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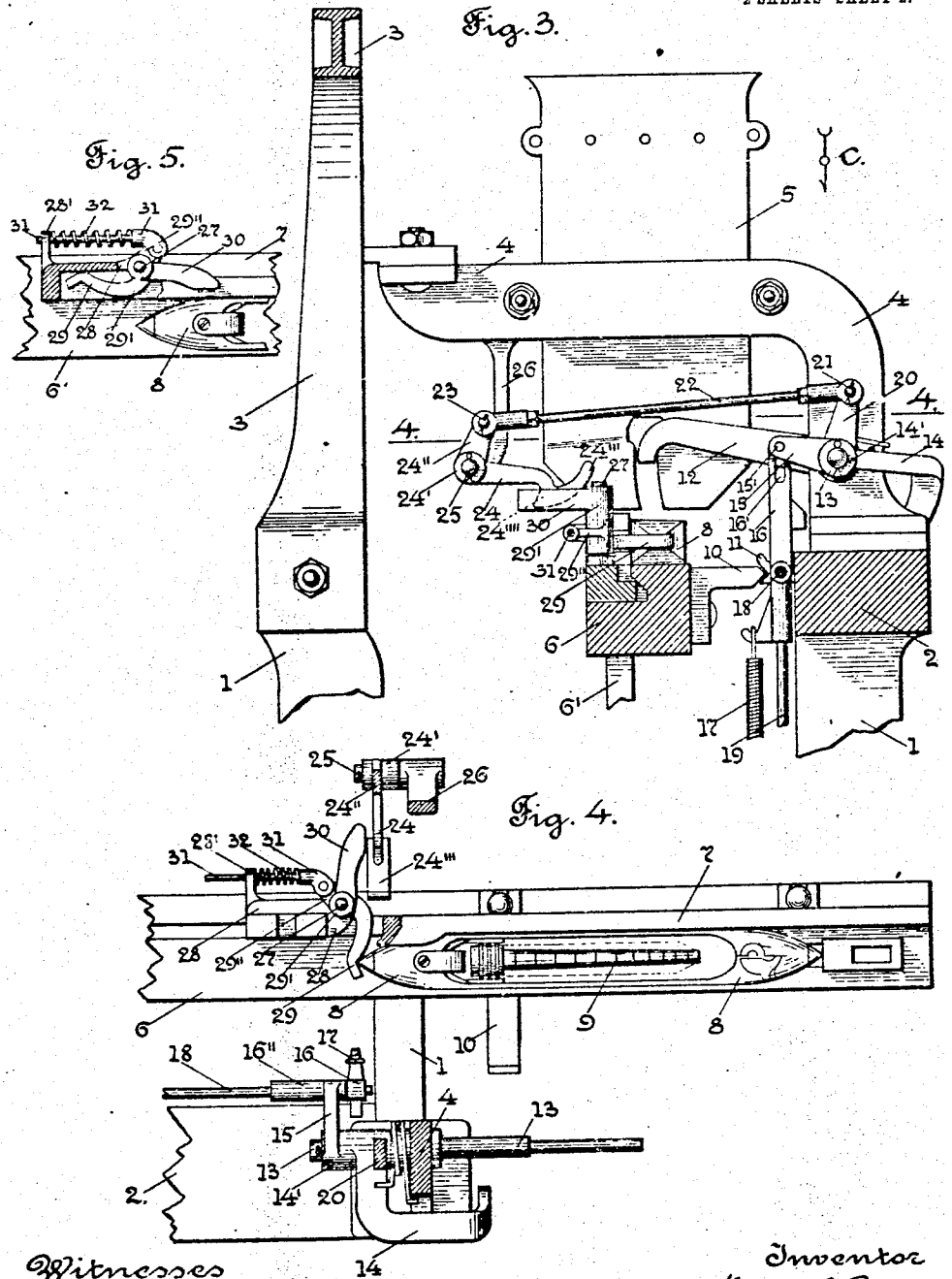
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WEFT REPLENISHING LOOM.
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2 SHEETS—SHEET 2.

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UNITED STATES PATENT OFFICE.

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WEFT-REPLENISHING LOOM.

935,720.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that I, HORACE WYMAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful improvements in Weft-Replenishing Looms, of which the following is a specification.

My invention relates to weft replenishing looms, and to that class of looms having a magazine for containing bobbins or filling carriers, and transferring mechanism for automatically transferring a bobbin or filling carrier from the magazine into the active shuttle, to take the place of a practically exhausted bobbin in said shuttle, and my invention particularly relates to a supplemental attachment, to be combined with the transferring mechanism, to position a shuttle under the discharging end of the magazine, when the transferring mechanism is to be operated, preparatory to the transfer of a bobbin from the magazine into the active shuttle.

The object of my invention is to provide a shuttle positioning mechanism of simple construction and operation, and having that part of the mechanism which engages the shuttle mounted on and movable with the lay, and preferably located back of the race-way of the lay, at the inner end of the shuttle box.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawings a detached part of the magazine or weft replenishing end of a loom, and a stationary magazine, and a part of the transferring mechanism, with my improvements combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawing:—Figure 1 is an inner side view of a stationary magazine or filling carrier, and the transferring mechanism, and a sectional view through the breast-beam and lay-beam, on line 1, 1, Fig. 2, looking in the direction of arrow *a*, same figure, and showing my improvements combined therewith, and the lay-

beam in its rear position, and my shuttle positioning mechanism in inoperative position. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 corresponds to Fig. 1, but shows the lay in its forward position, and the shuttle positioning mechanism in its operative position. Fig. 4 is a section, on line 4, 4, Fig. 3, looking in the direction of arrow *c*, same figure, and, Fig. 5 shows detached some of the parts shown in Fig. 4, at the upper left hand portion, in a different position.

In the accompanying drawing, 1 is a detached portion of the loom side or frame, 2 is the breast-beam, 3 the arch, 4 a stand attached to the arch 3 and breast-beam 2, for supporting the magazine 5, which in this instance is of the stationary type, and provided with a series of vertically extending recesses or channels, not shown, to receive the bobbins or filling carriers, not shown.

6 is the lay-beam mounted on the upper end of the lay-sword 6', and having a stationary shuttle box 7 at its outer end, to receive a shuttle 8, carrying a bobbin 9.

10 is a bunter carried on the forward side of the lay-beam, near its outer end, and adapted to engage a trip or dagger 11, which is mounted on the lower end of an extension, not shown, on the transfer arm 12, which is pivotally mounted on a stud 13, in the usual way.

14 is an arm connected with the transfer arm 12, in the usual way, and having its hub 14' pivotally mounted on the stud 13. Extending out from the hub 14' of the arm 14, is an arm 15, having a pin 15' thereon, which extends into an elongated vertically extending slot 16' in a vertically moving bar or plate 16. The hub of the arm 12 has a helically coiled spring connected therewith in the usual way, to normally retain the pin 15' in the upper end of the slot 16'. A helically coiled tension spring 17 acts to return the plate or bar to its normal position. A rod 18 extends transversely through the loom upon the innerside of the breast-beam 2, and is connected with the feeler detector or indicating mechanism, not shown, at the opposite end of the loom, in the usual way,

and is supported and adapted to move longitudinally, in a sleeve or circular extension 16'' on the plate or bar 16, over and in the path of a vertically moving rod 19, which is guided at its upper end in a vertically extending opening in the plate 16, and is adapted to be moved into the path of the longitudinally moving rod 18; and in case said rod 18, through the operation of the filling detector mechanism, not shown, is moved over the vertically moving rod 19, then the transferring mechanism is put into operation, to transfer a bobbin from the magazine into the shuttle, in the usual and well known way.

All of the above mentioned parts may be of the usual and well known construction in the class of looms referred to.

I will now describe my improvements combined with the parts above mentioned.

Extending up from the hub 14' of the arm 11, is an arm 20, which carries a pin 21 thereon, on which is mounted one end of an adjustable link or connector 22. The other end of the link or connector 22 is pivotally mounted on a pin 23 on an arm 24'', extending up from the hub 24' of a lever or pawl 24. The hub 24' of the pawl 24 is loosely mounted on a stud 25, fast in the lower end of a bracket 26, which is secured to the magazine stand 4. The lever or pawl 24 has a curved or cam shape end 24''', with a beveled or inclined engaging portion 24''''.

On a vertically extending stud 27, on a plate 28, secured on the rear side of the lay-beam at the inner end of the shuttle-box 7, is loosely mounted the hub 29' of the shuttle positioning lever or arm 29, having its engaging end preferably recessed to engage the pointed inner end of the shuttle 8, as shown in Fig. 4. The recessed end of the lever or arm 29 has the recess made as a groove across the arm near its end, and the projecting part beyond the shuttle tip serves to retain the shuttle in place after it is positioned, with the tip of the opposite end of the shuttle against the picker, to hold the shuttle firmly when the filling carrier is being transferred into the shuttle. Extending out from the hub 29', in an opposite direction from the lever or arm 29, is an arm 30, which is adapted to be engaged by the pawl 24. On the hub 29' is a lug or ear 29'', which has pivotally attached thereto one end of a pin 31, the other end of the pin 31 extends through an opening in a stationary ear or lug 28' on the plate 28.

A helically coiled expansion spring 32 encircles the pin 31, and is adapted at one end to bear against the lug 28', and at its other end against the enlarged end of the pin 31, and acts to rotate the hub 29' in one direction, and to return the arms 29 and 30 to their normal position, shown in Fig. 5,

after they have been moved by the pawl 24, and to hold them in their normal position.

From the above description in connection with the drawings, the operation of my improvements will be readily understood by those skilled in the art.

In the normal operation of the loom my shuttle positioning mechanism will be in the position shown in Figs. 1, 2, and 5, but in case of the operation of the filling indicating mechanism, and the movement of the transfer mechanism to transfer a bobbin from the magazine into the active shuttle, the rocking of the hub 14', through arm 20 and connector 22, will move the arm 24'', and the pawl 24, to carry the pawl 24 downwardly, and cause the inclined engaging end 24'''' thereon, as the lay moves forward, to engage the arm 30, and rotate the hub 29' on its pivot stud 27, and move the lever 29 against the inner end of the shuttle 8, and position it in the shuttle-box 7, see Fig. 4, preparatory to the transfer of a bobbin from the magazine into the shuttle, to take the place of the practically exhausted bobbin in the shuttle. After the transfer of the bobbin from the magazine into the shuttle, the return of the parts of the transferring mechanism to their normal position, will move, through the connections to the pawl 24, said pawl out of engagement with and out of the path of the lever 29, and allow the spring 32 to act to return said lever 30 and the shuttle positioning lever 29, to their normal positions, out of the path of the shuttle, as shown in Fig. 5. In case the shuttle should fail to enter the shuttle-box sufficiently to permit the positioning lever 29 to contact with the end of the shuttle, but instead contact with the inner side of the shuttle, when the pawl 24 is engaged with the lever 30 on the forward beat of the lay, the lever 30 being so far below the fulcrum 25 of the pawl 24, the coil spring on the hub of the transfer arm 12, which acts to retain the pin 15' on the upper end of the slot 16' in the plate 16, will yield, and the pin 15' will be moved downward in the slot 16' and the engaging end 24'''' of the pawl 24 will pass by the end of said lever 30 as the lay moves to its forward position, leaving said lever 30 in its normal position, shown in Fig. 5, and preventing any breakage of the parts.

In my improvements in looms, having a lay, and a shuttle, and a positioning device for the shuttle carried on the lay, I make provisions for a clear and an unobstructive space between the breast beam, and the race-way of the lay, and the inner end of the shuttle, for the filling thread to pass from the shuttle to the fell of the cloth, and also to remove or replace the shuttle by hand, by placing the positioning device behind the shuttle and near its inner end, and I move

the shuttle endwise, by the device contacting with the inner tip end of the shuttle when said device is operated.

The shuttle positioning device consists, as above described and shown in the drawings, of a pivotally supported lever or arm, back of the race-way, and a second arm or lever connected therewith, to move it on its pivotal support and bring it into operative position to contact with the inner end of the shuttle, to position it in the shuttle box, and a lever or pawl carried on a stationary part of the loom, and adapted to engage and move said lever or arm on the practical exhaustion of filling, as the lay moves forward, to cause the lever or arm to engage the inner end of the shuttle, and move it into position, leaving the filling thread from the shuttle to the fell unobstructed.

It will be understood that the details of construction of my improvements may be varied if desired.

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

1. In a weft replenishing loom, a shuttle positioning device carried on the lay, and comprising a pivotally supported lever or arm, normally held in line with and back of the race-way of the lay, and a second arm or lever connected therewith to move it on its pivotal support, and bring it into operative position to contact with the end of the shuttle, to position it in the shuttle-box, and a lever or pawl carried on the stationary part of the loom, and adapted to engage and move said second arm or lever on the practical exhaustion of filling, as the lay moves forward, to cause the first mentioned lever or arm to engage and position the shuttle.

2. In a weft replenishing loom, a shuttle positioning device, comprising an arm or lever pivotally mounted on the lay, a second arm or lever connected therewith, and a hook lever or pawl to engage said second arm and move the first mentioned arm or lever in operative position to engage and position the shuttle in the shuttle-box, said hook lever or pawl adapted to slide over and release said second lever or arm on the forward movement of the lay, when the operation of the first mentioned lever or arm is prevented by the position of the shuttle, or otherwise.

3. In a weft replenishing loom, the combination with the transferring mechanism for transferring a bobbin or filling carrier from the magazine, of a shuttle positioning device, adapted to engage the inner tip end and position the shuttle in its box under the magazine preparatory to the transfer of a bobbin or filling carrier from the magazine into the active shuttle, said device carried on the lay and normally held in an inoperative position back of the race-way and con-

nections intermediate the transferring mechanism and the positioning device.

4. In a weft replenishing loom, the combination with the transferring mechanism for transferring a bobbin or filling carrier from the magazine, of a shuttle positioning device, adapted to engage the inner tip end and position the shuttle in its box under the magazine, preparatory to the transfer of a bobbin or filling carrier from the magazine into the active shuttle, said device carried on the lay, and normally held in an inoperative position back of the race-way, and means carried on the stationary part of the loom, and connected with the transferring mechanism, for moving the shuttle positioning device into operative position, and means for returning the positioning device to its normal inoperative position.

5. In a weft replenishing loom having a lay and a shuttle box thereon, a shuttle positioning device, comprising a pivotally supported arm or lever normally held in an inoperative position on the rear side of the lay, a second arm or lever connected therewith to move it on its pivotal support, and bring it into operative position to contact with the inner end of the shuttle, to position the shuttle in the shuttle box, and a lever or pawl carried on a stationary part of the loom, and connections therefrom to a transfer lever of the weft replenishing magazine, said last mentioned lever or pawl adapted to engage or move said second arm or lever as the lay moves forward, when the transfer lever is operative on the practical exhaustion of filling in the active shuttle.

6. In a weft replenishing loom having a lay, and a shuttle box thereon, a shuttle positioning device pivotally supported on the rear side of the lay in a normally inoperative position, and having thereon an arm to swing forward and engage the inner tip end of an incoming shuttle, and move it into position, and connections intermediate said shuttle positioning device and the transferring mechanism.

7. In a weft replenishing loom having a lay, a shuttle box, and a shuttle positioning device thereon, means comprising a transfer arm, and a connection to a lever or pawl, and said lever or pawl carried on a stationary part of the loom, and operative upon the near exhaustion of filling in the active shuttle to engage the positioning device on the forward movement of the lay, and move the positioning arm forward in front of the reed to engage the inner end of the incoming shuttle, leaving a clear and unobstructed space for the filling thread extending from the shuttle to the fell of the cloth.

8. In a weft replenishing loom, a lay, a shuttle positioning device pivotally sup-

ported on the rear side of the lay, and normally in an inoperative position, a transfer lever, and connections intermediate said lever and said positioning device, whereby
5 upon an indication of the near exhaustion of filling in the active shuttle, the transfer lever will be actuated, and an arm of the shuttle positioning device moved around to engage the inner tip of the shuttle, preparatory to the transfer of the filling carrier 10 therein.

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Witnesses:

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