

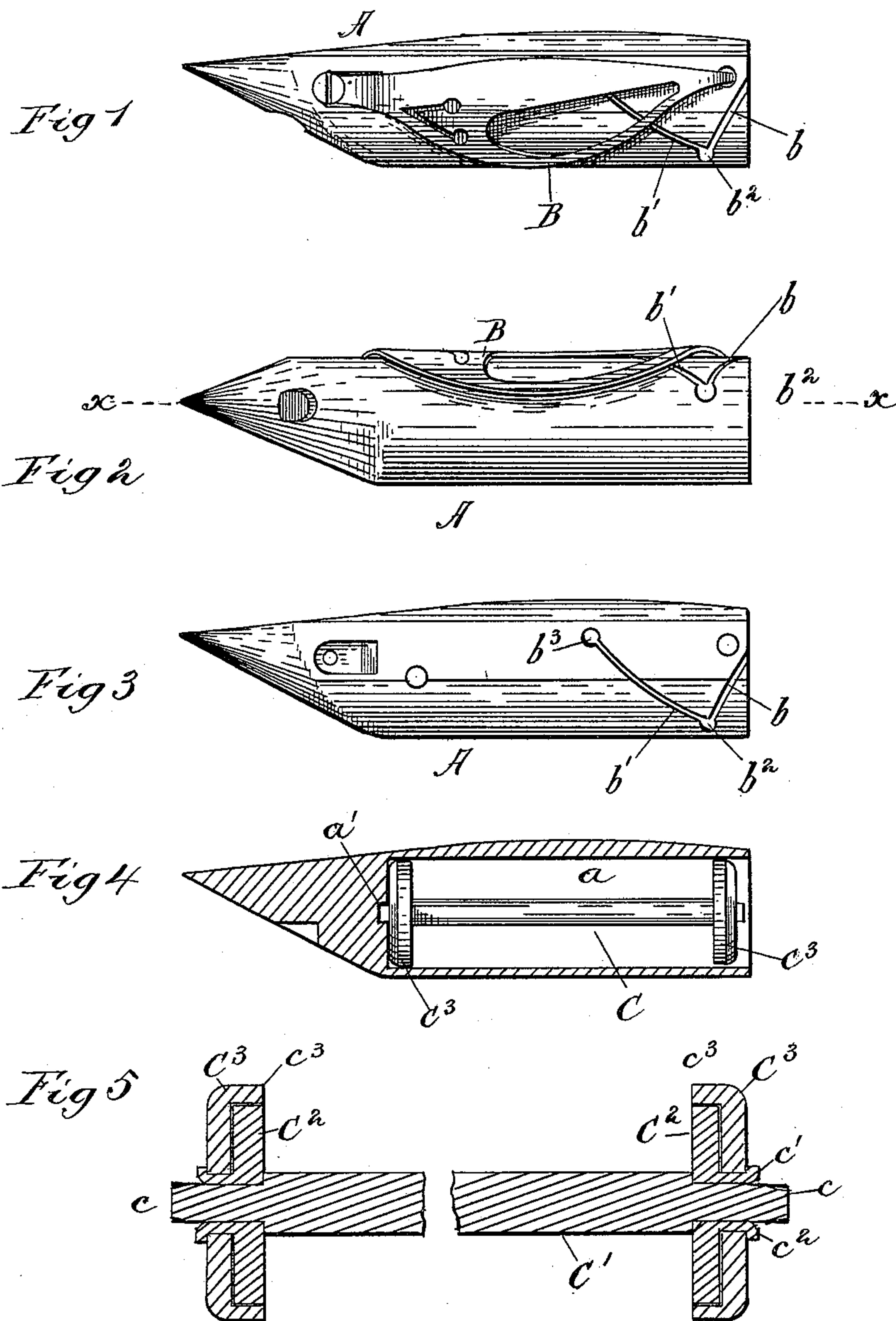
(No Model.)

M. RANSOM.

SEWING MACHINE SHUTTLE AND BOBBIN.

No. 353,588.

Patented Nov. 30, 1886.



Witnesses

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# UNITED STATES PATENT OFFICE.

MARTIN RANSOM, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ELDREDGE MANUFACTURING COMPANY, OF SAME PLACE.

## SEWING-MACHINE SHUTTLE AND BOBBIN.

SPECIFICATION forming part of Letters Patent No. 353,588, dated November 30, 1886.

Application filed February 10, 1886. Serial No. 191,515. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN RANSOM, a subject of the Queen of Great Britain and Ireland, and residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sewing-Machine Shuttles and Bobbins, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a shuttle embodying my invention; Fig. 2, a side elevation of the same; Fig. 3, a plan view similar to Fig. 1, but with the shuttle-spring removed; Fig. 4, a central longitudinal view of the shuttle, showing the bobbin in position; and Fig. 5, a central longitudinal sectional view of the bobbin.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to sewing-machine shuttles and bobbins therefor, and more particularly to that class of shuttles having an open rear end and a self-threading slot, its object being to provide a shuttle which shall be effective in its self-threading action and will not break the thread, and also a bobbin which shall operate in conjunction with a shuttle of the description mentioned, so as to rotate freely therein without binding; and to these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In the drawings, A represents the shuttle, which is provided with the usual shuttle-spring, B, attached thereto in any suitable manner. This shuttle is open at its rear end, as clearly shown in the several figures of the drawings, it being thus provided with a central bore, *a*, to receive a bobbin, C, constructed in the manner hereinafter described. The shuttle is provided with a self-threading slot, *b b'*, which extends from the heel of the shuttle toward the point thereof. The particular construction of this slot, which constitutes one feature of my invention, is that shown in the drawings, in which the said slot is shown as consisting of two portions, the rearward portion, *b*, having a downward and forward direction from the heel of the shuttle, being car-

ried down, as shown, to a distance equal to about one-sixth of the entire circumference of the shuttle, or, practically speaking, to a point about on a level with the extreme lower edge of the shuttle-spring B, as clearly shown in Figs. 1 and 2 of the drawings. The part *b'* of the slot has an upward and forward direction from its junction with the part *b*, being arranged at an angle about equal to a right angle with the said part *b*. A somewhat enlarged aperture, *b<sup>2</sup>*, is preferably formed at the junction of two portions of the slot, and a similar aperture, *b<sup>3</sup>*, is preferably formed at the forward extremity of the slot, as shown in Fig. 3 of the drawings. The point *b<sup>2</sup>* where the slot changes in direction is located at such a distance from or with such relation to the point where the thread is delivered from the shuttle, as to prevent the loop of the upper thread from drawing the slack of the shuttle-thread into the rear portion, *b*, of the slot during the passage of the shuttle through said loop. In this manner the danger of breaking the upper thread by such engagement is obviated, as is likewise the breakage of the shuttle-thread by being drawn into the slot by the loop in the under thread.

It will be observed that as the shuttle is open at its rear end there is no opportunity to form a bearing for the bobbin within the shuttle at this end, and owing to this fact, if an ordinary bobbin with solid ends or heads be employed, these latter will be held against the inner walls of the shuttle by the tension on the thread, and will thereby tend to check the rotation of the bobbin and prevent the free unwinding of the thread therefrom. In order to overcome this objection, I employ a bobbin constructed substantially as shown in Fig. 5 of the drawings, in which C' represents the bobbin-spindle, having reduced ends *c*, to receive the inner end heads, C<sup>2</sup>, which are secured thereon firmly in any preferred manner. These inner end heads are provided with sleeves *c'*, which extend outward toward the ends of the spindle C', as clearly shown in Fig. 5 of the drawings, thereby forming bearings for the outer end heads, C<sup>3</sup>, which are mounted loosely on the said sleeves, so as to revolve freely thereon. The extremities of the sleeves *c'* are flanged or headed up, as shown at *c<sup>3</sup>*, in



order to prevent the outer heads,  $C^3$ , from slipping off; or any other suitable construction may be employed for this purpose. The outer heads,  $C^3$ , are of a greater diameter than the inner heads,  $C^2$ , and are preferably provided with an inwardly-projecting circumferential flange,  $c^3$ , which extends over and protects the corresponding inner head,  $C^2$ . The advantages of this construction will be readily understood, for it will be seen that upon any tendency of the thread, as it unwinds from the spindle  $C'$ , to draw the bobbin against the inner wall of the shuttle the only portion thereof which will come in contact with the said wall will be the periphery of the outer head,  $C^3$ , and although this contact may tend to prevent the rotation of these heads, yet as the spindle and inner heads, which constitute the bobbin proper, are free to rotate within the outer heads and independently of the same it will be seen that the unwinding of the thread from the bobbin will be in no wise checked, and the disadvantages attendant upon the binding of the bobbin in the shuttle will thus be obviated.

25 The forward end of the bore  $a$  of the shuttle A may be, if desired, provided with a socket or recess,  $a'$ , to receive the projecting forward end,  $c$ , of the shuttle-spindle  $C'$ , when the same is in position; but this bearing may be dispensed with, if desired.

I am aware of Letters Patent No. 323,916, granted August 11, 1885, to Daniel W. Corey, which show and claim a bobbin for sewing-machine shuttles having end heads of greater diameter than the bobbin proper, the latter being loosely connected with said heads, and thus adapted to rotate independently thereof; and I therefore do not wish to be understood as claiming such a construction, broadly, my present invention being limited to the particular construction hereinbefore set forth, and pointed out in the claims.

I am aware of Letters Patent No. 302,971, granted August 5, 1885, to James H. Anthony,

and I do not wish to be understood as claiming anything set forth in said Letters Patent. I do not wish to be understood, however, as limiting my invention to the precise details of construction hereinbefore set forth and shown in the drawings, as it is obvious that various mechanical modifications may be made in the same without departing from the principle of my invention.

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

1. A shuttle having a self-threading slot open at the rear end, extending downward and forward from said end to a level with the lower edge of the shuttle-spring, and continuing in an upward and forward direction, the continuation being substantially at right angles to the rear portion of the slot, substantially as and for the purposes set forth.

2. A shuttle having a self-threading slot extending downward and forward from the heel of the shuttle and continuing in an upward and forward direction, and provided with the enlarged apertures  $b^2$  and  $b^3$ , arranged substantially as described, substantially as and for the purposes specified.

3. The combination, with the shuttle open at its rear end, of the bobbin consisting of a spindle with fixed inner end heads, and with loose or revoluble outer end heads of greater diameter, substantially as and for the purposes specified.

4. The combination, with the spindle  $C'$ , of the inner end heads,  $C^2$ , secured thereon, and provided with the projecting sleeves  $c'$ , and the outer heads,  $C^3$ , of greater diameter, mounted loosely on the said sleeves, substantially as and for the purposes specified.

MARTIN RANSOM.

Witnesses:

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