

J. TRIPP.
Revolving-Shuttle Sewing-Machine.
No. 222,644. Patented Dec. 16, 1879.

Fig. 1.

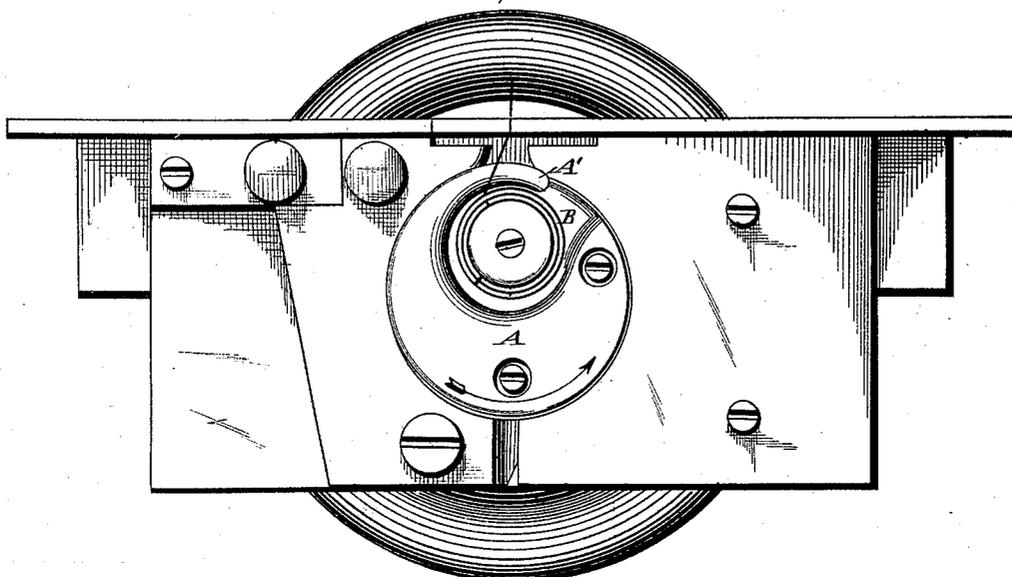
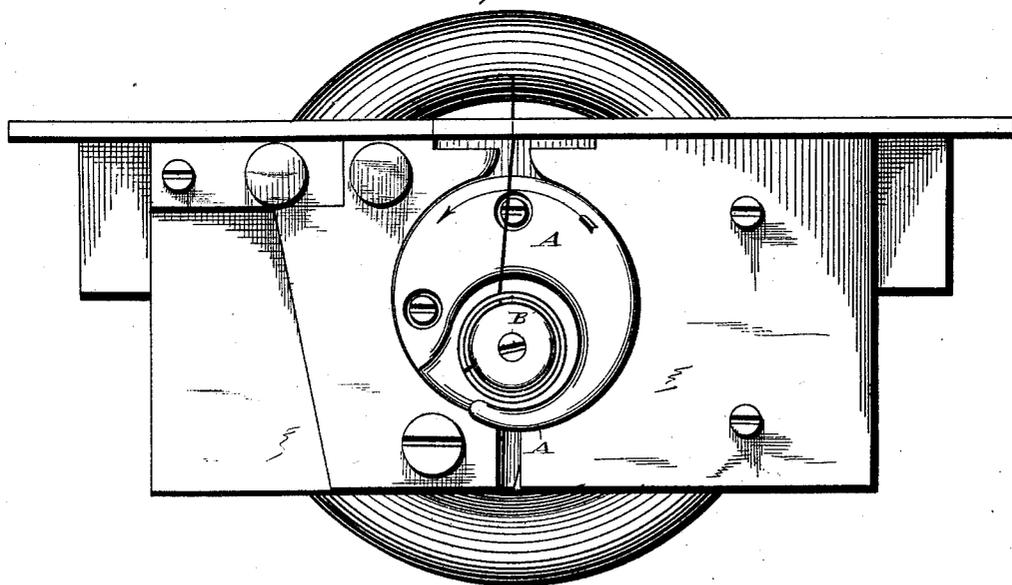


Fig. 2.



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Fig. 3.

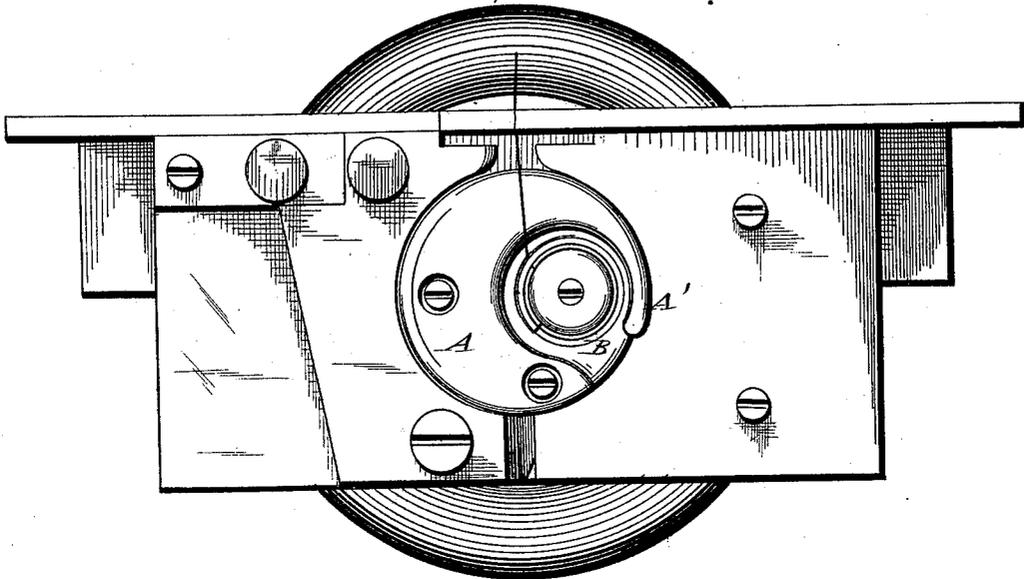
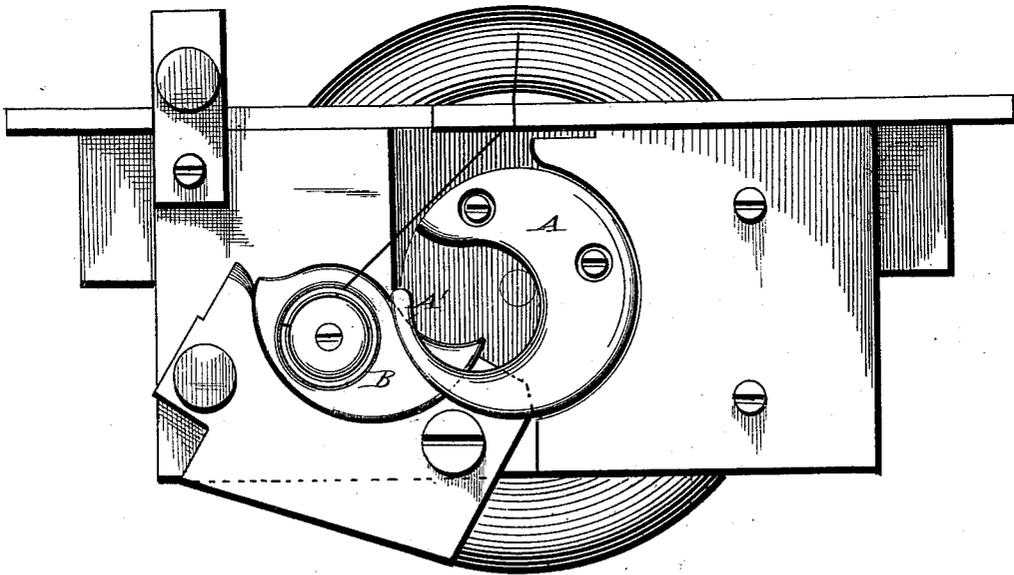


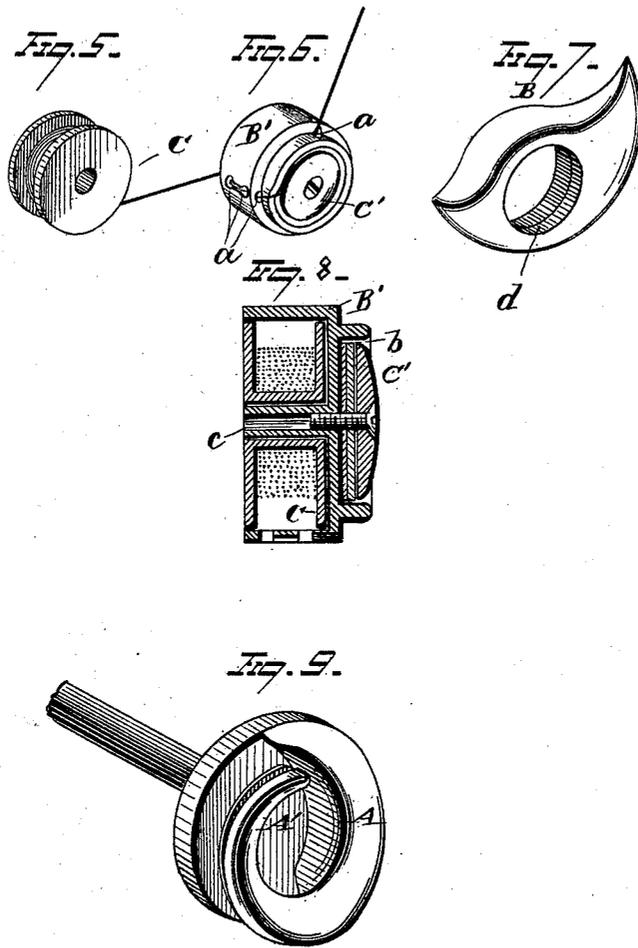
Fig. 4.



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JAMES TRIPP, OF COLDWATER, MICHIGAN.

IMPROVEMENT IN REVOLVING-SHUTTLE SEWING-MACHINES.

Specification forming part of Letters Patent No. 222,644, dated December 16, 1879; application filed April 18, 1879.

To all whom it may concern:

Be it known that I, JAMES TRIPP, of Coldwater, in the county of Branch and State of Michigan, have invented certain new and useful Improvements in Revolving-Shuttle Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to sewing-machines of that class employing a revolving shuttle for the lower thread.

In order to prevent twisting of the lower thread in machines of this class, one requisite is to allow to the lower thread-spool a revolution on its own axis for every turn of its carrier, sufficient merely for the paying out of thread enough for a stitch, while at the same time it is caused to describe a complete revolution in addition for every revolution of its carrier; or, as may be expressed in another form, the lower thread-spool (excepting its mere fractional revolution in paying out its thread) should be stationary (in contradistinction to revolving on its own axis) while its carrier moves and revolves about it. This would be illustrated by the following: Supposing that we have a disk revolving upon a central axis, and between its center and periphery there is made a finger-hole. Now, if you will put your finger in this hole, and use it as a crank to turn the disk, we have the relative movement of my carrier and lower spool, for while the finger (or lower spool) goes around with the disk (or carrier) it is in a sense stationary while the disk moves about it. It has also heretofore been characteristic of this class of machines that the lower thread escapes from its spool on the back or inner surface. This requires that the thread be led somehow to the front or outside; and to do this the inventors have brought the thread out through the shuttle-carrier, and this has only one result, and it is absolutely sure to follow—viz., the twisting of the lower thread.

The object of my invention is to produce a sewing-machine having a revolving lower thread-shuttle that, while otherwise operat-

ing as a sewing-machine, shall not twist the lower thread; and this I accomplish by the following, in which my invention mainly consists, viz: first, by combining with a revolving shuttle or carrier a spool or bobbin and a case or frame for containing said spool, both the spool and its containing frame or case being permitted free and independent revolving movements about their own axes; second, by the combination, with a revolving shuttle or carrier and a spool or bobbin contained in a case or frame, (said spool and its case each permitted free and independent revolving movements about their own axes,) of a curved and outwardly-projecting finger, for the purpose of keeping taut the lower thread, thereby keeping the spool frame or case always one side up within its said revolving shuttle or carrier; third, in the parts and combination of parts hereinafter described and claimed.

In the drawings, Figures 1, 2, and 3 represent face views of my device, each view showing the position of parts at different stages of the revolution of the shuttle and shuttle-carrier. Fig. 4 shows said device with the shuttle partly removed. Fig. 5 represents the spool in detail. Fig. 6 is a similar view of the spool case or frame. Fig. 7 is a like view of the shuttle. Fig. 8 is a transverse sectional view of the spool and spool-frame. This figure also illustrates the tension mechanism. Fig. 9 is a detail view of the shuttle-carrier.

A is a revolving shuttle-carrier. In its function, however, it acts not only as a shuttle-carrier, but it also operates to take up the slack of the lower thread, to keep it taut, and thereby to prevent the revolution of the spool within the shuttle B, and to keep said spool and its containing case or frame in proper position within said shuttle B, and thus prevent the twisting of the thread which would otherwise be caused by the rotation of the spool about the axis of the shuttle-carrier A.

In order that the carrier A shall serve to keep the lower thread taut and prevent the revolution of the spool frame or casing on its own axis, I make it, as shown in the drawings, in the form of a curved finger, A', and also in the form of an inclined plane rising to the tip of said finger to such a degree as to sufficiently tighten the lower thread for the pur-

poses already mentioned. The carrier A is cut away in such a manner as to afford a seat for the shuttle B, and is constructed so that when combined, as shown in Fig. 1 of the drawings, the carrier A and shuttle B shall present a generally circular peripheral outline, as this form, for apparent reasons, is the best adapted for a rotary movement.

I prefer that the finger A' shall be of such length that it shall not release the lower thread until the shuttle B shall have reached a point in its revolution when this thread shall be drawn sufficiently taut without the assistance of the finger A'.

Considering now, particularly, the shuttle B and its contained spool, spool-case, &c., it will be observed, first and chiefly, that the shuttle proper has an opening entirely through its body for the accommodation of the spool or bobbin case or frame. The spool or bobbin is in any suitable manner fixed and adjusted within its case or frame, and this case or frame is suitably formed to rest and freely revolve within the shuttle B. I construct a retaining flange or shoulder either upon the shuttle B or upon the spool frame or case, that shall prevent the escape of said case or frame from the face of the shuttle B, while admitting at the same time of a free revolving movement between the parts mentioned.

Any suitable threading arrangement may be adopted, as in this particular I do not limit my invention. The thread, however, should be allowed to escape from the outer or front face of the spool.

I have found the tension device here shown to serve a useful purpose; and this device consists, essentially, in a disk, C, held by an adjustable screw against the outer face of the spool case or frame B', and between said disk C and the spool-casing the thread is passed. I have found, however, that a disk of felt or equivalent material placed between the disk C and the spool-casing B' will add to the effectiveness of the tension device.

The tightening or loosening of the screw which holds the disk C in position will serve to tighten or loosen the tension of the lower thread.

It will be noticed that the spool-casing B' has its side and face provided with thread-holes *a*; also, that the face is provided with an annular flange, forming a recess, *b*, within which the tension-disk C is located. The provision of this annular flange is important. I lead the lower thread from its spool so that it escapes from the face of the spool-casing B', outside of this annular flange, just before it is passed beneath the tension-disk C, and after it escapes from the tension-disk C the thread passes through a hole in this annular flange up to the fabric being sewed. This passage of

the thread through the flange serves as a point from which the spool-casing B' is pulled and turned, and kept in proper position by the tension of the lower thread, and this prevents the twisting of this thread. This flange, moreover, serves as a fender to keep out the upper thread and prevent its becoming entangled with the tension-disk C during the revolution of the shuttle at the time when the upper thread is passing over its face.

The spool is journaled on an axial bearing, *c*, secured to the interior of the spool-casing B'.

What I claim is—

1. A shuttle and means for revolving the same, in combination with a spool and a frame or case, B', within which said spool is supported, said frame B' being constructed to have a free movement within its bearings, and said spool being constructed to have a free and independent revolving movement within its said case B', substantially as and for the purpose shown.

2. In a sewing-machine, the combination, with a shuttle and means for revolving the same, of a spool-case, B', placed eccentrically within said shuttle, and constructed to have a free movement within its bearings, so that during the revolution of the shuttle the said spool-case may be kept always one side up, substantially as and for the purpose shown.

3. In a sewing-machine, the combination, with a shuttle and means for revolving the same, of a spool-case, B', a curved outwardly-projecting finger, A', and means for supporting the latter, substantially as set forth.

4. The combination, with a shuttle and means for revolving the same, of a spool-case, B', attached eccentrically to said shuttle, and constructed to move freely within its bearings, as shown, said spool-case being provided with a perforated flange or projection formed upon its outer face, the perforation of said flange or projection serving as a point from which the thread shall pull upon said spool-case B' and keep it at all times the same side up, substantially as and for the purpose shown.

5. In combination with a revolving shuttle and a spool-case, B', combined and operating substantially as described, an annular flange or projection formed upon the outer face of the said spool-case and surrounding the tension-plate C, whereby the upper thread, as it passes over the face of the shuttle, is prevented from becoming entangled with said tension-plate, substantially as and for the purpose shown.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES TRIPP.

Witnesses:

LEVERETT L. LEGGETT,
W. E. DONNELLY.