G. S. COX.

SHUTTLE FOR HAIRCLOTH LOOMS.

APPLICATION FILED OCT. 24, 1908.

948,415. Patented Feb. 8, 1910.

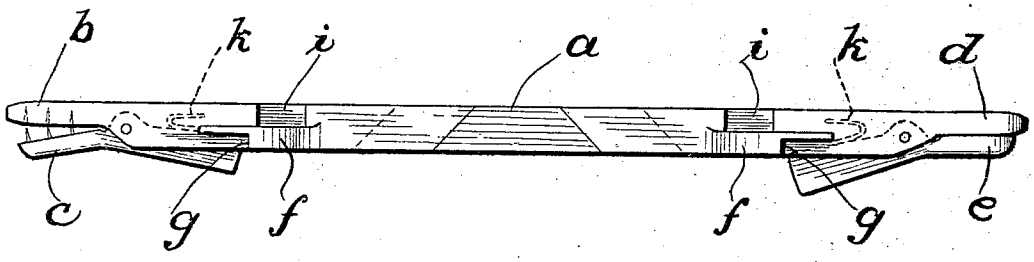

FIG. 1.

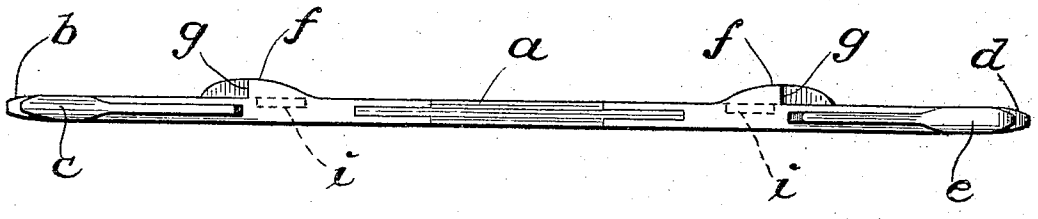

FIG. 2.

WITNESSES:

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GEORGE S. COX, OF EDGE HILL, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WALTER S. COX, OF PHILADELPHIA, PENNSYLVANIA, TRADING AS GEORGE S. COX AND BROTHER.

SHUTTLE FOR HAIRCLOTH-LOOMS.

948,415. Specification of Letters Patent. Patented Feb. 8, 1910.

Original application filed November 14, 1906, Serial No. 343,336. Divided and this application filed October 24, 1908. Serial No. 459,321.

To all whom it may concern:

Be it known that I, GEORGE S. COX, a citizen of the United States, residing at Edge Hill, county of Montgomery, and State of Pennsylvania, have invented a new and useful Improvement in Shuttles for Haircloth-Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to loom shuttles and more particularly to shuttles or nippers designed for use in connection with that style of haircloth looms, such as that set forth in the patent issued to me July 10th, 1903, Number 756,334, in which the shuttle or nipper is adapted to insert picks of hair in its traverse in both directions between the sheds of warp and is actuated by picker sticks at opposite sides of the loom. My invention is not, however, restricted in its application to shuttles intended for use in connection with haircloth looms.

My invention is set forth in an application filed by me November 14, 1906, Serial Number 343,336, and this application is a division of said application. In said application, the shuttle is propelled across the loom, from a shuttle-box on one side to a shuttle-box on the other side, by means of picker heads sliding in guide bars and actuated by picker sticks, which in turn are actuated from the cam-shaft of the loom. While the shuttle embodying my invention is more particularly adapted for use in connection with the specific operating mechanism set forth in said application, No. 343,336, it is obvious that the shuttle may be actuated by mechanism of a different specific character, and therefore the specific mechanism for actuating the shuttle is not herein illustrated or described, as it forms no part of the invention herein claimed.

In the drawings: Figure 1 is a plan view of the shuttle or nipper; Fig. 2 is a side view of the same.

a is the shuttle having a pair of jaws *b* and *c* at one end and another pair of jaws *d* and *e* at the other end. The jaws *b* and *d* are fixed with relation to the body of the shuttle, while the jaws *c* and *e* are movable, being pivoted between their ends on a vertical pivot and having their inner ends projecting laterally into position to be engaged by jaw opening mechanism known in the art and not herein shown, as such mechanism forms no part of this invention. The movable jaws are normally held closed in the usual manner by springs *k*. In operation, the jaws *b* and *c* are caused to operate to clamp one end of a selected pick of weft and pull the same through the shed of warp and then release the same; then the jaws *d* and *e* of the shuttle clamp one end of another pick of weft and pull the same through the warp-shed in the opposite direction and then release the same; and so on alternately and continuously.

Extending above the upper face of the shuttle body, near each end thereof, and adjacent to one side edge thereof, is a projection *f* which is of convex form so that its upper face slopes toward opposite ends of the shuttle. This projection is cut away at its outer end along its side to form a shoulder *g* extending only part way across the projection. The picker-head, or other shuttle propelling device, engages the shoulder *g* and throws the shuttle, initially by direct engagement and thence by momentum, across the loom.

The advantage of the shuttle, constructed with the shouldered projection described, is that provision is made for actuating the shuttle from the picker-head or other shuttle thrower, while at the same time the convex upper face of the projection permits it to pass through the warp-shed in both directions without danger of catching in the warp.

In the said application filed November 14, 1906, of which this is a division, there is set forth mechanism, which, under normal conditions, operates to stop the shuttle, when propelled across the loom as before described, and lock it into engagement with the shuttle-box. This mechanism comprises a retarding device and a lock, the first located in advance of the second at each side of the loom and located a distance apart corresponding to the distance separating the recesses *i*, *i*, formed in the upper face of the shuttle alongside the thicker inner ends of the projections *f*, *f*, respectively. It is unnecessary to describe the construction of this retarding and locking means, as the same forms no part of the present invention; but it is sufficient to say that in the throw of

the shuttle in either direction, the retarder successively engages both recesses, and engages the recess in the trailing end of the shuttle at the same time that the locking device engages the forward recess, thereby, in the normal operation of the loom, causing the shuttle to be first retarded, and then locked, by means jointly of a positively acting locking device and the retarder. It will also be apparent that by placing the recesses, in shuttles of different length, at uniform distances from the end of the shuttle, no change is necessary in the position on the lay of the locking devices and that it is only necessary to shift the position of the retarder,

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:—

1. A shuttle for looms comprising a shuttle body, and a projection near each end of the shuttle body tapering toward opposite ends of the shuttle, and a shoulder, between the ends of each projection, facing toward the adjacent end of the shuttle, by means of which the shuttle is pushed.

2. A shuttle for looms comprising laterally extending jaws at each end of the body, and projections on the top of the shuttle body near each end thereof, the upper face of each projection sloping toward opposite ends of the shuttle, and each projection being cut away to form a shoulder facing toward the adjacent end of the shuttle and by means of which the shuttle is pushed.

3. A shuttle for looms comprising a shuttle body, projections, one near each end of the shuttle body, each of said projections tapering toward opposite ends of the shuttle, a shoulder, between the ends of each projection, facing toward the adjacent end of the shuttle, by means of which the shuttle is pushed, and locking recesses, one near each end of the body.

4. A shuttle for looms comprising a shuttle body, and projections, one near each end of the shuttle body, the forward end of said projection sloping downwardly and forwardly and cut away on one side to form a shoulder by means of which the shuttle is pushed.

5. A flying shuttle for looms comprising a shuttle body having a projecting part provided with a shoulder adapted to be engaged by a shuttle thrower and inclined surfaces, extending respectively in front and back of the shoulder, adapted to prevent the shuttle catching in the warp in its travel through the warp-shed.

6. A shuttle for looms comprising a shuttle body provided with duplicate locking recesses formed in the face of the shuttle and both located alongside one edge thereof, said locking recesses being closed at both ends and located at equal distances from the opposite ends of the shuttle, and means by which the same may be pushed.

7. A shuttle for looms comprising a shuttle body, shouldered projections thereon, one near each end of the shuttle, having inclined faces, and duplicate locking recesses in the shuttle body located respectively alongside the projections.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 20th day of October, 1908.

GEORGE S. COX.

Witnesses:
M. M. HAMILTON,
A. M. URIAN.