

(No Model.)

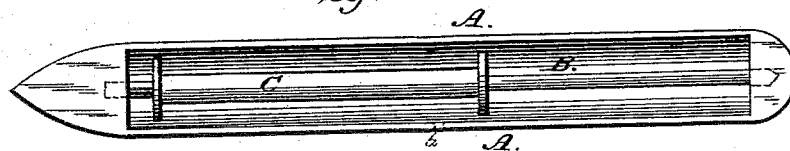
B. F. LANDIS.

SHUTTLE.

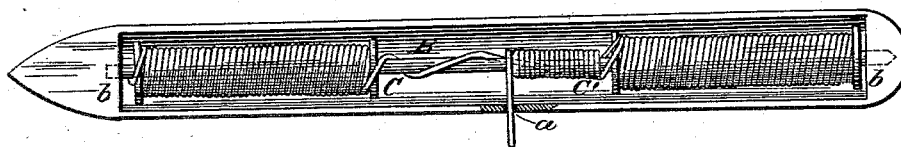
No. 305,933.

Patented Sept. 30, 1884.

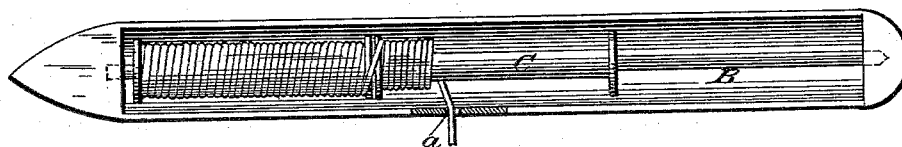
*Fig. 1.*



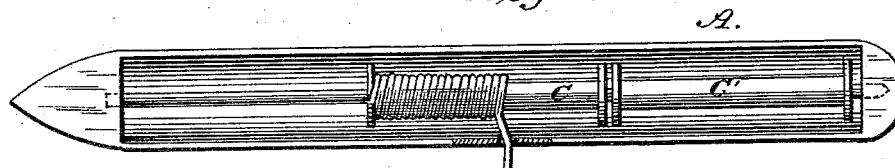
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN LANDIS, OF ST. JOSEPH, MISSOURI.

## SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 305,933, dated September 30, 1884.

Application filed July 25, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. LANDIS, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Shuttles, of which the following is a description.

This invention relates to that class of shuttles used for carrying the lower thread in sewing-machines. It is very desirable that a shuttle should carry as much thread as possible, and yet be as small in diameter as possible. This necessitates the winding of the thread on a very long spool or bobbin, and as it is common to withdraw the thread in use from a hole in the side of the bobbin central to its length, the thread necessarily has great lateral traverse, and consequently a very irregular strain.

The object of my invention is to even the strain upon the thread by lessening its lateral traverse in drawing from the bobbin in the shuttle.

To this end my invention consists in a shuttle or spindle and bobbins hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is an interior view of a shuttle, showing the spindle and one bobbin in place. Figs. 2, 3, and 4 are similar views showing a spindle, two bobbins, and thread in different stages of unwinding.

A represents the shuttle, which may be of any usual form, provided with a central outlet, *a*, for the thread, and with end bearings, *b*, of any suitable form, for the spindle B. This spindle is a straight wire, which may be pointed at one or both ends to lessen friction from endwise thrusts in drawing the thread.

C and C' represent two spools or bobbins, which I prefer to make each about one-third the length of the spindle inside the bearings. In winding these bobbins and the spindle, I begin by winding on the first spool, C, and proceed to wind that spool. Then I wind the thread quickly, say by three or four turns around the spindle across to spool C', which I wind full. Then I wind the spindle full between the two spools. In this way any number of bobbins may be prepared to be in-

serted when needed in the shuttle. Then the end of the thread being passed out at hole *a*, the shuttle is ready for use. The first result is the unwinding of the spindle, which being wound for only a short distance each side of the delivery-hole does not strain the thread far laterally. When this portion of the spindle is empty, the thread draws spool C' in front of the delivery-hole, and that spool continues to reciprocate endwise in front of the hole to accommodate the strain of the withdrawing thread. When spool C' is empty, spool C is drawn in front of the discharge-hole, sliding the empty spool C' out of the way. By this construction and method of winding I lessen the sidewise strain upon the thread two-thirds or more, owing to the freedom of the spools to reciprocate to the lateral strain of the thread.

These shuttles and bobbins may be used in any industry to which they are suited, such as sewing, weaving, &c., and any desired number of spools may be used in a single shuttle operating on the same principle.

I am aware that a shuttle has been provided with two or more separately-journaled spools, or spools journaled on separate spindles not to slide endwise thereon, and I do not claim such as my invention.

A shuttle with a central thread-delivery is one with a hole as near its center as usual, longitudinally.

One short bobbin on a spindle would accomplish my purpose to some extent, but not so well as two.

The bobbin and the method of preparing the same described being the subject of another application for a patent which I am now making, I do not herein claim them.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with a shuttle having a bobbin-chamber within it, and bearings at each end thereof to receive a spindle, and a thread-delivery at one side of the shuttle near its center longitudinally, of a spindle fitted to the said bearings and a spool fitted loosely on the spindle, the said spool being about one-half the length of the shuttle-chamber, substantially as described, whereby the spool may reciprocate longitudinally upon the spin-

die, to permit the thread to be drawn directly from any point on the length of the spool to the thread-delivery in the shuttle, as shown and described.

- 5 2. The combination, with a shuttle having a central thread-delivery and spindle-bearings, of a spindle constructed to rotate in said bearings, and two spools upon said spindle,

each shorter than one-half the length of the spindle and free to reciprocate longitudinally in thereon.

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Witnesses:

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