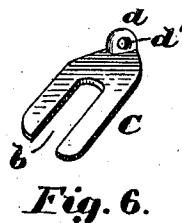
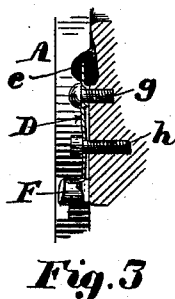
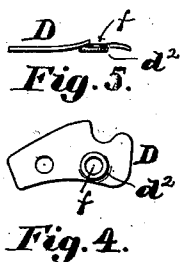
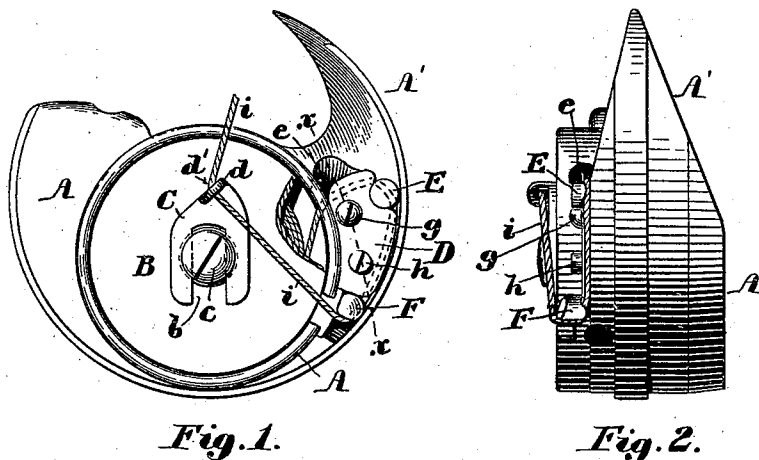


(No Model.)

H. T. CROSBY.
SHUTTLE FOR SEWING MACHINES.

No. 572,335.

Patented Dec. 1, 1896.



Witnesses:
Walter E. Lombard.
D. C. Greenleaf

Inventor:
Hanford T. Crosby,
by N. C. Lombard
Atty.

UNITED STATES PATENT OFFICE.

HANFORD T. CROSBY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
BERTRAND SEWING MACHINE COMPANY, OF PORTLAND, MAINE.

SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 572,335, dated December 1, 1896.

Application filed March 14, 1896. Serial No. 583,240. (No model.)

To all whom it may concern:

Be it known that I, HANFORD T. CROSBY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Shuttle-Tension Devices, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to shuttle-tension devices, and is designed especially for rotary shuttles for wax-thread sewing-machines; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claims hereto appended and in which my invention is clearly pointed out.

Figure 1 of the drawings is a front elevation of a wax-thread sewing-machine shuttle with my improved tension device applied thereto. Fig. 2 is an edge view of the same. Fig. 3 is a partial section on line *xx* on Fig. 1. Figs. 4 and 5 are respectively an inverted plan and an edge view of the tension-spring. Fig. 6 is a perspective view of the bobbin-retaining plate, and Figs. 7 and 8 are respectively a sectional elevation of the bobbin-stud and a plan of said stud with clamping-screw removed.

In the drawings, A is the shuttle-body, provided with a chamber to receive the bobbin B, which is mounted upon and revoluble about a fixed stud or journal *a*, set in the shuttle-body with its axis coinciding with the axis of said chamber and having a small section of its length at its outer or front end made flat-sided, as shown in Figs. 7 and 8.

C is a plate having an open-ended slot *b* formed in one end thereof, adapted to receive the flattened portion of the stud *a*, and *c* is a clamping-screw fitted to a threaded hole in the end of the stud *a* and having a head of a diameter not greater than the diameter of said stud, but adapted to bear upon the plate C at either side of the slot *b* to clamp said plate to the stud *a*, so as to retain the bobbin upon said stud and at the same time allow it to revolve freely thereon.

The plate C is provided at its end opposite

to the slot *b* with the outwardly-projecting ear *d*, in which is formed the thread-guiding eye *d'*.

The shuttle-body A has formed therein the thread guiding or delivering opening *e*, near the root of the hook A' and communicating with the interior of the bobbin-chamber between the flanges of said bobbin.

D is a tension-spring provided on its inner face with an annular lip *d''*, surrounding the screw-hole *f*, through which the screw *g* is screwed into the shuttle-body to clamp said spring firmly thereto, and *h* is a screw passing through said spring and threaded into the shuttle-body as a means of adjusting the movable end of said spring to a greater or less distance from the body of the shuttle to regulate the tension of said spring upon the thread *i*, as shown in Figs. 1, 2, and 3.

A hook E is set in or secured to the shuttle-body near the root of the hook A', and a similar hook F is secured to said shuttle at the opposite end of the spring D, as shown in Figs. 1 and 2. The shuttle-thread passes from the bobbin B through the opening *e*, under the end of the spring D, under the head of the hook E, under the outer edge of the spring D, under the head of the hook F, and thence through the eye *d'* of the plate C, as shown in Figs. 1 and 2.

To remove the bobbin for refitting the same, it is only necessary to slacken the screw *c* and withdraw the plate C from beneath it, when the bobbin may be removed from its supporting-stud *a* and be replaced thereon and again secured in position by inserting the slotted end of the plate C beneath the head of the screw *c* and tightening said screw thereon. This arrangement of the several parts of the shuttle, its bobbin, and the thread-guiding eyes and hooks and the thread-clamping spring forms a very effective tension device which is not liable to get out of order and is comparatively cheap in construction.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a shuttle-tension device, the combination of a rotary shuttle-body provided with a bobbin-receiving chamber or recess, and a

thread-delivering opening through the peripheral wall of said chamber; a leaf-spring secured to the front face of the shuttle-body and having its contact-surface with the front face of said shuttle-body parallel to the plane of revolution of said shuttle; a pair of thread-guiding hooks set in said front face of the shuttle-body, one at or near each end of said spring; and the plate C provided with the thread-guiding eye *d*, *d'*.

2. The combination with a rotary shuttle-case provided with a bobbin-chamber and with the thread-delivery opening *e* and a bobbin-carrying stud set therein; of a bobbin-retaining plate secured in a fixed position on said stud and provided with a thread-guiding eye at or near the axis of the shuttle-body;

the spring D; the clamping-screw *g*; the adjusting-screw *h*; and the hooks E and F.

3. The combination of the shuttle A provided with the stud *a*, and the delivery-opening *e*; the bobbin B; the spring D provided with the annular lip *d*²; the clamping-screw *g*; the adjusting-screw *h*; and the hooks E and F.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 12th day of March, A. D. 1896.

HANFORD T. CROSBY.

Witnesses:

N. C. LOMBARD,
F. C. HALL.