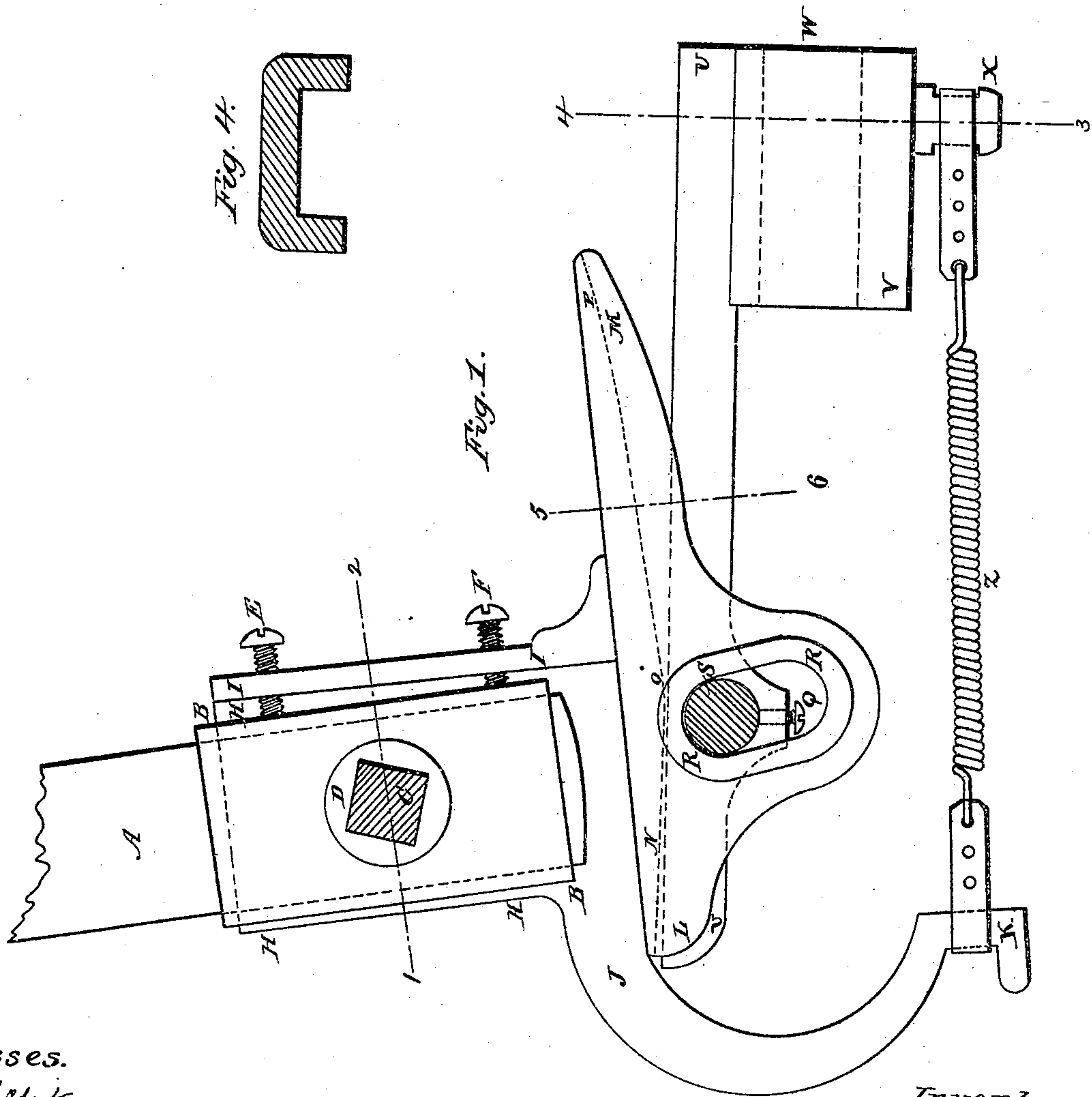
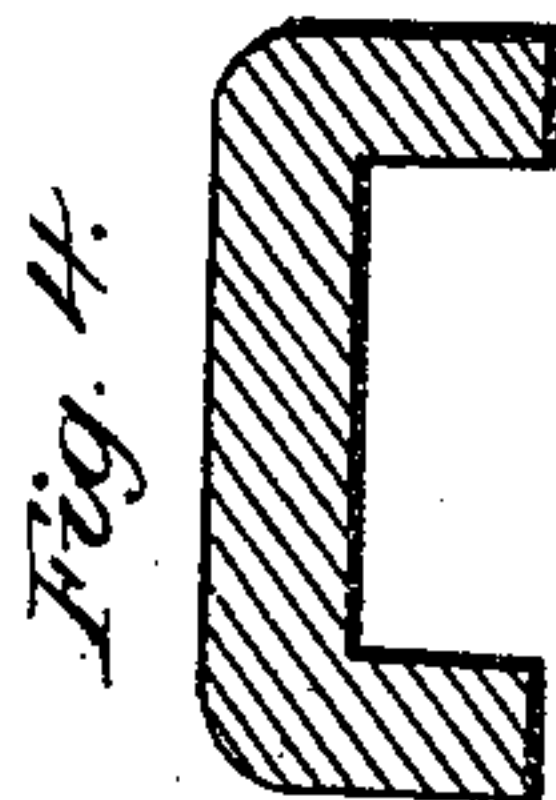
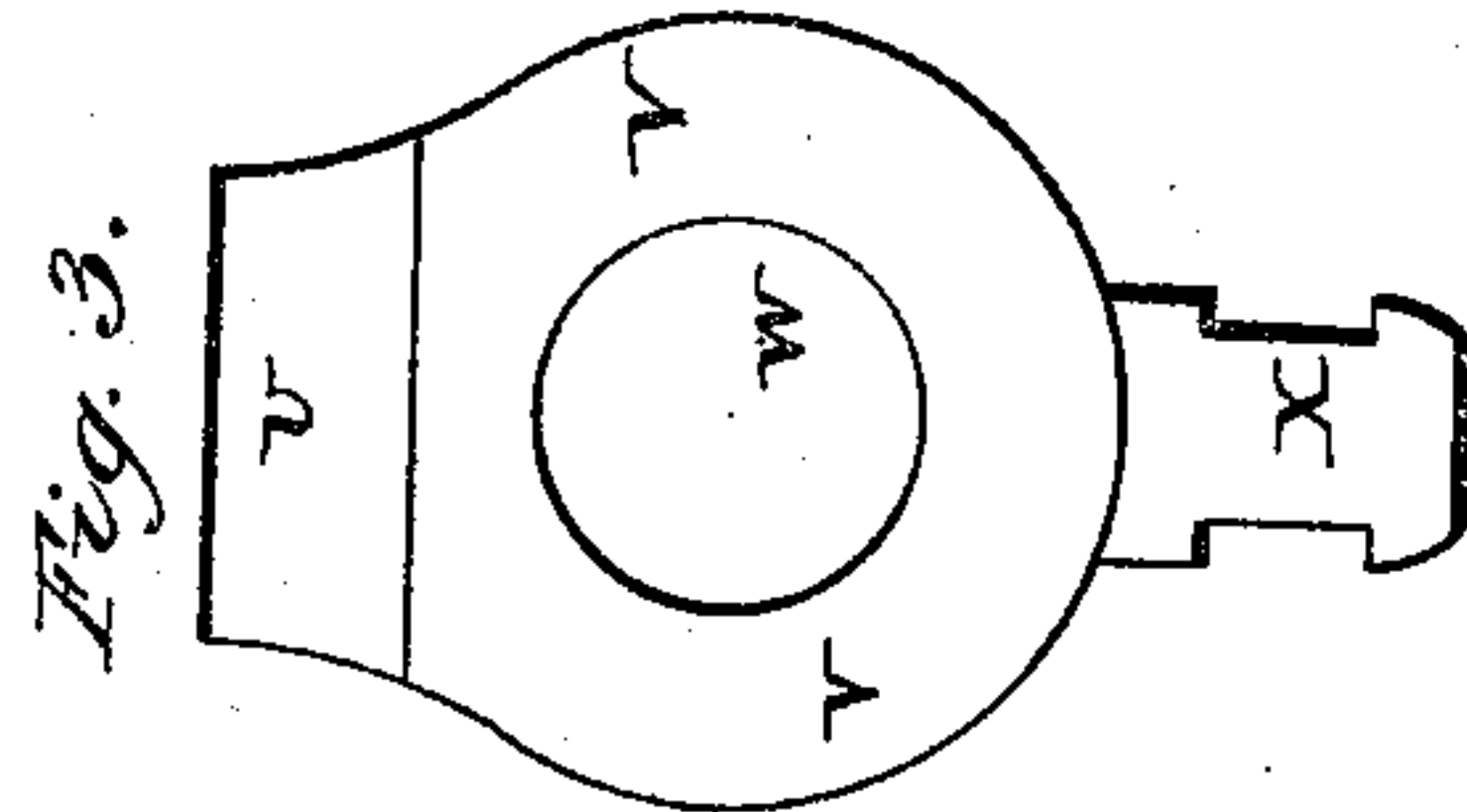
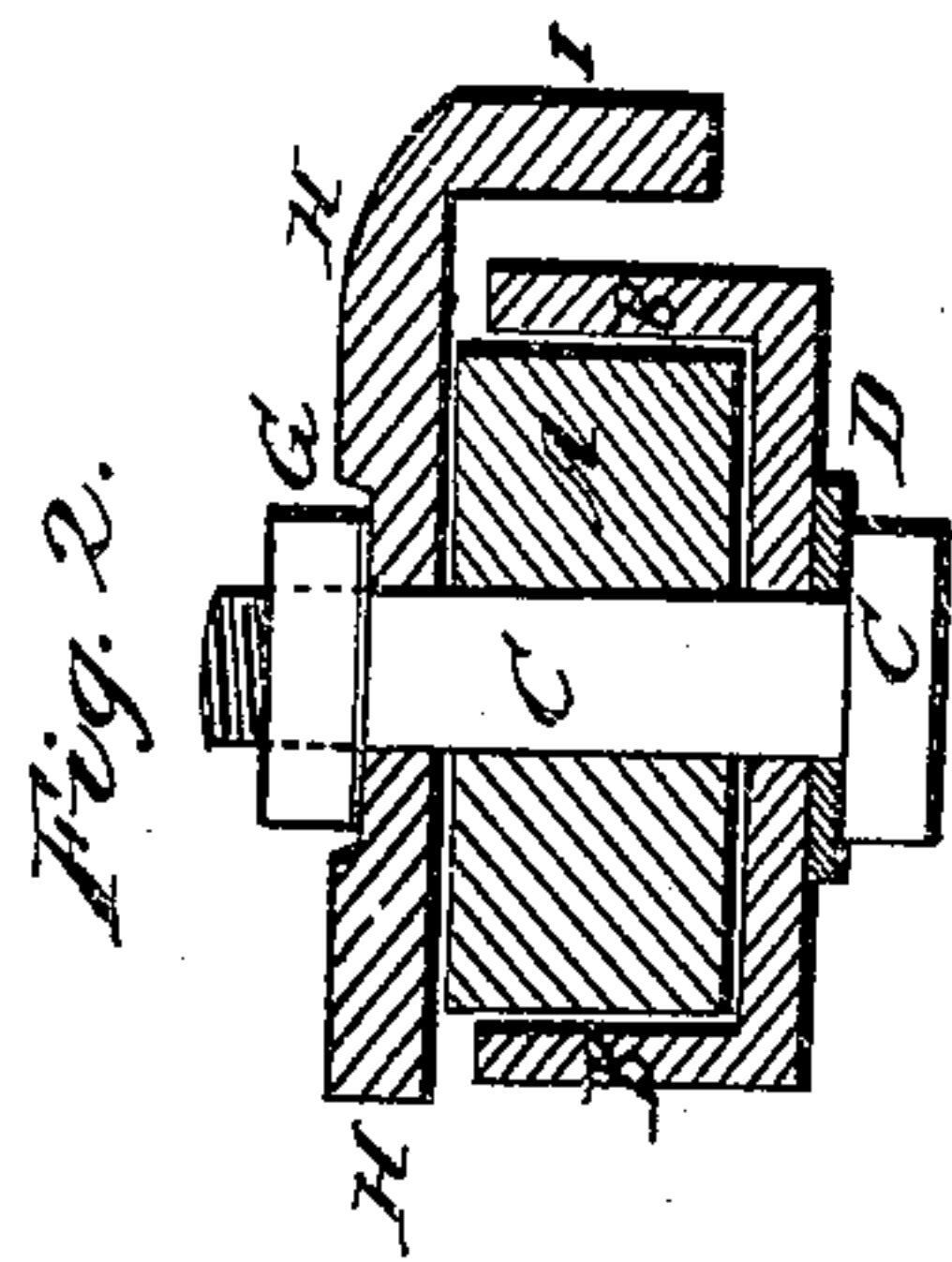


A. S. Lyons.
Shuttle Motion.

N^o 37,513.

Patented Jan. 27, 1863.



Witnesses.
Saml. Batchelder.
John M. Batchelder.

Inventor.
Alvin S. Lyons.

UNITED STATES PATENT OFFICE.

ALVIN S. LYON, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN SHUTTLE-DRIVERS FOR POWER-LOOMS.

Specification forming part of Letters Patent No. 37,513, dated January 27, 1863.

To all whom it may concern:

Be it known that I, ALVIN SUMNER LYON, of Lawrence, in the county of Essex and State of Massachusetts, have invented an Improvement in Shuttle-Drivers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

Figure I is an elevation of the shuttle-driver. Fig. II is a section on the line 1 2, Fig. I. Fig. III is a section on the line 3 4, Fig. I. Fig. IV is a section on the line 5 6, Fig. I.

My improvements relate to those parts of a loom that impart motion to the shuttle, two complete sets of the mechanism being required for a loom, one at each end of the lay. The upper end of the wooden rod that strikes the shuttle, commonly called the "picker-staff," moves in a horizontal line, and this is accomplished in nearly all of the looms now in use. My mode of producing this motion differs from the plans heretofore in use, and is herein fully described. The wooden rod A, Figs. I and II, is nearly vertical, its lower end being embraced by the box-clamp B, which is just wide enough to receive the rod, and is about four inches in length. A short bolt, c, passes through the stick and through the center of the clamp, also through the upright back piece, H, to which both the stick and clamp are secured by turning the head of the bolt into the countersunk nut G. The back piece, H, has a projecting flange, I, upon one side, and is affixed to the horizontal rocker L M. This and also the curved arm J, that extends from the base of the back piece, are made in one piece. The rocker L M is six or eight inches in length, and has deep flanges on each side, as shown in Fig. IV. Near to one end of the rocker and through these flanges at their broadest part an inclined slot, R R, having semicircular ends, is made. A round pin, S, passes through this slot in the flanges, and also through the central support or base U, which is just wide enough to fill the space between the flanges and allow of vertical but not of lateral motion. This base has a circular end, V, Figs. I and III, with a hole, W,

in the center, which receives a stud or other fixture that firmly secures it to the lay. Below this a stud, X, holds one end of a spiral spring, Z, the other end being secured to the lower end, K, of the bent arm J K. The pin S is secured to the base by the set-screw Q, and forms the fulcrum or center of motion for the rocker L M, which, as it moves, traverses on and is kept in place by the fixed pin. The part of the rocker L M that rests upon the base U is shown by the curved dotted line N O P, Fig. I, the form and amount of the curvature being such as will give the required amount of rise or elevation of the upper end of the stick at the point where it strikes the shuttle. The angle or slope of the slot R is such as to allow the rocker a certain degree of motion to the right or left, as it rises and falls. The angle that the stick A makes with the rocker can be varied (without moving the central bolt, C) by turning the adjusting-screws E and F, which pass through the flange I and bear upon the clamp B, one screw being placed above and the other below the bolt C. When the blow is to be given to the shuttle, the stick A is drawn forward by a strap, and if the base of the stick should be kept in a fixed position the upper end of the stick would describe an arc of a circle, but by changing the position of the base the upper end of the stick is caused to move very nearly in a horizontal line, this direction being given to it by the combined action of the curve N O P and the inclined direction of the slot R, made through the flanges of the rocker, the slope of the sides of the slot allowing the rocker to move forward at the same time that it rises. A direct horizontal blow is thus given to the shuttle, and the stick is drawn back to its first position by the action of the spring Z. The object of the flanges on the sides of the rocker is to prevent any lateral or twisting motion, thus securing very great precision in the movement of the top of the stick and accuracy in the flight of the shuttle.

The main features of novelty in my shuttle-driver, as compared with that of Stearns and others, consist in the flanges or side-

pieces of the rocker, and in the diagonal slot made through the flanges to receive the pin S.

What I claim, and desire to secure by Letters Patent, is—

In combination with the flanged rocker, the diagonal slot R and the fulcrum-pin S, or their

equivalents, for the purpose specified, substantially as described.

ALVIN S. LYON. [L. s.]

In presence of—

SAML. BATCHELDER, Jr.,
J. M. BATCHELDER.