No. 865,166. PATENTED SEPT. 3, 1907.

R. L. CUMNOCK.

AUTOMATIC OR SELF THREADING SHUTTLE.

APPLICATION FILED JUNE 4, 1906.

Fig. 1.

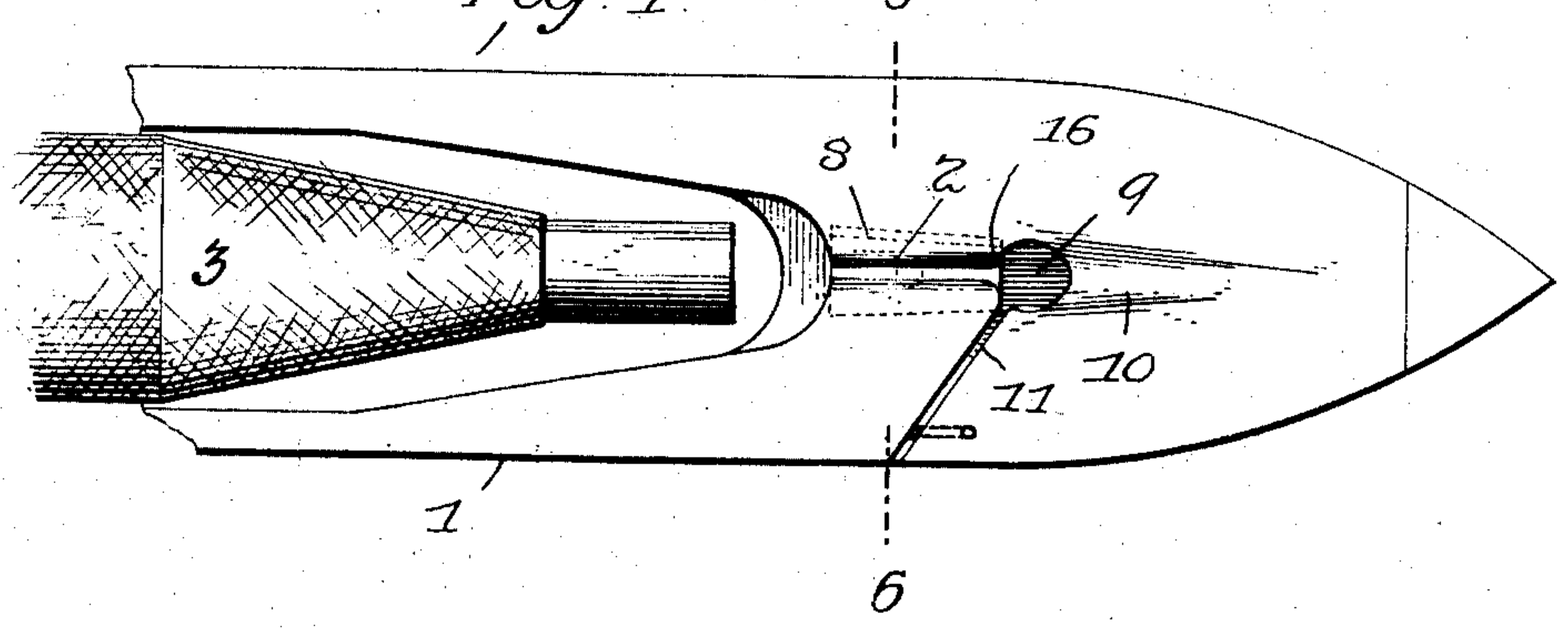


Fig. 3.

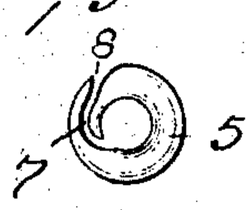


Fig. 4.

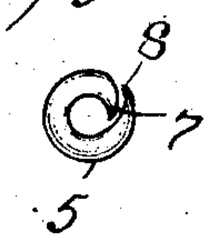


Fig. 2.

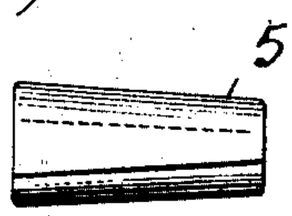


Fig. 5.

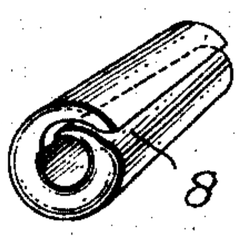


Fig. 8.

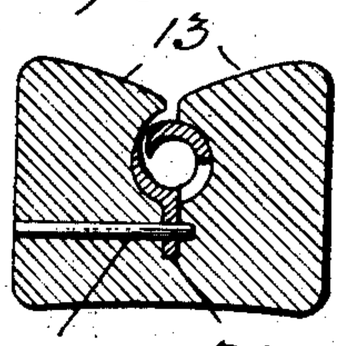


Fig. 6.

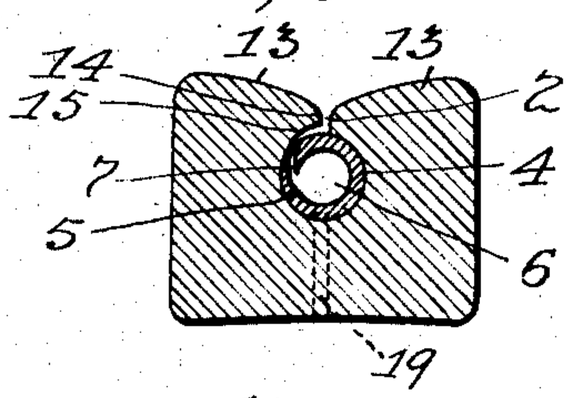
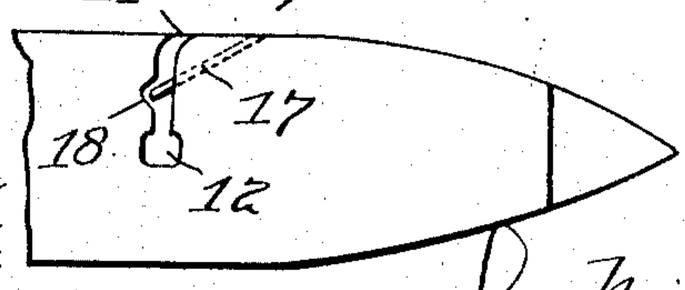


Fig. 7.



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UNITED STATES PATENT OFFICE.

ROBERT L. CUMNOCK, OF ANDERSON, SOUTH CAROLINA.

AUTOMATIC OR SELF-THREADING SHUTTLE.

No. 865,166. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed June 4, 1906. Serial No. 320,150.

To all whom it may concern:

Be it known that I, ROBERT L. CUMNOCK, a citizen of the United States, residing at Anderson, South Carolina, have invented certain new and useful Improvements in Automatic or Self-Threading Shuttles, of which the following is a specification.

My invention relates to automatic or self threading shuttles, and I aim to simplify the means used in connection with such shuttles for preventing the thread from leaving its proper position or course.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of so much of a shuttle as is necessary to illustrate my invention, my improvement being shown in connection therewith. Fig. 2 is a view of one feature of my improvement detached from the shuttle. Fig. 3 is an end view looking from the left of Fig. 2. Fig. 4 is an end view looking from the right of Fig. 2. Fig. 5 is a perspective view of the member shown in Fig. 2. Fig. 6 is a cross sectional view on the line 6—6 of Fig. 1. Fig. 7 is a side view of the right hand end of Fig. 1, showing the thread-eye and the slot leading thereto, and Fig. 8 is a view of a modification.

In these drawings, 1 indicates the body of the shuttle which is of substantially ordinary form. In constructing the shuttle with my improvement I provide a longitudinal threading slit 2 arranged centrally of the shuttle and in line with the axis of the bobbin 3, and below this slit a recess is formed in the body of the shuttle as shown at 4 which receives the automatic threading device 5. This threading device is in the form of a frustum of a cone having however, a central opening 6 extending from end to end, and having also extending from end to end a slit 7, the mouth of which, indicated at 8, lies to one side of the central longitudinal threading slit 2 formed in the body of the shuttle. The slit 7 of the threading device extends spirally in relation to the circumference of the threading device as indicated in Figs. 3, 4, 5 and 6. It will be noticed that the threading sleeve or device is arranged with its smaller end nearer the point of the shuttle and adjacent this end an enlarged recess 9 is formed in the body of the shuttle from which a groove or hollow portion indicated at 10 extends toward the point of the shuttle, and from which recess extends the slot 11 which reaches to the lateral thread-eye 12.

As shown in Figs. 6 and 8 the body of the shuttle adjacent the slit 2 is formed with sides or surfaces 13 sloping downwardly to the central slit 2. On one side the body of the shuttle hugs the threading sleeve adjacent the slit 2 while on the opposite side of the said slit the body of the shuttle, as indicated at 14, overhangs the threading device leaving a crevice 15 between itself and the outer surface of the said threading device. This crevice forms in effect a continuation of the spiral slit 7 extending through the wall of the threading device and the said crevice opens into the longitudinal slit 2 of the shuttle body. It will be further noticed from Fig. 1 that the overhanging portion 14 of the shuttle body provides a shoulder at 16 adjacent the small end of the sleeve or threading device, the said shoulder reaching over what may be termed the discharge end of the spiral slit 7. The space between the large end of the threading device and the bobbin is unobstructed as shown in Fig. 1.

In operation the thread from the bobbin enters the longitudinal slit 2 formed in the body of the shuttle and the space between the threading device and the bobbin being unobstructed the thread is free to be whipped laterally and it will thus enter the crevice 15 beneath the overhanging portion 14 of the shuttle body and be directed thereby to the spiral slit in the threading device which, as before stated, lies with its longitudinal mouth 8 to one side of the axial line of the shuttle. The thread will thus gain the interior opening of the threading device wherein it will be maintained against dethreading not only because of the spiral formation of the slit in the threading device but because of the overhanging portion 14 of the shuttle body presenting, as before stated, the crevice 15 and the shoulder 16, whereby upon the thread striking the said shoulder, should there be any tendency to dethread it will be deflected away from the entrance to the slit 7 and thrown towards the center line of the shuttle.

While I prefer to form the threading device of truncated form I do not limit myself in this respect. The device may be either rolled or cast, or formed in any other desired way. I also make provision to prevent the backward passage of the thread through the thread-eye slit 11, said means consisting of a pin 17 extending through the body of the shuttle in an inclined position and across the slit 11 near the outlet thereof. This pin extends slightly into a notch or cut out portion in the opposite wall of the slit from that upon which the pin is located, as shown in Fig. 7 and while the thread is free to pass down the inclined surface of the pin and around the end thereof because of the notch 18 it will be prevented from passing backwardly when it strikes the upwardly inclined underside of the said pin which will direct it away from the notch 18.

The sleeve or threading device may be held in place either by a pin 19 as indicated in Fig. 6 or by a pin 20 in Fig. 8 passing through a web 21 on the sleeve fitting in a groove or slot in the body of the shuttle, said web being cut out from the cone intermediate of its length.

It will be observed that the inner edge of the slit extending from end to end of the threading device inclines upwardly and forwardly.

I claim:—

1. An automatic or self threading shuttle comprising the shuttle body having a thread eye with the longitudinally extending threading slit and a laterally extending slot leading to the thread-eye, and a threading device arranged below said longitudinally extending slit and having a central opening with its axis coinciding with the longitudinal axis of the shuttle body, the said threading device having a slit extending longitudinally thereof and straight from end to end, and communicating with the central opening of the threading device, said slit of the threading device being located to one side of the threading slit of the shuttle body and beneath an overhanging portion of said shuttle body, the forward end of the threading device lying at the juncture of the laterally extending slot and the longitudinally extending threading slit of the shuttle body, substantially as described.

2. An automatic or self threading shuttle comprising the shuttle body having therein a threading slit and having also an overhanging portion, a threading device arranged beneath said overhanging portion of the shuttle body with a crevice or slot formed by and between the outer side of said device and the overhang, said threading device having a central opening with an upwardly opening slot leading thereto substantially tangential to the said opening and forming a continuation of said crevice into which the thread is whipped as it leaves the bobbin, the inner edge of said slot in the threading device inclining upwardly and forwardly, substantially as described.

3. An automatic or self threading shuttle comprising the shuttle body having therein a threading slit and a threading device of hollow tapered form, with the small end directed forwardly toward the adjacent end of the shuttle, said threading device being arranged below the threading slit and under overhanging parts of the shuttle body, the overhanging part on one side being slightly away from the outer surface of the threading device to leave a crevice in between forming a continuation of the threading slit, said tapered threading device having a straight slit in its side extending from end to end, substantially as described.

4. A self threading shuttle having a threading slot and overhanging portions, a hollow tapered threading device arranged beneath the said slot and overhanging portions and having a slit arranged to one side of the threading slot and extending straight from end to end of the tapered device, the space between the threading device and the shuttle body being free for the whipping in action of the thread, the overhanging portion of the shuttle body providing a shoulder at 16 to prevent de-threading, the opening through the said threading device being also tapered and the inner edge of the slit in the said threading device inclining upwardly and forwardly, substantially as described.

5. In combination with a shuttle having a threading slit, a threading device of tubular form having a thread receiving slot extending from end to end thereof, said device lying with a crevice between its outer side and the overhanging part of the shuttle body adjacent the threading slot of the shuttle and said threading slot of the threading device opening upwardly and extending in a direction substantially tangential to the interior bore of the threading device and forming a continuation of the said crevice, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

ROBERT L. CUMNOCK.

Witnesses:
ROBT. E. LIGON,
E. J. BROCK.