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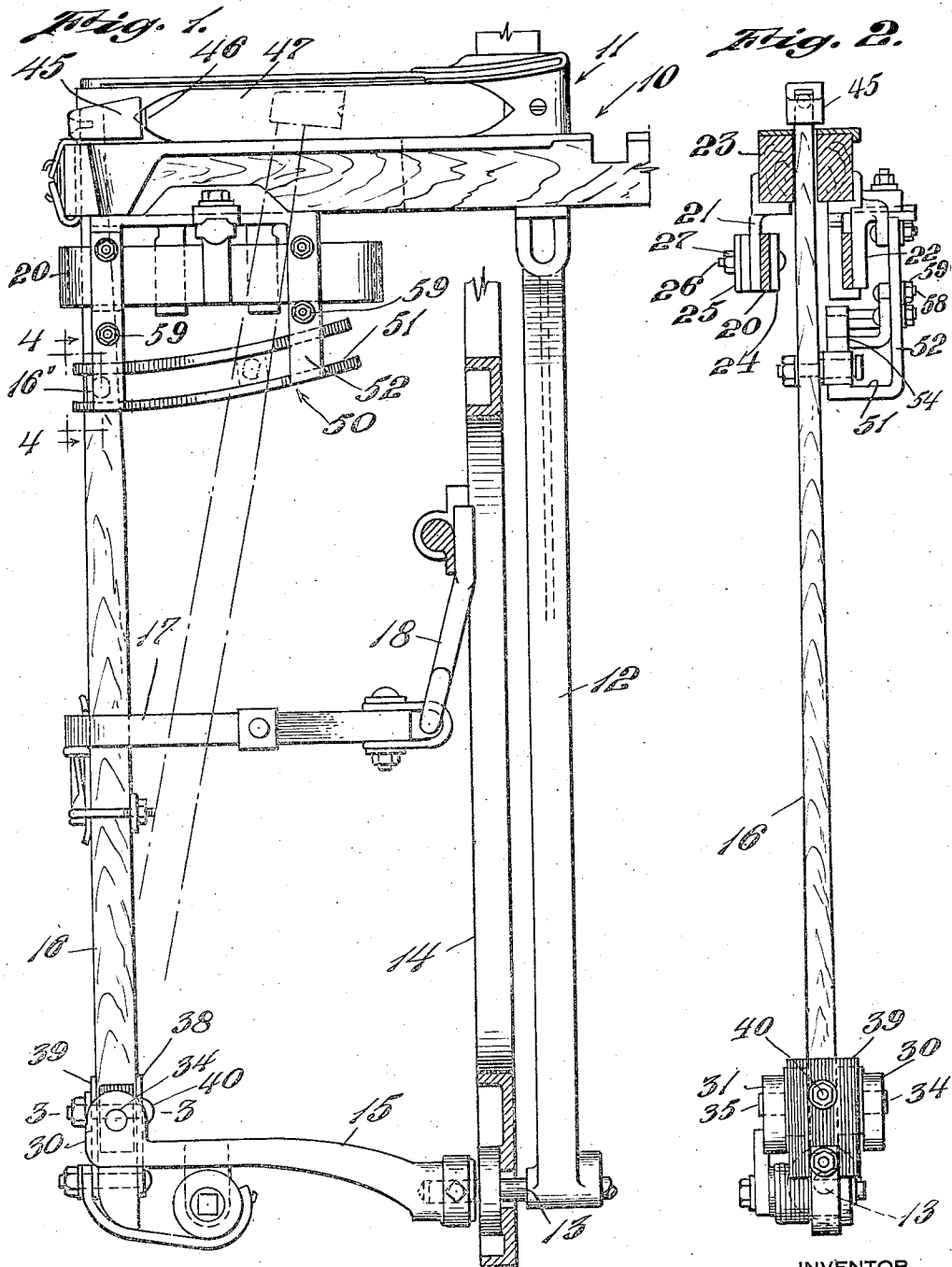
H. HOEBER

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SHUTTLE PROPELLING MECHANISM

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2 Sheets-Sheet 1



INVENTOR
Harold Hoerber
BY *Barlow & Barlow*
ATTORNEYS

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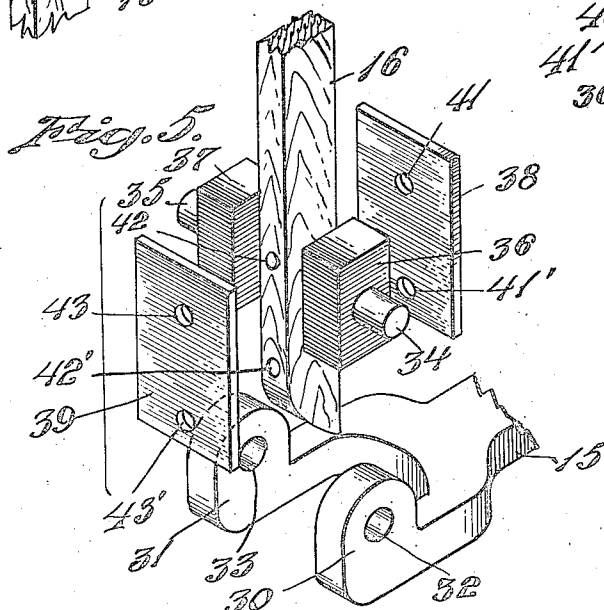
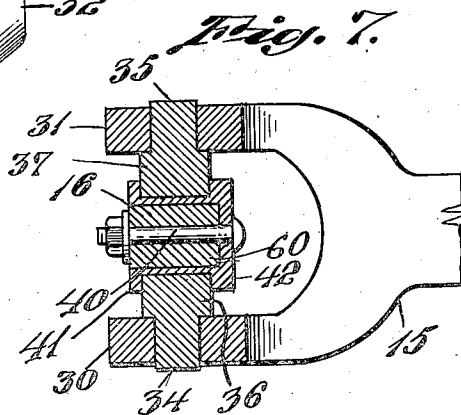
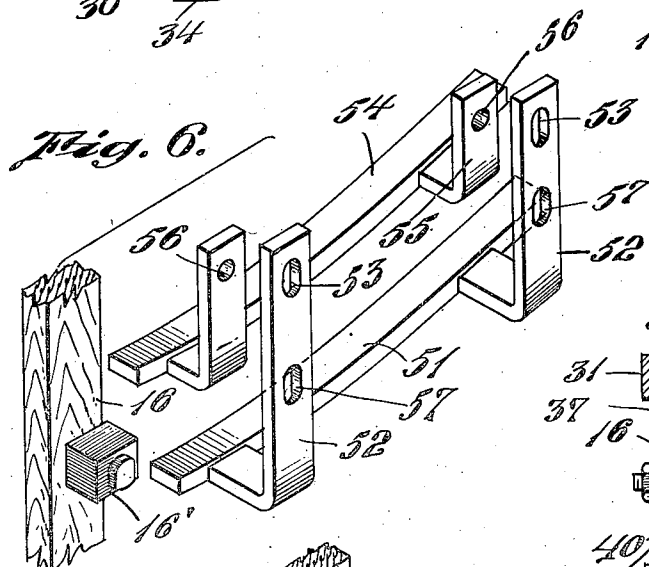
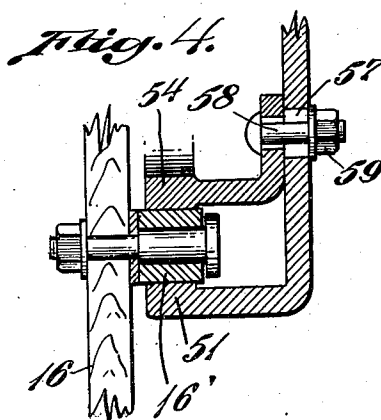
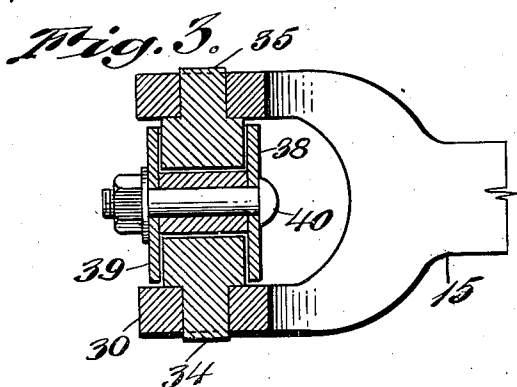
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SHUTTLE PROPELLING MECHANISM

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INVENTOR
Harold Hoerber
BY *Barlow & Barlow*
ATTORNEYS

UNITED STATES PATENT OFFICE

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SHUTTLE PROPELLING MECHANISM

Harold Hoeber, New Bedford, Mass.; Barbara O. W. Hoeber and William T. Read, executors of said Harold Hoeber, deceased, assignors to Textile Research Co., a corporation of Massachusetts

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10 Claims. (Cl. 139-149)

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This invention relates to a loom and more particularly to the propelling of the shuttle across the loom.

If a loom is to be operated at high speeds the movement of the shuttle across the loom is extremely important. It has been found that the speed at which a loom may operate is governed largely by the efficiency of guiding and propulsion of the shuttle back and forth across the loom, both from the standpoint of the cost of repairs and upkeep of the loom. The control of the picker stick is important and various controls have been provided. In some cases the holding of the picker stick down by a spring, so that it will not jump as it is rocked, has been attempted but this has not been satisfactory. Some more positive means is necessary in order to accomplish this result.

One of the objects of this invention is to cause the shuttle to be propelled across the loom in straight lines at right angles to each other such as in a horizontal plane and also in a vertical plane.

Another object of this invention is to provide propelling mechanism for a loom shuttle so that it may be boxed with little effort.

Another object of the invention is to provide a picker stick which may be adjusted lengthwise relative to its pivot as it is operated about its pivot and to guide the upper end of the picker stick in its movement so that the picker will follow the desired direction for propelling the shuttle.

Another object of this invention is to provide a guide for a picker stick which will have an arc as near a straight line as possible so as to reduce friction along its guiding surfaces.

A more specific object of the invention is to provide a guide which will have a single motion curve that there will be no reversal of movement of the picker stick as the picker progressively moves in one direction relative to the pivot about which it swings.

Another object of the invention is to reduce the weight at the lower end of the stick which may cause irregular movement of the stick.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a sectional view of a fragmental portion of a loom showing one end of the lay including the shuttle, picker stick and picker in the relative positions which they assume when the shuttle is boxed, also illustrating in dot-dash lines the movement of the picker stick;

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Fig. 2 is a sectional view through the lay and illustrating an edge view of the picker stick;

Fig. 3 is a section on substantially line 3-3 of Fig. 1;

Fig. 4 is a section on substantially line 4-4 of Fig. 1;

Fig. 5 is a perspective exploded view of the mounting of the picker stick on its pivotal support;

Fig. 6 is a similar perspective view of the guide; Fig. 7 is a sectional view similar to Fig. 3 but showing a modified construction.

In proceeding with this invention, I pivotally mount the picker stick in such a manner that it may be adjusted lengthwise so that the picker is its shortest length from the stick pivot at one part of its stroke and is a longer length from the pivot at another part of its movement to move the shuttle from the box to the discharge or open end of the shuttle box and I provide a guide which will cause the picker end of the stick to follow the desired path as it is swung about its pivot. This guide consists of a block on the picker stick and a track which is located on the lay and more closely adjacent to the picker than to the opposite end of the stick in order that a flatter curvature more nearly rectilinear may be provided for this guide.

With reference to the drawings, I have provided a lay 10 having a shuttle box 11, this lay being rockably mounted on the sword 12 secured on the rock shaft 13 which is journaled in the framework 14. A bracket 15 rocks with the shaft 13 and the lay and provides at its outer end a mounting for the picker stick 16 which carries a guide block 16'. The usual lug strap 17 is secured to the arm 18 to be actuated thereby in a usual manner.

Check strap 20 is suitably mounted on brackets 21 and 22 suspended from the lay beam 23. The strap is shown as secured by a clamp 24, with a plate 25, beneath nut 27 of bolt 26.

Bracket 15, see Fig. 5, is bifurcated at its end to provide a pair of ears 30 and 31 having openings 32 and 33 for the reception of trunnions 34 and 35 of blocks 36 and 37. The picker stick 16 has plates 38 and 39 bolted to it by means of bolts 40 passing through the registering openings 41, 42, and 43 in the plates and in the picker stick. Similar openings 41', 42' and 43' are also provided just below the openings 41, 42, and 43. By this arrangement the picker stick 16 may rock upon the pivots provided by the trunnions 34, 35 as an axis while the picker stick may slide in the direction of its length with reference to this pivotal axis so that it may move in the direction of its

length whereby the picker 45 may be moved toward and from the pivotal axis formed by the trunnions 34 and 35 and the openings 32 and 33.

The picker 45 is provided with a customary recess for the reception of the pointed end 46 of the shuttle 47. It is desired that the part of this recess which engages the pointed end on the shuttle will move the shuttle in each of two planes at right angles to each other for the propelling of the shuttle across the loom in a straight line and thus provide a parallel motion of this picker for the desired direction of travel of the shuttle.

In order to provide this desired direction of movement I positively guide the picker stick adjacent the upper end of the stick by a guide which is designated generally 50 (Fig. 1). This guide is slidably engaged by the block or follower 16' pivotally secured to the picker stick in an approved manner such as by a stud bolt extending through the follower and picker stick and secured in place by a nut, as more clearly shown in Fig. 4. The guide 50 consists of a lower track or raceway 51 (Fig. 6) suspended by brackets 52 from the lay through elongated openings 53 and attaching bolts passing through these openings. This enables this track or raceway to be vertically adjusted to the desired position. The upper track or raceway 54 is supported by brackets 55 which are attached to the brackets 52 through openings 56 which register with the slots 57 to be held by means of bolts 58 secured by nut 59. Slots 57 enable an adjustment of the upper track or raceway to be had toward and from the other track 51. The adjustment of track 51 regulates the height of the picker while the adjustment of track 52 regulates the clearance for the block 16' which moves between these tracks. These tracks are parallel as to their arc of curvature. The shape of the arc may be such that it is a single motion curve or one in which the picker progressively increases its distance from its pivot as the stick is swung from the vertical position shown in full lines in Fig. 1 to the right or toward the position shown in dot-dash lines. This usually provides a better movement than opposite motion of the stick toward and from its pivot, although a small movement toward the pivot may not be detrimental.

In Fig. 7 instead of using two plates, I have provided a channel 60 to receive the picker stick. The stick is held in the channel by a bolt 40. Flanges 41 and 42 extend from either side of the channel to slidably receive the blocks 36 and 37 and thus provide a metallic bottom as well as metallic guides at either side.

I claim:

1. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivoted mounting of said stick.

2. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivoted mounting of

said stick, said guide means being in the shape of a single motion curve.

3. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivoted mounting of said stick, said guide means being a curve shape to guide the picker away from its pivot.

4. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivoted mounting of said stick, said guide means being a curve shape to guide the picker away from its pivot in a single motion curve.

5. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means located vertically below the inner end of the shuttle box to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivotal mounting of said stick.

6. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means located vertically below the inner end of the shuttle box to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivotal mounting of said stick, said guide means being in the shape of a single motion curve.

7. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker stick and the lay beam to move the picker toward and from the pivotal mounting of said stick, said guide means being a curve shape to guide the picker away from its pivot.

8. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means located vertically below the inner end of the shuttle box to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivotal mounting of said stick, said guide means being a curve shape to guide the picker away from its pivot in a single motion curve.

9. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon adjacent one end, means to mount the other end of the picker stick for pivotal movement and for movement in the direction of its length, and guide means located adjacent the picker end of the picker stick and the lay beam to move the picker toward and from the pivoted mounting of

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said stick and means for adjustably mounting said guiding means.

10. In a shuttle propelling mechanism for a loom having a lay beam, a picker stick, a picker thereon, means to mount the picker stick for pivotal movement and for movement in the direction of its length, a guide carried by the lay beam, and means secured to the picker stick to engage said guide whereby the picker is directed

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in its movement, said guiding means comprising spaced plates, one of said plates being adjustable relative to the lay beam for adjusting the path of movement of said means and the other said plates being adjustable relative to the first plate to provide for the desired clearance of said means.

HAROLD HOEBER.