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R. WUERTZ

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THREAD TENSIONING DEVICE

Filed March 21, 1929

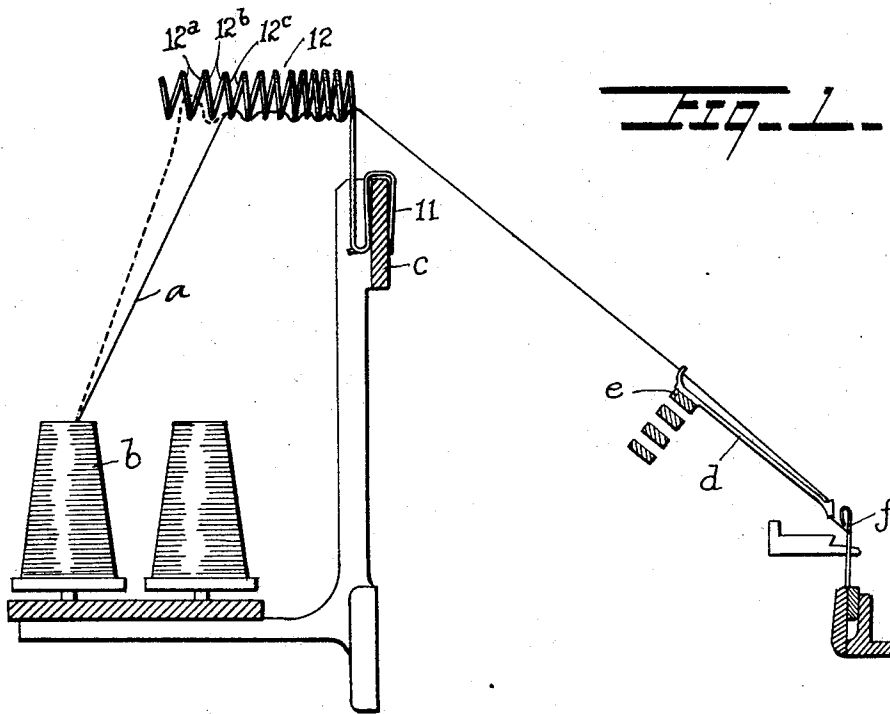


FIG. 1.

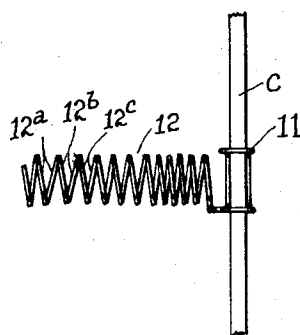


FIG. 2.

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THREAD-TENSIONING DEVICE

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This invention relates to an improved means for tensioning the feeding threads or yarns particularly of straight knitting machines or like textile machinery, the particular object being to provide for advantageously adjusting the tension by simple manipulation of the feeding threads between the points of supply and fabrication as herein-
after fully described in connection with the
accompanying drawings; the novel features
of the invention being clearly defined in the
subjoined claims.

Fig. 1 is a view diagrammatically indicating the invention in connection with certain parts of a straight knitting machine, the passing thread being shown as deflectedly engaged by different rings of the relatively enlarged tensioning device, so as to determine-
dly tension the same, more or less as determined by the number of deflections thus provided; the manner of engaging or disengaging an additional spiral ring for varying the tension being indicated by a dotted-line showing of the thread.

Fig. 2 is a separate plan view of the spiral-coil tensioning device.

As diagrammatically indicated in Fig. 1, the thread from bobbin *b*, is drawn over a top bar *c* of the machine, in feedingly extending it to the thread carrier *d* on carrier bar *e* and thence to the needles *f*. Intervening devices commonly provided are not indicated, and the top bar *c*, as shown, is utilized for conveniently attaching my improved tensioning device so as to arrange it in the path of the feeding thread. The essential purpose is to enable the operator to quickly and easily adjust the tension accurately as need develops, by merely looping the running thread upon determined ones of the coil-rings of the device as hereinafter fully described.

As indicated this tensioning device is simply formed from a single piece of spring wire; one end of which is bent to form a clip 11 adapted as shown to engage the machine bar *c* and resiliently hold the main portion 12 in the path of the thread. This main portion 12 is formed as a spiral coil having spaced-apart spiral rings 12^a, 12^b, 12^c

which are alternately engaged by the feeding yarn; the spread of these rings, or the pitch of the spiral coil, being preferably varied to enable great nicety of tension adjustment, as will clearly appear from the different angular deflections of the thread thus effected as shown in Fig. 1.

The manner of engaging the running thread with each determined ring of the spiral coil, is indicated in Fig. 1 in connection with the effecting of the added deflection of the bobbin thread which is indicated by the dotted-line showing; the thread being merely carried under the spiral coil 12^b and thrown over the top into engagement with the adjacent spiral coil 12^a so as to add the slight angular deflection under coil 12^b; which deflection slightly increases the tension provided by the similar engagements and deflections of the thread with closer-spaced rings 12^c as indicated in the full line showing.

The thread extending to the point of fabrication, is selectively engaged with any two or more of the rings 12^a, 12^b, 12^c of the coil, as determined by the number and angles of the deflections required to effect desired tension; the thread in each case being merely thrown past an intervening ring or rings into engagement with an advanced ring as indicated, so that said intervening ring or rings will deflect it from the straight line of the engaged rings, with a greater or less angle of deflection and resulting friction determined by the spread of the successively engaged rings. This very simple method of effecting required tensioning permits of varying the same with the great nicety and quickness required for practically satisfactory operation and quality of product.

What I claim is:

1. A feeding-thread tensioning device consisting of a continuous length of wire one end of which is shaped to form a frame-engaging clip and the main portion of which is spirally coiled in the path of the feeding thread to deflectingly engage the latter substantially as described.

2. A feeding-thread tensioning device consisting of a continuous length of wire one end

of which is shaped to form a frame-engaging clip and the main portion of which is formed into a spiral coil of varied pitch, said coil being arranged in the path of the feeding thread and adapted to varyingly deflect separated engaging portions of the latter.

3. A feeding-thread tensioning device consisting of a continuous length of wire one end of which is provided with a frame-engaging support and the main portion of which is formed into a spiral coil adapted to freely extend from said support with its hollow axis arranged in the path of the feeding thread and its convolutions adapted to deflectingly engage the latter.

4. A feeding-thread tensioning device consisting of a continuous length of wire one end of which is provided with a frame-engaging support and the main portion of which is formed into a spiral coil of varied pitch adapted to freely extend from said support with its hollow axis arranged in the path of the feeding thread and its convolutions adapted to deflectingly engage the latter.

In testimony whereof, I affix my signature.

RUDOLPH WUERTZ.