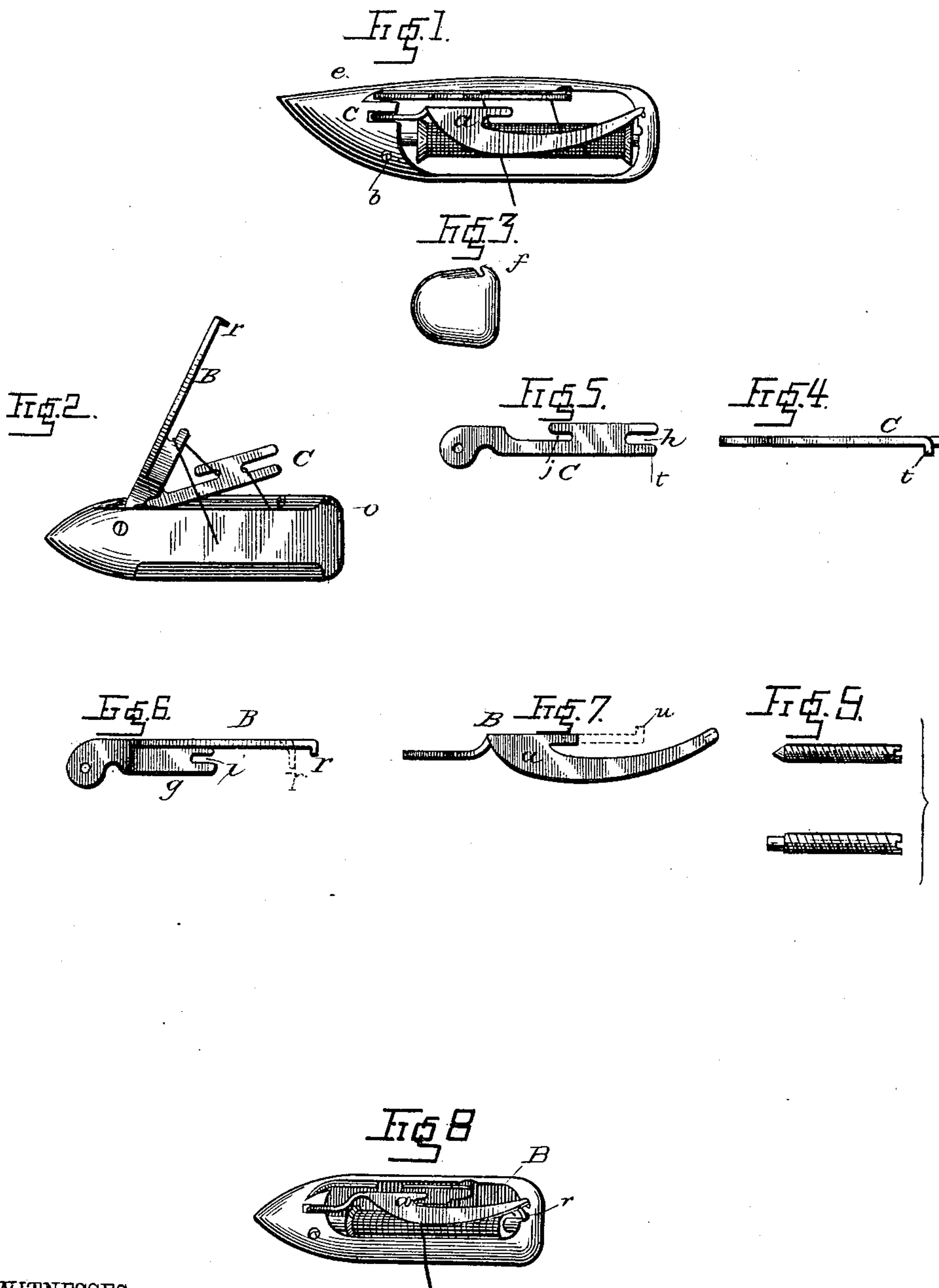


(Model.)

G. H. THOMAS.
SEWING MACHINE SHUTTLE.

No. 273,781.

Patented Mar. 13, 1883.



WITNESSES:

Ad. L. Dietrich
J. G. Hinkel

INVENTOR.

George H. Thomas
by Allen Webster
his ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE H. THOMAS, OF SPRINGFIELD, MASSACHUSETTS.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 273,781, dated March 13, 1883.

Application filed August 22, 1882. (Model.)

To all whom it may concern:

Be it known that I, GEORGE H. THOMAS, of Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Shuttles, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to the tension and thread-controlling mechanism of sewing-machine shuttles.

Heretofore the thread-controlling and tension mechanism in many sewing-machine shuttles has been objectionable because difficult to thread, complicated, easily gotten out of repair, and expensive.

The object of my invention is to construct a sewing-machine shuttle having a tension and thread controlling mechanism which shall be free from the above-named objectionable features; and my invention consists in the construction and arrangement of the parts as herein set out, whereby the objects of my invention are attained.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a top view of a shuttle embodying my invention. Fig. 2 is a side view of the same, with the thread-guide and tension-spring swung away from the opening. Fig. 3 is a view of the heel of the shuttle. Figs. 4 and 5 are edge and side views of the tension-spring. Figs. 6 and 7 are edge and side views of the thread-guide. Fig. 8 is a perspective of the shuttle, showing the position of the parts at the time of threading; and Fig. 9 is a view of the pivotal screw.

The tension-spring consists of a piece, *c*, having notches *h* and *j*, and the projection *t*. The thread-guide consists of a piece, *B*, having a curved piece, *a*, and the part *g*, having a notch, *i*. The thread-guide and tension-spring are pivoted within the slots *e* and *e*, as shown. The tension-screw, which also serves as a pivot for the guide and tension-spring, passes through the frame from the point *b* and bears against the tension-spring. The end of this screw is provided with a projection of less diameter than the body of the screw; or, if preferred, the end is made tapering. The opening in the pivotal end of the tension-spring is sufficiently large to permit the end of the screw to enter it, but will not permit

the passage of the body of the screw. A pivot for the tension-spring is thus provided without the use of other screws or pins. This screw passes through the pivotal end of the thread-guide and the slot *e*, thus providing a pivot for the guide to turn upon.

In some of the sewing-machines in which this class of shuttle is used a thread-spring is desirable—i. e., a spring or device which will grasp the thread when it reaches the heel of the shuttle and hold it there until it is drawn from that position by the action of the machine, thus preventing the kinking or knotting in the thread, which is liable to result if the thread be not so held—while in other machines this is not required. To adapt my invention, therefore, to shuttles for both kinds of machines, I vary the construction, as hereinafter set out. For a machine which does not require a thread-spring the heel of the frame is slotted, as shown at *f*, to receive and hold in place the free end of the thread-guide, which retains its position within the slot by reason of its tendency to spring toward the face of the shuttle. The thread-guide is provided at or near its end with an inwardly-projecting piece, *r*, around which the thread draws, thus preventing the catching or drawing of the thread in the slot *f*. This piece may be extended sufficiently to reach to, or nearly to, the bobbin-arbor, thus acting both to hold the bobbin in place and to prevent the thread being drawn too far over the heel of the shuttle.

For a machine which requires a thread-spring I construct the frame without the slot *f*, and permit the free end of the thread-guide to bear directly upon the surface; and to hold it in position with a downward pressure, I provide the part *g* with an outwardly-projecting pin, *u*, which enters a recess in the shuttle-frame adapted to receive it when the guide is in its proper position. This pin may project from the part *g*, constructed as shown in full lines, or the part *g* may be lengthened, as indicated by dotted lines in Fig. 7. This I deem the better method of construction. The pin or part *r* may enter a recess, *o*, in the frame, or may project inwardly inside the frame, as in the first-described method of construction, except that in the construction in which a thread-spring is desired a portion of the end

of the guide between the piece *r* and its edge which is farthest from the face of the shuttle must be left free to receive the thread between it and the shuttle-frame, and thus operate as a thread-spring, while with the first-described method of construction the piece *r* is adapted to prevent the thread being caught between the guide and frame.

The free end of the tension-spring is provided with a piece, *t*, which enters a recess or opening in the shuttle-frame adapted to receive the same, thus holding the spring in position.

The shuttle-frame is provided with the usual recesses and grooves for the reception of the bobbin, and the bobbin is held in place within the frame by the piece *r*, as before described, or by the thread-guide, against which the disk of the bobbin will strike if carried in that direction. The thread-guide is turned outward on its pivot to allow the insertion or removal of the bobbin, or for threading, by springing it away from the face of the shuttle until free from the recess, when it may be turned upon its pivot to the desired position. The tension upon the thread is caused by the pressure of the tension-spring upon the thread as it passes between the interior of wall of the shuttle-frame and the spring, and the pressure is varied by turning the tension-screw. When the spring and guide are closed in place, the part *g* of the guide bears against the tension-spring, and the notch *j* in the spring is opposite the notch *i*, and as these notches come together each serves to close the opening of the other, thus forming a hole through which the thread is drawn and from which it cannot escape, except to be drawn through.

I am aware that a sewing-machine shuttle has heretofore been made having an opening for the passage of the thread formed by parts having notches coming together; but with these the tension device has been so connected with the other parts that when the latch is opened for the insertion or removal of the bobbin the tension-spring is, or is liable to be, moved, and dust or lint is liable to become lodged between the parts. Experience has shown that any change or movement of the tension device, however slight, is liable to vary the tension. It is therefore very desirable that the construction be such that the bobbin may be inserted or removed without in any manner interfering with the tension. This I accomplish by constructing the parts as shown and pivoting them independently. It will thus be seen that after the tension is once adjusted it is in no wise affected by the moving of the thread-guide. I therefore, while cheapening the cost of construction and lessening the number of parts, retain and combine the advantages incident to the independent operation of the parts, while doing away with the objectionable features heretofore existing, and especially I retain the utmost simplicity in threading.

To thread the shuttle, the bobbin being in place, the thread-guide is turned outward up-

on its pivot. The thread is then drawn through notch *h* and, between the tension-spring and interior wall of the frame, forward until it enters the notch *j*, then outward away from the face of the shuttle, and the thread-guide is closed in place, the thread being below the guide. The thread now being drawn taut and carried toward the heel of the shuttle will be drawn in place for use.

It will readily be seen that my tension-spring and thread-guide may be applied to other shuttle-frames than the one herein illustrated.

I am aware that shuttles have heretofore been made having a thread-guide pivoted to the frame; but in no case to my knowledge has the guide been pivoted on the tension-screw. Neither am I aware that the spring and guide have heretofore been independently pivoted on the same pivot and both adapted to swing in a plane parallel with the shuttle-face, which motion, it will be readily seen, is very desirable in an open-sided shuttle.

Having therefore described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An open-shuttle frame having a thread-guide, B, and a tension-spring, O, pivoted to the frame in slots on one pivot, whereby they may be turned in a plane parallel with the face of the shuttle, and operating substantially as shown.

2. A sewing-machine shuttle having a thread-guide and tension-spring independently pivoted to the shuttle-frame on one pivot, one or both of the parts having a thread-notch and adapted to come together, as shown, whereby a thread-opening is formed, and the guide may be turned on its pivot independently of the tension device, substantially as shown.

3. A shuttle-frame having slots *c* and *e*, with a thread-guide and tension-spring pivoted therein on the same pivot, which pivot acts also as a tension-screw, substantially as shown.

4. The combination of the spring C, having notches *h* and *j*, and projection *t*, the guide B, having curved portion *a*, and part *g*, having notch *i*, and a shuttle-frame having slots *c*, *e*, and *f*, substantially as shown.

5. In an open-sided sewing-machine shuttle, a thread-guide having a piece, *r*, projecting from the guide inside the shuttle-frame over the bobbin-arbor, and adapted to operate to hold the bobbin in place and to prevent the thread being carried too far over the heel of the shuttle, substantially as shown.

6. An open-sided shuttle-frame having a thread-guide pivoted to the frame on the tension-screw and adapted to turn on its pivot in a plane parallel with the face of the shuttle, and having a means to hold the free end of the guide closed upon the heel of the shuttle, whereby the guide operates both as a guide and thread-spring, substantially as shown.

GEO. H. THOMAS.

Witnesses:

ALLEN WEBSTER,
NEWRIE S. WINTER.