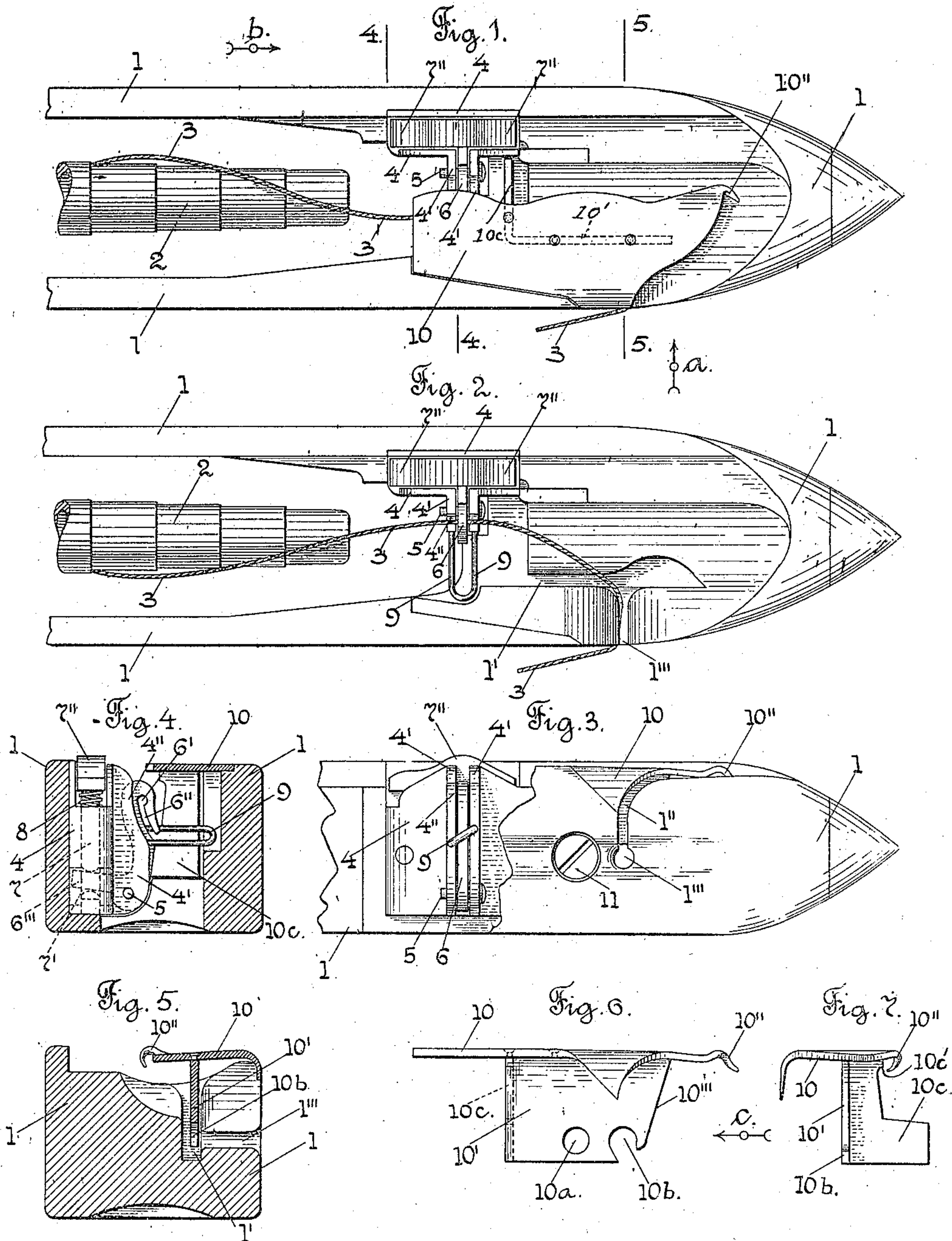


J. R. FITTON & C. H. BERGLUND.
 FILLING CARRIER FOR WEFT REPLENISHING LOOMS.
 APPLICATION FILED OCT. 10, 1908.

934,062.

Patented Sept. 14, 1909.



Witnesses
 M. Bredt.
 W. Haas.

Inventors
 John R. Fitton
 Charles H. Berglund.
 By John C. Dewey.
 Attorneys.

UNITED STATES PATENT OFFICE.

JOHN R. FITTON AND CHARLES H. BERGLUND, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

FILLING-CARRIER FOR WEFT-REPLENISHING LOOMS.

934,062.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed October 10, 1908. Serial No. 457,118.

To all whom it may concern:

Be it known that we, JOHN R. FITTON and CHARLES H. BERGLUND, a citizen of the United States and a subject of the King of Sweden, respectively, residing both at Worcester, in the county of Worcester and State of Massachusetts, have jointly invented certain new and useful Improvements in Filling-Carriers for Weft-Replenishing Looms, of which the following is a specification.

Our invention relates to a filling carrier or shuttle for weft replenishing looms, in which a new filling carrier or bobbin is automatically inserted when the filling carrier or bobbin in the running shuttle is substantially or practically exhausted, and our invention more particularly relates to a self-threading shuttle, having an automatic filling thread cutting mechanism combined therewith, of the type shown and described in the Letters Patent of the United States, No. 914,703.

The object of our invention is to improve upon and simplify the construction of the self-threading cutting mechanism shown and described in said Letters Patent, and also to provide an improved self-threading mechanism for the shuttle.

In the self-threading shuttle shown and described in said Letters Patent, a filling carrier or bobbin, having first wound thereon a few winds of filling in one direction, and the remaining winds of filling in the reverse direction, is used. When new filling is inserted in the shuttle from the weft replenishing mechanism, the filling is automatically threaded into the eye of the shuttle by the threading mechanism, and as the filling is drawn off from the bobbin, it is carried by its circular movement into a guide, and remains in said guide until the filling on the bobbin, of the ordinary wind, has been entirely drawn off from the bobbin, and the filling of the reverse wind is reached; then by reason of the reverse wind of the filling, the filling is caused to have a circular movement in an opposite direction, and passes out of the guide referred to, and into another guide or eye in a position to be engaged by the cutting mechanism to be cut at the next operation of said cutting mechanism, all as fully described in said Letters Patent.

In our improvements, we do away with the funnel-shaped guide, shown and described in said patent, for the filling, and

substitute therefor a double, or looped wire, over which the filling thread freely passes, as long as the filling on the bobbin has the ordinary wind. An arm or lever extends in an upward direction, and is provided with an eye at its upper end, from which a slightly curved slot extends downwardly, which slot is open at its lower end, and adapted to have the filling pass into it, when the filling, wound in the ordinary way, has been entirely drawn off from the bobbin, and the filling having the reverse wind, is reached.

Our self-threading mechanism, which we have combined with our present improvements in filling cutting mechanism, is of very simple construction, and consists of a suitably shaped metal plate, having a horn or hook on one end, and a downwardly extending portion, adapted to guide the filling, and to hold it in the thread eye.

We have only shown in the drawing a detached portion of a shuttle with our 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 a plan view of one end of a shuttle, and our improvements in thread cutting mechanism, and a self-threading mechanism, attached thereto; the filling is shown as it is drawn off from the bobbin in the usual or normal direction. Fig. 2 corresponds to Fig. 1, but shows the self-threading mechanism removed, and the filling thread drawn off from the bobbin in the reverse direction, to be cut by the cutting mechanism. Fig. 3 is a front view of the end of the shuttle shown in Fig. 1, looking in the direction of arrow *a*, same figure; the front wall of the shuttle is partially broken away. Fig. 4 is a section, on line 4, 4, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 5 is a section, on line 5, 5, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 6 is a front side view of the self-threading mechanism, detached, looking in the direction of arrow *a*, Fig. 1. Fig. 7 is an end view of the self-threading mechanism shown in Fig. 6, looking in the direction of arrow *c*, same figure.

In the accompanying drawing, 1 is a portion of the shuttle body, 2 is a bobbin, and 3 filling thereon. A block 4 is suitably secured in a recessed portion of the back wall of the shuttle, and is in this instance similar to the block shown and described in said

Letters Patent, No. 914,703. The block 4 has in this instance two inwardly vertically extending projections 4', one of which is provided on its upper edge with a cutting surface 4''. Extending through the lower part of the projections 4' is a pin 5, on which is loosely mounted the lower end of an upwardly extending arm or lever 6, which forms the movable member of the cutting mechanism. The lever 6 extends between the projections 4', and its upper end is sharpened on its inner edge, and provided with a filling thread eye 6'. Leading out from said eye in a downwardly curved direction is a slot 6'', which is open at its lower end, and adapted to receive the filling 3 on its circular movement upwardly and toward the cutting lever, as shown in Fig. 2, when the filling is unwound from the bobbin in a reverse direction from the ordinary wind. The lever 6 has a rearwardly extending arm 6'', which extends through an opening 7' in a bolt 7, which extends loosely in an opening in the block 4, to have a vertical up and down movement therein. The bolt 7 has on its upper end a cam-shaped plate or head 7'', which is adapted to be engaged and operated by a trip, not shown, suitably located on the hand-rail of the loom, or the shuttle box, not shown. A helically coiled expansion spring 8, extends between the head 7'' on the bolt 7, and the upper part of the bearing in the plate 4 for the bolt 7, and acts to yieldingly move up the bolt 7 and the arm 6'' on the lever 6, to hold said lever in its inoperative position, as shown in Fig. 4. The engagement of the end of the arm 6'' of the lever 6, with the upper part of the transverse opening through the block 4, limits the upward movement of the bolt 7, see Fig. 4.

Extending out from the two projections 4' on the block 4, and in this instance attached thereto, is a double wire 9, preferably of loop shape, which forms a guide for the filling 3, which loosely passes over said wire as long as the filling is unwound from the bobbin in the ordinary direction, as shown in Fig. 1.

We will now describe our improvements in the self-threading mechanism shown in the drawing. The self-threading mechanism consists in this instance of a top plate 10, preferably made of sheet metal, which extends upon the upper side of the shuttle, as shown in Fig. 1, and has extending downwardly therefrom in a vertical plane and at right angles thereto, and preferably riveted thereto, a second plate or projection 10', see Fig. 5, which extends in a recess 1' in the shuttle 1, and is secured therein, in this instance by a screw 11 extending through an opening 10^a in the projection 10. The inner edge of the plate 10 is preferably made of curved shape, as shown in Fig. 1, and at the outer end of said

plate is a horn or hook 10'', around which the thread passes, and is guided along the inclined edge 10''' on the projection 10', see Fig. 6, and through the curved thread slot 1'' in the side of the shuttle 1, and into the open eye 10^b in the projection 10', and into the thread eye 1''' in the shuttle. The vertically extending plate or projection 10' on the plate 10 has secured thereto, or made integral therewith, a side plate 10^c which extends inwardly into the opening in the body of the shuttle, preferably at right angles to the plate 10', see Fig. 4. The side plate or projection 10^c is preferably of the shape shown in Fig. 7, and has on its edge, near its upper end a notch or undercut portion 10^d, which acts to hold the filling in the proper position as it is being threaded into the shuttle.

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

The filling carrier or bobbin to be used in our improved self-threading shuttle, as stated above, has the filling wound thereon for a few winds in one direction, for example, a left hand wind, to furnish filling for one or more picks of the shuttle, and the rest of the filling wound in a reverse direction, as a right hand wind, until the bobbin is fully wound. As the filling last wound on the bobbin is drawn off from the bobbin, as the shuttle is thrown through the shed, it will have a circular movement, and when a full bobbin is transferred from the magazine into the running shuttle to take the place of the practically or substantially exhausted bobbin in the shuttle, the end of the filling on the bobbin being attached to a stationary part of the magazine, the filling is drawn into the threading mechanism, and automatically threaded into the shuttle, as the shuttle is thrown across the lay from the magazine end thereof. The unwinding of the filling from the bobbin, as the shuttle is operated, communicates to the filling a circular movement away from the cutting mechanism, as shown in Fig. 1, and the loop wire 9 acts as a support for the filling. When the filling last wound on the bobbin is unwound from the bobbin, and the filling first wound, in a reverse direction, is reached, then a circular movement is communicated to the filling in an opposite direction, to carry it into the open end slot 6'', and into the eye 6' in the lever 6, and when the cam-shaped end 7'' of the bolt 7 is engaged by a trip, or other operating mechanism, not shown, at a predetermined time, the cutter lever 6 will be moved toward the rear side of the shuttle, to carry the filling against the cutting edge 4'' on one of the projections 4' on the block 4, and cut the filling, preparatory to the discharge of the bobbin

from the shuttle, and the supply of a new bobbin from the weft replenishing mechanism.

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

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

10 1. In a shuttle for a filling carrier having two winds of filling thereon in reverse directions, a thread cutting or severing mechanism, comprising a pivoted cutter lever having a guide or eye adapted to receive the
15 filling as the shuttle is thrown through the shed, when the reverse wind of the filling is being withdrawn from the carrier, and adapted to be moved to carry the filling against a surface to sever or cut the same.

20 2. In a shuttle for a filling carrier having two winds of filling thereon in reverse directions, a thread cutting or severing mechanism, comprising a stationary cutting surface, and a movable cutter lever having an eye
25 to receive the filling, when the reverse wind of the filling is being withdrawn from the carrier, and carry said filling into engagement with the cutting surface.

3. In a shuttle for a filling carrier having
30 two winds of filling thereon in reverse directions, a thread cutting or severing mechanism, comprising a stationary cutting surface, and a movable cutter lever having an eye to receive the filling when the reverse wind of
35 the filling is being withdrawn from the carrier, and carry said filling into engagement with the cutting surface, and having a wire support or loop to support and guide the filling in front of said lever.

40 4. In a self-threading shuttle, the combination with a shuttle body, of a plate extending upon the upper side of the shuttle body at the discharging end thereof, said
45 plate having a guide horn at the outer end thereof, and a curved or inclined edge lead-

ing from said guide horn toward the side of the shuttle, a second plate or projection secured to the first mentioned plate and extending in a vertical direction within the shuttle body, and secured within the shuttle
50 body, and having a downwardly inclined edge leading into an open end eye in said plate, and a side plate or projection on said second mentioned plate, and extending at right angles thereto, within the opening
55 in the shuttle body, said side plate having a notch or undercut portion on its inner edge at its upper part.

5. In a self-threading shuttle for a filling carrier having two winds of filling thereon
60 in reverse directions, a thread cutting or severing mechanism, comprising a pivoted cutter lever having a guide or eye adapted to receive the filling as the shuttle is thrown through the shed, when the reverse wind of
65 filling is being withdrawn from the carrier, and adapted to be moved to carry the filling against a surface, to sever or cut the same, and a plate extending upon the upper side of the shuttle body at the discharging end
70 thereof, said plate having a guide horn at the outer end thereof, and a curved or inclined edge leading from said guide horn toward the side of the shuttle, a second plate or projection secured to the first mentioned
75 plate, and extending in a vertical direction within the shuttle body, and secured within the shuttle body, and having a downwardly inclined edge leading into an open end eye in said plate, and a side plate or projec-
80 tion on said second mentioned plate, and extending at right angles thereto, within the opening in the shuttle body, said side plate having a notch or undercut portion on its inner edge at its upper part.

JOHN R. FITTON.

CHAS. H. BERGLUND.

Witnesses:

JOHN C. DEWEY,

M. HAAS.