No. 688,573. Patented Dec. 10, 1901.

B. F. S. AUSTIN.

PICKER STICK OPERATING MECHANISM.

(Application filed June 25, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

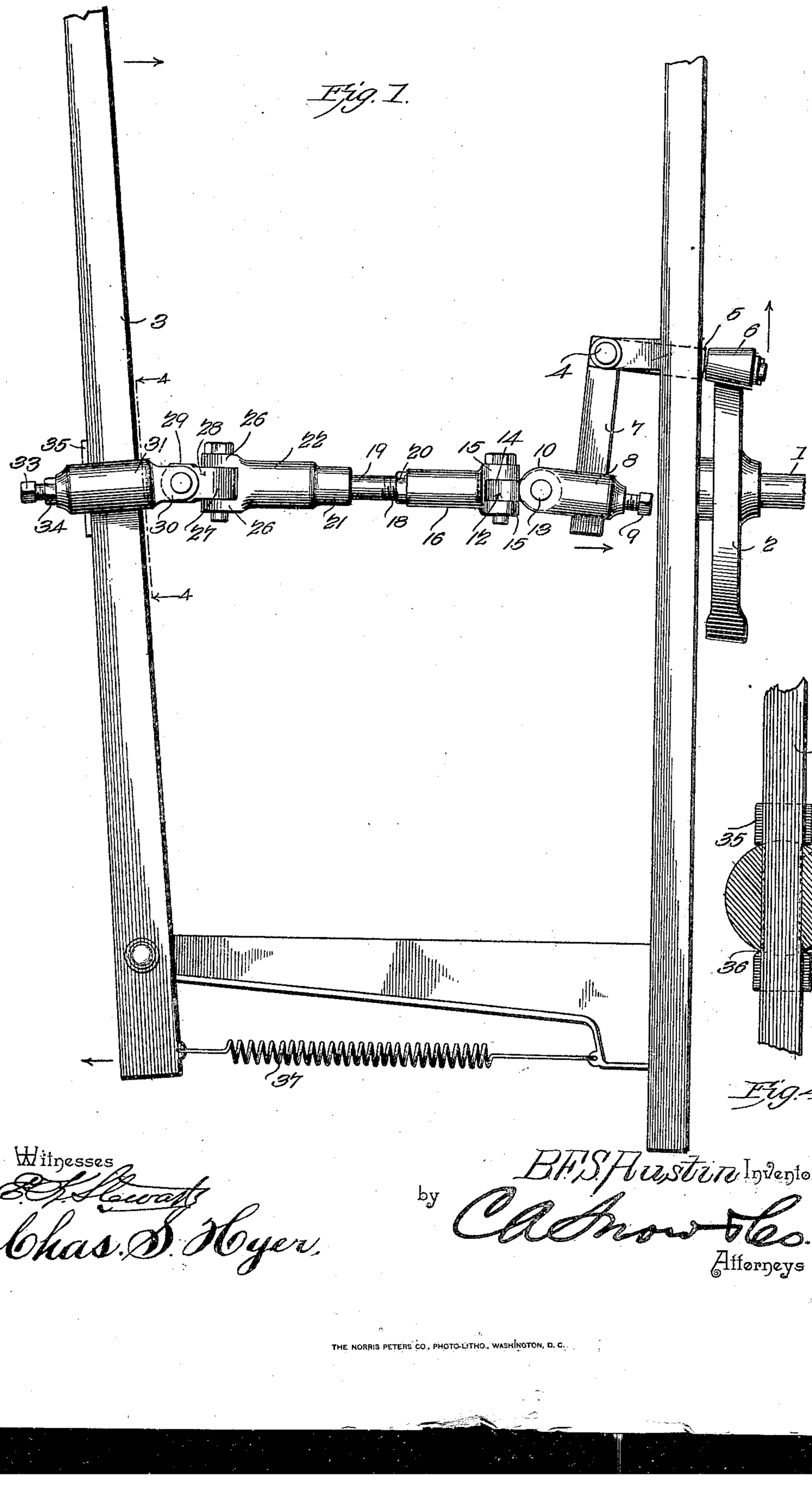

Fig. 4.

Witnesses
E. F. Stewart
Chas. D. Hoyer.

B. F. S. Austin Inventor
by C. A. Snow & Co.
Attorneys

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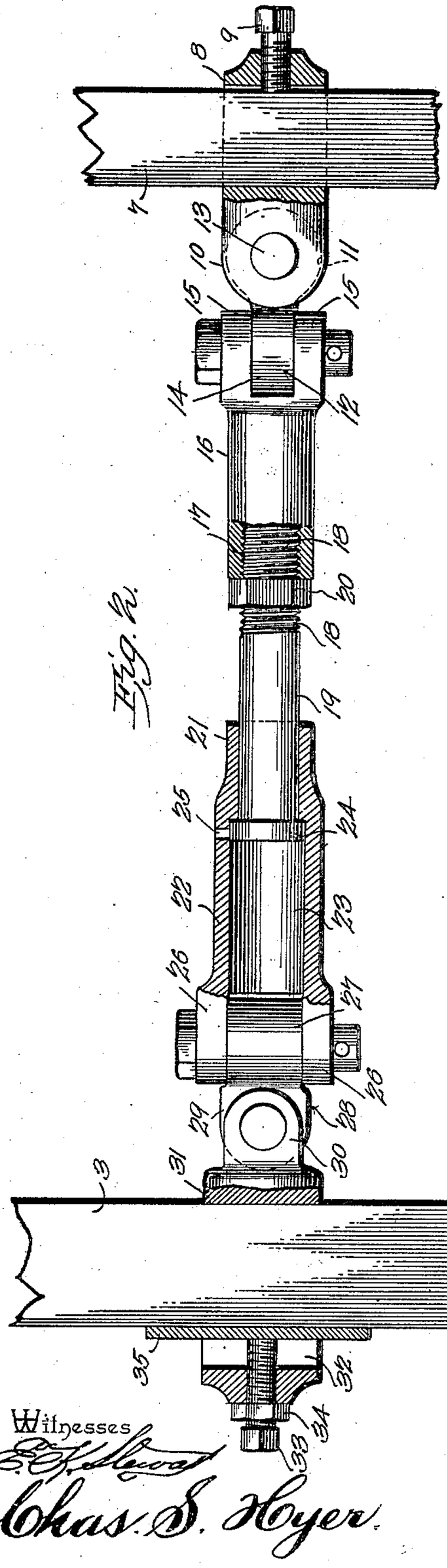

Fig. 2.

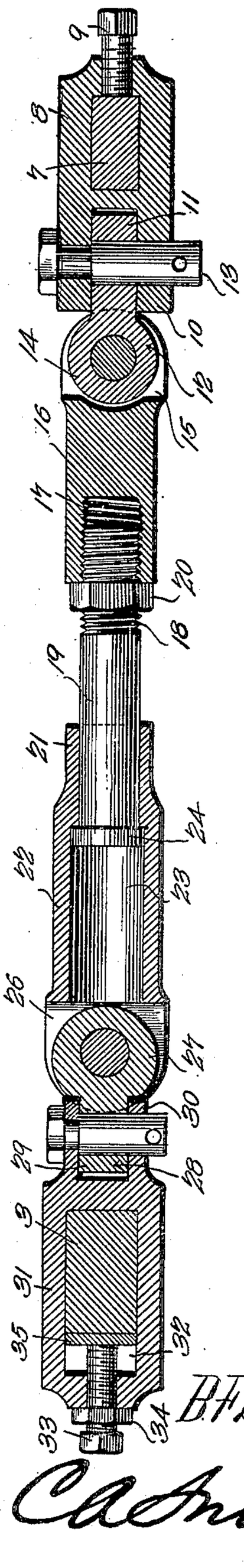

Fig. 3.

Witnesses
E. C. Edwards
Chas. S. Hoyer.

Inventor
B. F. S. Austin
by Church & Co.
Attorneys

UNITED STATES PATENT OFFICE.

BINGHAM F. S. AUSTIN, OF GASTONIA, NORTH CAROLINA.

PICKER-STICK-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 688,573, dated December 10, 1901.

Application filed June 25, 1901. Serial No. 65,989. (No model.)

To all whom it may concern:

Be it known that I, BINGHAM F. S. AUSTIN, a citizen of the United States, residing at Gastonia, in the county of Gaston and State of North Carolina, have invented a new and useful Picker-Stick-Operating Mechanism, of which the following is a specification.

This invention relates to picker-stick-operating mechanism; and the object of the same is to provide a simple and effective organization of connecting devices between the pick-lever mechanism and the picker-stick which will cause the latter to have a positive action, will run indefinitely without attention, as there is no part to stretch or give way, as is the case in similar devices using leather, canvas, and wood-block connections, and when once adjusted will require no attention of loom-fixers, and thereby materially reduce the expense of this class of mechanism.

Another and very important advantage in the present form of operating mechanism is that the picker-sticks are strengthened and the latter have a longer life and give better service, as the clamp used around the picker-stick is of such construction that it will be impossible for the stick to split at or near the point of engagement therewith. There is no rubbing or friction of straps around the sticks, as in many constructions now in use, in order to obtain a check on the sticks to assist in checking the speed of the shuttle as it enters the box. The check in the present instance is obtained between the picker-stick and pick-lever by means of a plunger, the amount of the check being regulated by an interposed spring attached to the heel of the picker-stick. The improved mechanism will operate with more directness with less power, as it cannot vary in view of its constancy of adjustment, and with the same amount of applied power, as compared with the present constructions it gives a quicker and clearer shot to the shuttle, because when the power enters it comes like a flash and cannot lean from the force of the blow of the cam. By the use of the improved construction it is possible to run one-third to one-half more looms with the same attention as is now required in running a less number of looms, and the power of the blow of the picker-stick can be regulated in considerably less time than it requires to adjust the ordinary picker-strap.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a portion of the picker-stick-operating mechanism, the picker-stick, and the intermediate improved mechanism. Fig. 2 is a longitudinal sectional elevation of the improved mechanism on an enlarged scale and a portion of the picker-stick and rock-shaft arm. Fig. 3 is a horizontal section taken through the parts shown by Fig. 2. Fig. 4 is a transverse vertical section on the line 4 4, Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates the cam-shaft, having cams 2 thereon appropriately arranged to communicate the working strokes to the picker-sticks at opposite sides of the loom, one of said cams being shown in the present instance to coöperate with one of the picker-sticks 3. Adjacent to the cam-shaft 1 is the usual rock-shaft 4, having a radius-arm 5, with a truncated conical roller 6 or pick-boll on the free end thereof which bears on the cam 2, and through the medium of the cam, radius-arm, and roller or boll the proper motion is imparted to the rock-shaft to actuate the picker-stick. The rock-shaft also has a radius-arm 7, substantially in a plane at a right angle to the arm 5, which is adjustably mounted in an inner vertically-slotted clamp 8, having a clamping or set screw 9, longitudinally movable in the inner end thereof to engage the said arm and maintain a reliable connection or securement of the latter to the clamp. The outer bifurcated end of the clamp, as at 10, has the vertical eye 11 of a coupling 12 pivotally held therein by a bolt 13, and the front horizontally-disposed eye 14 of said coupling is pivotally attached to the rear bifurcated end 15 of a union 16, having its outer extremity formed with a longitudinally-extending threaded bore 17. The rear screw-threaded extremity 18 of a plunger 19 is adjustably mounted in the said threaded bore 17 of the union 16, the latter thus serving as a

carrier or holder for the plunger, and to maintain the degree of adjustment of the plunger as desired the said extremity 18 thereof also has a jam-nut 20 thereon, which is adapted to be turned up against the outer end of the union. The plunger leads outwardly from the inner tubular neck 21 of a plunger-casing 22, the latter having a longitudinally-extending chamber 23, in which the headed end 24 of the plunger has movement. The tubular neck 21 communicates with the rear of the said chamber, and the stroke of the plunger is limited in the chamber by striking the front and rear internal structures of the latter. To ease the movement of the plunger in the chamber, the latter is provided with a lubricating-aperture 25, and by the introduction of a lubricant to the chamber wear on the casing will be avoided.

The front end of the plunger-casing 22 is formed with a horizontal bifurcation 26, and in the latter the horizontal eye 27 at the rear of a coupling 28 is pivotally mounted, said latter coupling having an outer vertical eye 29, pivotally held in the rear vertical bifurcation 30 of a picker-stick clamp 31. This clamp 31 has a slot 32 extending vertically therethrough, which is longer than the width of the picker-stick 3 and of such width as to cause the latter to be closely embraced. In the outer end of the clamp 31 a longitudinally-adjustable clamping-screw 33 is mounted and provided with a jam-nut 34 to maintain its adjustment, the inner end of the said screw being brought to bear against a clamping-plate 35, which directly contacts with the adjacent outer edge of the picker-stick, and thus extends the binding effect of the screw 33 and prevents injury to the portion of the picker-stick engaged. The plate 35 is held in the clamp 31 against slipping movement by reducing the intermediate opposite side edge portions 36 thereof to approximately the width of the slot of the clamp 31 and having the upper and lower portions of the said plate of greater transverse extent than said clamp-slot. It will be seen that the clamp 31 and the parts related thereto engage the picker-stick in such manner as to reinforce it and prevent the end from splitting, and to regulate the stroke of the stick the clamp 31 may be easily raised or lowered thereon and the plunger-casing, plunger, and plunger-holder be still retained in normal position, owing to the outer coupling 28, or rather the pivotal connection between the latter and the clamp 31, which will readily accommodate the depression or elevation, respectively, above and below the horizontal plane of the plunger and the parts intimately related to the latter.

The clamp 8 can also be adjusted on the arm 7 without disturbing the horizontal position of the plunger, plunger-casing, and plunger-holder, and, in fact, the parts can assume an angle of inclination without jamming the plunger or interfering with its operation. The horizontal play or swaying movement of the arm 7 and the picker-stick is permitted by the horizontally-disposed portions of the couplings connected to the casing or the holder, said couplings moving laterally. In fact, the flexibility of the ordinary leather or canvas straps, which is desirable, is resident in the improved operating mechanism without the frailty and impositive character of the adjustment of said straps, as well as many other disadvantages incidental to the use of the latter. Between the lower portion of the picker-stick and the adjacent part of the frame of the loom (not shown) a heel-spring 37 will be interposed and terminally attached to said picker-stick and frame, which will operate in a well-known manner for an obvious purpose.

In the operation of the device the cam 2, having rotated to such a degree as to cause the rock-shaft to be moved to throw the radius-arm 7 inwardly, will set up a pull on the plunger and the casing of the latter, said pull being transmitted to the picker-stick 3 to impel the shuttle. This pulling action will be exerted against the action of the spring 37, and when the cam relieves the rock-shaft the several parts will resume normal position without jar, as the plunger will slide in its casing. The sensitiveness of the operation of the improved mechanism will be controlled by adjusting the plunger. It will also be seen that the mechanism embodying the invention can be easily applied or detached and is of a strong and durable nature.

The plunger-head has a play or movement of about one and one-half inches in order to allow the picker-stick as much as two and one-half inches check, if necessary, to assist in checking the speed of the shuttle as it enters the box to prevent said shuttle from rebounding in the latter. The amount of check is regulated to suit the requirement and operation of the loom by the tension of the heel-spring. There will be no lost motion, because the construction and operation of the mechanism are so near a degree of perfection that it cannot give way.

Having thus described the invention, what is claimed as new is—

1. A picker-stick-operating mechanism having an inner clamp, a union movably attached to the inner clamp to have both a vertical and horizontal movement in lateral planes, a plunger adjustably connected to the union, a plunger-casing in which the outer extremity of the plunger has free sliding movement, and an outer clamp for adjustable engagement with the picker-stick, the said outer clamp also being pivotally connected with the outer end of the casing to have a vertical and horizontal movement.

2. A picker-stick-operating mechanism consisting of an inner clamping member, an outer clamping member, a union movably attached to the inner clamping member to have both a vertical and horizontal movement in lateral planes, a tubular casing having its outer extremity connected to the outer clamping member to have both a vertical and hori-

zontal movement in lateral directions, and a plunger having its inner end screw-threaded and adjustably connected to the union and its outer end headed and mounted in the tubular casing, the said plunger being longitudinally slidable in the said casing and limited in its reverse longitudinal movements by the outer headed end thereof striking the front and rear internal structures of said casing.

3. A picker-stick-operating mechanism consisting of an inner clamping member, an outer clamping member, a slidable device between said members, and pivotal couplings between the slidable device and the said clamping members.

4. A picker-stick-operating mechanism consisting of an inner clamping member, a holder pivotally connected thereto, a plunger adjustably connected at one end to said holder, a casing in which the outer end of the plunger is freely slidable, and an outer clamp pivotally attached to said casing.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BINGHAM F. S. AUSTIN.

Witnesses:
JAMES F. THOMSON,
JAMES R. BABER.