No. 704,923. Patented July 15, 1902.

H. REGENSTEIN.

RING SHUTTLE FOR SEWING MACHINES.

(Application filed Oct. 18, 1901.)

(No Model.)

Fig. 1.

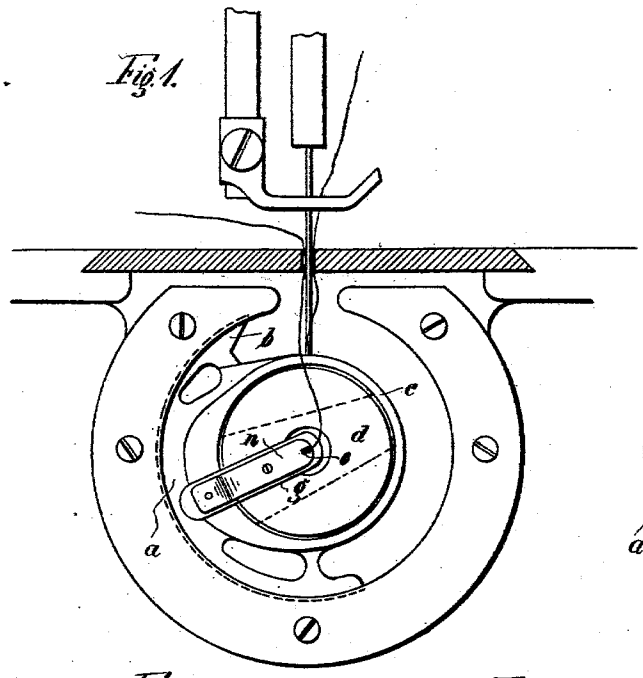


Fig. 2.

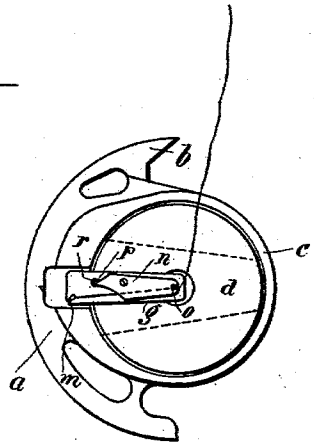


Fig. 3.

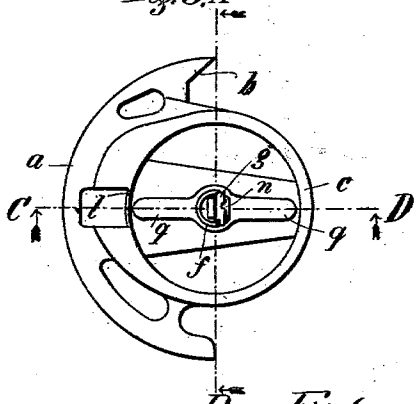


Fig. 4.

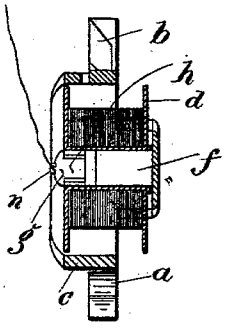


Fig. 5.

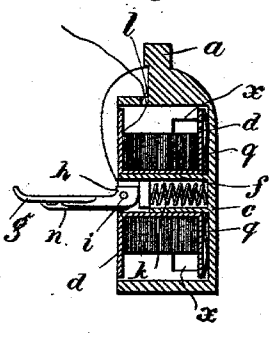


Fig. 6.

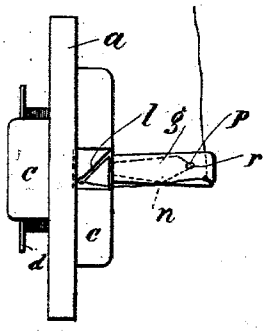
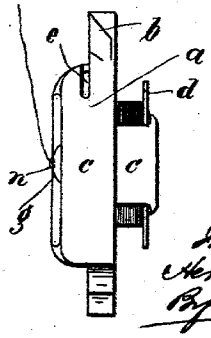


Fig. 7.



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UNITED STATES PATENT OFFICE.

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RING-SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 704,923, dated July 15, 1902.

Application filed October 18, 1901. Serial No. 79,089. (No model.)

To all whom it may concern:

Be it known that I, HERMANN REGENSTEIN, confidential clerk, a subject of the Emperor of Germany, and a resident of Kaiserslautern, in the Palatinate of the Rhine, Bavaria, and Empire of Germany, have invented new and useful Improvements in Ring-Shuttles for Sewing-Machines, of which the following is a specification.

In ring-shuttles as hitherto employed in sewing-machines with a large under-thread spool the weight of the shuttle is considerably increased and thereby acts constantly as a drag on the mechanism of the machine. Consequently the wear of the latter is largely increased and the mobility of the shuttle deleteriously affected. Strong shocks and breakages of the threads are unavoidable even when working slowly. In consequence of these drawbacks the large ring-shuttle spools have not even approximately fulfilled the expectations which were anticipated.

The improved shuttle which forms the object of the present invention obviates these drawbacks. In this shuttle the spool-casing lies in the center of the circular track of the catcher, and the spool being thus centrally placed is only connected with the ring-catcher for about a third of its periphery and has somewhat thicker dimensions only at this place. By this means it is possible to make the diameter of the shuttle considerably smaller than is the case in the present ring-shuttle and yet to make the spool larger. Further, the spool-casing is quite free, entirely open above, and provided with large side perforations. The drawing off of the under thread takes place from the center of the spool which is inserted on a holder in the spool-casing and is effected always at a uniform tension by means of a spring-plate resting on the spool-holder and without deleterious friction. The running of a machine with this shuttle is perfectly quiet, the wear is reduced to a minimum, and the threads are thoroughly drawn out.

In the accompanying drawings, Figure 1 is a view of the shuttle in a position of repose in the operating-casing; Fig. 2, an elevation of a single shuttle with spool; Fig. 3, the same view without spool and with the spool-holder turned back; Fig. 4, a section on the line A B of Fig. 3 with a spool; Fig. 5, a section on the line C D of Fig. 3 with a spool; Fig. 6, a side view of the shuttle with the spool-holder turned back, and Fig. 7, an elevation of the shuttle from the other side.

The shuttle, which consists of the usual ring-segment *a* with loop-catcher *b*, is provided with a central casing *c*, open above and firmly connected with it for about a third of its periphery, in which casing the spool *d* for the under thread is inserted. In the casing *c* a slot *e*, Fig. 7, is arranged at the side near the loop-catcher *b* for the admission of the needle which brings the upper thread. This casing has also two large side perforations *x*.

The spool *d* is held on a holder *f* in the casing *c* and secured by a tongue *g*, adapted to be turned down. This tongue turns by its lower projection *h* on a pin *i* in the holder *f*, in which a spiral spring *k* is located under the said projection *h*, which spring acts on the tongue *g*, Fig. 5. In order that the spool *d* may not play or be displaced on the holder *f*, a double-strip spring or spring-plate *q* is fixed on the bottom of the spool-casing *c*, which tends to constantly press the spool upward, while, on the other hand, it is pressed downward by the tongue *g*.

The under thread is first threaded through an oblique lateral slot *l*, extending from an annular opening, Figs. 5 and 6, and then through a nick *m* at the end of the tongue *g*, and finally beneath a second plate *n*, lying on the said tongue *g*, and is drawn through a circular opening *o* in the same which lies in the center of the spool *d*, Figs. 1 and 2. The plate-spring insures an even and not too strong a tension of the thread.

In order that the guide-plate *n* may not be displaced, a nose *p* is provided thereon to engage in a recess *r* in the plate *g*.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the spool-casing *c* carried by the oscillating shuttle-segment *a;* the spool *d* mounted in said casing; the radially-arranged spring-pressed tongue *g* pivoted in the center of oscillation of the shuttle

and confining the spool in the holder and having a guide-nick m near its outer end; and the guide-plate n carried by said tongue g, serving to guide the thread from the periphery of the spool toward the center and having an exit-opening o for the passage of the thread, substantially as shown and described.

2. The combination of the spool-casing c carried by the oscillating shuttle-segment a; the spool d mounted in said casing; the radially-arranged spring-pressed tongue g, pivoted in the center of oscillation of the shuttle, confining the spool in the holder and having a lateral guide-nick m near its outer end, and a recess r in its face; and the plate n having a nose p engaging with the recess r in the tongue g and an exit-opening o for the thread, and serving to guide the thread from the periphery of the spool to the exit-opening o, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HERMANN REGENSTEIN.

Witnesses:

CARL HESS,

H. W. HARRIS.