

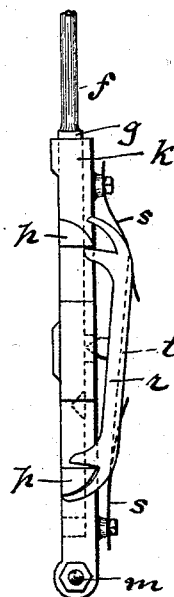
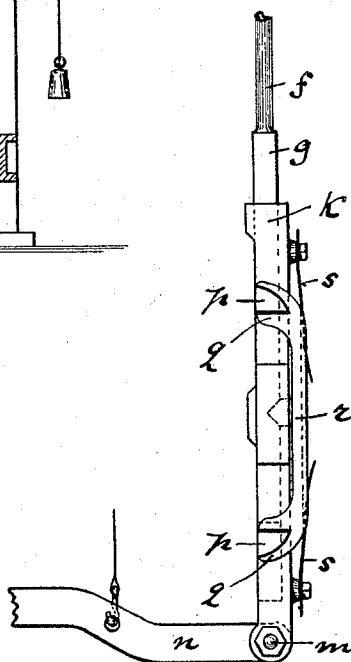
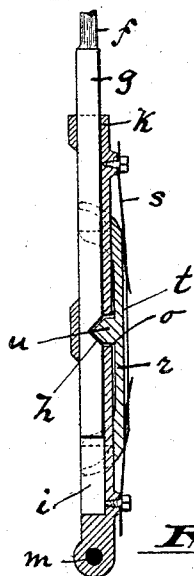
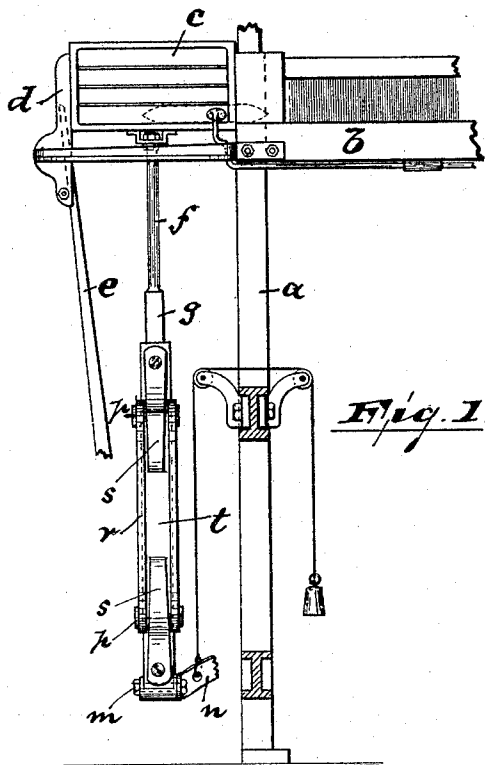
(No Model.)

T. BIRCHALL.

SELF ADJUSTABLE SUPPORTING ROD FOR SHUTTLE BOXES.

No. 489,922.

Patented Jan. 17, 1893.



WITNESSES:

Wm. D. Bell.  
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INVENTOR:

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# UNITED STATES PATENT OFFICE.

THOMAS BIRCHALL, OF PATERSON, NEW JERSEY, ASSIGNOR TO BENJAMIN EASTWOOD, OF SAME PLACE.

## SELF-ADJUSTABLE SUPPORTING-ROD FOR SHUTTLE-BOXES.

SPECIFICATION forming part of Letters Patent No. 489,922, dated January 17, 1893.

Application filed September 24, 1892. Serial No. 446,772. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS BIRCHALL, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Self-Adjustable Supporting-Rods for Shuttle-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my present invention is to provide a self-adjustable supporting rod for the shuttle boxes in a loom, by means of which the breakage of the shuttles or the shuttle-boxes is prevented, in case a shuttle (or the picker) should jam in the box; simple and desirable in construction and reliable in operation.

My invention consists in the novel and peculiar construction of the shuttle-box supporting rod, and the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described and finally embodied in the clauses of the claims.

Similar letters of reference indicate corresponding parts in each of the several figures:

Figure 1. represents in front elevation a portion of a loom, embodying my improvement; only those parts of the loom being shown, which are necessary to fully illustrate my invention; Fig. 2 is an enlarged central sectional view of the shuttle supporting rod shown in Fig. 1, and Figs. 3 and 4 are detail views of the shuttle-box supporting rod, in normal and adjusted position respectively.

In said drawings, *a* represents the loom frame, on which is arranged to operate the lay *b* in the ordinary manner. The shuttle-box *c* is adapted to move up and down, between the end of the lay and the inner portion of the extending frame *d*, in a slot of which latter the picker-stick *e* operates.

To the bottom of the shuttle-box, is secured in any desired manner the supporting rod *f*, provided with a squared lower portion *g*, the latter provided at one side with a knife-

edged groove or recess *h*. Said squared portion *g* of the supporting rod is adapted to operate in a channel or groove *i* arranged in lever *k*. The latter is pivotally secured at *m* to arm *n*, which again is connected to the shuttle rod operating mechanism in the usual manner. (As there is no claim made thereon said connection and said operating mechanism are not illustrated in the drawings.) The lever *k* is provided (opposite the knife edged groove *h* in portion *g* of rod *f*), with a slot *o*, and at a certain distance from said slot and on each side of said lever, with segmental shaped lugs or studs *p*, adapted to be engaged by the forked portions *q* of clamping block *r*. Said block rests on the lever *k* and is held in position by flat springs *s*, secured with one end to the said lever, and with the other end working in a groove *t* of clamping block *r*. On the inside of said clamping block is secured or made integral a knife edged projection *u*, extending through slot *o*, and resting, when in normal position, in the knife-edged groove *h* of rod *f*.

The operation of my improved shuttle-box supporting rod is as follows: Should a shuttle become jammed between the box and the raceway (said position being shown in dotted lines in Fig. 1.) the force exerted by the shuttle-box, in its downward motion would in most cases be sufficient to break said shuttle. Again should any of the connecting straps of the picker-stick get out of order, thereby allowing the picker-stick or its picker to remain in the shuttle-box, the picker or some portion of the box will invariably break. By my improved arrangement such breakage is altogether avoided, as in cases above mentioned, the shuttle-box would be stopped in its downward motion, without interfering with the movement of the shuttle supporting rod operating mechanism. The lever *k* would be moved upward by means of oscillating arm *n* and force the knife-edged projection *u* of clamping block *r* out of its respective groove *h* of rod *f*. The upper forked portion *q* of the clamping block *r* disengages its respective lugs *p* but is held in contact with lever *k* by means of the springs *s* and the lower lugs *p*. The loom operator is thus enabled to fix the shuttle or picker, and after having accom-

plished said purpose forces the shuttle-box with its supporting rod back to its normal position in lever *k* (Figs. 1, 2 and 3).

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is

1. A supporting rod for shuttle boxes consisting of two sections adapted to slide on each other, a clamping device adapted to adjustably clamp said sections together and springs adapted to hold said clamping device in position, substantially as described.

2. A supporting rod for shuttle-boxes, consisting of a vertical rod having a squared lower portion, a lever provided with a groove or channel and adapted to hold and guide said squared portion of the rod and means for adjustably securing said squared portion in said channel, all said parts being combined substantially as described and for the purposes set forth.

3. A supporting rod for shuttle-boxes, consisting of a vertical rod, having a squared lower portion and provided with a knife edged groove, a lever provided with a groove or channel and adapted to hold and guide said squared portion of the rod, a clamping block arranged on said lever, a knife-edged projection on said clamping block and adapted, when in normal position to rest in said knife-edged groove of the vertical rod, and springs adapted to secure said clamping block in position, all said parts being combined substantially as described and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of September, 1892.

THOMAS BIRCHALL.

Witnesses:

GEO. S. SMITH,  
JAMES EASTWOOD.