

*A. D. Clark,
Shuttle.*

Nº 81,344.

Patented Aug. 25. 1868.

Fig. 1.

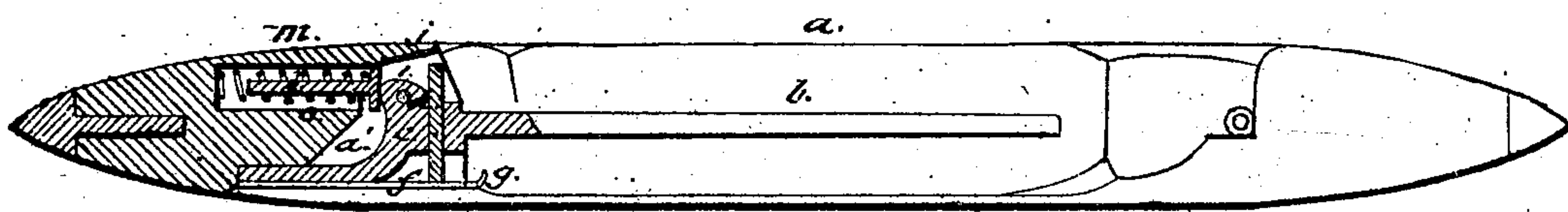
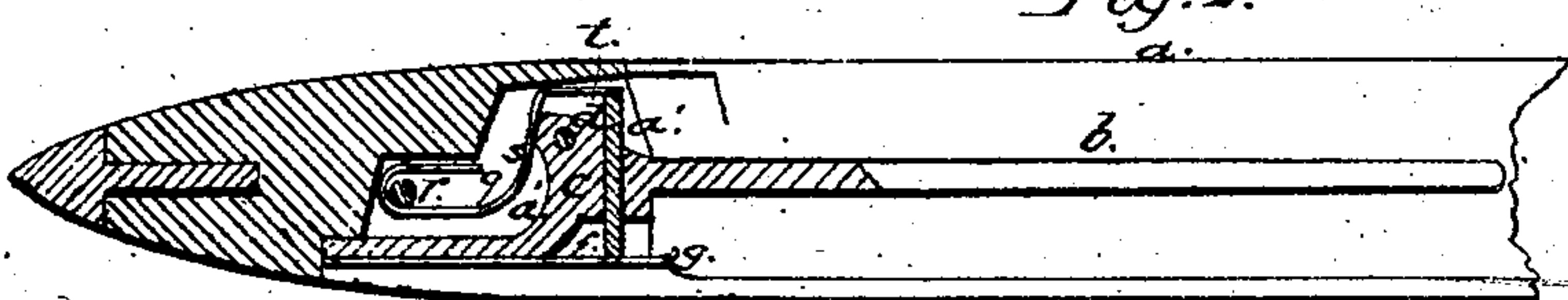


Fig. 2.



Modification of bolt l.

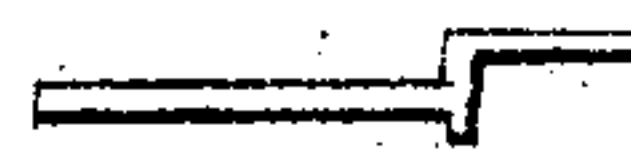


Fig. 3.

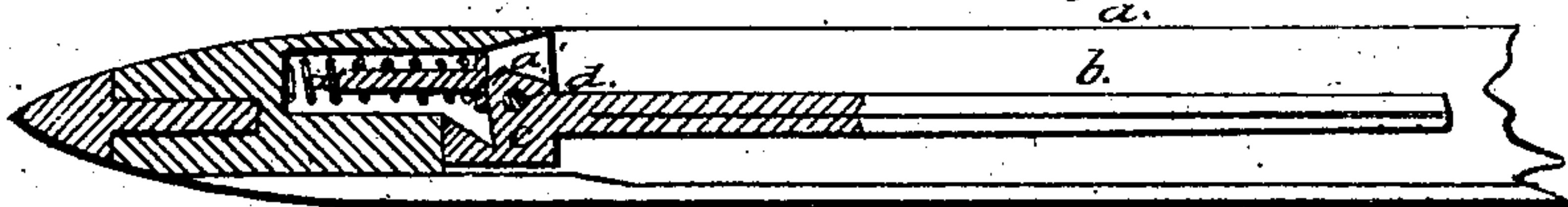


Fig. 4.

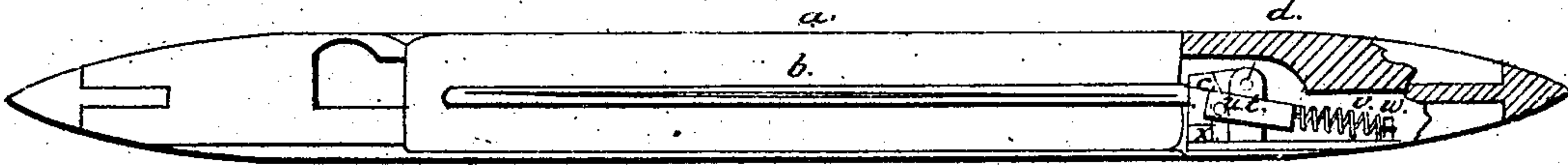
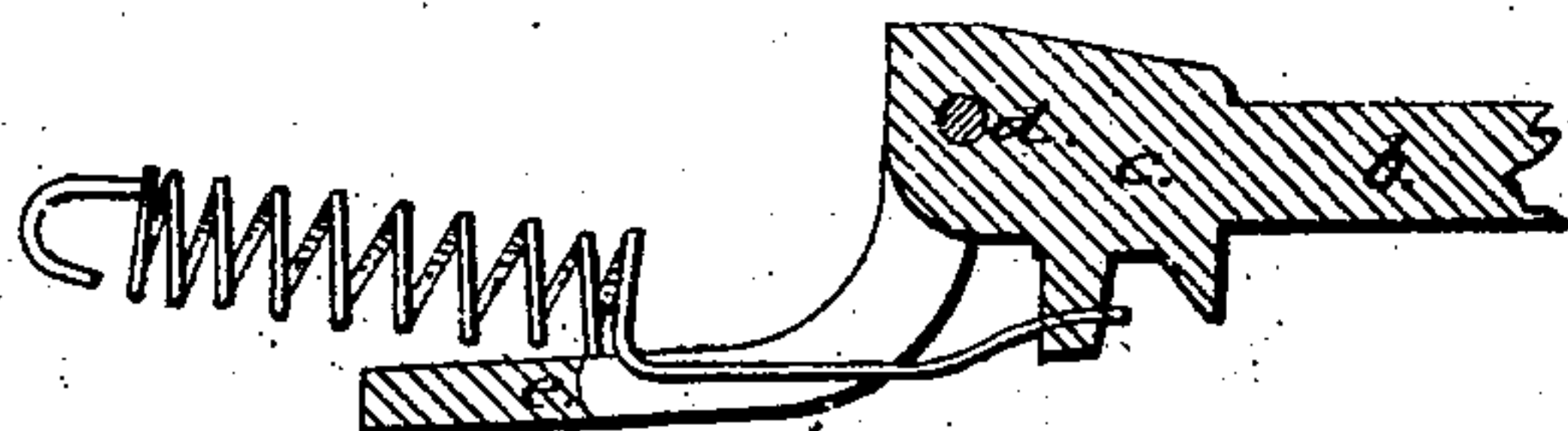
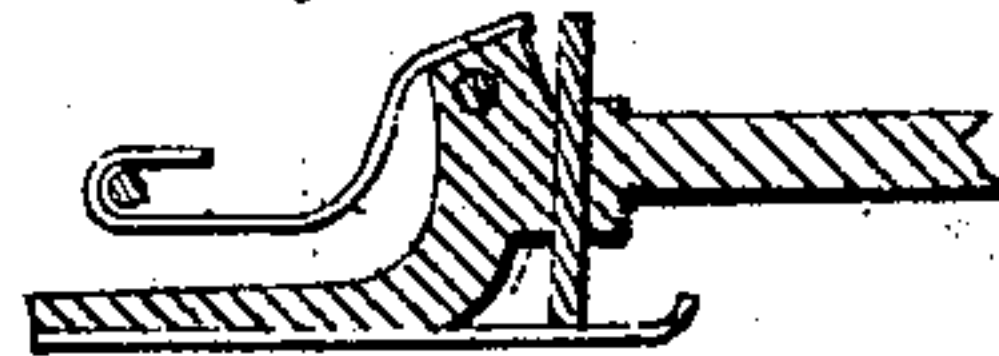


Fig. 5.



Modification of Fig. 2.



*Witnesses:
Geo. A. Loring.
Edmund H. Howens.*

*Inventor:
Augustus D. Clark,
by his Attorney,
Frederick Curtis.*

United States Patent Office.

AUGUSTUS D. CLARK, OF WILKINSONVILLE, MASSACHUSETTS.

Letters Patent No. 81,344, dated August 25, 1868.

IMPROVEMENT IN SHUTTLES FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, AUGUSTUS D. CLARK, of Wilkinsonville, in the county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Weavers' Shuttles; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawings, making part of this specification, and in which—

Figures 1, 2, 3, and 4 are vertical and longitudinal sections of shuttles containing my improvements.

Figure 5 being a section of the head of the bobbin-spindle, showing a peculiar application of a spiral spring to such head.

The object of this invention is the production of a shuttle, whose bobbin-spindle is free from any jerking, irregular movements, the shuttle at the same time being capable of accommodating itself to bobbins whose heads are of different diameters, and enabling the bobbins to be introduced to or removed from the shuttle very readily and expeditiously.

The principal feature in this invention is the employment of a vertical pin, passing loosely through the spindle-head, in advance of the fulcrum of such head, one end of such pin resting upon the top of the plate-spring affixed to the bottom of the head, and its opposite end, when the spindle is raised, bearing against the upper part of the recess of the shuttle in which the spindle-head moves, this arrangement of the sliding pin serving to separate the spring-catch from the spindle-head, when the spindle is raised out of alignment with the axis of the shuttle, and allow the bobbin to be introduced or removed from the shuttle, in manner as hereinafter explained.

In the drawings, above mentioned, the body of the shuttle is shown, at *a*, as made substantially in the ordinary form of weavers' shuttles. Its bobbin-spindle is shown at *b*, the head of such spindle is shown at *c*, and its fulcrum at *d*, the head of the spindle being disposed within a chamber, *a'*, made in the body of the shuttle.

In figs. 1 and 2 of the drawings, the spindle-head is shown as formed with a backward extension, *e*, to the under side of which a plate-spring, *f*, is secured, the front end of such plate-spring extending in advance of the spindle-head, and being given a short upward bend or lip, *g*, for entering the groove in the head of the bobbin.

A pin, *h*, is inserted within a vertical hole, *i*, made through the spindle-head, immediately in advance of its fulcrum, the lower end of such pin resting upon the top of the spring *f*, while its upper end rests a short distance below an abutment or stop, *j*, forming the upper terminus of the chamber *a'*.

As the spindle is partially rotated on its fulcrum, in the act of raising it, for the purpose of removing an empty bobbin or cop, or supplying a full one, the pin *h* abuts against the stop *j*, and remains stationary while the spindle-head moves upon it, and as a consequence separates from the spring-catch *f*, and frees the hold of the latter upon the bobbin-head and allows of its removal.

Furthermore, a sliding bolt, *l*, is disposed within a recess, *m*, made in the body of the shuttle, in rear of the spindle-head, and about in alignment with its fulcrum, the said bolt having a flat, rectangular head, *n*, formed upon its front end, which bears against the rear side of the spindle-head, a coiled spring, *o*, being coiled about the bolt, and serving to advance it, the pressure of such spring thereupon serving to return the bobbin-spindle back to its position within the bobbin-chamber of the shuttle, it being borne in mind that the shape of the spindle-head, and the disposition of its fulcrum, with respect to the bolt *l*, are to be such that the bolt shall serve to hold the spindle in either of its extremes of movement.

By the above-described arrangement of the spring and sliding bolt or abutment, I obtain the full force of the spring in a straight line, and consequently a smooth and even movement of the spindle upon its fulcrum, which would not be the case if one end of the spring were attached directly to the spindle-head, and its opposite to the shuttle-body.

Fig. 2 of the accompanying drawings shows a bent plate-spring, *q*, applied to the spindle-head, in place of the sliding bolt and coiled spring before described.

In this case, the spring is first passed about a horizontal pin, *r*, extending through the shuttle, in rear of

the spindle head, then given an upward bend, *s*, to press against the spindle-head, and next given a horizontal bend, *t*, this latter bend extending over and upon the top of the pin *n*, before referred to.

The action of the plate-spring has an equivalent mechanical effect to that of the sliding bolt, and works in a smooth and even manner.

In either of the examples shown in figs. 1 and 2, the shuttle is converted into a cop-shuttle, by removing the catch from the lower plate-spring, and splitting the spindle.

Fig. 3 of the drawings shows the application of the sliding bolt to a cop-shuttle of simple construction. In this case, the lower plate-spring, as well as the extension of the spindle-head, is omitted.

Fig. 4 of the drawings shows the spindle actuated by a horizontal yoke, *t*, encompassing its rear end, and pivoted to its opposite sides by a fulcrum, *u*, disposed in advance of the fulcrum of such head, the yoke itself being retracted by a coiled spring, *v*, fixed to its rear end, the opposite end of such spring being secured to the body of the shuttle in a suitable manner, the said yoke-spindle head and spring being contained within a chamber, *w*, formed in such shuttle-body, the extreme lowest position of the spindle being maintained by its bearing-covering in contact with a projection, *x*, fixed to the bottom of the chamber *w*.

This latter arrangement of parts gives a very desirable movement to the spindle.

Fig. 5 of the drawings shows the application of a spiral spring directly to the spindle-head, which will explain itself.

I claim as my invention, and desire to secure by Letters Patent—

1. The combination and arrangement of the pin *h*, plate *f*, and bent spring *g*, constructed substantially as herein described.

2. The bent spring *g*, formed as shown, for the purpose of actuating both the spindle-head and the pin *h*, substantially as herein specified.

AUGUSTUS D. CLARK.

Witnesses:

FRED. CURTIS,
E. GRIFFITH.