(No Model.) 2 Sheets—Sheet 1.

L. L. ALLEN.

PICKER OPERATING MECHANISM FOR LOOMS.

No. 464,908. Patented Dec. 8, 1891.

Fig. 1

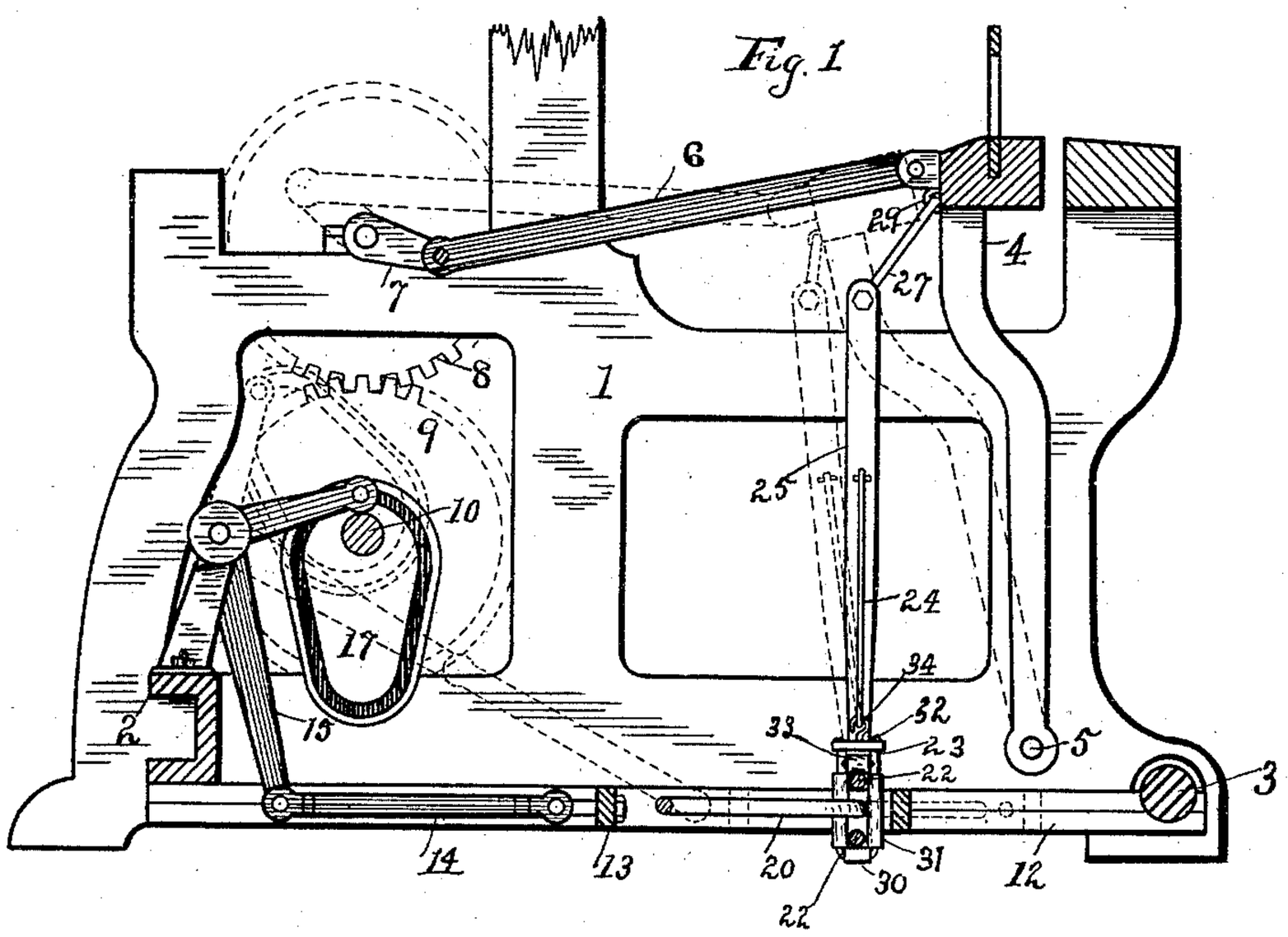
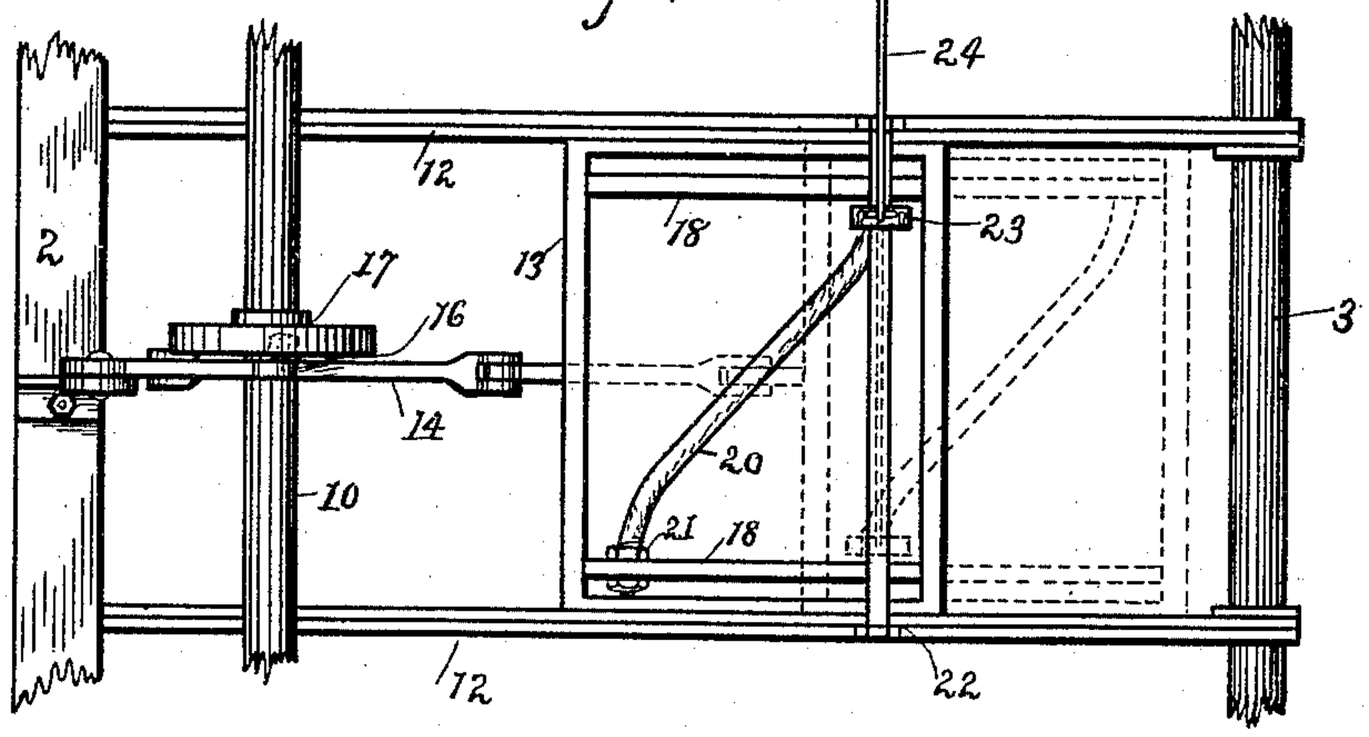


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

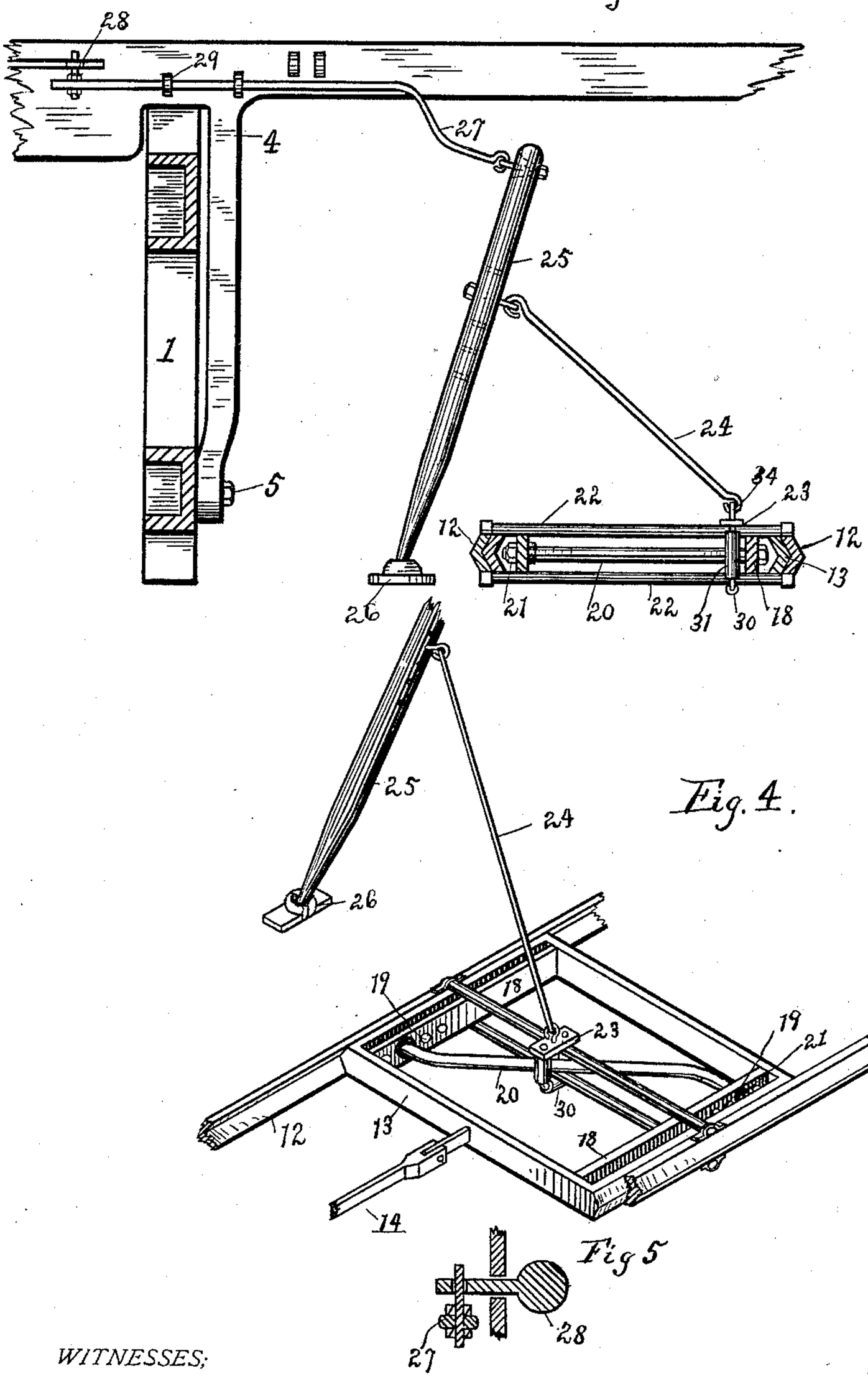

Fig. 4.

Fig 5

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UNITED STATES PATENT OFFICE.

LEONARD L. ALLEN, OF ROCHESTER, NEW YORK.

PICKER-OPERATING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 464,908, dated December 8, 1891.

Application filed December 26, 1890. Serial No. 375,797. (No model.)

To all whom it may concern:

Be it known that I, LEONARD L. ALLEN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Picker-Operating Mechanism for Looms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures of reference marked thereon.

My present invention has for its objects to provide an improved device for operating loom-pickers, whereby not only will the parts be contained in smaller space and the pickers operated with less noise than heretofore, but the movement of the pickers can be regulated to a nicety and started and stopped gradually or abruptly, as may be desired.

The invention has further for its objects to provide a cheap serviceable device that shall be simple in construction and easily applied to looms now in use, if desired, without material alteration; and to these ends it consists in certain novelties of construction and combinations of parts, all as will be hereinafter fully described, and the novel features pointed out particularly in the claims at the end of this specification.

In the drawings, Figure 1 is a vertical section of a loom, taken near one end and showing the application of my invention, the picker-actuating frame being shown in section. Fig. 2 is a plan view of the picker-actuating frame; Fig. 3, a sectional view showing the lay moved back; Fig. 4, a perspective view of the actuating-frame, and Fig. 5 a section of a detail.

Similar figures of reference indicate similar parts.

I have not deemed it necessary to show all the operative parts of a loom in the accompanying drawings, but only so much thereof as will exhibit clearly one means of carrying out my invention, nor to show but one picker-actuating mechanism, the one on the other end of the lay being in all respects the same.

Referring to the drawings, the figure 1 indicates one end of a loom-frame of the ordinary or any preferred construction; 2, a cross-beam; 3, a cross-shaft or tie-rod, and 4 the lay, pivoted at 5 and oscillated, as usual, by a pitman 6 from a shaft bearing a crank 7, and to which is connected a gear 8, meshing with gear 9 on a shaft 10, which latter may be the driving-shaft or a driven shaft, if desired.

In the present construction I prefer to locate the picker-actuating mechanism forming the subject-matter of the invention inside the main loom-frame, and preferably upon or near the lower part thereof out of the way.

Secured to the cross-beam 2 and rod 3 in the present embodiment are the two plates or bars 12, forming V-shaped ways, in which is arranged a frame 13, adapted to be reciprocated back and forth by a pitman 14, connected to one arm of a bell-crank lever 15, pivoted on a bracket on cross-beam 2, the other arm of said lever being provided with a friction-roller 16, arranged in a groove in the face of cam 17, secured to the shaft 10, the parts and cam being so arranged that at each revolution of the shaft 10 the lay will be moved forward to beat up the weft and the frame 13 moved forward and back. The extreme outer sides of the frame 13 are formed by bars shaped, preferably, to correspond with the ways in which the frame reciprocates, and just inside these side pieces are arranged plates 18, each provided with a series of perforations 19 near one end, through which project the ends of a rod 20, provided, preferably, with threaded ends and extending diagonally across the frame; but said rod, instead of being straight, I prefer to curve slightly in the construction shown; but this curve and the angle and shape of the rod can be changed, as desired, by bending it and adjusting the ends in the apertures in plates 18, where they may be secured by suitable devices—such as nuts 21—arranged on opposite sides of the plates, as shown.

Secured to the ways for the frame are suitable transversely-extending guide-rods 22, forming ways for a sliding cross-head 23, connected by a link 24 to the picker-stick 25, supported on a suitable universal connection 26, said picker-stick being connected by a rod 27 with the picker 28, operating in the slotted end of the lay, as usual. The rod 27 is arranged to slide in eyes or staples 29 on the

back of the lay, and the connection between it and the picker-stick is formed by passing it through an aperture enlarged on the outer side, as shown in dotted lines, Fig. 3.

The cross-head 23, which embraces the guides 22 and the rod 20, is preferably formed, as in Fig. 1, of a staple-shaped lower portion having the friction-roller 30 on its lower transverse bar and the vertical rollers 31 on the legs, said lower roller operating against the lower guide-rod and the rollers 31 against the sides of all three rods. The upper portion of the cross-head consists of a plate 32, having a friction-roller 33 arranged in bearings on its lower side, which operates on the upper guide-rod, said plate being secured to the ends of the staple-legs by nuts and being further provided on its upper side with a loop or eye 34, to which the link 24 is connected, as shown.

While in the present embodiment I have shown and described a specific construction of the cross-head, I do not desire to be confined to this form, as others could as well be devised which would answer the purpose equally well; but the present construction of parts I have found to be admirably adapted for the purpose.

The cam operating the picker-actuating mechanism on the other side of the loom from that herein shown is arranged in the same position relative to the lay-oscillating devices—that is to say, while the lay is moved forward to beat up the weft the rollers on the ends of the bell-crank lever are in those portions of the cam-tracks concentric with the shaft and with the pickers at the outward portion of the shuttle-box at rest, as shown in Fig. 1; but as the cams revolve the eccentric parts of the cams, which occupy but a small part of the circle, move the bell-crank levers and reciprocate the frame 13 forward, as in dotted lines, and back quickly, the rod 20 causing the cross-heads and consequently the pickers to move in and out rapidly, driving the shuttle from its contained box across the lay, as will be understood, this operation being repeated as rapidly as desired. Of course the cams 17, operating the picker-actuating frame, may have as many eccentric portions as desired, so as to cause two or more movements of the picker at each oscillation of the lay, and the pickers at each end may be actuated relatively, as desired, without departing from the spirit of my invention.

By the employment of a rod 20 for operating the picker, the shape of which may be changed by simply removing it from its frame and bending it, I am enabled to give the picker any motion desired, either fast at the commencement of the stroke and gradually decreasing in speed or slow at first and then more rapid, as will be understood.

It will be noted, also, that while in my present construction I have shown the actuating-rod 20 and its frame inside the lower frame, which I do in order to economize room, necessitating the employment of the mechanism shown or its equivalent for transmitting the motion to the picker at the lay ends, it is obvious that it could be placed in any other position desired and other means employed for transmitting the motion of the cross-head actuated by it to the picker; also, that instead of actuating the frame 13 directly from the cam the parts could readily be turned at right angles to the position shown and the cross-head actuated by the cam, while the frame carrying the rod could be connected directly to the picker-stick, such modification being a mere rearrangement of the parts and so obvious that its illustration herein is deemed unnecessary.

One of the most desirable features of the invention being a rod or staff actuating piece arranged and preferably adjustable in a movable carrying-frame, it is immaterial whether this adjustment is accomplished by adjusting one or both ends or by changing the shape of the actuating-piece, which latter in the present construction is a rod capable of being bent. Instead of making the actuating-piece in a measure flexible, or even adjustable, it could be made rigid and new ones of different shape inserted, when desirable or necessary, to cause a different motion for the picker.

I claim as my invention—

1. In a loom, the combination, with a reciprocating frame having a diagonal rod thereon, of a head arranged to move in guides extending transversely of said frame, and a picker connected to said head, substantially as described.

2. In a loom, the combination, with a reciprocating frame, of a rod extending across it diagonally, having one end adjustably secured to said frame, a head engaging said rod, arranged to move in guides transversely of said frame, and a picker connected to said head, substantially as described.

3. In a loom, the combination, with a reciprocating frame, of a rod extending diagonally across said frame and having both ends adjustably connected thereto, a head engaging said rod, arranged to move in guides transversely of said frame, and a picker connected to said head, substantially as described.

4. In a loom and as a means for transmitting motion to the picker, the combination, with a frame adapted to be reciprocated, and a rod or guide extending at an angle to the plane of motion, of a reciprocatory head engaging said rod, guides for said head, and actuating devices for reciprocating one of said parts, substantially as described.

5. In a loom, the combination, with the frame having the adjustable diagonal rod, of the head engaging said rod and guides therefor, the picker, and actuating devices for operating the picker through the frame and head, substantially as described.

6. As a means for causing the operation of a loom-picker and in combination therewith,

a frame having a diagonal adjustable rod and a cross-head engaging the rod, and devices, substantialy as described, for moving one of said parts, and thereby actuating the other in a plane at right angles thereto, as set forth.

7. In a loom, the combination, with the frame sliding in ways and the diagonal rod therein, of the guide-rods, the head sliding thereon, the picker, and connections between said head and picker, and a cam reciprocating the frame, substantiallly as described.

8. In a loom, the combination, with the frame sliding in ways and the diagonal rod therein, the shaft having the cam, and the lever actuated by the cam and connected to the frame, of the cross-head engaging the rod on the frame, and the picker connected to the said head, substantially as described.

9. In a loom, the combination, with the pivoted lay, the picker operating therein, and the pivoted picker-stick connected thereto, of the sliding cross-head connected to the picker-stick, and stationary guides for the same, the reciprocating frame having the diagonal rod, and actuating devices for reciprocating said frame, substantially as described.

10. The combination, with the way and the frame sliding therein having the diagonal rod, of the transverse guides, the head sliding thereon and engaging the rod on the frame, actuating devices for reciprocating the frame, and a picker connected to the head, substantially as described.

11. The combination, with the way and the frame operating therein having the diagonal rod, of the transverse guide-rods, the head sliding thereon having the friction-rollers engaging the diagonal rod, actuating devices for reciprocating the frame, and a picker connected to the head, substantially as described.

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