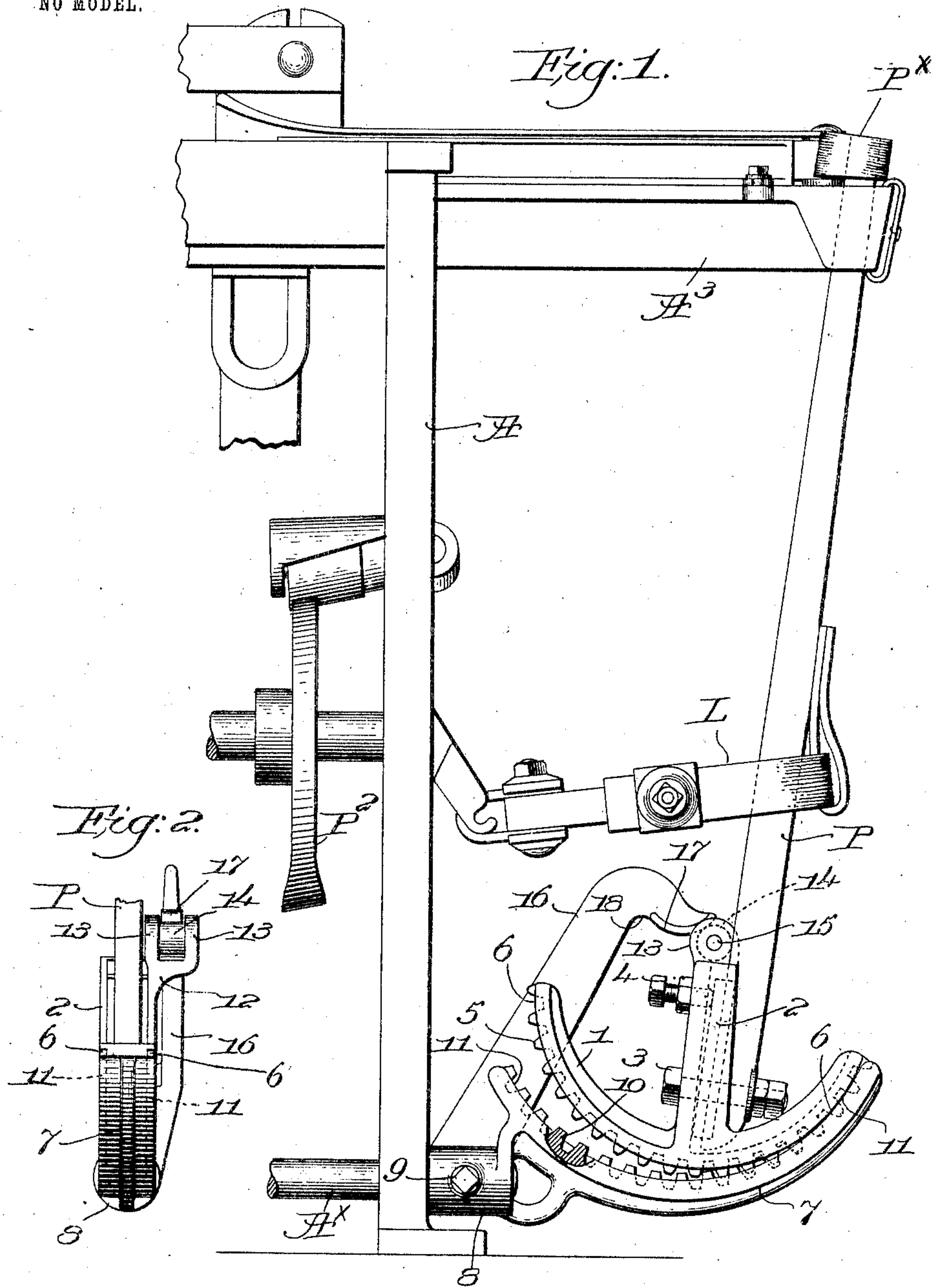


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PATENTED DEC. 6, 1904.

C. H. DRAPER.
PICKER STICK MOTION FOR LOOMS.
APPLICATION FILED AUG. 8, 1904.

NO MODEL.



UNITED STATES PATENT OFFICE.

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RATION OF MAINE.

PICKER-STICK MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 776,584, dated December 6, 1904.

Application filed August 8, 1904. Serial No. 219,826. (No model.)

To all whom it may concern:

Be it known that I, CLARE H. DRAPER, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Picker-Stick Motions for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a novel picker-stick motion for looms, whereby the picker is caused to move in a path substantially parallel to the raceway of the lay, such mechanism frequently being termed the "parallel motion." Such mechanism comprehends, broadly speaking, a stand or support mounted rigidly on the lay rocker-shaft and a shoe secured to the lower end of the picker-stick and having a segmental bearing face or sole to rock upon the support as the picker-stick is oscillated, the shape of the sole being such that the rising-and-falling movement of the picker is compensated for to cause the picker to travel substantially in a straight path. In my present invention I have made the bearing-face of the shoe curved to rock on a seat which is also curved, but of a different radius, one being concave and the other convex, giving a rolling contact. A species of rack-and-gear device is provided to prevent slip or relative movement, longitudinal or lateral, of the shoe and its support, and I have also provided a positively-acting down-hold to maintain the shoe in coöperation with its support.

The various novel features of my invention will be fully described in the subjoined specification, and particularly pointed out in the following claims.

Figure 1 is a front elevation of the right-hand side of a loom with one embodiment of my present invention applied thereto, and Fig. 2 is a right-hand end elevation of the parallel motion shown in Fig. 1.

The loom side A, lay A³, the picker-stick P,

provided with a picker P^x and movable in the usual slot in the lay, the lug-strap L, connecting the stick with the pick-motion, (partly shown at P², Fig. 1,) may be and are all of well-known or usual construction and operate in a manner familiar to those skilled in the art.

In the present embodiment of my invention the shoe comprises a curved or segmental portion 1, having an upright extension 2, to which the lower end of the picker-stick is attached by a bolt 3, the extension being recessed to receive the stick, the usual adjusting-screw 4 being also shown in Fig. 1. The convex under side or sole of the shoe 1 is provided with a central series of teeth, forming a segmental gear 5, and at each side thereof I have formed a convex bearing-face 6, said bearing-faces being parallel and circular arcs struck from the same center. Said bearing-faces are in the pitch-line of the teeth, forming the gear 5 in the present embodiment of my invention. The support or stand on which the shoe rocks is made as a curved member 7, having a hub 8, which is rigidly secured to the projecting end of the lay rocker-shaft A^x, Fig. 1, by a suitable set-screw 9. The upper side of the support is concave, and it has a central series of teeth forming a rack 10 to coöperate with the segmental gear 5 of the shoe, as will be clear from Fig. 1, and prevent slip or relative longitudinal movement of the shoe and support. At each side of the rack 8 a concave seat 11 is formed on the support, the seats being circular arcs struck from the same center, but of greater radius than the bearing-faces 6 of the shoe, as will be manifest from an inspection of Fig. 1. Said seats are in the pitch-line of the teeth, forming the rack 10. The faces 6 rest upon and roll on the seats 11 as the picker-stick is oscillated, and by reference to Fig. 1 it will be seen that when the stick swings inward from the extreme outward position shown the shoe and stick will descend until the stick is in substantially vertical position, thereby compensating for and neutralizing the normal rising tendency of the picker. After passing

the vertical position the stick and shoe rise as the stick completes its inward stroke, neutralizing the normal falling tendency of the picker, so that the latter is moved in a path substantially parallel to the raceway of the lay. This alternate descent and ascent of the shoe is due to the difference in the radii of curvature of the bearing-faces 6 and their seats 11, and as the shoe rolls upon the support the intermeshing of the rack and gear 10 5 prevents any slip of the shoe, thus forming a positive traveling connection between them. Inasmuch as the teeth of the rack and gear, respectively, project between the bearing-faces and the curved seats, it will be manifest that the shoe and its support cannot move laterally.

Ordinarily a spring is employed to maintain the shoe in engagement with the support and to prevent lifting of the shoe and picker-stick in its normal operation; but herein I have provided positively-acting means to effect this object. The extension 2 of the shoe has an offset 12, Fig. 2, bifurcated to present two upturned ears 13, between which a follower, shown as a roll 14, is mounted and preferably rotatable on a pin 15, supported in the ears. A rigid upwardly-extended and outwardly-inclined arm 16 is secured to or forms a part of the hub 8 of the support 7, said arm at its upper end having a cam-surface 17 formed thereon to overhang and cooperate with the roll 14. This cam-surface is downcurved or convex with relation to the roll and is a circular arc substantially concentric with the seats 11 of the support. As the shoe rocks the roll 14 travels along in contact with and beneath the cam-surface 17, the roll descending and rising with the shoe as said roll follows the surface of the cam, preventing any lifting of the shoe and maintaining it in rolling contact with the support. When the parts are in the position shown in Fig. 1, the picker-stick and shoe cannot rise, as the rack and gear prevent any outward movement of the shoe, while the downhold prevents any lifting which would tend to disengage the rack and gear. On its inward stroke the roll 14 will enter and be stopped by the concave portion 18 of the arm 16 at the inner end of the cam-surface 17.

The structure is strong and durable, easy to construct and assemble, the use of springs is obviated, and a wholly-positive and direct-acting mechanism is secured.

My invention is not restricted to the precise construction and arrangement shown and described, for the same may be modified in various details by those skilled in the art without departing from the spirit and scope of my invention.

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

1. In a device of the class described, a

picker-stick and an attached shoe having a curved bearing-face, a support having a curved seat upon which said shoe rocks and of a different curvature, means to prevent relative longitudinal movement of the shoe and its support and a positively-acting downhold to maintain said parts in rolling contact.

2. In a device of the class described, a picker-stick and an attached shoe having a convex, circularly-curved bearing-face, a support having a concave and circularly-curved seat of greater radius and upon which the bearing-face of the shoe rocks, means to prevent longitudinal slip of the shoe on its support, and a downhold for and to prevent lifting of the shoe from the support.

3. In a device of the class described, a picker-stick and an attached shoe having a circularly-curved bearing-face, a support having a curved seat upon which said shoe rocks and of a different radius, a rack-and-gear connection between said parts to prevent relative longitudinal movement thereof, and means to maintain said shoe and support in rolling contact.

4. In a device of the class described, a picker-stick and an attached shoe having a convex, circularly-curved bearing-face, a support having a concave and circularly-curved seat of greater radius and upon which the bearing-face of the shoe rocks, a rack on one of said members and a cooperating segmental gear on the other, to prevent longitudinal slip of the shoe on the support, and a positively-acting downhold for and to prevent lifting of the shoe from the support.

5. In a device of the class described, a picker-stick and an attached shoe having a central segmental gear on its sole, and parallel convex bearing-faces in the pitch-line of the gear-teeth, a support having a central rack to cooperate with the segmental gear and provided with concave, parallel seats in the pitch-line of the rack, and of greater radius than the bearing-faces of the shoe, said bearing-faces rolling on the seats, and means to prevent lifting of the shoe from said support and maintain it in rolling engagement therewith.

6. In a device of the class described, a picker-stick and an attached shoe having a circularly-curved bearing-face, a support having a curved seat upon which said shoe rocks and of a different radius, a rack-and-gear connection between said parts to prevent relative longitudinal movement thereof, and a downhold for the shoe, comprising a roll carried thereby and a cam-surface carried by the support and with which the roll cooperates.

7. In a device of the class described, a picker-stick and an attached shoe having a circularly-curved bearing-face, a support having a curved seat upon which said shoe rocks and of a different radius, a rack-and-gear connec-

tion between said parts to prevent relative longitudinal movement thereof, and a downhold for the shoe, comprising a roll carried thereby and a convex cam-surface carried by the support and substantially concentric with the curved seat thereof, the roll traveling upon said cam-surface as the picker-stick is oscillated.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLARE H. DRAPER.

Witnesses:

WILLA E. CHARLOT,
GEORGE OTIS DRAPER.