

G. F. HUTCHINS & L. B. JENCKES.
 PICK MOTION FOR LOOMS.
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1,164,094.

Patented Dec. 14, 1915.
 2 SHEETS—SHEET 1.

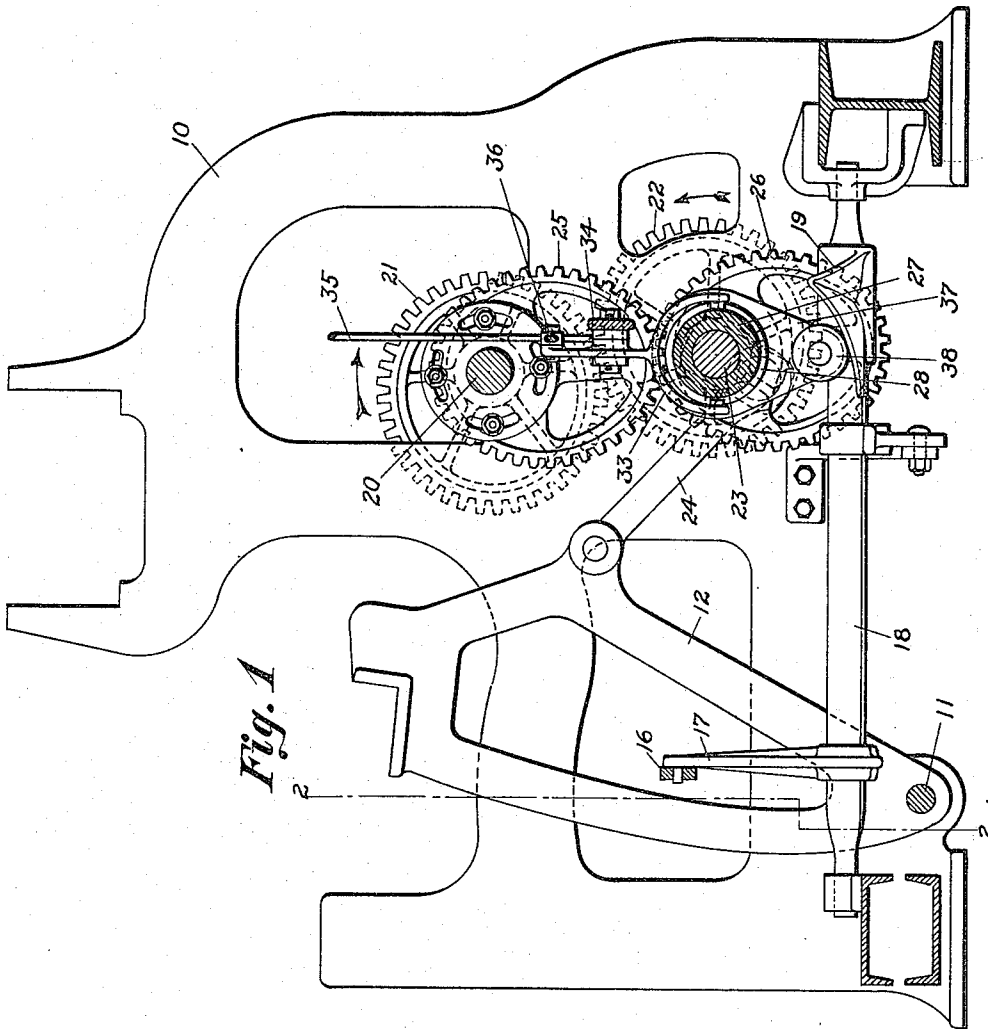


Fig. 1

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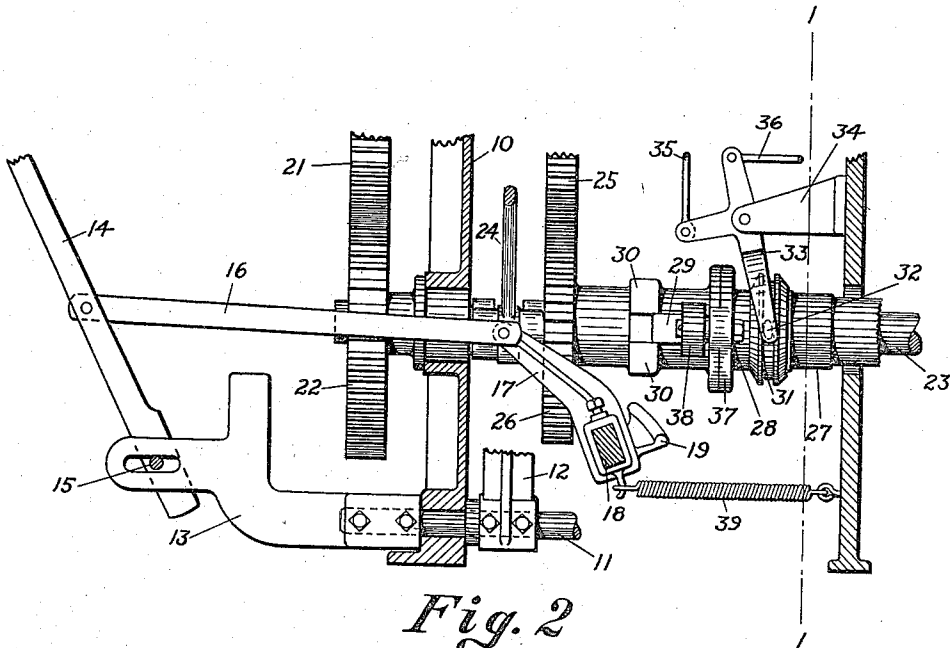


Fig. 2

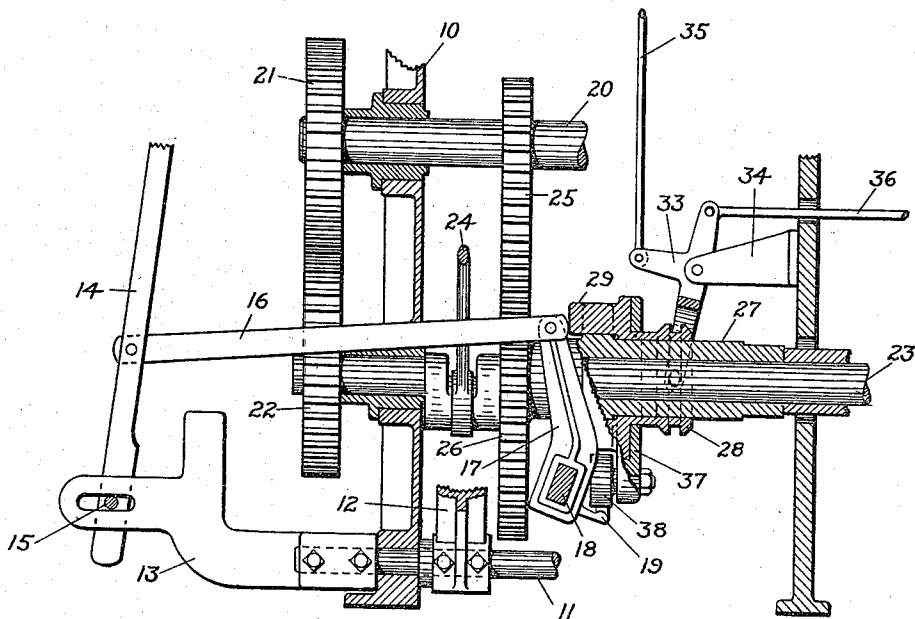


Fig. 3

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UNITED STATES PATENT OFFICE.

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PICK-MOTION FOR LOOMS.

1,164,094.

Specification of Letters Patent.

Patented Dec. 14, 1915.

Application filed April 9, 1915. Serial No. 20,323.

To all whom it may concern:

Be it known that we, GEORGE F. HUTCHINS and LAWRENCE B. JENCKES, citizens of the United States, both residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Pick-Motion for Looms, of which the following is a specification.

This invention relates to a pick motion for looms, especially adapted for use upon very wide slow-moving looms. In such looms, in which the flight of the shuttle sometimes exceeds 40 feet, the movement of the lay is necessarily slow in order to permit proper boxing of the shuttle, while at the same time a sharp positive pick of the shuttle is also essential.

It is the object of our invention to provide a pick motion which will permit slow movement of the lay while at the same time providing the necessary speed of operation for the pick actuating devices.

With this object in view our invention relates to certain devices, arrangement, and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings in which—

Figure 1 is a sectional elevation of a loom taken along the line 1—1 in Fig. 2; Fig. 2 is a partial longitudinal sectional view taken substantially along the line 2—2 in Fig. 1, the lay sword being omitted; and Fig. 3 is view similar to Fig. 2 but showing additional parts in section and also showing the parts in a different position.

Referring to the drawings, the loom side 10 supports a rock shaft 11 upon which are mounted the lay swords 12. A bracket 13 is secured to the end of the shaft 11, the picker stick 14 being adjustably pivoted at 15 on said bracket. The usual connector 16 is pivoted at one end to the stick 14 and at the other end to the picker actuating arm 17, mounted upon a cross shaft 18. The shaft 18 is provided with a cam-shaped projection 19 adapted to cooperate with suitable actuating devices to be described.

The loom frame 10 is provided with bearings for the main driving shaft 20 from which the several motions of the loom are derived. The shaft 20 is driven at constant speed and connections (not shown) are pro-

vided for operating the head motion therefrom. At its outer end, the shaft 20 carries an eccentric gear 21 which meshes with a second eccentric gear 22 mounted upon the crank shaft 23, also rotatable in bearings supported by the loom frame 10. The crank shaft 23 actuates the lay swords through a plurality of connecting rods 24. The shaft 20 is also provided with an eccentric gear 25, meshing with a corresponding gear 26 secured to a bushing 27 rotatable upon the crank shaft 23. A sleeve 28 is slidably mounted upon the bushing 27 and is provided with an extension 29 positioned between lugs 30 projecting from the bushing 27. The sleeve 28 may thus be moved longitudinally upon the bushing 27, while at the same time relative rotation is prevented. For determining the longitudinal position of the sleeve, the latter is provided with a circumferential groove 31 which receives pins 32 carried by the forked arm of a bell crank 33 pivoted upon a fixed bracket 34. The bell crank is actuated by a rod 35 which is connected at its upper end to the head motion of the loom, the head motion moving in timed relation with the crank shaft and furnishing a convenient point from which to control the axial movement of the sleeve 28. It will be evident that this axial movement could if desired be obtained more directly from the crank shaft by the provision of suitable intermediate connections. A vertically extending arm of the bell crank 33 may be connected by a horizontal rod 36 to a corresponding bell crank which positions a similar sleeve at the opposite side of the loom.

The sleeve 28 has a flange 37 upon which is mounted a picker actuating roll 38. When the sleeve 28 is in the position shown in Fig. 2, the roll 38 can not engage the projection 19, but when the sleeve is moved to the left, as shown in Fig. 3, the roll engages the cam-shaped projection and actuates the picker stick through the shaft 18, the connecting rod 16, and the actuating arm 17. A spring 39 is provided for returning the picker stick to rearward position.

At the time when the pick mechanism operates, the crank shaft 23 moves relatively slower than the driving shaft 20, while at the same time the bushing 27, sleeve 28 and roll 38 move relatively faster. The actual

speed ratio of the crank shaft and bushing at the moment of picking is substantially one to three. This gives a slow movement of the lay during the long flight of the shuttle and a sharp positive pick to the shuttle.

Having thus described our invention, it will be evident that changes and modifications can be made therein by those skilled in the art without departing from the spirit and scope thereof as set forth in the claims, and we do not wish to be otherwise limited to the details herein disclosed, but

What we claim is:—

1. In a loom, in combination, pick mechanism, a driving shaft, a crank shaft, a bushing rotatable on said crank shaft, a sleeve slidable on said bushing but non-rotatable relatively thereto, a picker-actuating device carried by said sleeve, means to move said sleeve longitudinally on said bushing in timed relation to the rotation of the crank shaft, and driving connections from said driving shaft to said crank shaft and to said bushing respectively, effective to rotate the picker-actuating device in the same direction as the crank shaft, but at substantially greater speed at the time when it is brought into operative relation with the pick mechanism.

2. In a loom, in combination, pick mechanism, a driving shaft, a crank shaft, a bushing rotatable on said crank shaft, a sleeve slidable on said bushing but non-rotatable relatively thereto, variable speed driving connections from said driving shaft to said crank shaft and to said bushing respectively, a picker-actuating device carried by said sleeve, and means to move said sleeve longitudinally on said bushing in timed relation to the rotation of the crank shaft, said driving connections and said means being so related that the picker-actuating device moves substantially three times as fast as the crank shaft at the moment of engagement with said pick mechanism.

3. In a loom, in combination, a picker-actuating arm, a cross-shaft supporting said arm and having a projection thereon, a driving shaft, a lay, a crank shaft connected to move said lay, a bushing rotatable on said crank shaft, a sleeve slidable on said bushing but non-rotatable relatively thereto, eccentric gearing connecting said driving shaft to said crank shaft and to said bushing respectively, a picker-actuating device carried by said sleeve, and means to move said sleeve longitudinally in timed relation to the rotation of said crank shaft, whereby said actuating device is periodically moved into operative relation with the projection on said cross-shaft, said device engaging said projection when the crank shaft and bushing are moving at substantially their minimum and maximum speeds respectively.

4. In a loom, in combination, pick mechanism, a driving shaft, a crank shaft, a bushing rotatable on said crank shaft, a sleeve slidable on said bushing but non-rotatable relatively thereto, driving connections from said driving shaft to said crank shaft and to said bushing respectively, a picker-actuating device carried by said sleeve, and means to move said sleeve longitudinally on said bushing in timed relation to the rotation of the crank shaft, said driving connections and said means being so related that the picker-actuating device rotates at substantially greater speed than the crank shaft upon which it is mounted at the time when it is brought into operative relation with the pick mechanism.

In testimony whereof we have hereunto set our hands, in the presence of two subscribing witnesses.

GEORGE F. HUTCHINS.
LAWRENCE B. JENCKES.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."