E. H. RYON.

WEFT REPLENISHING LOOM.

APPLICATION FILED MAR. 6, 1909.

951,659.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

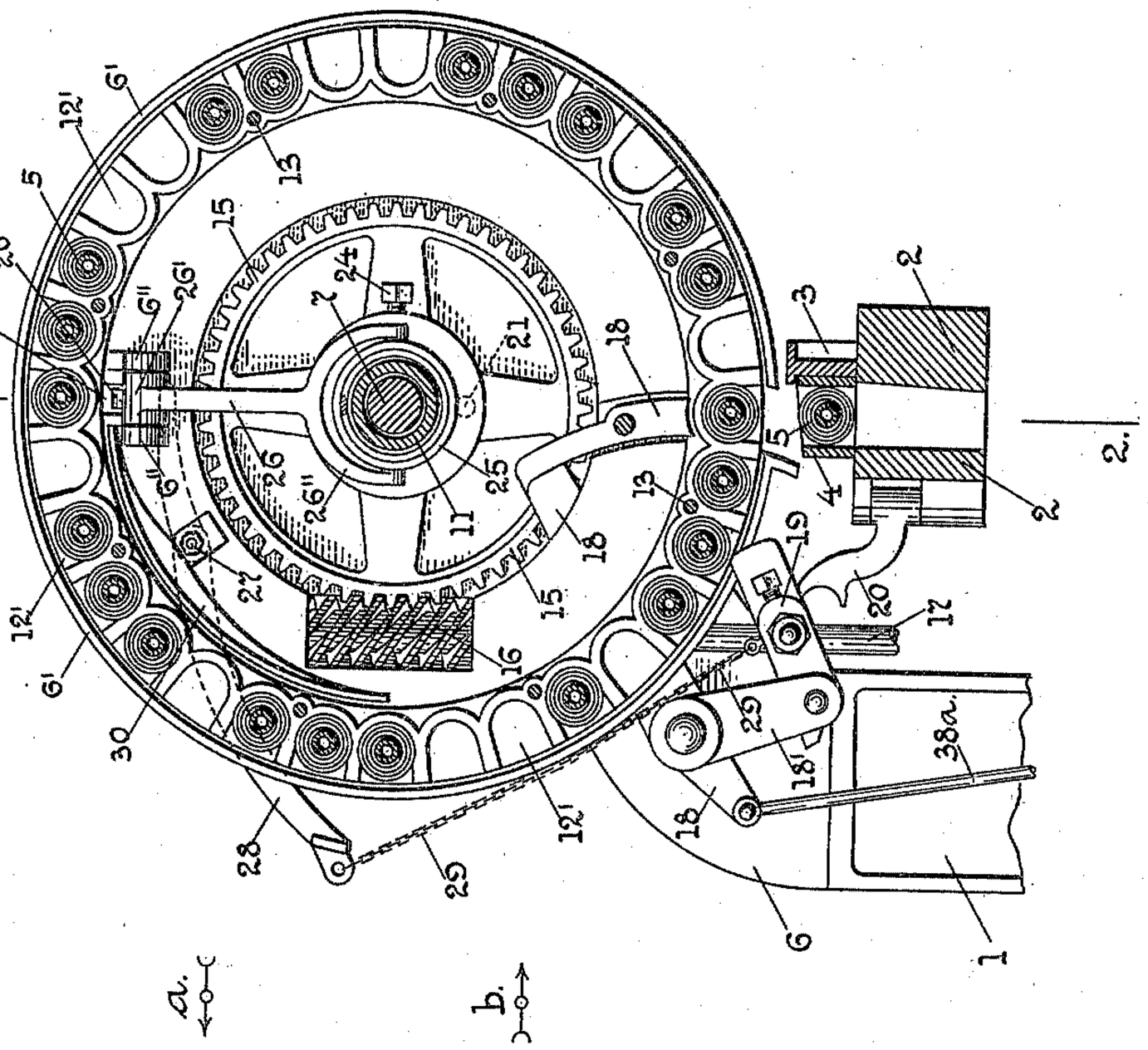
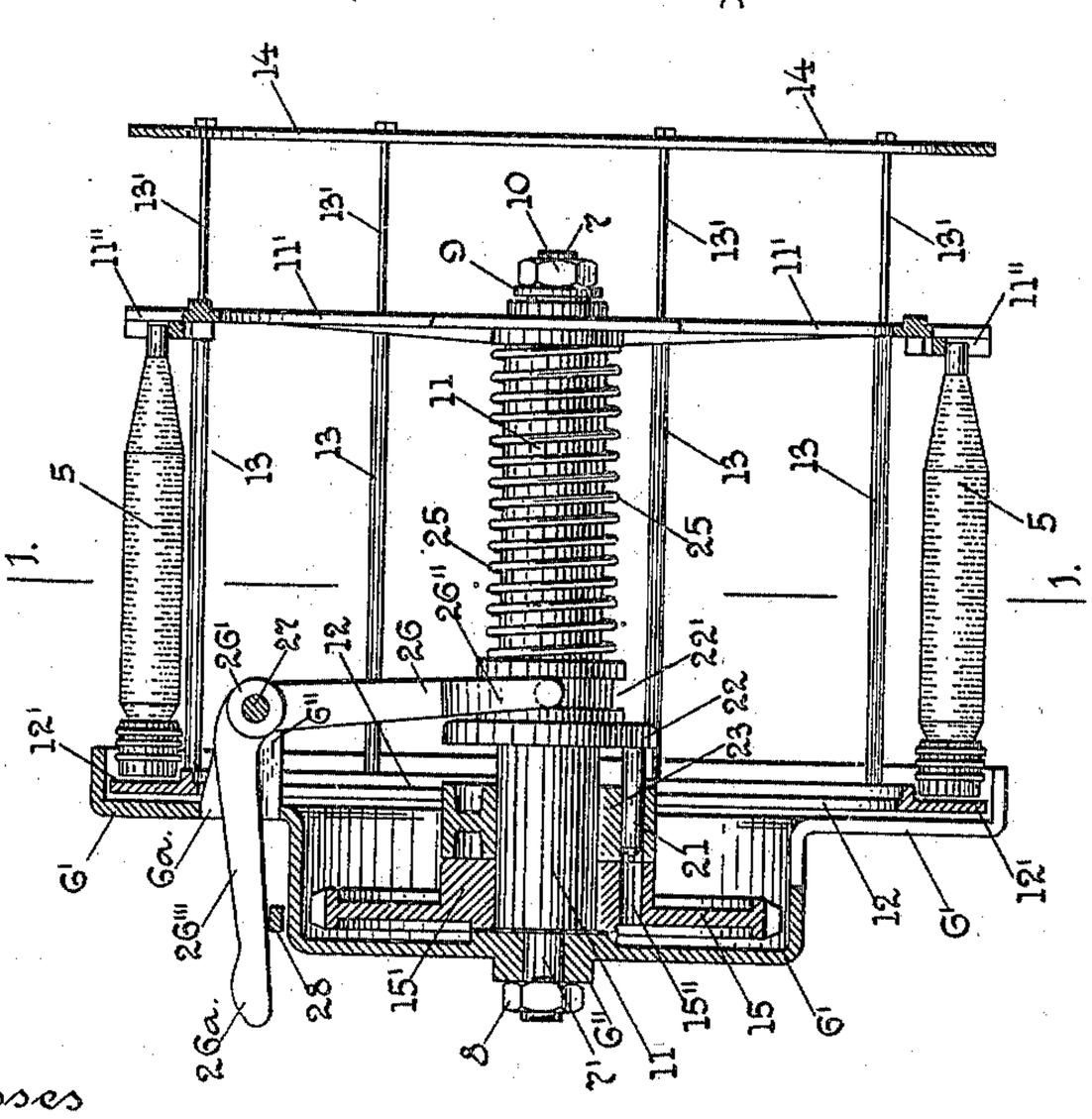


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

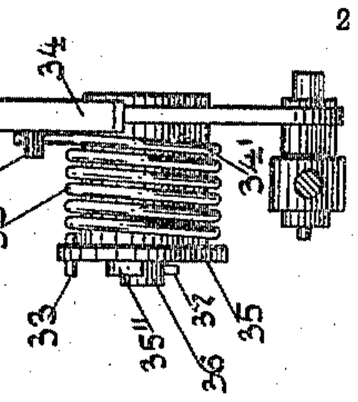
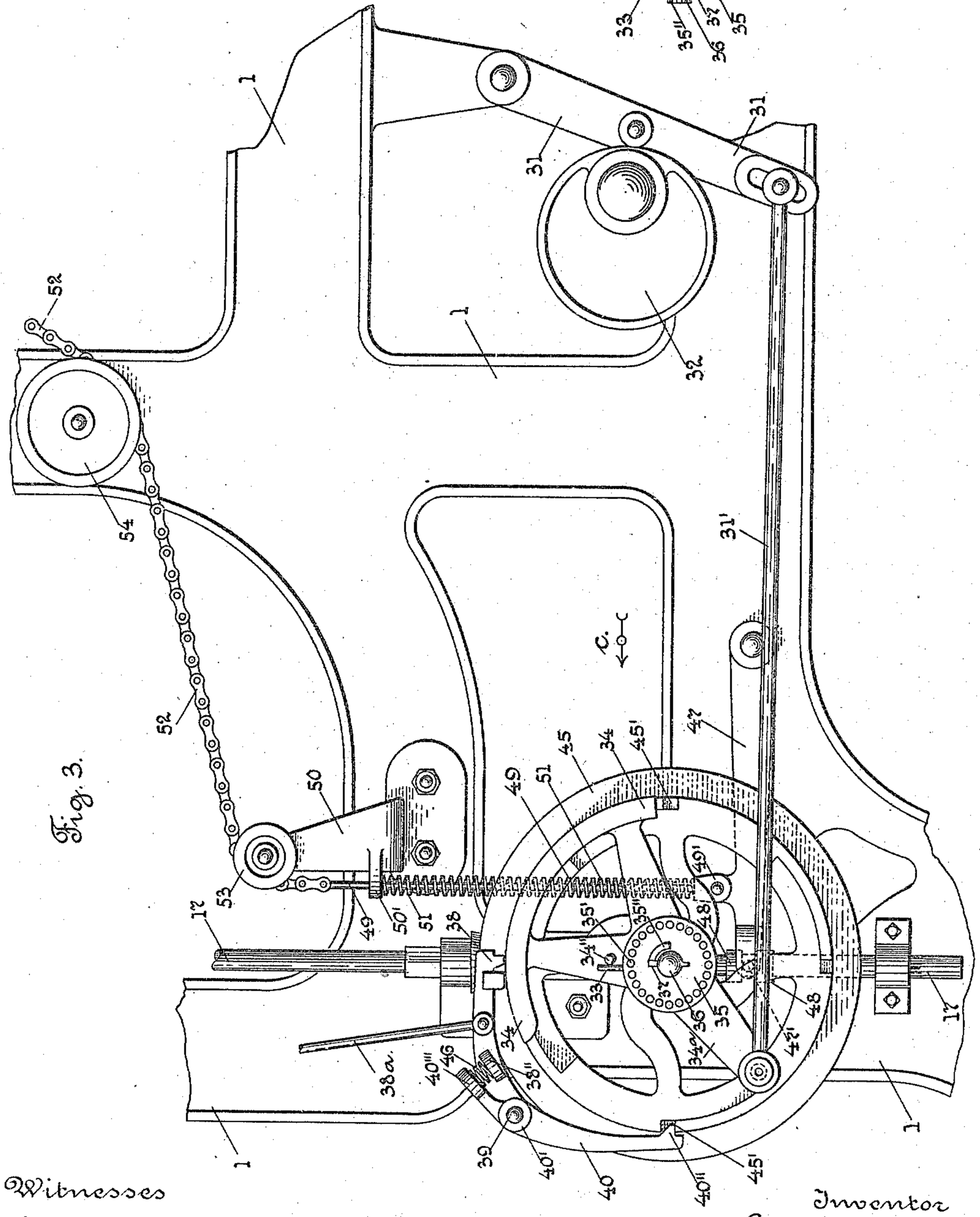


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WEFT-REPLENISHING LOOM.

951,659. Specification of Letters Patent. **Patented Mar. 8, 1910.**

Application filed March 6, 1909. Serial No. 481,580.

To all whom it may concern:

Be it known that I, EPPA H. RYON, 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 the revolving magazine and the parts connected therewith of the type shown and described in my pending application for Letters Patent, Serial No. 443,067, and more particularly to a clutch mechanism, combined with the rotary magazine, by means of which the magazine can be loosely turned by hand, for the purpose of refilling the same with bobbins or filling carriers while the loom is in operation.

I have only shown in the drawings a detached portion of a weft replenishing loom, and more particularly of parts of a weft replenishing loom shown in my said application, with my improvements combined therewith.

Referring to the drawings:—Figure 1 is an end view of a detached portion of a weft replenishing loom of the type referred to, with the rotary magazine shown in section, on line 1, 1, Fig. 2, looking in the direction of arrow *a*, same figure, and showing my clutch device combined therewith. Fig. 2 is a partial cross section, on line 2, 2, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 is an end view of the magazine operating mechanism, located at the lower part of the loom side, and Fig. 4 shows the shield mechanism shown in Fig. 3, detached, looking in the direction of arrow *c*, same figure.

In the accompanying drawings, 1 is a portion of the loom side or end frame, 2 is the lay, 3 is the stationary shuttle box, having a shuttle 4 therein carrying a filling carrier or bobbin 5; 6 is a stand rigidly secured to the loom side 1, and having the cylindrical portion 6′ with a centrally located boss 6″, to which is secured the horizontally extending bolt 7, having the reduced portion 7′, with a nut 8 screwed thereon. The outer end of the bolt 7 has a washer 9, secured thereon by a nut 10, to loosely position the sleeve hub 11 of the outer ring 11′. The outer ring 11′ has a series of radial notches 11″ for the tips of the bobbins or filling carriers 5. The heads of the bobbins or filling carriers 5 are inserted in pockets 12′ on the inner ring 12, which ring is rigidly connected with the outer ring 11′ by the transverse rods or wires 13. The reduced ends 13′ of the rods 13 extend out from the outer ring 11′ and hold the thread ring 14 for the ends of the filling threads, not shown. The worm gear 15 is loosely mounted, in this instance on the sleeve 11, and meshes with and is driven by a worm 16 secured on a vertically extending shaft 17, which is operated by mechanism to be hereinafter described.

18 is the transferrer, having the downwardly extending arm 18′ carrying the bunter 19, which is adapted to be engaged by a dagger 20 on the lay 2.

All of the above mentioned parts may be of the usual and well known construction, and as shown and described in my pending application, Serial No. 443,067, above referred to.

I will now describe my improvements in the clutch mechanism attached to the magazine, and by means of which the operator may operate the magazine by hand, to refill the magazine without stopping the loom.

The worm gear 15, which is loosely mounted in this instance on the sleeve hub 11 of the rotary magazine, has the enlarged hub 15′, see Fig. 2, having a bore 15″ therein, adapted to receive a pin 21, which extends out from a clutch member 22, and through a hole in the clutch collar 23, secured on the sleeve hub 11 by a screw bolt 24, see Fig. 1. A helically coiled expansion spring 25 encircles the sleeve 11, and bears with one end against the outer ring 11′, and with its other end against the clutch member 22, to hold the stud or pin 21 in the hole 15″ in the hub 15′ of the worm gear 15, to

connect said gear with the clutch collar 23 fast on the sleeve 11, to normally operate the magazine.

A clutch lever 26 has its hub 26′ pivotally mounted on a stud 27 on the ears 6″ on the stand 6. The forked end 26″ of the clutch lever 26 extends into an annular groove 22′ in the clutch 22. An arm 26‴ extends out from the hub 26′ of the clutch lever 26, and through an opening 6ª in the stand 6. The arm 26‴ has the engaging end 26ª, adapted to be moved downwardly by the loom operator, in order to disconnect the worm gear 15 from the clutch, to loosely revolve the magazine.

On a bolt 27′, see Fig. 1, is pivotally mounted the hub of a lever 28. One arm 28′, see Fig. 2, of the lever 28, extends in the path of the arm 26‴ to be engaged thereby. When the arm 26‴ is moved downwardly and engages the end 28′ of the lever 28, the other arm of said lever 28 will be raised, and through the chain connection 29 with the bunter 19, said bunter will be moved upwardly and out of the path of the dagger 20, see Fig. 1, to prevent said dagger from operating the transferrer arm, while the magazine is being revolved. A guard shield 30, see Fig. 1, suitably secured on the bolt 27′, prevents the bobbins from dropping into the magazine hopper while the same is revolved.

I will now describe the mechanism shown in Figs. 3, and 4. Instead of a helically coiled contraction spring to yieldingly hold the lever 31 in engagement with the cam 32, through the connector rod 31′ and arm 34ª, as shown and described in my said application, a torsion spring 33 is substituted; said torsion spring 33 encircles the hub 34′ of the shield 34, see Fig. 4. The spring 33 bears at one end against a pin 34″ on the shield 34, and at its other end extends through a hole 35′ in a collar 35, which collar is loosely mounted on a bolt 36. A lug 35″ on the collar 35 bears against a stub 37. The torsion spring 33 acts to move the shield 34 toward the right in Fig. 3, when the pawl or latch 38 is lifted, as shown in Fig. 3, through the connector rod 38ª to the transferrer arm 18, see Fig. 1. The stub 39 on which the hub of the pawl 38 is loosely mounted, has also mounted thereon the hub 40′ of a downwardly extending latch or pawl 40, having a projection 40″ thereon, which is adapted to extend into a notch 45′ in a cylindrical gear 45, to hold said gear in its proper position when it is disengaged from the pawl 38, to be moved in one direction by the knob 34″ on the shield 34, to revolve the magazine, as fully described in my said application. An expansion spring 46, which bears at one end against a lug 38″ on the pawl 38, and at its other end against an upwardly extending arm 40‴ on the pawl 40, acts to yieldingly hold either one of the pawls 38 and 40 in their locked position. A horizontally extending lever 47 has its end yoke shaped and provided with a pin 47′, adapted to extend between two collars 48 on the vertically extending shaft 17, to move said shaft up and down, according to the position of the change shuttle boxes, not shown, at the opposite end of the loom. A rod head 49′ is pivotally connected to the lever 47, and a rod 49 extends upwardly from said rod head 49′ and through a lug 50′ on a stand 50 secured to the loom side. A helically coiled expansion spring 51 encircles the rod 49, and acts to move downwardly the lever 47. The upper end of the rod 49 has connected thereto the end of a chain 52, which passes over guide sheaves 53 and 54, to a pattern mechanism, not shown, on the opposite end of the loom. This pattern mechanism may be, and preferably is, independent of the box pattern mechanism which operates to bring the rotary magazine into position for the discharge of a filling carrier therefrom, according to the movement of the drop shuttle boxes.

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 magazine for automatic weft replenishing looms, a movable bobbin holder, means to move the same, a transferrer mechanism, and mechanism to be moved by the operator, to disconnect said movable bobbin holder from its moving means, and to render the said transferrer mechanism inoperative.

2. In a magazine for automatic weft replenishing looms, a rotary bobbin holder, means to rotate the same, said means including a gear having ratchet teeth attached thereto, a device to contact with said teeth and turn said gear, a cam to operate said device in one direction, and a torsion spring to operate said device in the opposite direction.

3. In a magazine for automatic weft replenishing looms, a rotary bobbin holder, and means to rotate the same, transferrer mechanism, connections intermediate said transferrer mechanism and a clutch mechanism, and said clutch mechanism included in said rotating means, and means manually operated whereby said clutch mechanism may be disconnected, and said transferrer means rendered inoperative during the normal operation of the loom.

4. In a magazine for automatic weft replenishing looms, a rotary bobbin holder, means to rotate the same, transferrer mech-

anism, a lever manually operated, and connections from said lever to said transferrer mechanism, to render the said transferrer mechanism inoperative by the movement of said lever.

5. In a magazine for automatic weft replenishing looms, a rotary bobbin holder, means to rotate the same, transferrer mechanism, a device manually operated, and connections from said device to said transferrer mechanism, to render said transferrer mechanism inoperative.

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