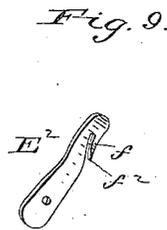
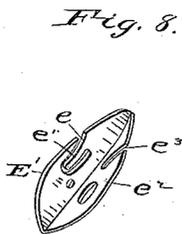
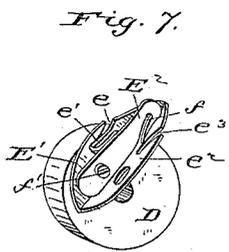
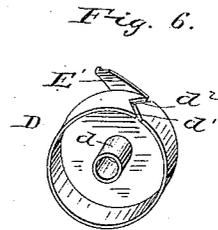
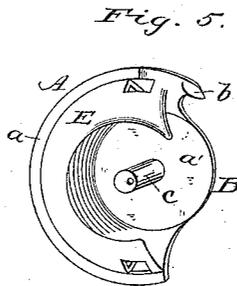
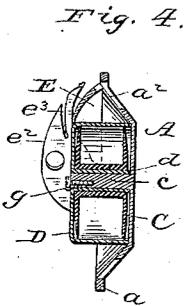
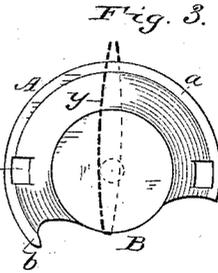
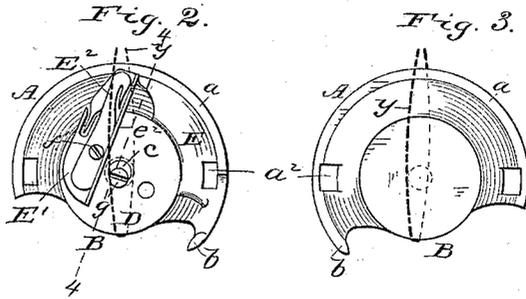
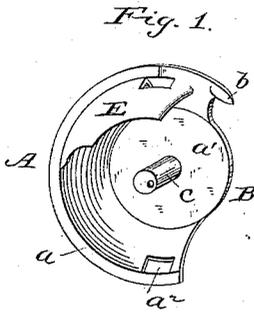


(No Model.)

J. & W. L. HEBERLING.
SEWING MACHINE SHUTTLE.

No. 311,490.

Patented Feb. 3, 1885.



Witnesses:

H. N. Low
William Calver

Inventors:

John Heberling and W. L. Heberling
by Henry Calver, Attorney

UNITED STATES PATENT OFFICE.

JOHN HEBERLING, OF CLEVELAND, OHIO, AND WILLIAM L. HEBERLING,
OF BATH, ILLINOIS.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 311,490, dated February 3, 1885.

Application filed April 29, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN HEBERLING, of Cleveland, Ohio, and WILLIAM L. HEBERLING, of Bath, Mason county, Illinois, citizens of the United States, have invented certain new and useful Improvements in Sewing-Machine Shuttles, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to that class of sewing-machine shuttles which are intended, when in operation, to have a continuous or reciprocating rotary movement, and which are provided with what are known as "disk" bobbins, carried in bobbin-cases which remain stationary while the shuttles rotate.

The principal object of our invention is to produce shuttles of the class above referred to of such construction that they will be as light as possible consistent with proper strength and stiffness, and will have a larger thread-carrying capacity in proportion to the size of the loops of needle-thread required to pass around them than those heretofore in use, while they may be more cheaply manufactured than similar shuttles heretofore made.

In the accompanying drawings, Figure 1 is a perspective view of the shell of our improved shuttle. Figs. 2 and 3 are front and rear views, respectively, of the same, Fig. 2 showing the bobbin-case in position. Fig. 4 is a sectional view on the line 4 4, Fig. 2, of the shuttle-shell, bobbin-case, and bobbin. Fig. 5 is a perspective view of a modified form of our shuttle. Figs. 6, 7, 8, and 9 are detail views of the bobbin-case and its tension device.

A is the body of our shuttle, said body consisting of a metallic dish-formed shell open on its face and having a peripheral flange, *a*, adapted to run in the raceway of the machine, a portion of the said flange being formed into a hook, *b*, for seizing the loops of needle-thread. The shell A is recessed or cut away on one edge or side at B, as shown, to lessen its weight and also to enable it to pass through smaller loops of needle-thread than it otherwise would. This cut-away portion is what is known as the "loop-passage."

Formed integral with or suitably secured to the shell A, preferably centrally of its axis of

rotation, is a pin, *c*, on which loosely fits a sleeve, *d*, centrally fixed to the bobbin-case D, and on said sleeve is loosely fitted the disk-bobbin C, said pin thus serving to support said bobbin-case and bobbin. To enable the bobbin to carry as much thread as possible, it is made to fill a bobbin-case having a depth about twice that of the shuttle-shell A, and a diameter sufficiently great to extend its periphery to the loop-passage B of the said shell. In other words, the flattened space *a'* in the center of the shuttle which is occupied by the bobbin and its case, and which we term the "bobbin-space," extends out to the loop-passage B. In the operation of sewing it is necessary for the shuttle to pass through loops of the needle-thread, as indicated in Figs. 2 and 3, in which said loops are indicated by the dotted lines *y*. In our shuttle there is no extension of the shuttle-shell on the loop-passage side thereof beyond the periphery of the bobbin-case, and hence it follows that our shuttle may have a bobbin of a larger size radially than those heretofore in use, without requiring a larger loop of needle-thread, or, conversely, may pass through a smaller loop of needle-thread than is required for the old shuttles and still carry as large a bobbin as has heretofore been used.

Owing to the depth or thickness of the bobbin and bobbin-case, they both extend some distance beyond the face of the shuttle-shell proper, so that the peripheral flange *a*, which engages the shuttle-race, and which also serves to divide the loops of needle-thread, comes about midway laterally of said bobbin and case. To hold the loops of needle-thread clear of the latter, an inclined guard, E, is attached to the face side of the shuttle-shell rearward of the hook *b*. This guard is preferably comparatively short, as shown in Figs. 1 and 2; but it may be extended about half-way around the shuttle, as shown in Fig. 5, if desired.

From the structure above described it will be clear that our shuttle-shell will be comparatively light in proportion to its strength, which will be sufficient to avoid that springing to which some of the skeleton rotary shuttles heretofore in use are liable, and as the body of the shuttle consists of a comparatively plain

dish-formed shell, which may be readily "drop-forged" or stamped out of thin metal, it is obvious that it may be much more cheaply manufactured than similar rotary shuttles heretofore in use.

Our bobbin-case D is provided with a thread-slot, d' , extending partially across its flanged periphery, and joining a groove, d^2 , leading into a V-shaped thread-slot, e , in a rigid arm, E' , attached to or formed integral with the bobbin-case, said slot forming a thread-finger, e' . The arm E' is provided with a guard, e^2 , for holding the loops of needle-thread away from the tension-spring and its regulating-screw, and also the thread-finger in said spring, said guard e^2 having near its top a slot, e^3 . A tension-spring, E^2 , having a thread-slot, f , is attached to the arm E' by a screw, f' , by which the stress of said spring can be regulated. The slot f forms a thread-finger, f^2 , the point of which is turned slightly outward from the face of the arm E' .

The bobbin being placed on the sleeve d of the bobbin-case, its thread may be drawn into the slot d' , groove d^2 , and slot e , thence across the outer face of the tension-spring E^2 into the slot e^3 , to enable it to be brought beneath the finger f^2 . After it has been drawn beneath said finger it will be pulled upward or in the direction of the length of the arm E' , and will thus be placed between the outer end of the tension-spring and the face of said arm, where it will receive the requisite friction to give it the proper tension as it passes upward to the fabric.

It will be understood that the rigid arm E' will engage some suitable stationary part of machine, beneath the work-plate, to hold the bobbin-case stationary as the shuttle rotates. The bobbin-case may be retained on the pin c by an eccentric-headed screw, g , as shown, or a suitable latch may be used as a retaining device for said case.

We have shown our shuttle as being provided with slots or recesses a^2 , which are intended to be alternately engaged by horns of a rotary driver.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A sewing-machine shuttle-shell cut away on one side to form a loop-passage, and having a bobbin-space extending to said loop-passage, and a pin centrally arranged in said bobbin space, combined with a bobbin-case loosely journaled on said pin, and having its periphery extending to the edge of said shuttle-shell at said loop-passage, and a bobbin arranged within said bobbin-case, substantially as set forth.

2. An outwardly-flaring dish-formed sewing-machine shuttle-shell, having an open face and a peripheral flange, the latter provided with a point or hook, combined with a bobbin-case and bobbin, both of greater depth or thickness than the body of said shuttle-shell, and an inclined guard on the face or outer side of said shell rearward of said hook, for keeping the loops of needle-thread clear of the said bobbin-case, substantially as set forth.

3. The combination, with the shuttle-shell A, having pin c , of the bobbin C and bobbin-case D, the latter having a slot, d' , and groove d^2 , rigid arm E' , having V-shaped slot e , into which said groove leads, guard e^2 , having slot e^3 , and the tension-spring E^2 , attached to said arm, and having the thread-finger f^2 , substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN HEBERLING.

WILLIAM L. HEBERLING.

Witnesses:

FLAMEN BALL, Jr.,
ALFRED G. SHAW.