Feb. 6, 1940. A. H. HENNE 2,189,492

COMPENSATOR FOR FEEDING ELASTIC THREAD

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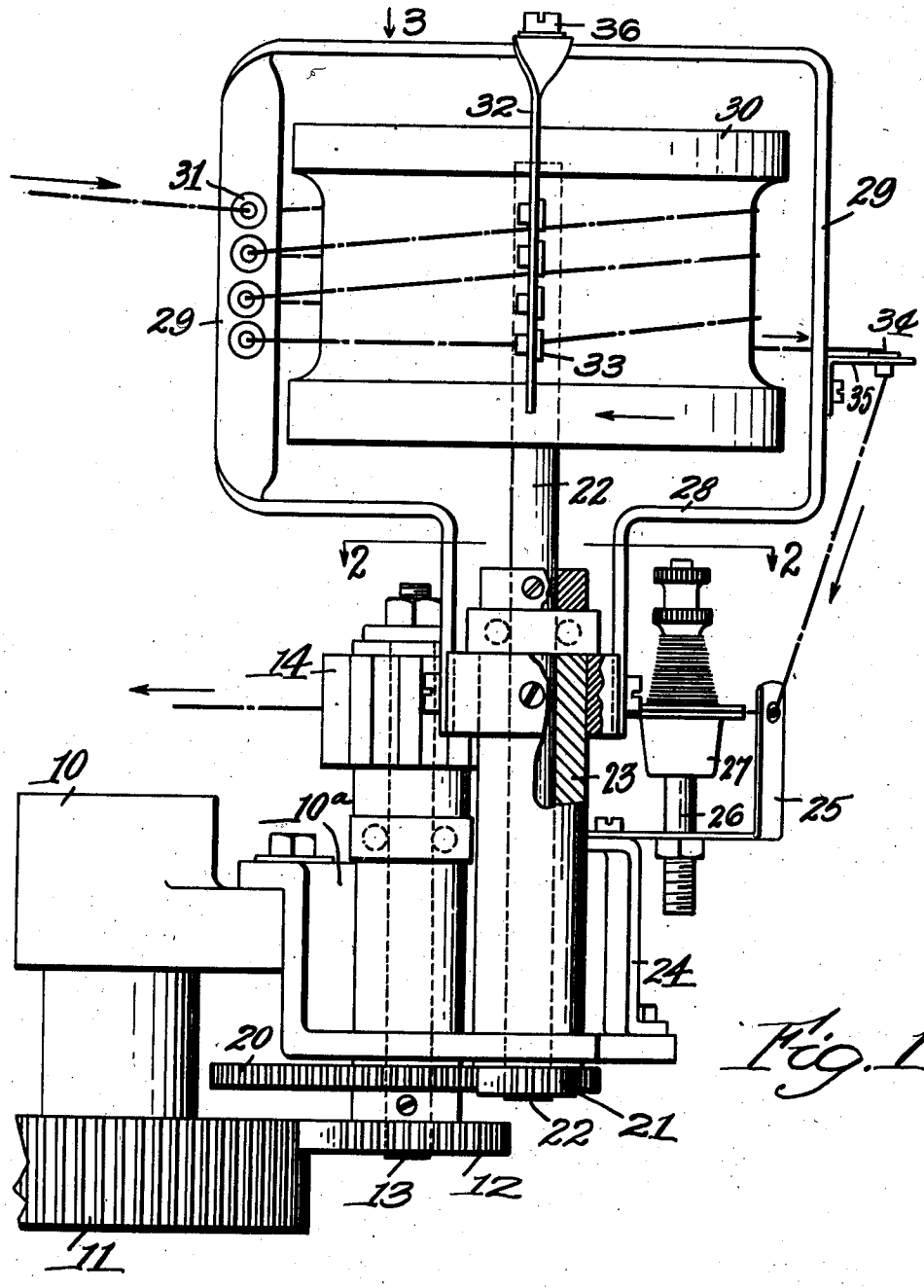

Fig. 1

Inventor
Adolf H. Henne
By attorney
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C. F. Wesson

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Fig. 2.

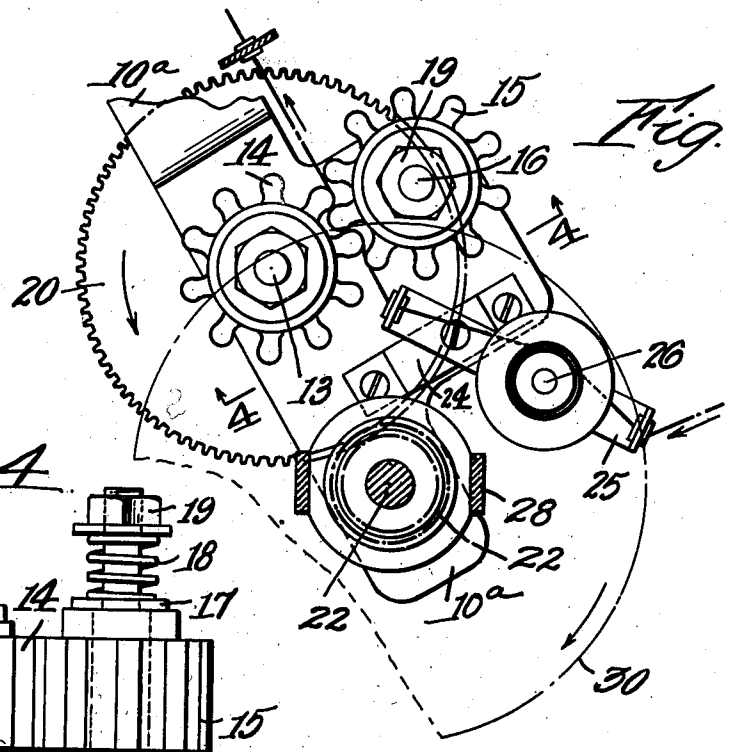


Fig. 4.

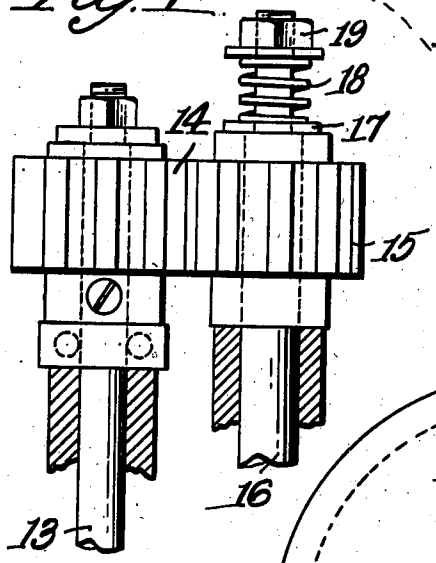
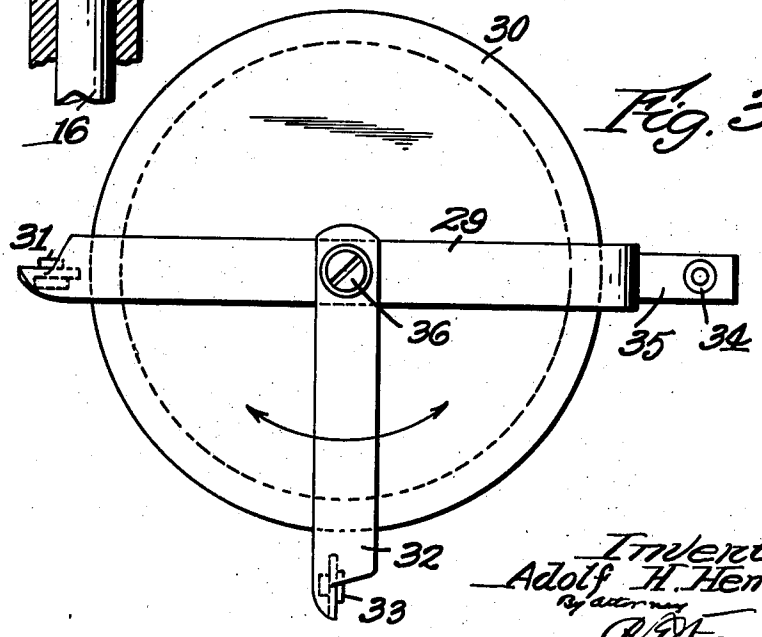


Fig. 3.



Inventor
Adolf H. Henne
By attorney

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UNITED STATES PATENT OFFICE

2,189,492

COMPENSATOR FOR FEEDING ELASTIC THREAD

Adolf H. Henne, Millbury, Mass., assignor to The Worcester Knitting Company, Worcester, Mass., a corporation of Massachusetts

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2 Claims. (Cl. 66—132)

This invention relates to a compensator for use in the feeding of an elastic thread from a spool or bobbin to a knitting machine or other textile machine.

The principal objects of the invention are to provide a means for letting down the tension of an elastic, particularly rubber, thread, which is delivered to this device under tension and fed to the machine practically without tension.

The invention also involves a spool interposed between the point at which the tensioned thread is received and the point at which it is discharged through an ordinary tension device to the knitting machine itself and along which spool the tension is reduced.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is an elevation of the main features of this invention shown partially in section and showing the compensator mounted on the stationary frame of a knitting machine;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1 showing the device for feeding the thread or yarn into the knitting machine in plan;

Fig. 3 is a plan of the compensator or drum, as indicated by the arrow 3 in Fig. 1, and

Fig. 4 is a sectional view on the line 4—4 of Fig. 2.

This invention can be attached to a knitting machine having a revolving frame without any very material change in the construction shown in the drawings but, of course, some changes would be made to adapt it to that kind of a machine.

In the form shown, the frame 10 of the knitting machine is stationary and there is a single large horizontal gear which rotates under the frame and which operates this compensating device. This large gear meshes with a pinion 11. This pinion 11 meshes with a pinion 12 on a vertical shaft 13 which is provided with a feeding gear 14. The teeth of the gear 14 are thinned down from the normal size of a gear of that size and pitch to cooperate with a thinned tooth gear 15 driven by it to feed the thread or yarn through the machine in such a way that there is no chance of pinching the thread enough to cut it off. The gear 15 is mounted on a shaft 16 which is provided at the top with a collar 17, spring 18, and fastening nut 19 for holding the gear in place. On the shaft 13 is a gear 20 meshing with a pinion 21 on the bottom of a vertical shaft 22 supported by a bracket 10^a and the hollow column 23, also carried by the bracket 10^a and held in place on the frame 10.

On the bracket 10^a is a tension holder 25 supported by a bracket 24. This carries a vertical shaft 26 on which a flat spring tension device 27 is mounted. This tension device is not described in detail as ordinary tension devices can be used at this point. This is only the point for evening up the tension as the thread gets into position to go between the rollers 14 and 15.

Also projecting upwardly from the column 23 is a bracket 28 which carries the whole framework 29 within which is carried the compensating cylinder 30. This compensating cylinder in the present instance is a wooden cylinder on which the thread is wound slightly at an incline. The frame 29, which carries this compensator, is provided with eyelets 31. The thread coming directly from a spool or bobbin, is stretched to its elastic limit, or nearly so. Preferably it is of rubber, either bare rubber or rubber covered with a textile covering. It is brought into the machine through the top earthenware eyelet 31 of the frame 29 to the surface of the cylinder 30, and through a centrally pivoted depending arm 32, having eyelets 33. It passes around the cylinder three or four times and through an eyelet each time to keep it in order and out from the cylinder and finally to an eyelet 34 on a bracket 35 and then down to an eye on the bracket 25, previously described.

The purpose of this compensator is to reduce the stretch of the thread from full stretch or any intermediate point at 31 to a condition at 34 in which all stretch has been lost and the thread is then fed the rest of the way through the machine without stretch or only enough so that it can be carried through the tension device and to the gears 14 and 15. The arm 32, as stated, is pivotally and centrally mounted. That is, it is pivoted on the axis of the cylinder 30 but on the frame 29 above it at the center. It is intended for adjustment and it is set up for the proper adjustment and then a screw 36 tightened to keep the adjustment correct during the operation of the device.

This device feeds elastic thread to the compensator, takes the stretch out of the thread and leaves it almost in a loose condition from which point it is fed to the machine through the gears 14 and 15. The adjustment that has been mentioned can take place readily without bothering with the rest of the machine.

Having thus described my invention and the advantages thereof, I do not wish to be limited

to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a compensating device for feeding elastic threads, the combination with the main gear of a knitting machine or the like, of a pinion taking power from said gear as it rotates, a first shaft driven by said pinion and having a thread feeding means driven thereby, a second shaft, the latter having fixed thereto a comparatively large diameter cylinder having a smooth, continuous, uninterrupted periphery, operative connections between the shafts to rotate the second shaft at a much higher speed than the first shaft, whereby the surface speed of the cylinder is much greater than the rate of feed of the thread, a frame carried by the knitting machine and supporting said shafts, means for guiding an elastic thread from its spool to the cylinder and leading the thread a plurality of times around the cylinder, whereby friction is created between the advancing thread and the much faster moving surface of the rotating cylinder, and means to vary the degree of this friction at the will of the operator.

2. The device as recited in claim 1, wherein the last mentioned means comprises a circumferentially adjustable guide arranged longitudinally of the cylinder and having a plurality of passages for guiding and separating the thread from the surface of the cylinder, thru an arc, said arc being variable by the circumferential adjustment.

ADOLF H. HENNE.