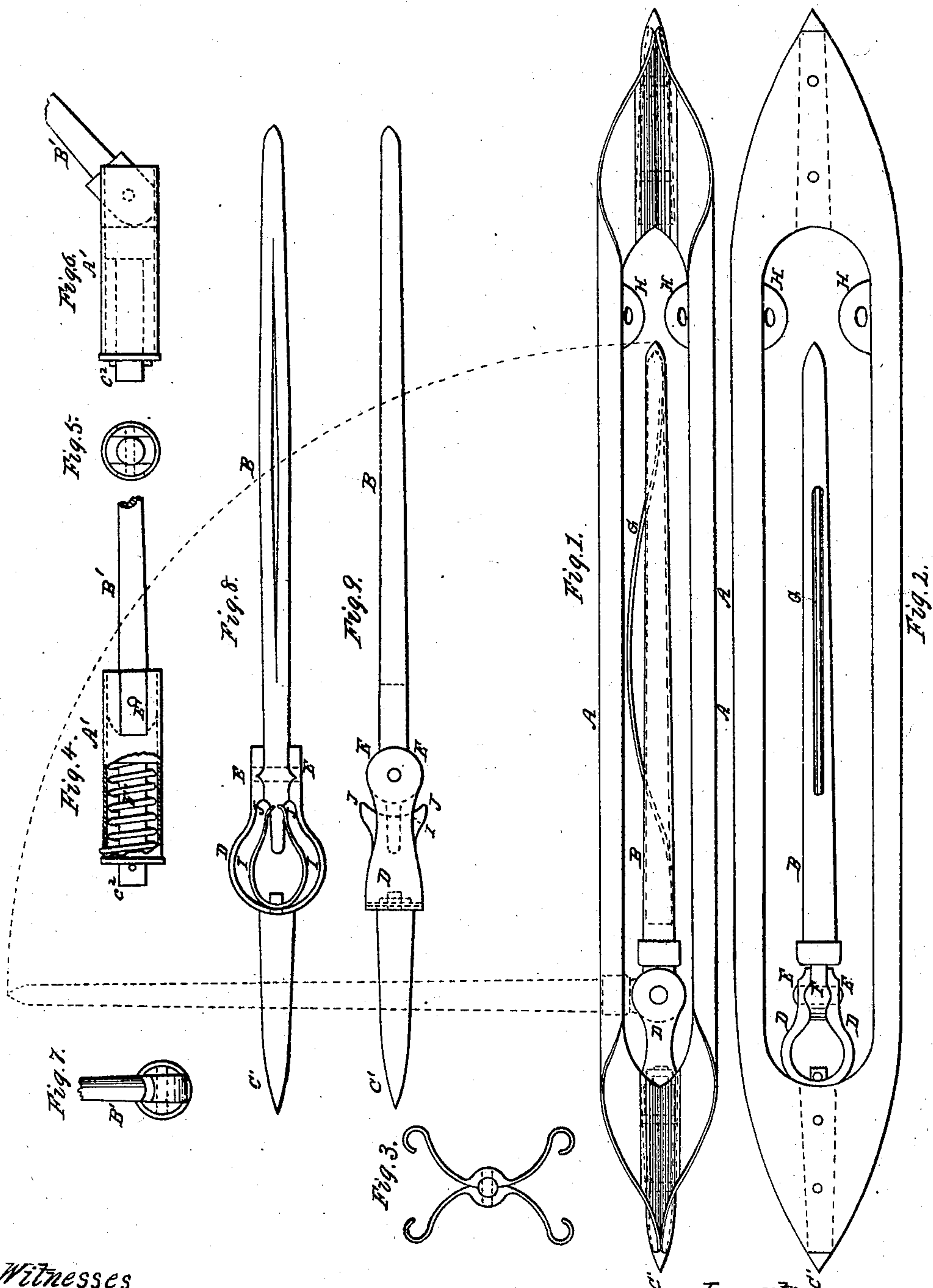


J. LOFVENDAHL.  
SHUTTLE FOR LOOMS.

No. 103,757.

Patented May 31, 1870.



Witnesses  
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# United States Patent Office.

JOSEPH LOFVENDAHL, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR TO  
HIMSELF AND SIMEON S. COOK, OF SAME PLACE.

*Letters Patent No. 103,757, dated May 31, 1870.*

## IMPROVEMENT IN SHUTTLES FOR LOOMS.

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

### *To whom it may concern:*

Be it known that I, JOSEPH LOFVENDAHL, of Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Shuttles for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing which makes part of this specification, and in which—

Figures 1 and 2 represent views of my improved shuttle, with hollow spindle, with wire therein for holding the bobbin or cop, and a device for attaching the spindle to the shuttle and permitting it to turn to receive the bobbin or cop;

Figure 3, a transverse section of the same;

Figure 4, a view of a second improved device for attaching the spindle to the shuttle and permitting it to turn to receive the bobbin or cop;

Figure 5, transverse section of the same;

Figure 6, a view of the same with the spindle in position for receiving the bobbin or cop;

Figure 7, a transverse section of the same;

Figure 8, a view of a third improved device for the same purpose; and

Figure 9, another view of the same device.

The object of my invention is to provide a simple, strong, and durable shuttle with spindle that shall firmly hold the bobbin or cop when in operation, and afford ready means for the attachment and removal of the same, and a shuttle that shall be economical in its construction.

My improvements consist in constructing a shuttle of a frame of sheet metals, in two or more pieces bent to the requisite form, and united at their ends by pointed metallic shafts or rods, and provided with eyelets through which the yarn is led off. Also, devices for firmly holding the spindle when the shuttle is in operation, and for permitting it to turn to receive the bobbin or cop, in manner hereafter described.

In the accompanying drawing which shows a convenient arrangement of parts for accomplishing the objects of my invention, in figs. 1 and 2—

A A represent pieces of sheet-metal arranged in rectangular form, cut and bent to present a smooth and circular surface on the outside, and to meet at their ends, where they are united by brazing, riveting, or other suitable manner, to pointed steel rods C and C<sup>1</sup>.

The part D is made of steel, so constructed as to make a spring with concave jaws, E E, and attached to the rod C<sup>1</sup> by a pin or other suitable device.

The spindle B is attached to the piece F, which plays in the jaws E E by turning on a pivot through these jaws. The spindle B and the piece F may be constructed of one piece, and operate in the same manner.

The mode of operation is this:

When the shuttle is in operation the spindle B is

held firmly between the jaws E E, and the removal or attachment of the bobbin or cop is accomplished by pulling the spindle B outward, which causes the piece F to force open the jaws E E, thus permitting the spindle to turn on its pivot until the bobbin or cop can be removed or attached.

The spindle B may be hollow, and in it placed a wire, G, one end of which is fastened in the end of the spindle B, next to the jaws E E, and the other end loose, thus permitting it to play in the spindle.

The wire G is designed to hold the bobbin or cop on the spindle B by giving or springing enough to admit the bobbin or cop on the spindle, but no more, and thus, by always springing and pressing against the bobbin or cop, it will hold them firmly on.

H H are eyelets through which the yarn is led off.

In fig. 4 the shaft C<sup>2</sup> may form part of the shuttle and be pointed as in figs. 1 and 2. One end of this shaft (not pointed) is larger in diameter than the other end.

Through the larger end is a slot entirely through it, as shown at E'. Around the smaller part of the shaft C<sup>2</sup> is a core or spring, F', of wire or other material, which is fastened to the barrel or shaft A'.

Around the shaft C<sup>2</sup> and the spring F' is a hollow shaft or barrel, A', which is unconnected with any parts but the spring F', as before mentioned, and can, therefore, be turned around in any direction. It is provided with a slot through the end next to the spindle, of the same size as the one in shaft C<sup>2</sup>.

When it is desired to remove or attach the bobbin or cop, it is only necessary to turn the barrel A' until the slot in it comes exactly opposite the one in shaft C<sup>2</sup>, (in which the spindle B' turns on a pivot,) and the spindle can then be turned through both the slots, as shown in fig. 6.

Having placed the bobbin or cop on the spindle B', turn it back until it is in its proper place in the shuttle, and the spring F' will then turn the barrel A' back again until the two slots in A' C<sup>2</sup> are not opposite, and the spindle B' will be firmly held by the shaft C<sup>2</sup> and the barrel A'.

In figs. 8 and 9—

D consists of a spring of steel, exactly as in figs. 1 and 2, before described. The spindle B extends through and beyond the jaws E E.

Another spring of steel, I, is placed within the spring D, with jaws J J, which press upon the end of spindle B, between them, thus holding the spindle more firmly in position when in operation than would be done by the spring D alone, and yet permitting it to turn readily to receive the cop.

From the construction of my shuttle, it will be seen that it is strong, light, and durable; also, the flexibility of the sheet metal permits the shuttle to



easily yield, without injury, to any pressure that may come upon it.

My shuttle is constructed in the form of an open frame, with parallel sides, and permits the spindle to turn outward in either direction, thus enabling the operative to apply the cop without being obliged in any instance to turn the shuttle over. It also has eyelets on two sides, through either of which the yarn may be delivered, thus rendering it more convenient in threading.

It will be observed that my shuttle may rest on either side when in operation, and is therefore more durable.

The hollow spindle with wire therein readily permits the reception of the cop or bobbin, and firmly holds it on when in operation.

The several devices for permitting the spindle to turn to remove or attach the cop or bobbin, and to hold the spindle firmly when in operation, are simple, durable, and easy of operation.

Having thus fully described my invention, What I claim therein as new, and desire to secure by Letters Patent, is—

1. As an article of manufacture, the metallic shuttle, constructed substantially as described, and provided with eyelets on both sides, for the purpose set forth.

2. The metallic shuttle, in combination with the spring D and part F of the spindle, when constructed and operating substantially as described.

3. The slotted rod C<sup>2</sup>, spring F', and slotted hollow barrel A', in combination with the hinged spindle B', substantially as described.

4. The steel springs D and I, with respective jaws E E and J J, in combination with spindle B, substantially as described.

JOSEPH LOFVENDAHL.

Witnesses:

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