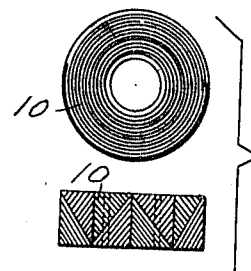
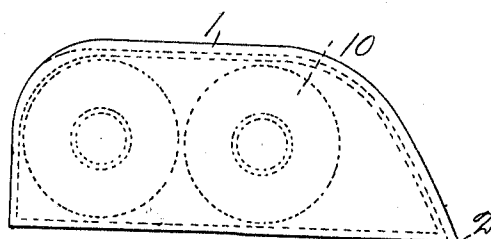
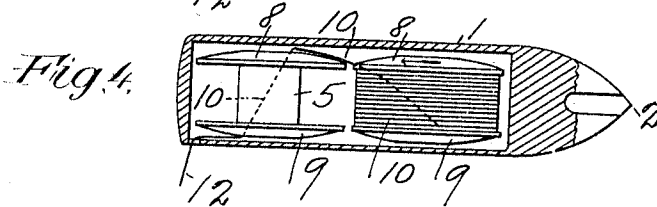
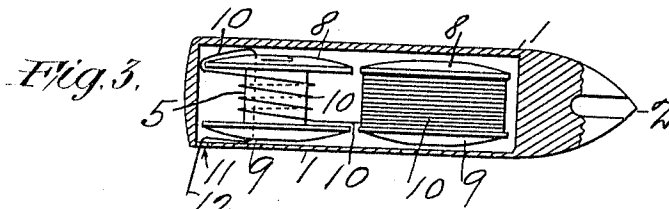
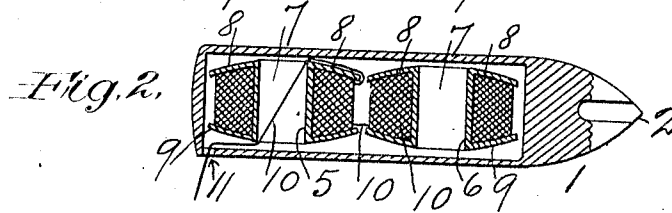
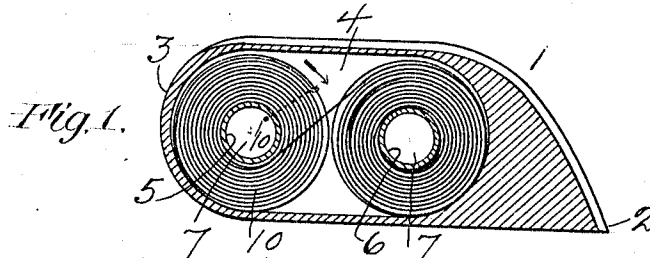


M. SCHOENFELD.
SHUTTLE FOR EMBROIDERING MACHINES.
APPLICATION FILED MAY 10, 1910.

989,301.

Patented Apr. 11, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

MORRIS SCHOENFELD, OF RORSCHACH, SWITZERLAND.

SHUTTLE FOR EMBROIDERING-MACHINES.

989,301.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed May 10, 1910. Serial No. 560,439.

To all whom it may concern:

Be it known that I, MORRIS SCHOENFELD, a citizen of the United States, and a resident of Rorschach, in the Canton of St. Gall, Switzerland, have invented certain new and useful Improvements in Shuttles for Embroidering-Machines, of which the following is a specification.

The subject matter of the present invention is a shuttle, more especially adapted for use on embroidering machines, where many hundred shuttles are simultaneously operated.

In shuttle embroidering machines of the large type, carrying many hundred needles and shuttles, the matter of delay caused by replenishing the shuttles is a serious one, because either the machine must be stopped while some of the shuttles which have become exhausted of their threads are being replenished, or the shuttles must be independently replenished while the machine is still in operation, and this latter interferes with the proper stitching by the particular needle with which such shuttle coöperates.

It is the object of my present invention to improve over former practice by increasing the amount of thread which each shuttle carries, and in that way making it necessary to replenish the supply in the shuttles less often. This is accomplished by constructing the shuttle in such a way that the spool space will receive two or more thread spools, which, are so arranged that their threads are continuous and the thread will wind off successively from the several spools without any interruption.

In the drawings forming a part of this application, Figure 1 is a vertical sectional view of a shuttle embodying my invention in one form, Fig. 2 is a horizontal sectional view thereof, Fig. 3 is similar to Fig. 1, showing one of the spools nearly exhausted, Fig. 4 is a similar view showing how the thread winds off when one spool has become exhausted of thread, Fig. 5 is an elevation of a shuttle of a different form and, Fig. 6 is a detail view of the spool used in the latter.

In the drawings 1 represents the shuttle body which I preferably modify in shape, whereby greater advantages may be derived and the preferred form of the shuttle has a pointed end or nose 2, which takes in the loop of the sewing thread and the rear or foot 3 of the shuttle is rounded as shown in

Fig. 1, whereby the thread loop will readily pass over the shuttle, while the shuttle itself, by providing spools of the class referred to hereinafter will permit of a greater capacity for the thread without a corresponding increase in the longitudinal dimensions over shuttles of former construction. The interior chamber 4 serves to retain the thread carrying elements, which in the present case I shall call spools, and this chamber I have rounded at the front and rear ends.

Within the chamber 4 I have arranged thread carrying elements which are arranged preferably with their axial line disposed transversely of the shuttle, and are directly forward of the other, and there need not be any dividing wall between them.

The spools which I have shown in Figs. 1 to 4, consist of hollow sleeves 5 and 6 respectively, having central bores 7, and each is provided on its ends with flanges 8, 9, between which, and about the sleeves 5 and 6 the thread 10 is wound. These spools are loosely placed in the chamber 4 of the shuttle and there is a thread exit aperture 11, at the rear of the shuttle from which the thread feeds. The thread is so wound on the spools and is so arranged that the same will unwind from one spool and will then unwind from the other without any interruption or entanglement, whereby the thread will be withdrawn from the spools successively. The off running end 12 of the thread on the rear spool passes around one of the flanges 8, and thence through the bore 7 of the sleeve 5, and out through the aperture 11, where it is fed in the usual way. The inner winding from this spool is carried over to the forward spool where it winds from the exterior of the spool toward the sleeve, while the other end is in the middle, or near the sleeve of this spool. When both spools are filled, as in Figs. 1 and 2, the peripheries of the spools conform loosely to the peculiar shape of the shuttle chamber 4 and though the thread supply is large the space is comparatively small. When thus placed in the shuttle the thread feeds off the rear spool without necessarily revolving the latter, and in doing so the thread revolves around the flange 8, until the thread on this spool becomes nearly exhausted, as shown in Fig. 3. This continues and when the windings about the rear spool have become exhausted the thread, still passing through the sleeve 5, will begin to take off from the outer wind-

ing or layer of the forward spool until all the thread on the spool becomes exhausted; and not until then will the shuttle require replenishing. While the thread is unwinding and feeding off the rear spool, neither spool need revolve, but when this spool exhausts and the thread begins to take off the forward spool it revolves the latter, but not necessarily the rearward one. However, should the rearward spool revolve, by reason of any contact with the forward spool, there will be no interference with the unwinding of the thread. Fig. 4 shows the thread exhausted from the rear spool and taking off the forward one.

In Figs. 5 and 6 the spools are arranged as ordinary bobbins but their disposition and number correspond with the present invention.

The present invention is not limited to two spools as the number may be increased beyond this.

It will be apparent that the construction herein permits of an increase in the supply of thread without increasing the external

dimensions of the shuttle beyond practical limits.

Having described my invention what I claim is;

A shuttle comprising a shuttle body and a plurality of spools or bobbins in said shuttle body, arranged with their axial lines transverse of the shuttle body and parallel with each other, at least one of said spools having an aperture transverse of the shuttle whereby a continuous thread may be fed off said spools successively, said thread being wound on one of said spools, thence passing to the inner winding of the second spool, passing from the outer winding of said second spool through the transverse aperture thereof from whence it is adapted to feed off the shuttle.

Signed at St. Gall, in the Canton of St. Gall, Switzerland, this 21st day of April 1910.

MORRIS SCHÖENFELD.

Witnesses:

OSCAR LOEB,

FRIEDR. STEINER.