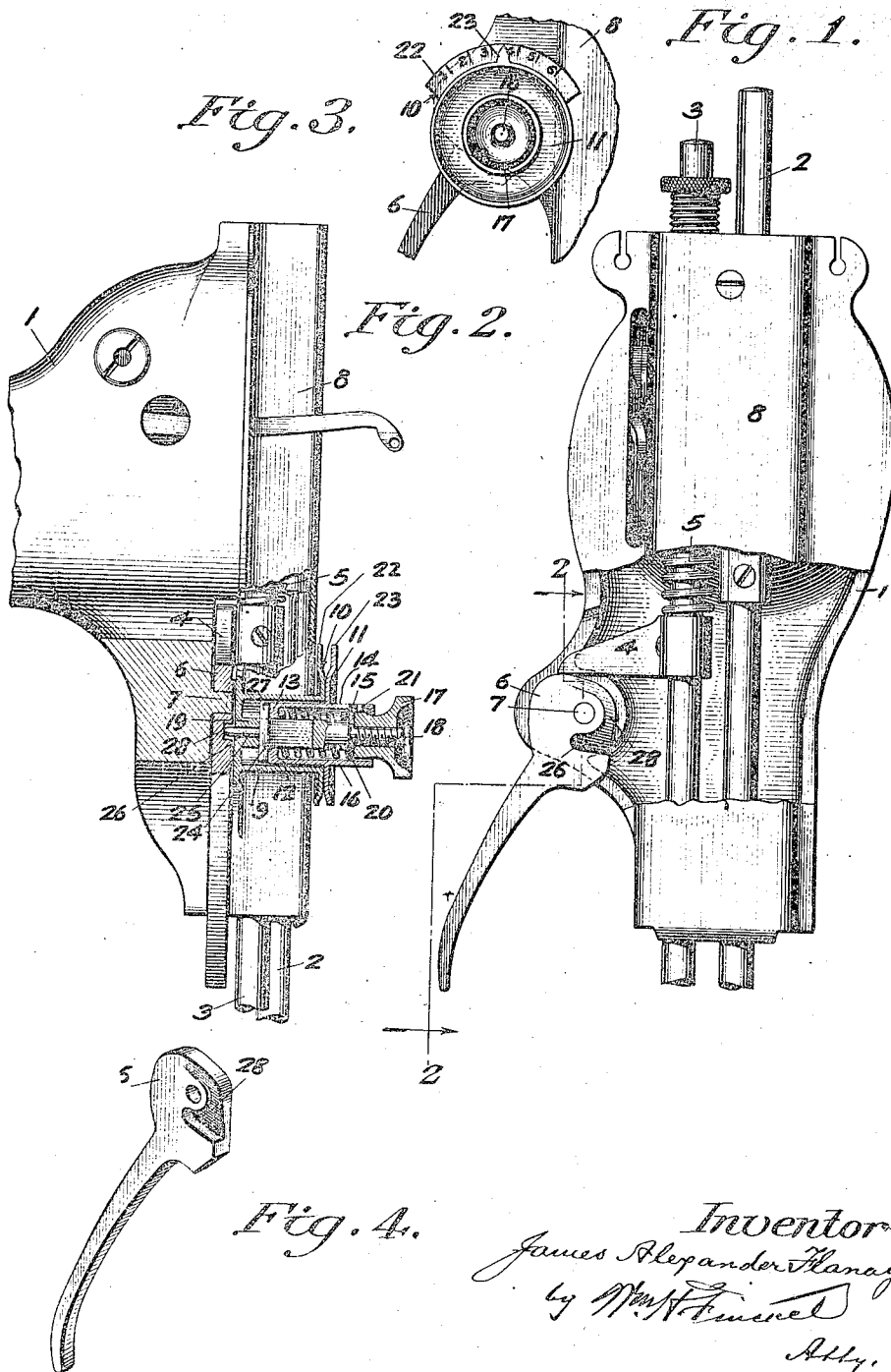




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UNITED STATES PATENT OFFICE.

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TENSION FOR SEWING-MACHINES.

1,387,139.

Specification of Letters Patent.

Patented Aug. 9, 1921.

Application filed April 30, 1919, Serial No. 293,664. Renewed June 1, 1921. Serial No. 474,298.

To all whom it may concern:

Be it known that I, JAMES ALEXANDER FLANAGAN, a subject of the King of Great Britain, residing at Toronto, in the county of York and Dominion of Canada, have invented a certain new and useful Improvement in Tensions for Sewing-Machines, of which the following is a full, clear, and exact description.

10 The object of this invention is to provide a needle-thread tension for sewing machines in which the adjusting parts are concealed, and which includes an indicator formed with or otherwise applied to the friction elements of the tension mechanism.

15 The invention consists of a pair of disks or plates constituting the friction elements, one of which is fixed to the face-plate of the head by means of a tubular extension and bears an indicator scale on its exposed face, and the other has a tubular extension projecting from both sides, one of such extensions telescoping in the tubular extension of the stationary disk and inclosing a tension spring held in place by a nut which engages the outer extension to turn it, the movable disk having a pointer cooperating with the indicator scale on the stationary disk to indicate the degree of tension, said nut cooperating with a screwthreaded post extending through both disks and provided with a pin which is engaged by a cam on the presser-foot lifter to separate the tension disks so as to release the tension on the needle thread when the presser-foot is lifted, as I will proceed now to explain and finally claim.

20 In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a front elevation of part of the head of a sewing machine, having the face-plate broken out. Fig. 2 is a sectional elevation, the line of section being indicated by line 2-2, Fig. 1. Fig. 3 is a detail front view showing the indicator. Fig. 4 is a perspective view of the combined presser-foot lifter and tension cam.

25 The sewing machine head 1 may be of any approved construction, and I have herein shown the same as provided with any usual or approved needle bar 2 and presser bar 3, the latter having a tappet finger or lifter 4 and the usual spring 5. 6 is a presser-foot

lifter pivoted at 7 and having a cam-shaped head adapted to cooperate with the finger 4 to raise the presser-foot bar and permit it to lower.

8 is a face-plate provided with a fixed tubular portion or extension 9 to the outer end of which is fixed one disk 10 of the tension mechanism, same being herein referred to as the stationary member. 11 is another disk, herein referred to as the movable member of the tension device, and this disk 11 has an inwardly-extending tubular portion or extension 12 with a bottom 13 and an outwardly-extending tubular portion or extension 14 with any number of longitudinal slots 15. Within the portions 12 and 14 is arranged a tension spring 16 resting upon the bottom 13 and held in place and under tension by means of a nut 17 engaging the screwthreaded end 18 of a post 19 fixed to the face-plate 8 and extending through a hole in the bottom 13 outwardly. A washer 20 may be interposed between the nut and spring. The nut 17 has a pin 21 which engages the slot 15 so as to cause the disk 11 to turn with the nut when said nut is adjusted in order to vary the tension of the tension spring 16. The disk 10 is provided with an indicator scale 22 and the disk 11 is provided with a pointer 23 cooperating with the scale to indicate the degree of tension applied to the needle thread.

25 The post 19 is provided with a transverse longitudinal slot 24 and also has a longitudinal bore 25 extending from the slot through the face-plate. A pin 26 is arranged in the bore and it has a cross-head 27 arranged in the slot 24, said pin being held in place by the pressure of the spring 16 on the bottom 13, said pin projecting beyond the face-plate and engaging a face-cam 28 on the lifter 6, so that as the lifter is raised to raise the presser-bar and thus free the work, the cam 28 will act upon the pin 26 and force it outwardly and consequently separate the tension disk 11 from the tension disk 10 to relieve the tension upon the needle thread.

30 As already pointed out, the operative parts of the tension mechanism are concealed, and yet they are readily accessible for repair and renewal.

Variations in details of construction and

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arrangement of parts are permissible within the spirit and scope of the invention as herein claimed.

What I claim is:—

- 5 1. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extension portions on said disks and made as parts thereof, a tension spring concealed within said tubular extension portions, and means to vary the tension of the spring.
- 10 2. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extension portions on said disks, a tension spring concealed within said tubular extension portions, and means to vary the tension of the spring, same including a screwthreaded post and a nut adjustable on said post with relation to the spring.
- 15 3. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, and having telescoping tubular portions, a tension spring concealed within said tubular portions, a post extending through the disks and their tubular portions, an adjusting nut applied to one end of the post and a movable pin applied to the opposite end of the post with the tension spring interposed between said nut and pin, and means to act upon the pin to move the movable disk away from the stationary disk.
- 20 4. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extensions on said disks, a tension spring concealed within said tubular extensions, a post extending through the disks and their extensions, an adjusting nut applied to one end of the post and a movable pin applied to the opposite end of the post with the tension spring interposed between them, and a cam cooperating with a presser-foot lifter to act upon the pin to release the tension upon the needle thread.
- 25 5. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extensions on said disks, a tension spring concealed within said tubular extensions, a post extending through the disks and their extensions, an adjusting nut applied to one end of the post and a movable pin applied to the opposite end of the post with the tension spring interposed between them, and a presser-foot lifter having a face-cam to act upon the pin to release the tension upon the needle thread.
- 30 6. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extensions on said disks, a tension spring concealed within said tubular extensions, the tubular extension of the movable disk having a bottom to support the spring, a longitudinally slotted and perforated screw post extending through the tubular extensions and having an adjusting nut on one end and a headed pin arranged in the slotted and perforated end of the post and coacting with the said bottom, and means to move said pin longitudinally to effect the separation of the tension disks.
- 35 7. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extensions on said disks, a tension spring concealed within said tubular extensions, the tubular extension of the movable disk having a longitudinally arranged slot, a screwthreaded post arranged parallel with said extension and within the same, and an adjusting nut on said post having a lateral pin engaging the slot in the extension and adapted to turn the movable disk.
- 40 8. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, means to hold the disks in variable spring contact, and means to rotate the movable disk, said stationary disk having an indicator scale made as a part thereof and projecting beyond the movable disk and said movable disk having a pointer cooperating with said scale to indicate the degree of tension.
- 45 9. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, telescoping tubular extensions on said disks, a tension spring concealed within said tubular extensions, the tubular extension of the movable disk having a longitudinally arranged slot, a screwthreaded post arranged parallel with said extension and within the same, and an adjusting nut on said post having a lateral pin engaging the slot in the extension and adapted to turn the movable disk, said stationary disk having an indicator scale and said movable disk having a pointer cooperating with said scale to indicate the degree of tension.
- 50 10. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, means to hold the disks in variable spring contact, and means to rotate the movable disk, said stationary disk having an indicator scale made as a part thereof and projecting beyond the movable disk and said movable disk having a pointer cooperating with said scale to indicate the degree of tension.
- 55 11. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, means to hold the disks in variable spring contact, and means to rotate the movable disk, said stationary disk having an indicator scale made as a part thereof and projecting beyond the movable disk and said movable disk having a pointer cooperating with said scale to indicate the degree of tension.
- 60 12. A tension device, having a pair of oppositely arranged disks, one of which is stationary and the other movable, means to hold the disks in variable spring contact, and means to rotate the movable disk, said stationary disk having an indicator scale made as a part thereof and projecting beyond the movable disk and said movable disk having a pointer cooperating with said scale to indicate the degree of tension.

In testimony whereof I have hereunto set my hand this twenty-eighth day of April, A. D. 1919.

JAMES ALEXANDER FLANAGAN.

Witnesses:

LILLIAN GRAHAM,
MARGARET ROBINSON.