T. E. ROBERTS.
Shuttle for Looms.

No. 214,317. Patented April 15, 1879.

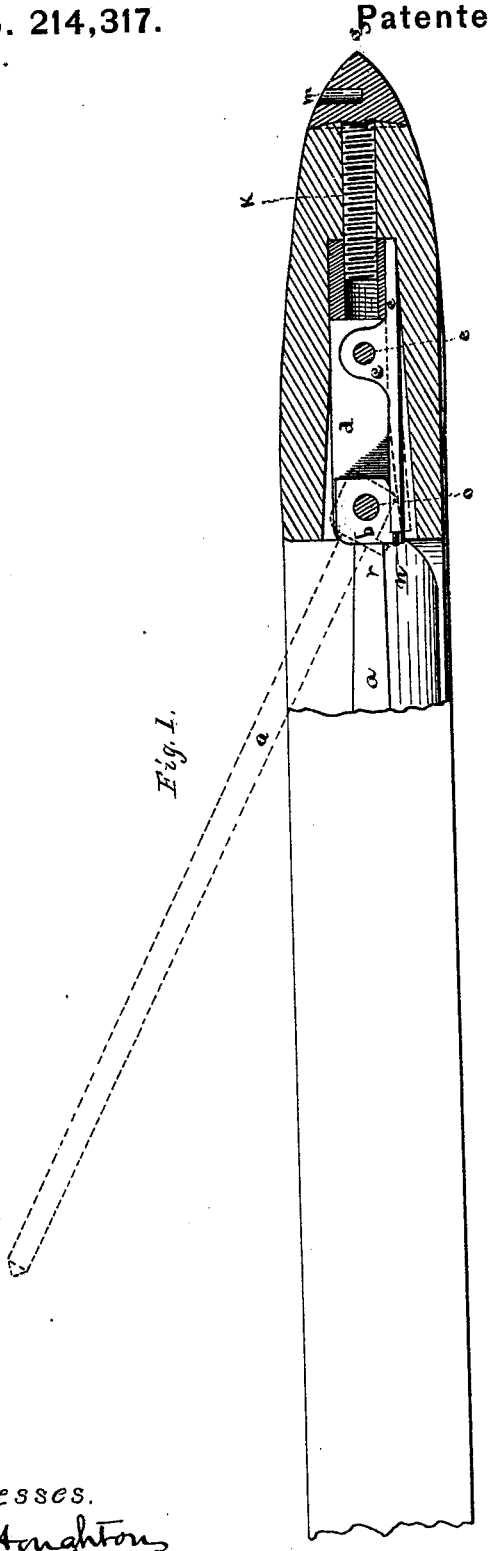

Fig. 1.

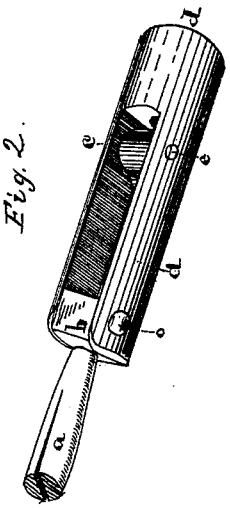

Fig. 2.

Witnesses.
Chas. Houghton
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UNITED STATES PATENT OFFICE.

THOMAS E. ROBERTS, OF BOSTON, ASSIGNOR TO AMOS L. WOOD, TRUSTEE, OF BROOKLINE, MASSACHUSETTS.

IMPROVEMENT IN SHUTTLES FOR LOOMS.

Specification forming part of Letters Patent No. **214,317**, dated April 15, 1879; application filed May 13, 1878.

To all whom it may concern:

Be it known that I, THOS. E. ROBERTS, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented a new and useful Improvement in Shuttles for Looms, of which the following is a specification.

My invention consists in an improved construction of shuttles for looms, in which the spindle-head and its carrier or holder and retaining-spring are placed and secured in a chamber in the end of the wooden frame of the shuttle, the latter having no lateral opening, and no pin or screw passing transversely through or into the wooden frame, while a screw projecting from the base of the metallic shuttle-point extends into the chamber in the wooden frame of the shuttle, there engaging, with its thread, a corresponding threaded opening in the end of the spindle holder or carrier, and securely holding the carrier or holder in its position in the shuttle.

In the drawings annexed, Figure 1 shows a sectional side view of a shuttle-frame, with its chambered end containing the spindle-head, its carrier or holder, spring, and the metallic shuttle-point, with the screw projecting from its base engaging the threaded opening in the carrier or holder. Fig. 2 is an isometric view of the spindle-head and its carrier or holder.

a is the spindle. *b* is the head of the spindle. *c* is the spring. *d* is the carrier or holder. *e* is a rivet or pin that passes through the sides of the carrier or holder and a lug on the spring, to hold the spring in its proper place. *o* is a rivet or pin through the forward end of the carrier or holder and the head of the spindle, upon which the spindle hinges. *g* is the metallic shuttle-point, and *k* is the screw extending from the base of the shuttle-point to and into the carrier or holder. *m* is a pin-hole in the metallic shuttle-point, in which the prong of a suitable wrench engages to turn the screw *k*. *r* is a flange or lip on the under side of the spindle-head. *n* is a set-screw through the projecting lip or flange on the under side of the spindle-head, which covers and rests against the end of the spring, by which the spindle-point may be raised, when desirable, by turning the set-screw forward, and again lowered by withdrawing the set-screw a little.

The shuttle-frame is made with the usual longitudinal cavity in its middle part, to give space for the bobbin on the spindle, and the usual opening from its forward end for the yarn to be drawn through. The rear end of the shuttle-frame is chambered from the bobbin-cavity toward the rear end to admit the spindle-head carrier or holder, and has no lateral opening on its top, bottom, or sides, and has no holes for pins or screws or other fastening devices through or into it transversely, thus leaving it with a smooth outside surface, with no possibility of loose screws, pins, or springs protruding to damage the yarn, web, or reed in the loom.

To the rear end of the chamber just described a hole is bored through the rear end of the shuttle, which admits the screw *k*. The forward end of the chamber is enlarged upward to allow the spindle to be raised to receive the bobbin, and downward to allow the necessary motion of the spring when the spindle is raised.

The spindle is made in the ordinary form, with the flange or lip on the under side of the head, which is made to rest on and cover the end of the spring, and through which flange or lip a set-screw may be worked to raise the forward end of the spindle a little when necessary.

The carrier or holder is made in one piece of wrought or malleable cast-iron, with a longitudinal cavity in the middle extending to the forward end of it, in which the spindle-head and the spring are located and held, while the rear end of it is made solid, with a threaded aperture to receive the screw *k*, extending from the base of the forward metallic shuttle-point.

The advantages of a shuttle which has no openings for springs, pins, and screws in its frame, but, on the contrary, presents a perfectly smooth outside, where a possibility of loose pin or other part injuring the web or loom does not exist, are obvious.

I claim as new—

In a loom-shuttle, in combination, the wooden

frame chambered longitudinally from the central cavity through to the rear end, the spindle-carrier and spring in it, the spindle with a flange or lip on the under side of the spindle-head, and the shuttle point or lip, with a screw-pin projecting from its base to and into the spindle-carrier, all made and arranged substantially as described, and for the purpose specified.

THOS. E. ROBERTS.

Witnesses:
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