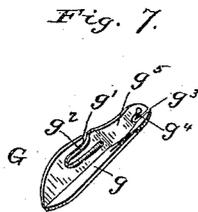
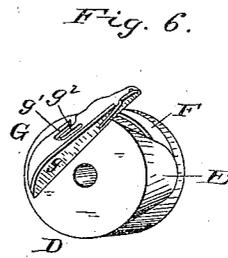
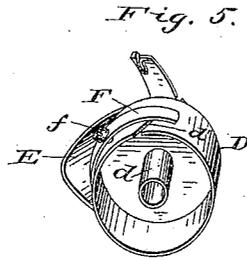
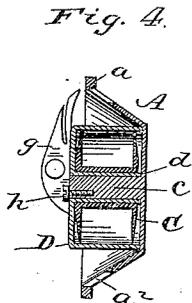
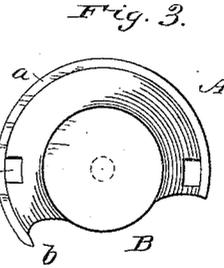
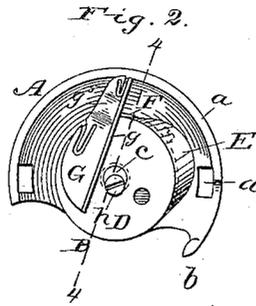
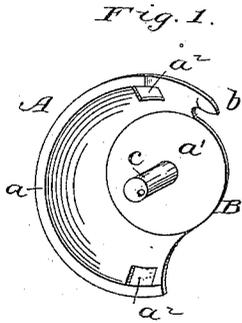


(No Model.)

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

No. 311,491.

Patented Feb. 3, 1885.



Witnesses:

H. N. Low
William Calver

Inventors:

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by Henry Calver
Attys.

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. 311,491, 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 Wm. 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 motion, 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 which 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 new improved shuttle. Figs. 2 and 3 are face and back 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. Figs. 5 and 6 are detail views of the bobbin-case and its tension device. Figs. 7 and 8 are detail perspective views of the thread-arm and tension-spring, respectively.

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, in front of the hook *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 constituting 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 give the bobbin a large thread-carrying capacity, it is made to fill a bobbin-case having a depth or thickness greater than that of the shuttle-shell A. 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," preferably extends out to the loop-passage B, so as to admit of the use of a bobbin having the largest possible diameter relative to the size of the loops of needle-thread required to pass around the shuttle and bobbin-case with its inclosed bobbin.

The bobbin-case D, when of a depth or thickness greater than that of the shuttle-shell, extends outward beyond the front face of the latter, and when said case is formed with a flat outer face, as is required by an ordinary disk-bobbin closely filling said case, the loops of needle-thread, when passing over said case, are liable to catch on the outer corner thereof. To avoid this difficulty, we provide our bobbin-case with an inclined guide, E, for guiding the loops of thread over said case, said guide being arranged, as shown in Fig. 2, on the right-hand side of the bobbin-case, or on that side thereof over which the loops of needle-thread first pass. The inner end of the guide extends within the outer face of the shuttle-shell, so that the loops of needle-thread cannot catch beneath it.

F is a tension-spring fastened to the periphery of the bobbin-case by a securing and adjusting screw, *f*, the bobbin-case being provided with a thread-slot, *d'*, adjacent to said spring. The bobbin-case is also provided with a rigid arm, G, on which is a guard, *g*, said arm having a V-shaped slot, *g'*, open toward the tension-spring and forming a thread-finger, *g''*. A slot, *g''*, at the upper end of the arm G, forms another thread-finger, *g''*, and between the slots *g'* and *g''* the said arm is preferably provided with a slight convex projection, *g''*, which will have a tendency to increase the smoothness of the draft of the thread.

The bobbin being placed on the sleeve *d* of the bobbin-case, its thread may be drawn into the slot *d'* beneath the tension-spring F, thence around the thread-fingers *g''* and *g''*, passing

from the latter upward, said arm thus serving as a guide for the thread on its way from the tension-spring to the fabric.

It will be understood that the rigid arm G will engage some suitable stationary part of the 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, *h*, 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.

From the foregoing 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 now in use are liable. It will also be apparent that as the body of our shuttle consists of a comparatively plain dish-formed shell, the face of which is entirely open, it may be readily "drop-forged" or stamped out of thin metal, and thus be manufactured much more cheaply than similar shuttles heretofore in use.

We do not claim in this application a shuttle-shell having a bobbin-space extending to the loop-passage combined with a bobbin-case and bobbin, the periphery of the former extending to said loop-passage, this feature being claimed in another application, No. 129,747, filed by us simultaneously herewith.

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

1. A sewing-machine shuttle-shell consisting of an outwardly-flaring dish-formed body

having a peripheral flange and a face which is entirely open outside of said flange, and having also a supporting-pin for the bobbin-case and bobbin, combined with a bobbin-case and bobbin loosely sustained by said pin, so that they may remain stationary while the shuttle rotates, substantially as set forth.

2. A sewing-machine shuttle-shell consisting of an outwardly-flaring dish-formed body having an open face and a supporting-pin for the bobbin-case and bobbin, combined with a bobbin-case having a depth or thickness greater than that of said shell, and provided with an inclined guide on one side only of said case and extending within the outer face of the said shell, and a bobbin arranged within said bobbin-case, substantially as set forth.

3. The combination, with the shuttle-shell A, having the pin *c*, of the bobbin-case D, having slot *d*¹, and the rigid arm G, the latter having thread-fingers *g*² and *g*⁴, the tension-spring F, secured to the periphery of the said bobbin-case, and the bobbin C, arranged within said case, substantially as set forth.

4. The combination, with the shuttle-shell A, having the pin *c*, of the bobbin-case D, having the slot *d*¹, and the rigid arm G, the latter having the thread-fingers *g*² and *g*⁴, and the convex projection *g*⁵, the tension-spring F, secured to the periphery of the said bobbin-case, and the bobbin C, arranged within the said case, 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.