C. E. HAYES.

THREAD GUIDE.

APPLICATION FILED JULY 7, 1913.

1,099,745. **Patented June 9, 1914.**

Fig. 1.

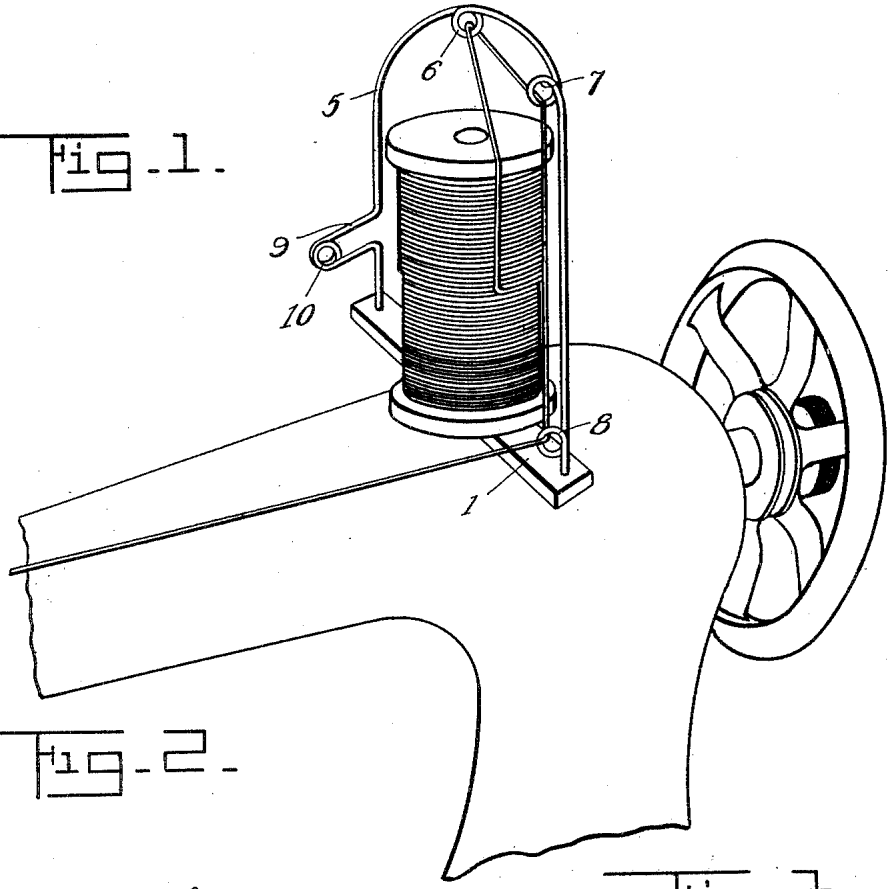


Fig. 2.

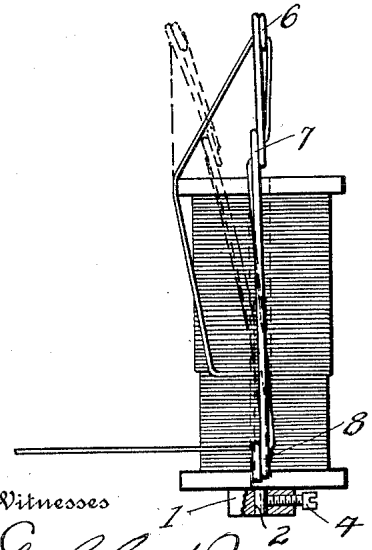
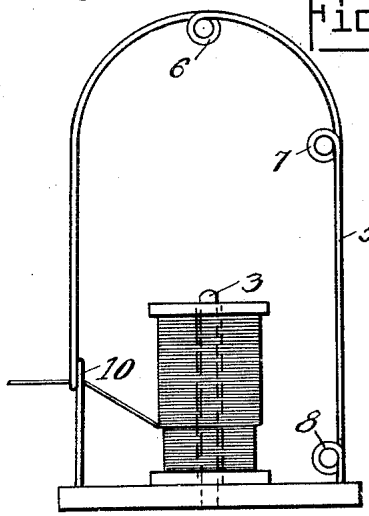


Fig. 3.



Witnesses

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THREAD-GUIDE.

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To all whom it may concern:

Be it known that I, CHARLES E. HAYES, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Thread-Guides, of which the following is a specification.

This invention relates to improvements in thread guides, and more particularly to detachable attachments for sewing machines and the like.

The object in view is the avoidance of undue friction and the obviation of danger of dislocation of the thread supply spool from its mounting.

With these and further objects in view, as will hereinafter become in part apparent and in part be stated, the invention comprises a plate adapted to be detachably connected to the spool carrying spindle of a machine, and a spring loop carried by the plate and provided with thread guiding eyes adapted to direct thread delivered from the spool sustained by the spindle.

The invention comprises certain other novel constructions, combinations and arrangements of parts, as will be hereinafter specified and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of an attachment embodying the features of the present invention, the attachment being illustrated as applied to sewing machines. Fig. 2 is an edge view of the attachment detached. Fig. 3 is a front elevation thereof.

Referring to the drawings by numerals, 1 indicates a plate having a central aperture 2 enabling the plate to be applied onto the spool-receiving spindle 3 of a sewing machine or other like apparatus requiring a supply of thread or yarn. A set screw 4, or other locking means, is provided for detachably but firmly securing the plate 1 in position, said set screw being threaded through the material of plate 1 and engaging the spindle 3. A spring loop 5 is preferably formed of suitable spring wire and has its ends fixed to the respective ends of the plate 1. The wiring comprising the loop 5 is curled into eyes 6, 7 and 8, the eye 6 being disposed at the crown of the arch or curved portion of the loop, the eye 7 being disposed at the upper end of the straight shank of the loop at one side, and the eye 8 being disposed adjacent the lower end of said shank, the opposite shank of the loop being formed with a laterally extended spring portion 9 which increases the flexibility of the loop and which terminates at its outer end in an eye 10, for purposes hereinafter specified.

In practice it has been found where a spool of greater length than the spindle 3 is applied to the spindle, feeding of the thread from such spool through a fixed guide disposed centrally of the length of the spool occasions friction incident to the varying angles at which the thread is disposed with respect to the spool during the course of being fed therefrom, and in some instances where the eye is spaced some distance from the spool this friction becomes sufficient, as the thread is fed from portions of the spool adjacent the upper end thereof, to cause the spool to tilt, owing to its loose fit on the spindle 3, and to thus be caused to feed irregularly. The present invention obviates these difficulties by virtue of the disposition of the guiding eye 6 in combination with the loop 5 whose flexibility enables the eye 6 to move and give under any stress incident to friction so as to leave the spool stationary. Obviously under ordinary conditions the feeding of the thread upwardly from the spool will cause the thread to travel about the upper end of the spool while the spool remains unmoved, but at times the thread may become caught on the edge of the flange of the spool because of some irregularity in the flange and in that event the further taking up of thread by the machine causes the thread to become taut and flexes the loop 5, after the manner indicated in dotted lines in Fig. 2, until the eye 6 moves past the point of frictional contact and thus releases the thread from its engagement with the flange of the spool. The thread is preferably passed through the eyes 6, 7 and 8 so that the loop 5 is left free to be flexed in any direction without altering the point of delivery of thread.

The spring portion 9 consists merely of a lateral loop having its outer or free extremity curled into the eye and this loop enables the employment of sufficiently rigid wire for forming the loop 5 to insure the maintenance of an upright position thereof except under stress, and at the same time renders the structure sufficiently flexible to readily give when relative dislocation of the eye 6 is required.

When a comparatively short spool is employed, say for instance a spool as short or shorter than the spindle 3, the feeding of the thread through a fixed guide laterally from the spool is not subject to the objections mentioned with respect to a similar feeding of the thread from a longer spool because the angle never becomes great enough to produce any seriously objectionable features and the spool is incapable of tilting excessively because of its relative size with respect to the spindle. Hence the eye 10 is serviceable for the feeding of thread from a spool of this length and the spool from which thread is fed through the eye 6. The fact that the eye 10 outstands laterally from the loop enables the eye to occupy a position at one side of the center of the spool so as to enable the thread passing through the eye 10 to extend substantially straight out laterally from the spool.

Having thus described the invention, what is claimed as new is:—

1. In a thread feeding attachment, the combination of a spring loop adapted to be disposed about a thread supply spool, and means for securing the loop in position, said loop being formed with a thread guiding eye arranged in line with the spool, one of the shanks of the loop being formed with a lateral loop for increasing the flexibility of the first mentioned loop.

2. In a thread feeding attachment, the combination of a spring loop adapted to be disposed about a thread supply spool, and means for securing the loop in position, said loop being formed with a thread guiding eye arranged in line with the spool, one of the shanks of the loop being formed with a lateral loop for increasing the flexibility of the first mentioned loop, the last mentioned loop being formed with an eye at its outer terminus.

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

CHARLES E. HAYES.

Witnesses:
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