

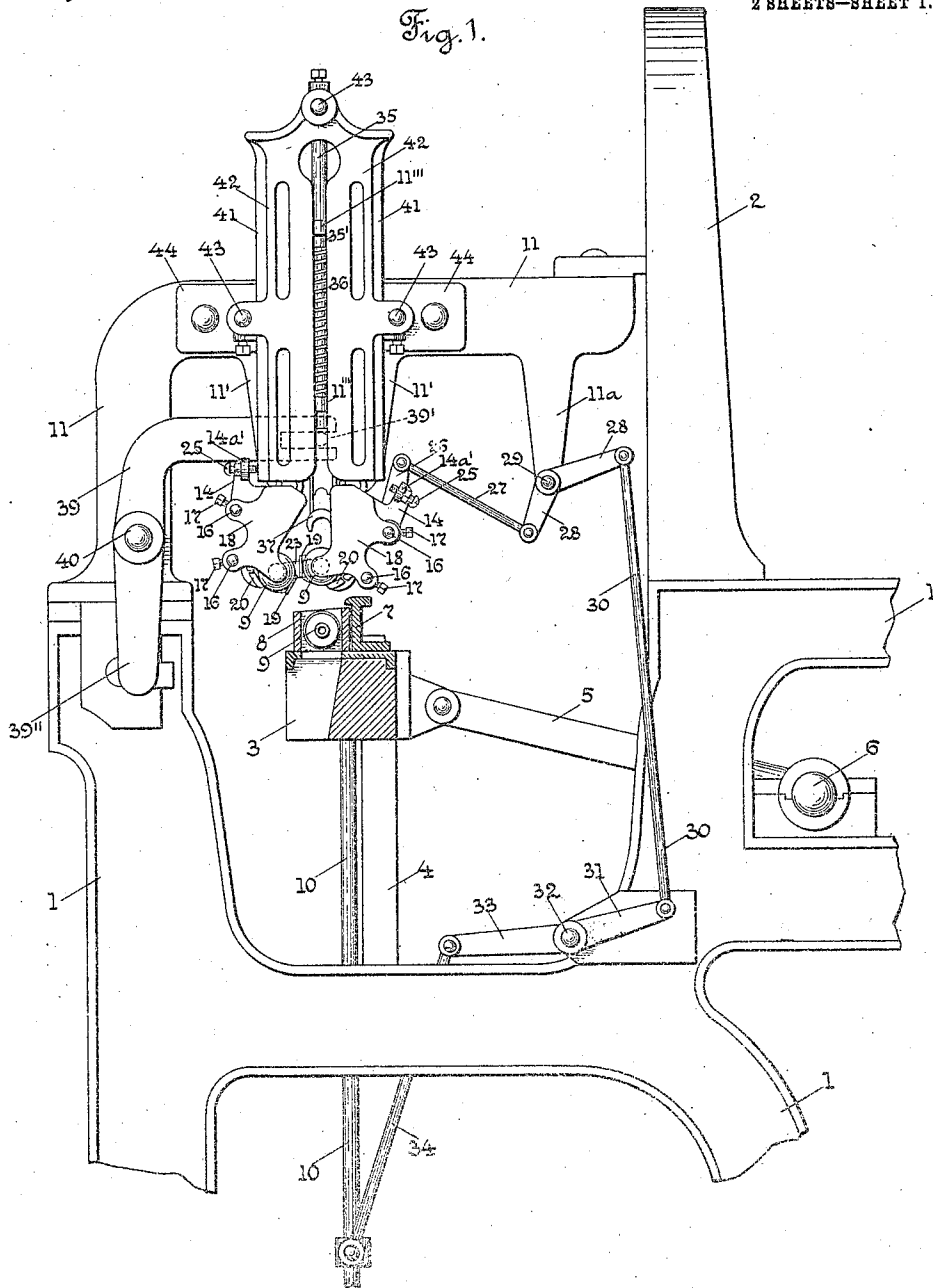
H. WYMAN.
WEFT REPLENISHING LOOM.
APPLICATION FILED APR. 28, 1908.

937,980.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



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W. H. Case

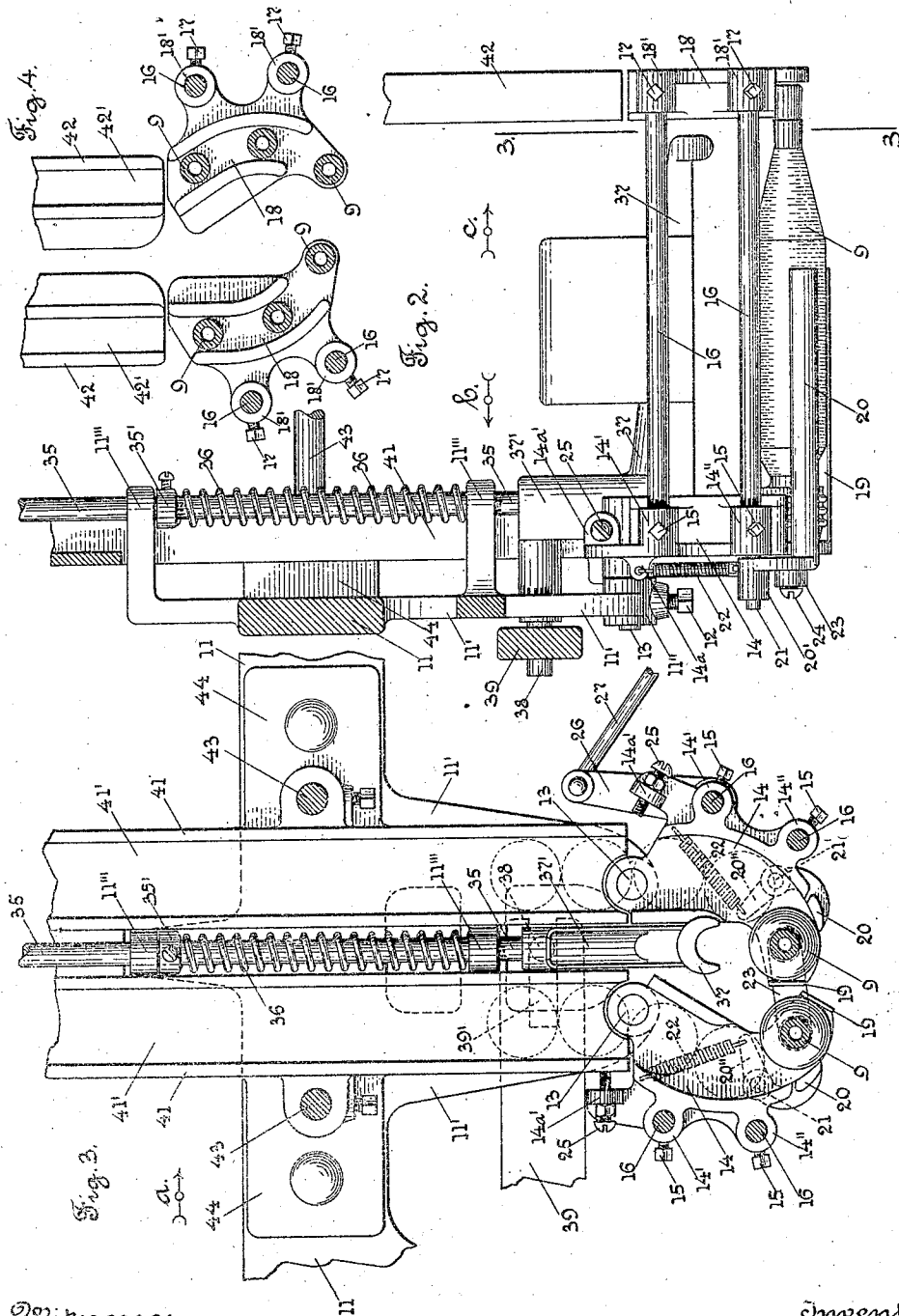
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2 SHEETS--SHEET 2.



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UNITED STATES PATENT OFFICE.

HORACE WYMAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

WEFT-REPLENISHING LOOM.

937,980.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed April 28, 1908. Serial No. 429,647.

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 particularly to that class of weft replenishing looms which have a magazine for bobbins or filling carriers at one end of the loom, having two compartments or guide-ways for two sets of superposed bobbins or filling carriers, each set preferably of a different color or character, and two shifting or change shuttle boxes at the other end of the loom, for two shuttles, each shuttle having a filling of a color or character corresponding to the filling on the bobbins or filling carriers in one of the compartments or guide-ways of the magazine.

The object of my invention is to improve upon the construction of the magazine as ordinarily made in the class of looms referred to.

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

In my improved construction of the magazine, each of the two compartments, forming the magazine for the bobbins or filling carriers is movable, and pivotally supported near its upper end to hang downwardly, and each compartment has its lower end extend inwardly. The two pivotally supported compartments are preferably connected together, and are moved or rocked on their pivotal supports, to bring the lower discharging end of either compartment over the shuttle, at the magazine end of the loom, and under a transferer, preferably located between the compartments, so that the lowest bobbin or filling carrier in the compartment may be in position to be transferred into the shuttle on the magazine end of the loom, to take the place of the bobbin or filling carrier in said shuttle, on which the filling is practically or substantially exhausted. By supporting each of the compartments of the magazine on pivotal points near their upper ends, with the guide-ways for the bobbins radially disposed, the guide-ways will be adapted to be in alinement with the

guide-ways of the stationary magazine when placed above the movable compartments, and the superposed bobbins in the compartments will acquire but little momentum as the lower ends of the compartments move back and forth.

In connection with the two movable compartments for the bobbins or filling carriers above referred to, I preferably use a stationary magazine, having two compartments or guide-ways for two sets of bobbins or filling carriers corresponding to the bobbins or filling carriers in the movable compartments; said stationary magazine is located above the two movable compartments, and the lower discharging ends of the two compartments in the stationary magazine are in alinement with the upper ends of said movable compartments, so that an unobstructed passage may be obtained for the filling carriers, from the stationary magazine to the movable magazine. The stationary magazine is preferably removably placed above the movable magazine for the bobbins or filling carriers, so that the movable magazine may, if desired, be used without the stationary magazine.

I have only shown in the drawings a detached portion of a loom, with my improvements applied thereto and combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is an outside view of a detached portion of the right hand end of a loom, and of my improvements in magazine for bobbins or filling carriers combined therewith, and a sectional view of the lay and a stationary shuttle box thereon, at the magazine end of the lay. Fig. 2 is, on an enlarged scale, a partial central vertical section of the parts shown in Fig. 3, looking in the direction of arrow *a*, same figure. Fig. 3 is a section, on line 3, 3, Fig. 2, looking in the direction of arrow *b*, same figure, and, Fig. 4 is a section, on line 3, 3, Fig. 2, looking in the direction of arrow *c*, same figure.

In the accompanying drawings, 1 is a portion of a loom side or frame, 2 is the loom arch, 3 the lay, 4 the lay sword, 5 the crank connector to the crank shaft 6, 7 is a stationary shuttle box on the magazine end of the loom, and 8 is a shuttle in said box, hav-

ing a bobbin or filling carrier 9 therein. 10 is the box lifter rod for the shifting or change shuttle box, not shown, and located at the opposite end of the lay, not shown.

- 5 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, which as above stated relate particularly to a pivotally supported magazine, having two compartments or guide-ways for bobbins or filling carriers which are to be transferred from the magazine into the active shuttle, to take the place of the bobbin or filling carrier therein, having the filling thereon practically or substantially exhausted. A stand 11 is bolted to the loom frame 1 and the arch 2, and has in this instance two downwardly extending arms 11', with bosses 11'' at their lower ends. Each boss 11'' has secured therein, in this instance by a set screw 12, a bolt or stud 13. On each stud 13 is pivotally mounted the upper end of a plate 14, forming a guide-way or compartment for the heads of the bobbins or filling carriers 9. Each guide-way 14 has thereon two ears or bosses 14', and 14'', in each of which is secured, in this instance by a set screw 15, an outwardly extending rod 16. The outer ends of each pair of rods 16 have mounted thereon and secured thereto, in this instance by set screws 17, the two bosses 18' on the two plates 18, which plates form guide-ways for the tips of the bobbins or filling carriers 9. The plates 14 and 18, form respectively guide-ways or compartments for the heads and tips of the bobbins or filling carriers, and are preferably of curved shape, with their lower ends extending inwardly, and a pair of plates 14 and 18 form each section or half of the magazine.

The bobbins or filling carriers 9 in the guide-ways or compartments forming the movable magazine, are retained therein, in this instance by a bar or finger 19 at the lower end of each movable section of the magazine, and extending in a plane at right angles to the inner plate 14, and secured thereto, in connection with a second yielding bar or finger 20, which extends parallel to the bar or finger 19, and has a hub 20' mounted on a stud 21 extending out from the rear of the plate 14. On the hub 20' is an ear or extension 20'', to which one end of a helically coiled contraction spring 22 is attached; the other end of said spring 22 is attached to an ear 14^a on the plate 14, see Fig. 2. The action of the spring 22 is to yieldingly hold the supporting bar or finger 20 in position against the outer edge of the plate 14 to retain in connection with the bar 19 a bobbin or filling carrier 9 at the lower discharging end of each section of the magazine. The lower ends of the two sections of the movable magazine are preferably con-

nected together and held apart at a predetermined distance, in this instance by a link 23, pivotally attached at each end by a screw 24, on the plates 14.

An adjusting screw 25, in this instance located in an extension 14^a on each plate 14, is adapted to engage at its inner end a stationary part of the frame, and acts to limit the outward swinging movement of each section of the magazine. A pivotal or rocking motion is communicated to the two sections of the movable magazine, to bring the lower end of either section of the magazine over the shuttle at the magazine end of the loom, to allow the bobbin or filling carrier in said section to be transferred into the shuttle, in this instance through connections to the vertically moving shuttle box rod 10 at the other end of the loom. Said connections consist in this instance of an arm 26 having its lower end fast on one of the rods 16 of one of the sections of the magazine, and connected at its other end by a link 27 with one arm of a two-armed lever 28, mounted on a stud 29 on a downwardly extending stand 11^a. The other arm of the lever 28 is connected, through a rod or connector 30, with an arm 31 fast on a rock shaft 32. The rock shaft 32 extends transversely through the loom and is mounted in suitable bearings, and has at its other end an arm 33, which is connected by a connector or link 34 with the vertically moving shuttle box rod 10. The up and down movement of the shuttle box rod 10, and the shuttle boxes thereon, not shown, according to the indications of the shuttle box pattern surface, not shown, will communicate a pivotal or rocking movement to the two sections of the movable magazine, and cause a filling carrier of the same color or character as the filling carrier in the active shuttle, to be held in position over the stationary shuttle box at the magazine end of the loom, and under the transferrer, preparatory to being transferred into the shuttle, to take the place of the substantially exhausted bobbin or filling carrier in said shuttle.

The transferrer mechanism shown in the drawings, consists in this instance of a vertically extending rod 35, having an up and down movement in the guides or bearings 11''' on the stand 11, see Fig. 2. A helically coiled expansion spring 36 encircles said rod 35, and bears at its lower end against the lower guide or bearing 11''', and at its upper end against a collar 35' fast on the rod 35. The spring 36 acts to raise the rod 35 after it has been lowered, and to normally hold it in its raised position. The lower end of the rod 35 has secured thereon the hub 37' of the transferrer arm 37, see Fig. 2. The transferrer arm 37 is so located as to extend between the two sections of the movable magazine and directly over the lowest

bobbin or filling carrier in either section of the movable magazine, when said bobbin or filling carrier is, through the movement of the sections of the magazine, brought into a position over the stationary shuttle box at the magazine end of the loom, ready to be transferred into said shuttle box. Extending rearwardly from the hub 37' is a stud 38; said stud 38 extends into an opened end slot 39' in a lever 39, see Fig. 1, which is pivotally mounted on a stud 40, and has a downwardly extending arm 39'', to be engaged and operated at the proper time by mechanism, not shown, to rock the lever 39, and move down the rod 35 and the transfer arm 37, to engage the bobbin or filling carrier below said transfer arm, and transfer the same into the stationary shuttle box 8.

I have shown in the drawings combined with the movable magazine, comprising two sections with guide-ways or compartments for the heads and tips of the bobbins, a stationary magazine, located above the movable magazine, and consisting in this instance of an inner plate 41, and an outer plate 42, attached together by transverse rods 43, and secured to a bar or plate 44, secured to the stand 11. Each of the inner and outer plates 41 and 42 have two compartments or guide-ways 41' and 42', respectively, for the heads and tips of the bobbins or filling carriers, shown by broken lines in Fig. 3. The lower discharging ends of the two compartments or guide-ways 41' and 42' are in alinement with the upper ends of the two sections of the movable magazine, so that the bobbins or filling carriers will pass through the guide-ways or compartments in the stationary magazine, and into the compartments or guide-ways in the movable magazine, by gravity.

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

The movable magazine, comprising two sections for two sets of bobbins of filling carriers, has a pivotal or rocking motion communicated thereto at the proper time, according to the up and down movement of the shifting or drop shuttle boxes, or the movement of any supplemental pattern mechanism, to bring one of the compartments having the desired bobbin therein, into a position over the active shuttle, so that the bobbin may be discharged into the active shuttle by the operation of the transfer arm. As soon as the bobbin is transferred, and the transfer arm is moved up into its normal inoperative position by the spring 36, the bobbins in the compartment from which a bobbin is moved, will drop down by grav-

ity, to bring a new bobbin into the position of the one transferred, and be retained in position until the next transferring operation.

In connection with the pivotally supported magazine, a stationary magazine of any desired size or construction, and having two compartments or guide-ways, corresponding to the two compartments or guide-ways in the movable magazine, may be used, so that a larger number of bobbins or filling carriers may be ready to be supplied, which will drop down by gravity from the stationary magazine into the movable magazine, all as will be readily understood by those skilled in the art.

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, the combination with a magazine having two guide-ways or compartments for superposed bobbins or filling carriers, each compartment pivotally supported and movable on its pivot support, and having an inwardly extending lower end, of a stationary magazine having two compartments or guide-ways above said movable compartments, and with the lower ends of said compartments in alinement with the upper ends of the movable compartments.

2. In a weft replenishing loom, the combination with a stationary magazine having compartments or guide-ways for bobbins or filling carriers, of a movable magazine below said stationary magazine, and having compartments or guide-ways for bobbins or filling carriers, said compartments or guide-ways permanently registering with the compartments or guide-ways of the stationary magazine.

3. In a weft replenishing loom, a magazine having compartments for bobbins or filling carriers, a vertically movable transfer arm, a pivotally supported compartment or guide-way for bobbins or filling carriers at each side of said transfer arm, and each having its lower end extending inwardly, and a retaining bar at the lower end of each pivotally mounted compartment, for the lowest filling carrier therein.

4. In a weft replenishing loom, a magazine with two movable compartments or guide-ways, each having an inwardly extending lower end and a retaining bar, and yielding means to retain the filling carrier against said bar.

5. In a weft replenishing loom, a magazine having two independent compartments or guide-ways for bobbins or filling carriers, each pivotally supported, and each inde-

pendently movable on its pivot, to bring either of the lowest filling carriers under the transferer.

6. In a weft replenishing loom, a magazine having two compartments or guide-ways for bobbins or filling carriers, each compartment or guide-way pivotally supported on its separate pivot support, a connection between said compartments whereby they may be moved simultaneously.

7. In a weft replenishing loom, the combination with a magazine for bobbins or fill-

ing carriers having two compartments or guide-ways pivotally supported each on its separate pivot support and movable on their pivot supports, of connections intermediate said two compartments and the shifting shuttle box mechanism, whereby the movement of the shifting shuttle boxes will simultaneously move said compartments.

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Witnesses:

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