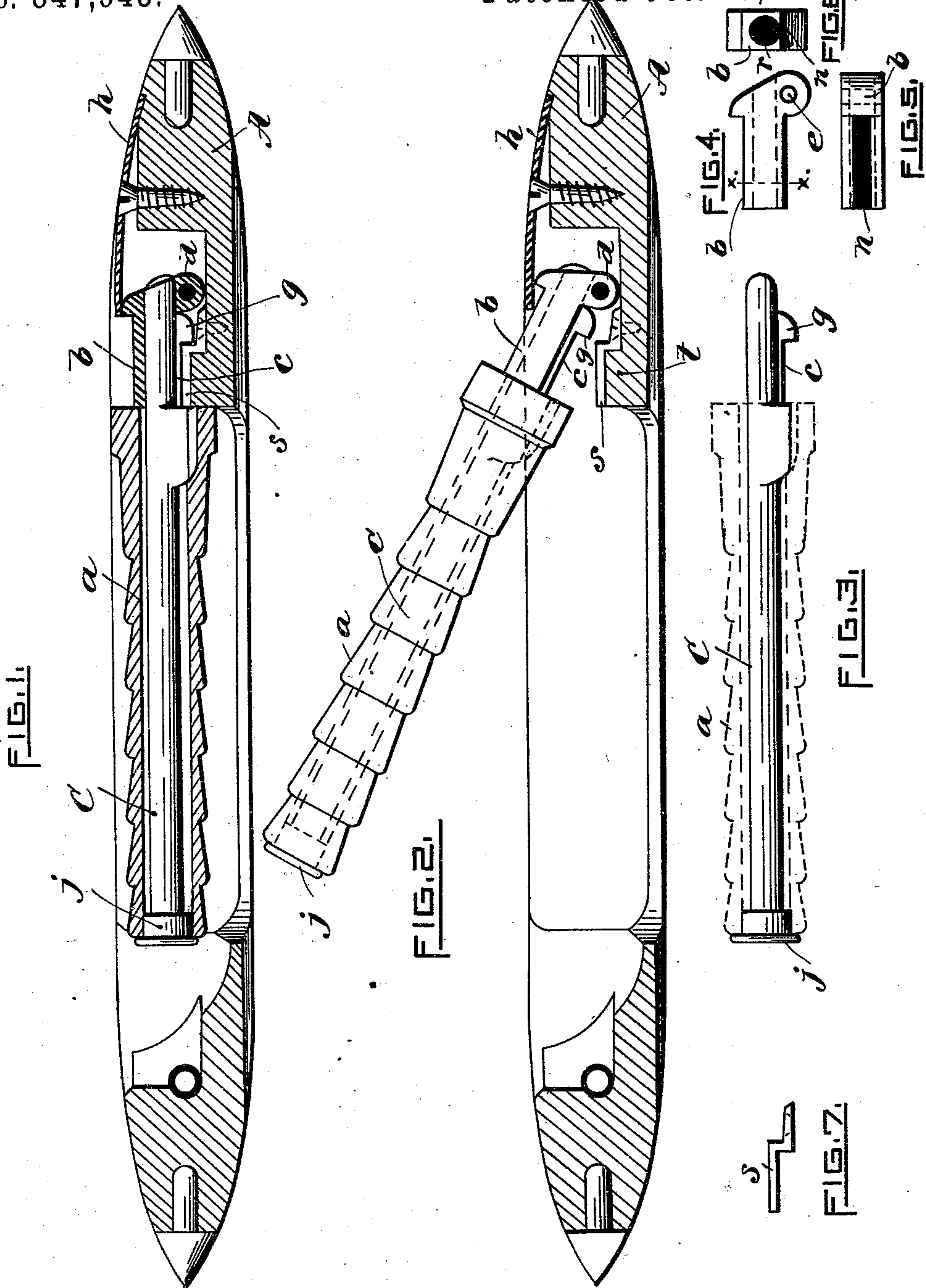


(No Model.)

T. SUTCLIFFE & J. MARSHALL.  
LOOM SHUTTLE.

No. 547,943.

Patented Oct. 15, 1895.



WITNESSES.

*Charles Hanningan*  
*L. B. Dink*

INVENTORS

*Thomas Sutcliffe*  
*John Marshall*  
By *Berj Arnold*  
Atty.



# UNITED STATES PATENT OFFICE.

THOMAS SUTCLIFFE AND JOHN MARSHALL, OF PAWTUCKET, RHODE ISLAND.

## LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 547,943, dated October 15, 1895.

Application filed May 1, 1895. Serial No. 547,822. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS SUTCLIFFE and JOHN MARSHALL, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Loom-Shuttles; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved method of holding the bobbin-spindle in the shuttle where such spindles are made removable for the purpose of changing an empty bobbin for a full one. It is fully illustrated in the accompanying drawings.

Figure 1 shows a vertical section of a shuttle, taken lengthwise through its center with the spindle in elevation. Fig. 2 shows the same parts as Fig. 1 with the spindle turned up in position to be removed to change the bobbin. Fig. 3 represents the spindle and bobbin separate from the socket, which remains in the shuttle when the bobbin is changed. Fig. 4 is a side elevation of the socket that holds the spindle. Fig. 5 shows the under side of the socket. Fig. 6 is a cross-section of the socket, taken on line *x x*, Fig. 4. Fig. 7 is a separate view of plate *s*.

In the drawings, *A* indicates that part of the shuttle known as the body, and which is usually made of wood and protected at each end by steel points.

*C* is the spindle that holds the bobbin of weft-thread, and which is made removable to facilitate changing the empty bobbin for a full one when run out.

*b* is the socket made to hold the spindle *C* in the shuttle. This socket *b* is preferably made in one piece of metal forged and milled into the proper shape, as seen in the drawings. It has a hole *e* made through it side-wise at the lower part of its rear end to receive a pivot *d*, held on both sides in the wood of the shuttle-body and on which it turns when raised, as in Fig. 2. A hole *r* is made through the socket lengthwise to receive the spindle *C*, and a wide slot *n* (see Fig. 5) is made through the under side of the socket into the hole *r* for about two-thirds of its length from the front end to receive a raised spline *c*, made on the under side of a portion of the spindle that enters the socket. This spline *c* is for

the purpose of preventing the spindle from turning and as a guide in entering the spindle in the socket properly. The wood *t* of the shuttle-body under the socket *b* is cut out in a stepped form to receive the metal plate *s*, which is held in place by a screw entering the wood beneath. The plate *s* forms a step or notch *j* to receive a block *g*, made on the back end of the spline *c*, which shuts into it when the spindle is pushed down, as in Fig. 1, and prevents it from coming out of the socket.

The spline *c* in front of the block *g* projects out of the slot in the socket and rests on the plate *s* to assist in keeping the spindle steady and from wearing loose. A button *j'* is made fast on the free end of the spindle *C*, consisting of a body to enter the end of the bobbin and a flange or head that projects, so as to protect the thread from being injured by the rough end of the bobbin when it is pulled off over the end in weaving. A flat stiff spring *h* of the usual form is held on the top of the shuttle by a screw through its middle screwing in the wood, with the front end of the spring resting on the socket *b* just in front of its pivot *d*, so as to hold the spindle down when in use.

To change the bobbin *a* the spindle *C* is raised, as in Fig. 2. Then the spindle with the bobbin on it is taken from the socket. The spindle is then drawn out of the bobbin by the button *j'* and inserted in a full bobbin and then put back into the socket and turned down again, as in Fig. 1.

Having thus described our improvements, we claim as our invention—

The combination with a shuttle body of a removable spindle having a projecting spline on a portion of its under side, a socket having a hole made in it to receive said spindle and a slot made through its under side to receive said spline, a pivot passing through the shuttle sides to hold said socket, a head on the back end of the spline, a stepped plate fast on the wood under the socket to receive the spline when the spindle is shut down, and hold it from coming out, substantially as described.

THOMAS SUTCLIFFE.  
JOHN MARSHALL.

Witnesses:

L. J. BUSH,  
BENJ. ARNOLD.