

**C. W. ELLS.**

## Shuttles for Sewing-Machines.

No. 137,665.

Patented April 8, 1873.

Fig. 1.

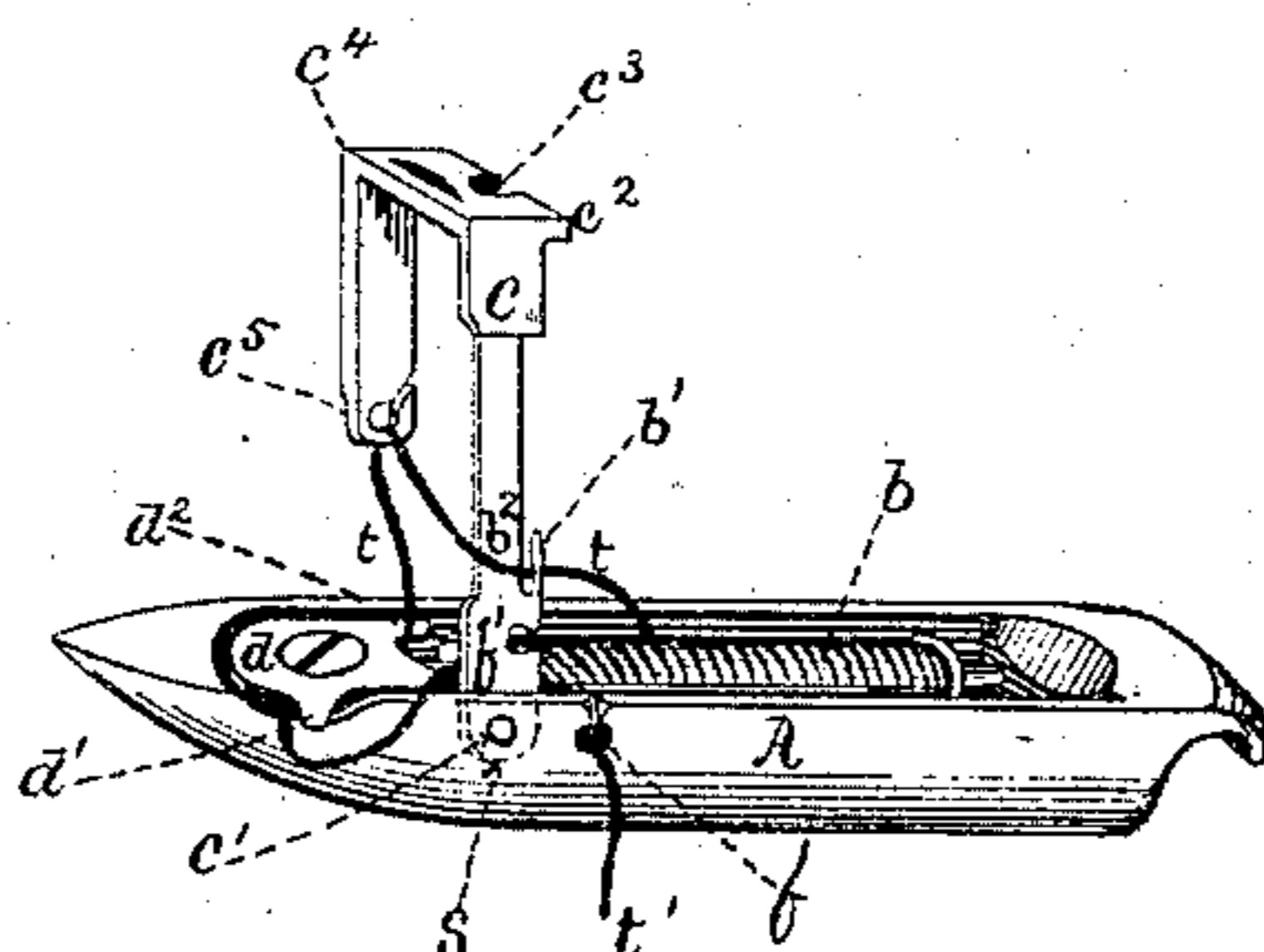
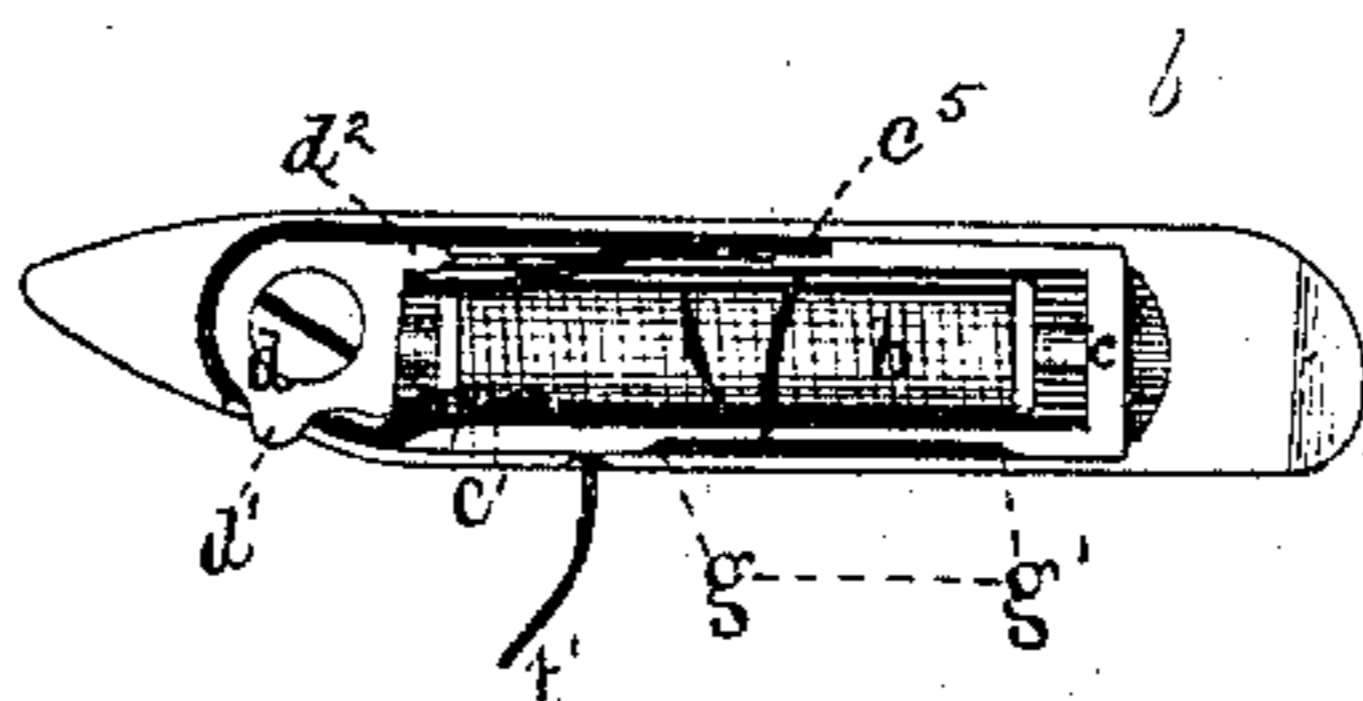


Fig. 2.



WITNESSES:-

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SHUTTLES FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **137,665**, dated April 8, 1873; application filed January 20, 1873.

*To all whom it may concern:*

Be it known that I, CHAS. W. ELLS, of the city of Bridgeport, in the State of Connecticut, have invented certain Improvements in Sewing-Machine Shuttles, of which the following is a specification:

My invention embraces certain improvements in the mode of holding the thread, which enable the operator to affix the thread to the shuttle and tension device, by a peculiar winding process, with great ease and celerity; and also includes certain alterations in the forms and relations of devices heretofore used in shuttles, by the effect of which the thread is guarded against disarrangement. My invention relates to that class of sewing-machine shuttles in which one end of the bobbin is held in position by a movable or swinging clamp pivoted to the inside of the shell of the shuttle.

The drawing consists of a perspective view, Figure 1 showing the clamp swung out in position to enable the operator to affix the thread in the manner shown, and as described hereinafter; and Fig. 2, a face view, showing the clamp thrown down into the shell in its final position.

The shell of the shuttle A is of ordinary form, but contains an elongated swinging latch or clamp, c, which is pivoted to the inside of the shell at  $c^1$ . This clamp, when thrown down into its final position, bears upon the shell, on the pivoted side, at the extremities only, being made thinner in the middle so as to stand off from the shell and constitute a guide-bar for the thread, as shown on Fig. 2, from  $g$  to  $g'$ . The clamp  $c$  is bent to a right angle at  $c^2$ , and notched at  $c^3$ , to engage the spindle of the bobbin  $b$ . It is again bent to a right angle at  $c^4$  so as to return about half-way on the inside of the shell opposite the pivoted side  $c^1$ , and terminates in a hook,  $c^5$ . The hook  $c^5$  catches the thread from the guide-bar and delivers it to the tension-plate  $d$ . This tension-plate has a toe,  $d^1$ , projecting beyond the outer side of the shell, the object of which is to facilitate the catching of the thread, so that it can be readily slipped under the tension-plate. From the tension-plate the thread passes along the inner side of the shell and out through the delivery-aperture  $f$ , which, instead of being a round hole through the side of the shell, is a

slot extending in from the edge of the shell, the thread being retained in the slot  $f$  by the clamp  $c$  when the latter is dropped into its final position. The clamp is notched at  $f'$ , and grooved on the inner side to receive the thread from the tension-plate.

If desired, the clamp may be provided with a projecting lug to fit into and close the mouth of the slot  $f$ ; but this will probably be unnecessary if, as is shown in Fig. 2, the clamp is made to bear closely against the inner side of the shell at that point.

When the clamp is thrown up in the position shown in Fig. 1 its lower or pivoted end  $s$  strikes against the end of the bobbin, and serves as a stop or brake to hold the bobbin rigidly in the shell, so that the thread cannot pay off during the process of being adjusted to the tension mechanism.

The thread  $t$  is represented in Fig. 1 as loosely applied, and the manner of its application is as follows: The thread is wound upon the bobbin, and a loose end left of two or three inches in length, and the bobbin is then placed in the shell, the clamp being partly thrown up to admit the bobbin, and then thrown further up to catch and hold the bobbin, as aforesaid. The end of the thread  $t'$  is then laid in the slot  $f$ , and held against the outside of the shell by the pressure of the thumb thereupon. In this way a loop of thread is formed, one leg of which is held in the slot  $f$ , as described, and the other leg is held by the bobbin. The bight of the loop thus formed is then seized by the unoccupied hand of the operator and carried toward the point of the shuttle, so that the bobbin-leg of the loop passes inside a little spur,  $b^1$ , on the clamp, around the outside of the clamp, as shown at  $b^2$ , across the face of the shuttle, and through the hook  $c^5$ . The other leg of the loop is passed around the inside of the clamp forward under the toe  $d^1$ , and slipped around under the tension-plate  $d$ ; the toe  $d^1$  being for the purpose of facilitating this part of the operation, and another toe, on the opposite corner of the tension-plate,  $d^2$ , being for the purpose of preventing the thread from getting unshipped from the tension-plate. The clamp is then thrown down into the shell, as shown in Fig. 2, and the thread drawn out by the end  $t'$  until it commences to turn the bob-

bin, when the shuttle is ready to be placed in the machine for use.

It will be seen that the swinging clamp *c* has a variety of important functions: First, the common one of engaging one end of the bobbin-spindle and holding it in place; secondly, acting as a brake upon the bobbin, and holding it during the process of affixing the thread; thirdly, closing the mouth of the slot *f*, so as to retain the thread therein; fourthly, constituting a guide-bar for the thread as it pays off from the bobbin; and fifthly, acting as a guide to and from the tension device.

It is to be understood, of course, that the clamp may or may not be provided with a lug to fit into and fill the mouth of the slot *f*, and that the clamp, irrespective of the lug, operates as a latch in retaining the thread in the slot *f* by reason of its close contact with the inner surface of the shell at that point.

My invention is applicable to various kinds

of sewing-machine shuttles; and I do not confine myself to its application to the particular kind of shuttle shown in the drawing.

The little spur *b*<sup>1</sup> on the clamp is not indispensable, but furnishes a convenient means of catching the thread extending from the bobbin when placing the thread about the swinging clamp.

I claim—

1. In a sewing-machine shuttle, the swinging latch provided with the stop or brake *s*, in combination with the bobbin.

2. The swinging clamp or latch *c* provided with the hook *c*<sup>5</sup>, spur *b*<sup>1</sup>, and notch *f*<sup>1</sup>, and arranged with reference to the wall of the shuttle having the slotted eye, substantially as described.

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Witnesses:

WM. M. FOWLER,  
EDWARD PAYSON.