June 10, 1941. J. D. KARLE 2,245,479

THREAD STABILIZER FOR SEWING MACHINES

Filed Oct. 24, 1939

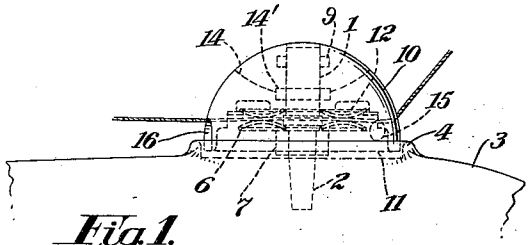


Fig. 1.

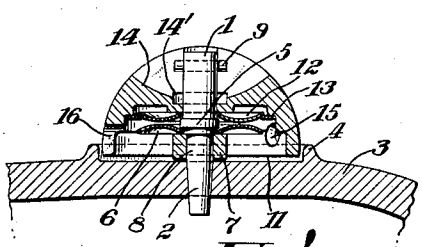


Fig. 4.

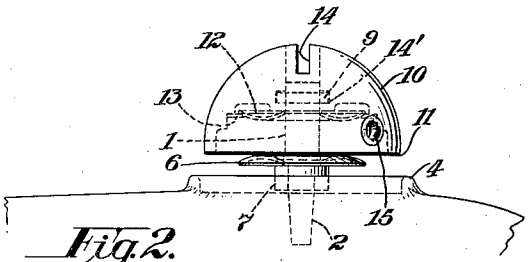


Fig. 2.

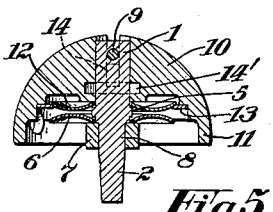


Fig. 5.

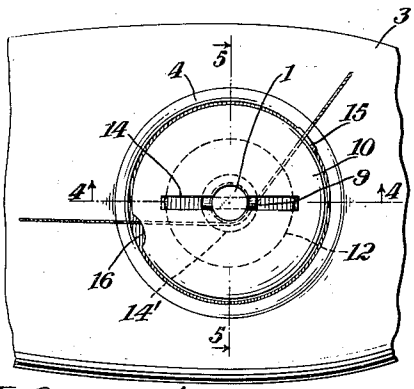


Fig. 3.

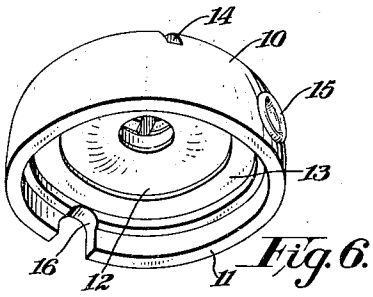


Fig. 6.

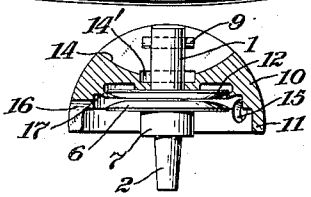


Fig. 7.

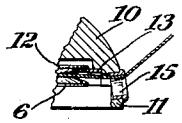


Fig. 8.

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THREAD STABILIZER FOR SEWING MACHINES

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12 Claims. (Cl. 242—150)

This invention relates to thread-stabilizers or thread-drags for sewing machines, through which the thread runs from the supply spool to the usual sewing machine tension device. When the machine is operated at high speed without a thread-stabilizer, the thread whips, jerks and dances around in a most uncertain and bizarre manner, interfering with the smooth and even formation of stitches.

This uneven flow of the thread from the supply often results in snarls and kinks and even causes the thread to break. The office of a thread-stabilizer is to exert a light drag upon the thread between the supply spool stand and the regular sewing machine tension device, so that the thread will run to the tension device smoothly and in substantially a straight line, without a quiver.

The present invention has for an object to provide an efficient thread-stabilizer of simple construction and easy threading characteristics through which the thread from the supply will run freely and smoothly without danger of kinking or snarling.

Another object of the invention is to provide a thread-stabilizer readily applicable to a conventional sewing machine in substitution for the conventional spool-pin thereof.

Still further, the invention has for an object the provision of a thread-stabilizer which is free of the danger of grooving by wear of the thread passing therethrough.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations, and arrangements of parts hereinafter set forth and illustrated in the accompanying drawing of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

Of the accompanying drawing, Fig. 1 is a side elevation of a thread-stabilizer embodying the invention with the weight in its lower or working position. Fig. 2 is a similar view with the weight raised to threading position. Fig. 3 is a top plan view of the device. Fig. 4 is a section on the line 4—4, Fig. 3. Fig. 5 is a section on the line 5—5, Fig. 3. Fig. 6 is a bottom perspective view of the weight and upper tension-disk contained thereby. Fig. 7 is a vertical section similar to Fig. 4 but showing a modified form of construction for confining the upper tension disk in the weight, and Fig. 8 is a sectional view through the thread-inlet guide.

In the preferred form of the invention there is a center post 1 the lower end of which is tapered at 2 to fit the conventional tapered spool-pin socket of a sewing machine bracket-arm 3 which may be former concentrically of the socket 2 with a ring wall 4 rising a short distance from the top surface of the bracket-arm 3 proper. The center post 1 is preferably formed with a collar 5 below which and upon the post 1 the lower tension disk 6 is loosely confined by the collar 7 having a drive fit upon the cylindrical portion 8 of the post 1. The tension disk 6 is free to turn on the post 1 but is confined against vertical movement thereon. Near the top of the post 1 is a cross-pin 9 which is driven through a transverse hole in the post.

Slidable vertically upon the post 1 is the hemispherical weight 10 having a peripheral skirt-portion 11 and a recessed under face containing the upper tension disk 12 which is free to turn relatively to the weight 10 and is also loose on the post 1 above the collar 5. The spring ring 13 peripherally underhangs and confines the upper tension disk 12 in the recess containing it. This ring lifts the tension disk 12 when the weight is raised to threading position, Fig. 2.

When the weight is in lowered position, the cross-pin 9 lies in the key-slot 14 cut externally in the dome of the weight and locks the weight against turning on the post.

At the bottom of the key-slot 14 the weight is under-cut to form a circular clearance way 14' for the cross-pin 9, permitting the weight to be turned on the post when lifted to threading position Fig. 2 in which position it rests until the weight is reversely turned to aline the key-slot 14 with the cross-pin 9 whereupon the weight drops to its operative position, Figs. 1, 3 and 4.

The skirt portion 11 of the weight is formed with a thread inlet hole 15 and a thread outlet slot 16 both of which are of generous size.

When the weight is raised to threading position, the lower edge of the skirt 11 thereof is at a level between the separated tension disks 6 and 12 and serves as a guide to direct the thread sidewise of itself between such disks. As both tension disks are free to turn on the post 1, there is no danger that the thread passing therebetween will wear grooves therein and ruin the effectiveness thereof. The ring wall 4 serves to prevent displacement of the emerging run of the thread from the outlet slot and further serves to prevent the entering run of thread from whipping or looping itself under the skirt and around the center post 1. The ring wall 4 is, however,

not essential to the invention in its broader aspects. The center post 1 and parts carried thereby may be substituted for the conventional spool-pin of any sewing machine using thread running from a supply spool-stand.

In the modification of the invention shown in Fig. 7, the upper tension-disk 12 is peripherally underhung and confined by the spun-over flange 17 formed on the under face of and integral with the hemispherical weight. In this form of the invention also, the tension disk 12 is free to turn relative to the weight which confines it.

The skirt diameter of the present weight is about 1½ inches and it weighs about two ounces. These figures are not at all critical, however, and may be widely departed from within the scope of the invention. The device is intended to apply only a light drag upon the thread, a fraction of that applied by the conventional sewing machine thread-tension device to which the thread runs from the thread-stabilizer.

Having thus set forth the nature of the invention, what I claim herein is:

1. A sewing machine thread-stabilizer comprising, a supporting post, a weight vertically movable on said post from a lowered to an elevated position and having a peripherally depending skirt, and a pair of thread-tension disks on said post within and above the level of the lower edge of said skirt, said skirt having thread-inlet and thread-outlet passageways therethrough.

2. A sewing machine thread-stabilizer comprising, a supporting post, a weight vertically movable on said post from a lowered to an elevated position and having a peripherally depending skirt, and thread-tension means on said post within said skirt, said skirt having thread-inlet and thread-outlet passageways therethrough, and means to temporarily retain said weight in an elevated position exposing the tension means for threading.

3. A sewing machine thread-stabilizer comprising, a supporting post, a weight vertically movable on said post from a lowered to an elevated position and having a peripherally depending skirt, and thread-tension means on said post within said skirt, said skirt having thread-inlet and thread-outlet passageways therethrough, and means to prevent turning of the weight upon said post when in lowered position.

4. A sewing machine thread-stabilizer comprising, a supporting post, a hemispherical weight slidable on said post and having a circular peripheral skirt and a recessed under face within said skirt, an upper tension disk disposed in said recessed under face and surrounding said post, means carried by said weight and underlapping said upper tension-disk to confine the latter in said recessed under face, and a lower tension disk loose on said post.

5. A sewing machine thread-stabilizer comprising, a supporting post, a hemispherical weight slidable on said post and having a circular peripheral skirt and a recessed under face within said skirt, an upper tension disk loosely confined in said recessed under face and surrounding said post, a lower tension disk loose on said post, and means to temporarily retain said weight in an elevated position with the plane of the lower edge of said skirt higher than said lower tension disk.

6. A sewing machine thread-stabilizer comprising, a supporting post, a herispherical weight slidable on said post and having a circular peripheral skirt and a recessed under face within said skirt, an upper tension disk disposed in said recessed under face and surrounding said post, disk confining means carried by said weight and underlapping said upper tension-disk, a lower tension disk loose on said post, and a shoulder on said post overlying the lower tension disk.

7. A sewing machine thread-stabilizer comprising, a vertical center post, a weight slidable vertically on said post, interengaging means on said weight and post to confine said weight against turning on said post when said weight is in lowered position, said weight having a circularly recessed under face, a circular tension disk in said recess, circular means peripherally underhanging said tension disk and fixed to said weight for loosely confining said tension disk in said recess, and a second tension disk rotatable on said post below said first mentioned tension disk.

8. A sewing machine thread-stabilizer comprising, a supporting post, a weight vertically movable on said post from a lowered to an elevated position and having a peripherally depending skirt, thread-tension means on said post within said skirt, said skirt having thread-inlet and thread-outlet passageways therethrough, and a base supporting said post and formed with a ring wall surrounding the skirt-portion of said weight and extending above the level of the lower edge of said skirt-portion when said weight is in lowered position.

9. A sewing machine thread-stabilizer comprising, a supporting post, a pair of tension disks on said post, a weight on said post bearing down upon said tension disks, means to key said weight against turning on said post, and means on said weight to guide a thread to said disks.

10. A sewing machine thread-stabilizer comprising, a weight having a recess and a skirt around said recess, weight-operated thread-tension means in said recess, said skirt having thread-guiding means therein, a center post supporting said weight, and means to key said weight against turning on said center post.

11. A sewing machine thread-stabilizer comprising, a supporting post, a weight slidable on said post and having a recess in its under face, a thread-tension disk disposed in said recess, disk confining means carried by said weight and underlapping said disk, and a companion thread-tension disk on said post.

12. A sewing machine thread-stabilizer comprising, a support, a weight slidable relative to said support and having a recess in its under face, a thread-tension disk disposed in said recess, disk confining means carried by said weight and underlapping said disk, and a companion thread-tension disk carried by said support independent of said weight.

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