

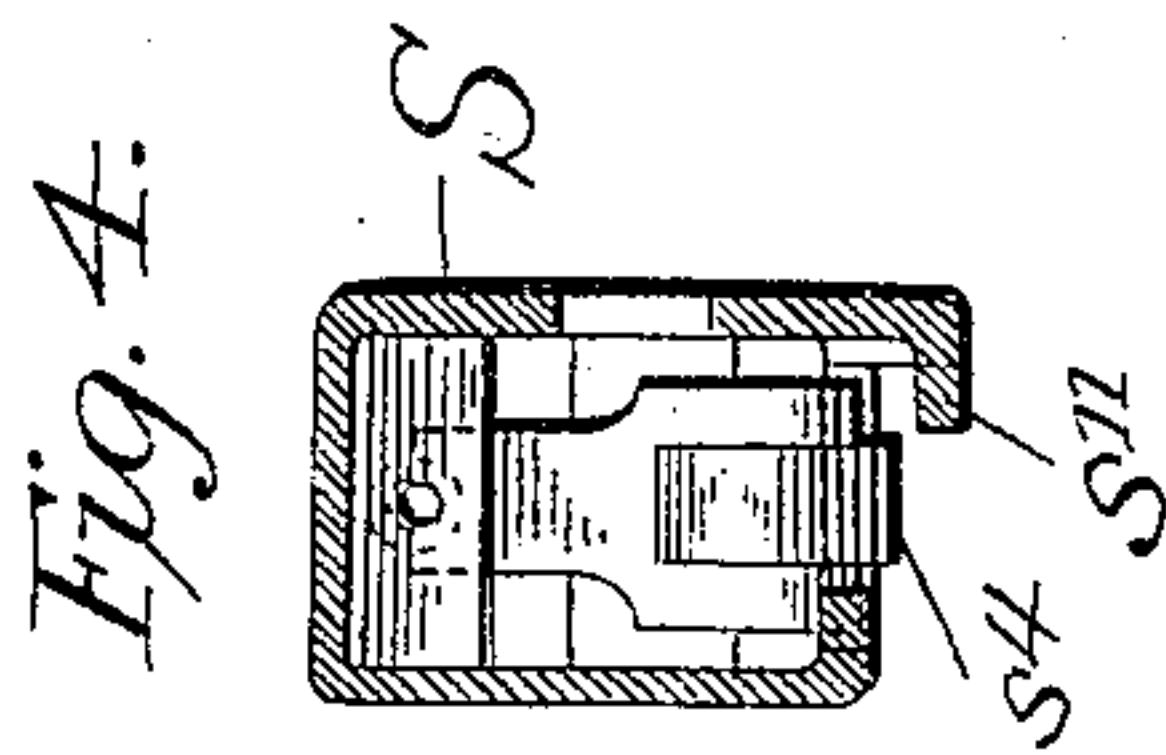
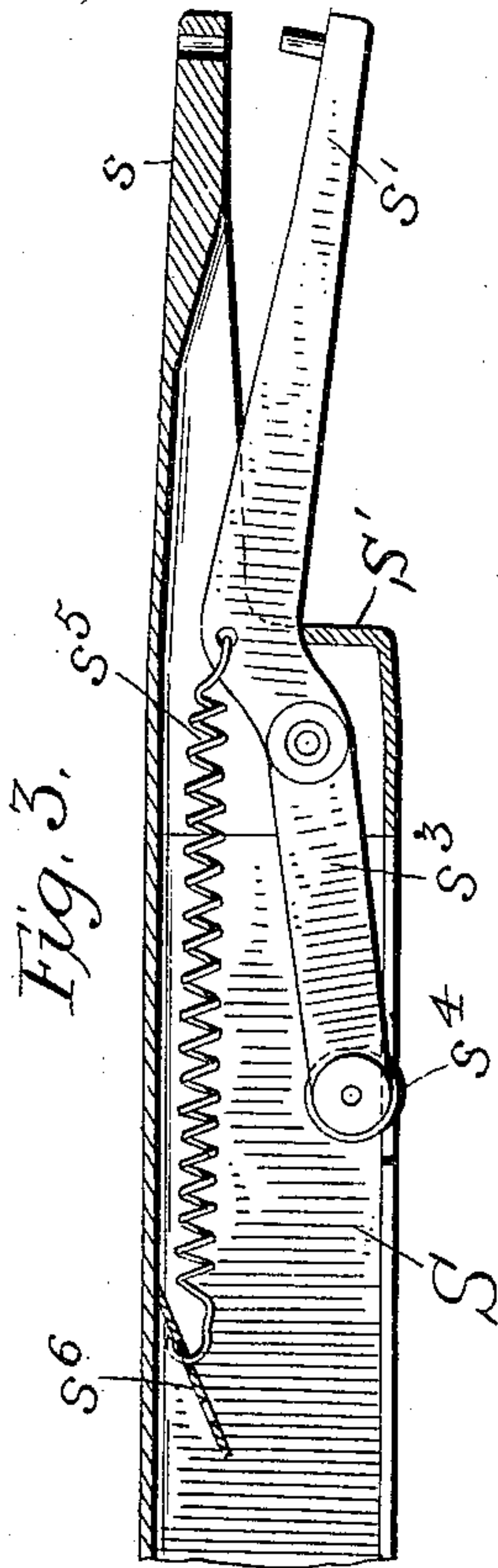
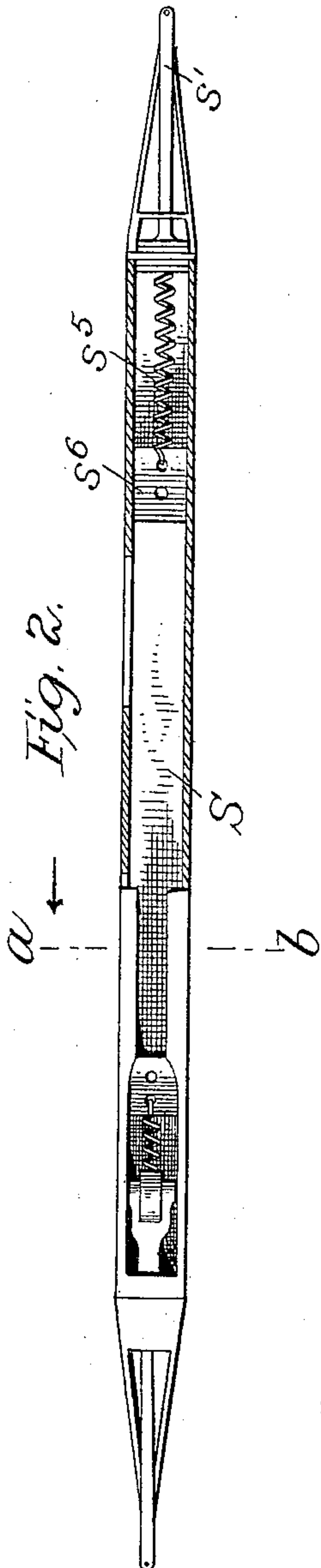
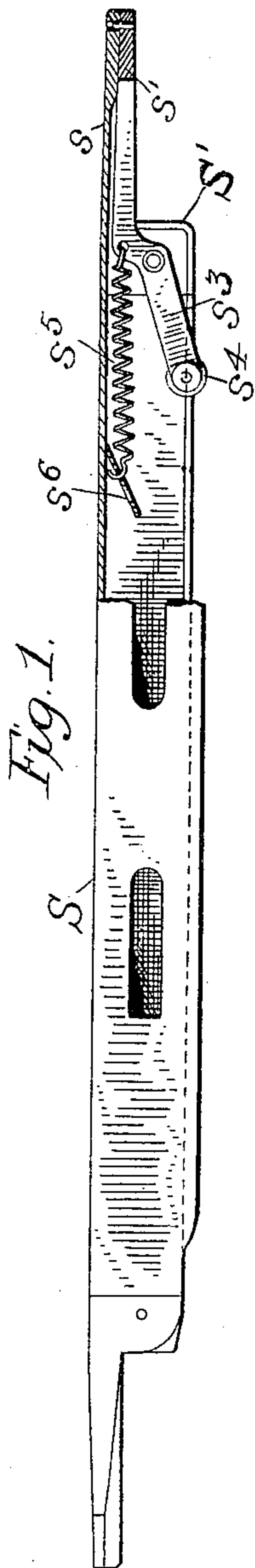
No. 646,319.

Patented Mar. 27, 1900.

D. M. SEATON.  
LOOM SHUTTLE.

(Application filed Nov. 22, 1897.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

DANIEL M. SEATON, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN AUTOMATIC LOOM COMPANY, OF SAME PLACE.

## LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 646,319, dated March 27, 1900.

Application filed November 22, 1897. Serial No. 659,448. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL M. SEATON, a citizen of the United States, residing at New York city, New York, formerly of San Francisco, county of San Francisco, California, have made certain new and useful Improvements in Loom-Shuttles, of which the following is a specification.

In an application of even date herewith, Serial No. 659,447, I have shown, described, and claimed a complete loom adapted to produce a woven fabric such as that made the subject of Letters Patent No. 361,360, dated April 19, 1887, in which the weft-threads are formed of pieces of a length substantially double the width of the fabric to be woven, whereby loops and free ends are alternately presented. This case presents, separately, an improved form of shuttle capable of use with looms of a different construction as well as that made the subject of the application referred to. The present invention is a shuttle adapted to receive the thread from an outside source of supply and provided with jaws or nippers adapted to grasp the filling-thread or weft in order to carry it through the shed.

In the accompanying drawings, Figure 1 shows the shuttle in plan with the top wall partly broken away. Fig. 2 is a front view with parts in section. Fig. 3 is a view in section of one end of the shuttle, the parts being enlarged. Fig. 4 is a cross-section on line *a b*, Fig. 2, the parts being enlarged.

It will be seen that the shuttle *S* consists of a hollow box formed, preferably, of sheet metal, closed on three sides and partially open on the front side, forming an open face. The shuttle may be made, however, of any material and may be pressed into shape, if made of metal, or put together in any desired manner. The body portion is substantially rectangular, and it is adapted to work back and forth on the lay-beam of the loom, as usual. The shuttle is made symmetrical at each end, and its rear wall projects beyond the shell or casing of the body to form the fixed part *s* of nippers or jaws, the movable part being shown at *s'* and having pivotal connection with the body of the shuttle proper, being located within the same and having one end extending outwardly to form, with the station-

ary part *s*, a pair of nippers or jaws adapted to grasp the weft or filling thread. The movable jaw *s'* is preferably pivoted, as shown in Figs. 2 and 3, between the top and bottom walls of the shuttle, and the jaw is held normally closed and in contact with the front face of the fixed part *s* by means of a spring *s<sup>5</sup>*, engaging at one end with the jaw *s'* in front of its pivot and at the other end with a projection *s<sup>6</sup>*, pressed in from the rear wall of the shuttle or secured thereto. This projection *s<sup>6</sup>* has a series of holes in it, so as to permit the proper adjustment of the spring *s<sup>5</sup>* to vary its tension. The rear end of the pivoted jaw (shown at *s<sup>3</sup>*) carries a roller *s<sup>4</sup>*, held in the bifurcated end of the part *s<sup>3</sup>*, and this roller projects through the opening in the wall of the shuttle in the closed position of the pivoted jaws *s'*, this being the normal position, as shown in Fig. 1. In order to open the jaw *s'* to receive the end of the weft or filling thread or to release the filling-thread in the reverse action of the shuttle, I provide a pair of shuttle-openers adapted to come in contact with the projecting roller *s<sup>4</sup>*, so as to throw this roller and the part *s<sup>3</sup>* inward against the tension of the spring *s<sup>5</sup>*, which will have the effect to open the movable jaw *s'*. The shuttle-openers need not be described herein, as they are the subject of an independent application of even date herewith.

The shuttle is provided in its upper wall with slots *s<sup>9</sup>* *s<sup>10</sup>*, adapted to receive the end of a pusher for giving additional movement to the shuttle, this pusher being included in the companion case of even date herewith.

The projecting portions *s* at each end of the shuttle leave shoulders *S'* for the stroke of the picker-stick.

As the yarn or thread is fed to the shuttle the jaws or nippers grip it a little above the end, and the thread is held between the jaws in a hooked form, and in order to straighten this end out when the shuttle reaches the limit of its movement I have provided the movable jaw with a pin *s<sup>7</sup>*, adapted normally to register with a corresponding opening *s<sup>8</sup>* in the stationary jaw of the shuttle. When the movable jaw has been opened to release the thread, it will be observed that in the final movement of the shuttle the loop or hook in



the thread around the pin will be drawn straight by the action of the pin  $s^7$ .

As shown in Fig. 4 in the cross-section, the top and bottom walls have their edges bent to form a partial front wall having a central horizontal opening between. The top wall of the shuttle is wider than the bottom, so that its downwardly-bent edge overhangs the edge of the lower wall, as at  $s^{11}$ . This construction permits the roller  $s^4$  to protrude beyond the edge of the bottom wall, so as to be actuated by the opener devices described in the application aforesaid, while the projecting edge of the upper wall serves to protect the roller.

What I claim is—

1. A shuttle comprising a hollow shell, having fixed jaw members projecting from the ends thereof and forming substantially continuations of the back wall of the shell to leave shoulders  $S'$  at the ends, said shell having an open face and movable jaw members pivoted intermediate of their length, said movable jaw members having outer arms extending parallel to the fixed members and having their inner arms bent forwardly in relation to the parallel arms, said inner bent arms extending to the open front of the shuttle and having rollers thereon projecting through the said open front, substantially as described.

2. A shuttle comprising a hollow shell or casing having an overhanging top wall and a bottom wall of less width, a pivoted jaw member within the shuttle and having one end extending beyond the edge of the bottom wall the said overhanging top wall forming a protection to the jaw member with its roller, substantially as described.

3. A shuttle comprising a body portion and nipping-jaws and a pin on one of the jaw members for straightening the yarn or thread the part of the jaw about said pin acting as the main gripping portion independent of the pin, substantially as described.

4. A shuttle comprising a body portion, a

stationary jaw and a movable jaw, a pin on the movable jaw and a corresponding recess in the fixed jaw the part of the jaw about said pin acting as the main gripping portion independent of the pin, substantially as described.

5. A shuttle comprising a metal shell, closed on three sides and partially open on the front, the edges of the front wall being out of line, a stationary jaw member at each end formed by an extension of the back plate, a movable jaw member at each end pivoted within the casing, the rear ends of the pivoted jaws protruding normally through the opening in the front wall, springs for keeping the movable jaws in contact with the stationary jaws and shoulders  $S'$  formed by the ends of the body of the shuttle, substantially as described.

6. A shuttle comprising a hollow shell or casing having a longitudinal opening in one side, one wall of the said casing projecting outwardly beyond the other wall at said opening, a movable jaw member within the shuttle and having one end extending beyond the edge of the other wall.

7. A shuttle comprising a hollow casing having an opening on one side, one wall of said casing at said opening projecting outwardly beyond the opposite wall thereof, said projecting wall having beveled ends, and nippers at the opposite ends of the shuttle, substantially as described.

8. A shuttle comprising a hollow casing having a longitudinal opening on one side, the walls of the shuttle at said opening being bent inwardly, one of said walls projecting outwardly beyond the other, and nippers carried at the ends of said shuttle, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

DANIEL M. SEATON.

Witnesses:

H. L. BEIL,  
OTTO MUNK.