

July 16, 1935.

A. J. LEFEBVRE

2,008,618

COMBINED REGULATOR AND INDICATOR

Filed March 13, 1933

3 Sheets-Sheet 2

Fig. 4.

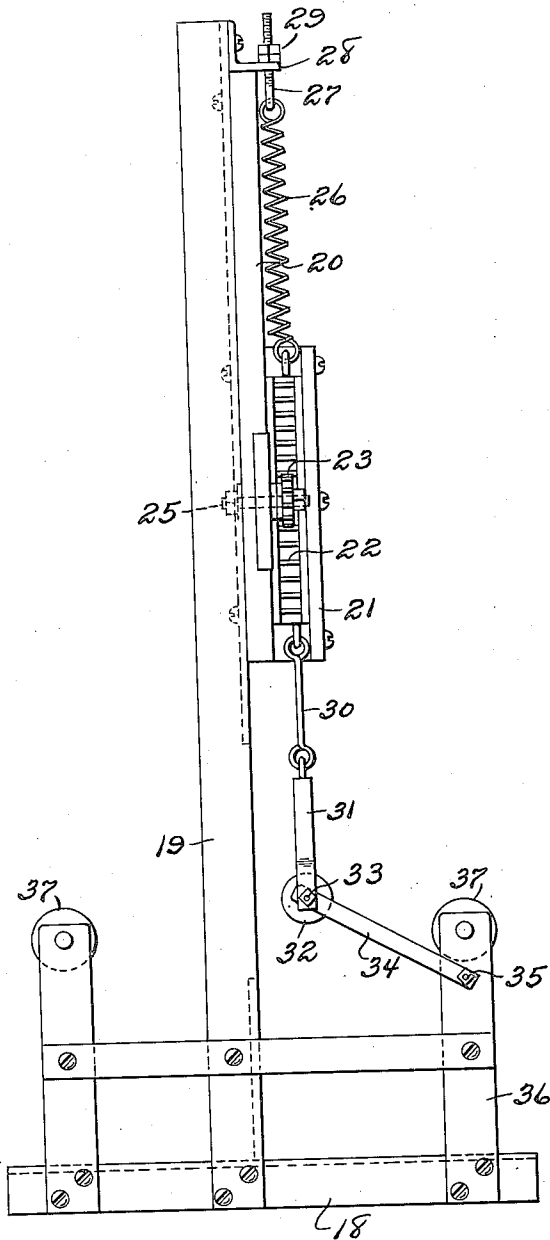
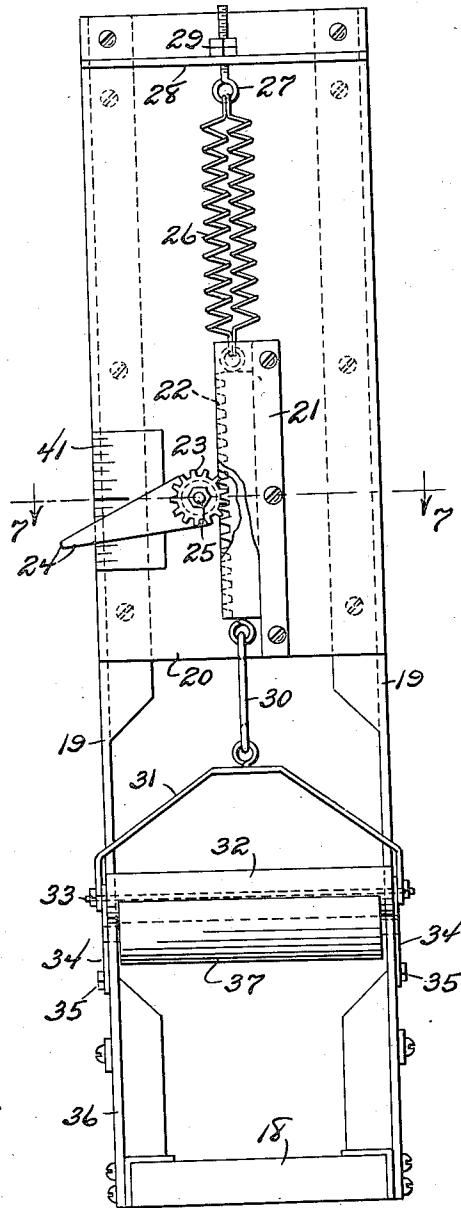


Fig. 5.



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Fig. 6.

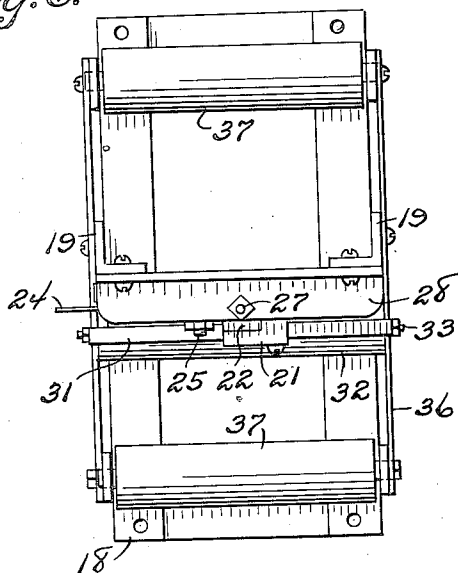


Fig. 7.

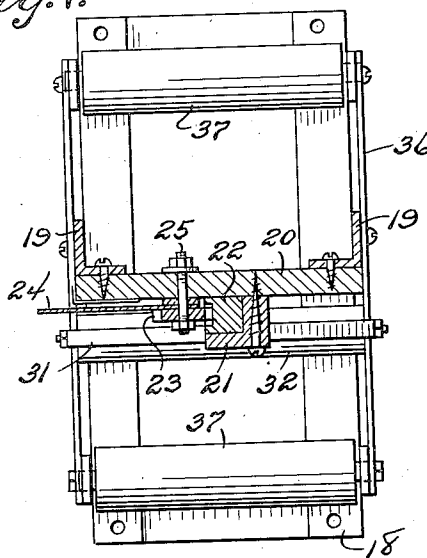


Fig. 8.

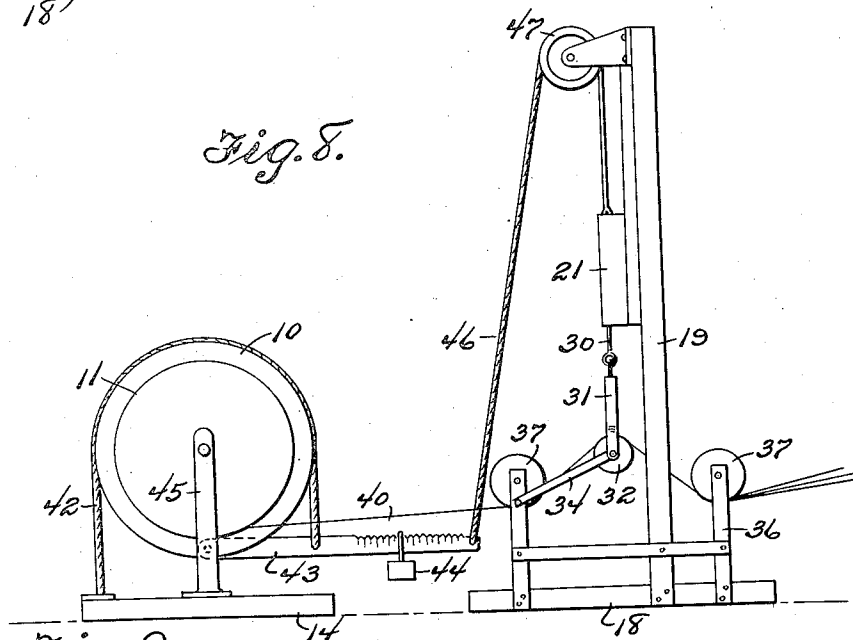
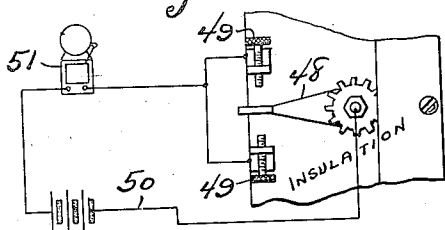


Fig. 9.



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COMBINED REGULATOR AND INDICATOR

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Application March 13, 1933, Serial No. 660,585

1 Claim. (Cl. 117—34)

The invention relates to a resilient thread tension regulator and more particularly to a combined tension regulator and indicator.

The primary object of the invention is the provision of a device of this character, wherein in the manufacture of elastic webbing or other like material, where covered rubber thread is used, the tension of such rubber threads can be maintained uniform and at a determined degree, the stretching of the rubber thread being effected in a novel manner and the degree of tension thereof had at a glance.

Another object of the invention is the provision of a device of this character, wherein it is possible for the manufacturers of covered rubber threads to have the covered rubber of even stretch without regard to the kinds of elastic webs, elastic cloth or the like, either in making two-way stretch elastic corset webbing or a one-way stretch of elastic material for suspenders, garters or other like wearing articles and to have the elastic threads of a uniform tension, the action of the device being automatic.

A further object of the invention is the provision of a device of this character which is comparatively simple in construction, thoroughly reliable and efficient in its operation, automatic in its action, and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a side elevation of the tension regulator and indicator device constructed in accordance with the invention.

Figure 2 is an elevation of the rubber beam.

Figure 3 is an elevation of the reed for the rubber thread.

Figure 4 is an enlarged elevation of the major portion of the device looking toward the side thereof opposite that shown in Figure 1.

Figure 5 is a front elevation thereof.

Figure 6 is a top plan view.

Figure 7 is a sectional view on the line 7—7 of Figure 5 looking in the direction of the arrows.

Figure 8 is a view similar to Figure 1 showing a slight modification.

Figure 9 is a diagrammatic detail view of the audible signal circuit as employed in the modified form of the device shown in Figure 8.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the device constituting the present invention comprises a tensioning wheel 10 which in this instance is in the form of a pulley and is arranged at one side of a beam 11 having bare rubber threads wound thereon, the axle 12 thereof being common to the wheel 10 and journaled in spaced upright bearings 13, these supported by and rising from a base 14, the wheel 10 and beam 11 being between the said upright bearings 13 in the positioning of the device. Suitably anchored to the base 14 at the outer side of the wheel 10 is a tensioning cable 15 which is trained over the wheel 10 and has at its free end a weight hanger 16 removably supporting a plurality of weights 17.

Located spaced from the base 14 is a second base 18 from which rises vertical posts 19, these supporting a face plate 20 having built thereon medially of the same a rack guide 21 which is vertically disposed and in which is slidably fitted a toothed rack bar 22, meshing with a rack pinion 23, carrying an indicator hand 24, the pinion being supported by a stud axle or pivot 25 on the face plate 20. The upper end of the rack bar 22 has connected therewith a tensioning spring 26, the other end of which is engaged with an adjustable hanger 27 supported in an overhanging ledge 28 mounted upon the posts 19, the hanger being adjustable through the medium of the jamb nuts 29.

The rack bar 22 has suspended therefrom a link 30 supporting a bail 31 which is in the form of an inverted fork and has journaled therein a roller 32, the journal 33 of the same being engaged in swinging connecting arms 34, these being pivoted at 35 to the supporting frame 36 and function to hold the roller 32 intermediate with respect to the guide rollers 37. The guide rollers 37 are located in the frame 36 at opposite sides of the roller 32 and in the same plane with each other, while the suspension of the roller 32 can rise and fall above the plane of said rollers 37 in the working of the device.

Beyond the frame 36 and at the side opposite to that of the tension wheel 10 is a rubber thread covering machine 38, only a portion thereof being shown in Figure 1 of the drawings, while between this covering machine and the said frame 36 is a reed 39 of standard construction.

The beam 11 has wound thereon the bare rubber threads and the same are trained beneath the rollers 37 and over the roller 32, thence

through the reed 39 to the covering machine 38, this being clearly shown in Figure 1 of the drawings. The training of the threads 40 from the beam 11 over the roller 32 effects a tensioning action upon said threads, while the cable 15 with the weight 17 acting against the wheel 10 retards the feeding of said threads 40 and thereby sets up therein a determined and even tension, this being indicated by the hand 24 upon a suitably marked dial or scale plate 41 on the face plate 20 and traversed by said hand 24.

In Figures 8 and 9 of the drawings there is shown a slight modification of the device, wherein the cable 42, which functions alike to the cable 15, is connected with the weight beam 43 carrying an adjustable weight 44, the beam being pivoted to the support 45. The free end of the beam 43 has connected thereto a pull cable 46 trained over a guide pulley 47 and this pull cable is connected with the rack bar 22 which in turn operates a switch arm 48 alternately engageable with adjustable contacts 49 and a normally open electric circuit 50 having therein an audible signal or electric bell 51. Thus it will be seen that on the rise and fall to a determined extent of the roller 32 the switch arm 48 will close the

electric circuit 50 and thus sound the audible signal or bell 51. The weight 44, when adjusted on the beam 43, will set the tension of the cable 42 upon the pulley or wheel 10 and in this fashion the said wheel 32 will be positioned to maintain a uniform and even tension upon the bare rubber threads 40 when fed to the machine 38 as before explained.

What is claimed is:

A device of the kind described comprising a tensioning wheel, a beam at one side of said wheel and having bare rubber threads wound thereon, spaced bearings having an axle supporting the wheel and beam, a tensioning cable having one end fixed and the intermediate portion of said cable trained over the wheel, weight means connected with the other end of said cable, spaced guide rollers at one side of the beam, a spring suspended bail having a roller located between said guide rollers for the passage of the bare rubber threads thereover to sustain the same under tension, the said threads being trained beneath the guide rollers, and a hanger for the spring suspended bail.

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