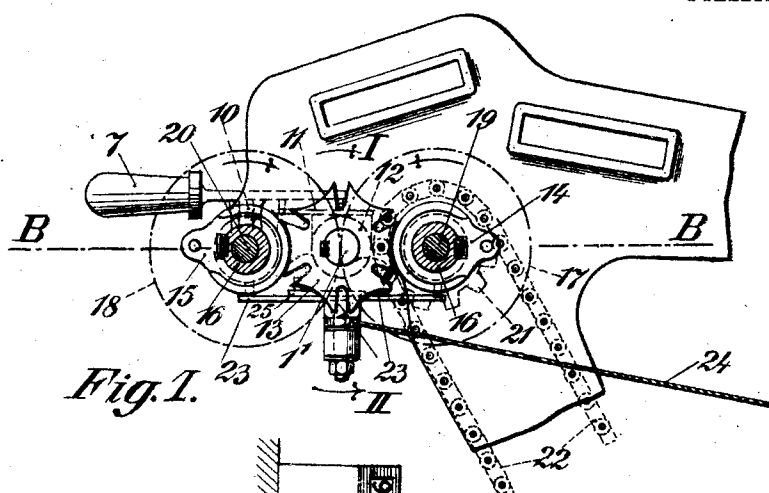


Fig. 1.

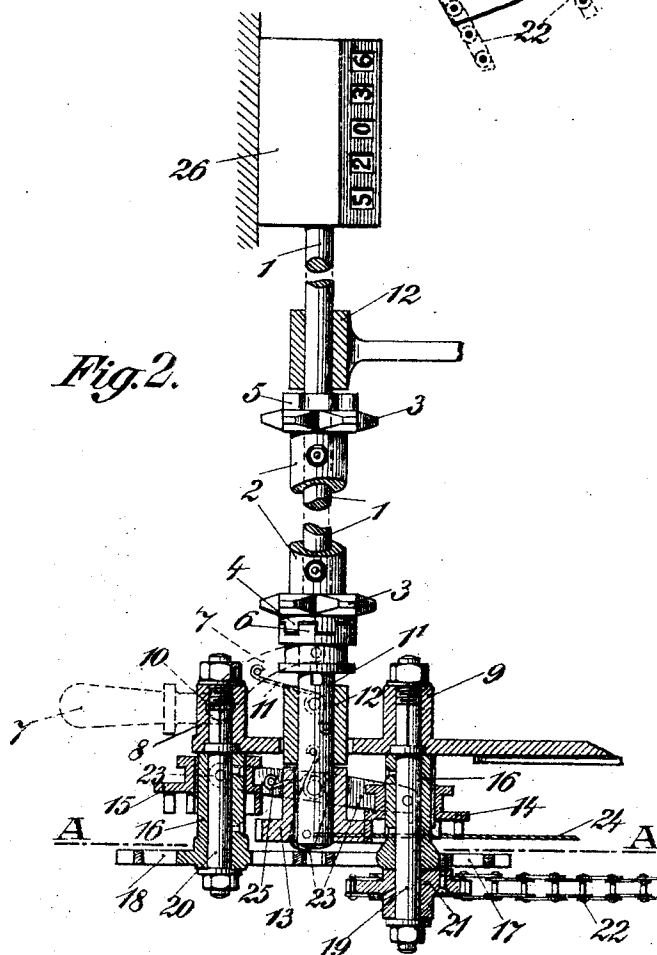


Fig. 2.

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DEVICE FOR PREVENTION OF ARBITRARY REGISTRATION IN COUNTERS FOR MECHANICAL LOOMS.

943,948.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed March 6, 1908. Serial No. 419,491.

To all whom it may concern:

Be it known that I, SAMUEL MARSCHIK, a subject of the Austro-Hungarian Emperor, and resident of Schmerlingstrasse 37a, Brunn, Austria-Hungary, have invented certain new and useful Improvements in Devices for Prevention of Arbitrary Registration in Counters for Mechanical Looms, of which the following is a specification.

My invention relates to improvements connected with counters for mechanical looms.

The counting devices used in mechanical looms (weft-counters or registers) are in consequence of their arrangement affected with the shortcoming of being readily shifted by workmen, *i. e.* without setting the loom in motion. As frequent altercations regarding the payment of wages have been thereby caused calling into question the reliability of such apparatuses, these counters should meet the following conditions in order to be perfectly reliable: 1/. In the regular weaving process the counter must register or add onward, 2/. In weaving backward (taking back, seeking of wefts or removal of same) they must register backward or subtract, 3/. In changing the pattern card by hand when the loom is not running they must remain inactive.

The method applied at present for setting the pattern-cylinder in motion does not meet these requirements, since the latter either forms one piece with the cylinder-spindle or is solidly fixed thereto. Furthermore the moving of the cylinder takes place by the well known turning-hooks, which may be readily adjusted by the laborer so that the turning of the pattern-cylinder and thereby also the further registration of the counter by hand is made possible. The cylinder spindle is even generally provided for this purpose with a hand-wheel, whereby the arbitrary shifting of the counter by workmen is indeed favored.

In the present invention the above conditions are duly complied with owing to the fact of the pattern cylinder sitting loosely on the cylinder-spindle and being joinable to same by means of a clutch coupling. The cylinder-spindle with which the counter is fixedly connected, is furthermore turned from the main shaft of the loom by chain-wheel transmission and a reversing gear (preferably by a pin- and star-wheel gear) so that a turning of the cylinder axis and

the counter connected therewith cannot be done by hand, the moving of the pattern-cylinder being possible however after disengaging the coupling, whereby the cylinder axis and the counter remain in a fixed position. The star-wheel of the above gear is turned by two disengageable pin-wheels meshing from the opposite side and revolving in contrary directions, whereby the forward and backward-motion or respectively adding and subtracting of the counter becomes possible during the running of the loom.

In the accompanying drawings: Figure 1 shows a side view of the device in connection with a pattern cylinder for pattern chains consisting of rollers or a vertical section respectively according to line A—A of Fig. 2. Fig. 2 presents a horizontal section according to line B—B of Fig. 1. Fig. 3 shows the same arrangement for a pattern cylinder with pasteboard cards and rocking cylinder-batten, also in side view and vertical section respectively.

As is evident from Fig. 2, 1 represents the cylinder-spindle upon which the pattern cylinder 2 with the little chain-wheels 3, 3 sits loose the said cylinder-spindle also operating the counter 26 of any desired construction.

The pattern cylinder 2 is fitted with the coupling or clutch member 4 and a ratchet 5 which can be operated by a hand lever, not shown, so as to cause the pattern cylinder to turn one surface at a time, the coupling or clutch member being so disposed as to be always ready to engage. The second coupling or clutch member 6 is shiftably arranged by means of groove and feather on the enlarged part 1¹ of the cylinder spindle 1 and can be moved by the hand lever 7, which is turnable around the pivot 10 fixed to the bearing 8, such hand lever being automatically kept in action by a spring 11. The cylinder spindle 1 resting in the two bearings 12, 12 of the frame of the loom, is impelled by the star-wheel 13 which possesses just as many radial slits as the cylinder 2 has surfaces. Into the star-wheel 13 two shiftable pin-wheels 14 and 15 engage, which by means of feather and groove are axially shiftable on the extended hubs 16 of two toothed wheels 17 and 18. The two toothed wheels 17 and 18 run loose on the bolts 19 and 20 fastened in the bearings 8

and 9, such toothed wheels being impelled by the chain wheel 21 fixedly joined to the toothed wheel 17 and by the chain 22 from the main shaft or from another place of
 5 impulsion of the loom. The two pin wheels 14 and 15 are shiftable through the operation of the three-armed lever 23 by means of a cord or strap 24 from the weaver's stand, said lever being held by a spring 25
 10 in the position for ordinary weaving, as shown in Fig. 2. The effect of this mode of operation is as follows: During the forward weaving process the pin wheel 14 is engaged with star wheel 13 the former being
 15 constantly maintained in this position by the spring 25. The turning of the cylinder 2 in the direction of the arrow I thereby produces the forward movement of the counter, while the pin wheel 15 being pushed
 20 back is not engaged with the star wheel 13 (Fig. 2). By pulling the cord 24 the pin wheel 14 will become disengaged while the pin wheel 15 becomes engaged and, while thus producing the opposite turning direc-
 25 tion, the reverse movement in the direction of the arrow II is effected, corresponding to the backward motion, *i. e.* for the taking back of the cards or the seeking and removal of wefts. One of the two pin wheels 14
 30 and 15 being constantly engaged with the star wheel 13, the cylinder spindle 1 and consequently the counter 26 impelled by the same, become barred in case of the loom standing still, allowing no turning of the
 35 cylinder spindle 1 by the operator.

The turning of the pattern cylinder 2 by hand ensues after disengaging the coupling half 6, by means of the disengaging lever 7, quite independent from the cylinder spindle, which is therefore not influenced by the
 40 turning of the pattern cylinder. The coupling or clutch members 4, 6 and the ratchet device 5 having as many divisions as the pattern cylinder, the two coupling halves 4 and 6 always stand in an engaging position
 45 opposite to each other being automatically engaged by the spring 11 after releasing the disengaging lever 7 so that it cannot happen that in starting the loom the pattern-cylinder will remain disengaged. In order to
 50 prevent an axial shifting of the pattern-cylinder when the coupling half or clutch member 6 is shifted, the cylinder-spindle 1 has a larger diameter at that place where the coupling half or clutch member 6 is arranged.
 55

Through the two toothed wheels 17 and 18 becoming engaged in front of the star-wheel 13, the latter is covered up thus being inaccessible to the operator.

60 The complete casing may be accomplished in the well known manner by means of a protection cover inclosing the engaging position of the two toothed wheels 17 and 18 and also preventing accidents.

65 Fig. 3 shows the application of this de-

vice on a pattern cylinder with rocking cylinder batten. In this arrangement the actuating device is mounted on the spindle 27 serving as turning axis for the cylinder batten 28. On the spindle 27 a chain wheel 30
 70 is fastened, which by a chain 31 is geared to the chain wheel 32 fixed to the cylinder spindle 29, thus causing the turning movement of the spindle 27 to be transferred to said chain wheel 32. The connecting rod pivotally connected with the cylinder batten 28 is
 75 represented by 33 causing the rocking motion of said cylinder batten 28. On the spindle 29 the pattern cylinder 34 is loosely arranged, which may be coupled with same
 80 in the manner above described by means of the hand-lever 7. The impulsion of the star wheel 13 also takes place in the above manner through pin wheels 14 and 15, toothed wheels 17 and 18, chain-wheel 21 with chain
 85 22 from any rotating portion of the loom.

What I claim as my invention and desire to secure by Letters Patent is:

1. A device of the kind described comprising, in combination, a pattern cylinder spindle of a mechanical loom, a counter of any
 90 construction driven by said spindle, a pattern cylinder loosely turnable on the said spindle, means to connect the said pattern cylinder with the said spindle, means for
 95 impelling the said spindle from a rotating part of the loom, and means for reversing the movement of the said spindle, substantially as and for the purpose set forth.

2. A device of the kind described comprising, in combination, a pattern-cylinder spindle of a mechanical loom, a counter of any construction driven by said spindle, a
 100 pattern-cylinder loosely turnable on the said spindle, means for connecting the said pattern cylinder with the said spindle, a star wheel rigidly fixed on the said spindle, two pin wheels turnably arranged in the frame
 105 of the loom and adapted to engage with the said star wheel, means for rotating the said two pin-wheels in opposite directions, and means for alternately engaging the said two pin wheels with the said star wheel, substantially as described and for the purpose
 110 set forth.

3. A device of the kind described comprising, in combination, a pattern cylinder spindle of a mechanical loom, a counter of any construction driven by said spindle, a
 120 pattern cylinder loosely turnable on the said spindle, coupling means rigidly connected with the said pattern cylinder, a coupling sleeve shiftable fixed on the said spindle and adapted to coöperate with said coupling means, and means for shifting the
 125 said coupling sleeve, a star wheel rigidly fixed on the said cylinder spindle, two bolts fastened on the frame of the loom, two toothed wheels loosely turnable on said bolts and meshing with each other, means for
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turning the said two toothed wheels, a pin wheel shiftably fixed on the hub of each of the said two toothed wheels, the said pin wheels adapted to engage with the said star wheel, and means for alternately throwing the said two pin wheels into engagement with the said star-wheel, substantially as described and for the purpose set forth.

4. A device of the kind described comprising, in combination, a pattern cylinder spindle of a mechanical loom, a counter of any construction driven by said spindle, a pattern cylinder loosely turnable on the said spindle, coupling means rigidly connected with the said pattern cylinder, a coupling sleeve shiftably fixed on the said spindle and adapted to coöperate with said coupling means, and a spring-governed hand lever for shifting the said coupling sleeve, a star wheel rigidly fixed on the said cylinder spindle, two bolts fastened on the frame of

the loom, two toothed wheels loosely turnable on said bolts and meshing with each other, a chain wheel rigidly connected to one of the said toothed wheels, and means for turning the said chain wheel, a pin wheel shiftably fixed on the hub of each of the said two toothed wheels, the said pin wheels adapted to engage with the said star wheel, a three-armed spring governed shifting-lever having two arms connected to the said two pin wheels, and means for turning the said shifting-lever, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto signed my name this 17th day of February, 1908, in the presence of two subscribing witnesses.

SAMUEL MARSCHIK.

Witnesses:

JAKOB MARSCHIK,

ROBERT W. HEINGARTNER.