

No. 687,295.

Patented Nov. 26, 1901.

S. BORTON.  
BELT TIGHTENER.

(Application filed June 20, 1901.)

(No Model.)

Fig. 1.

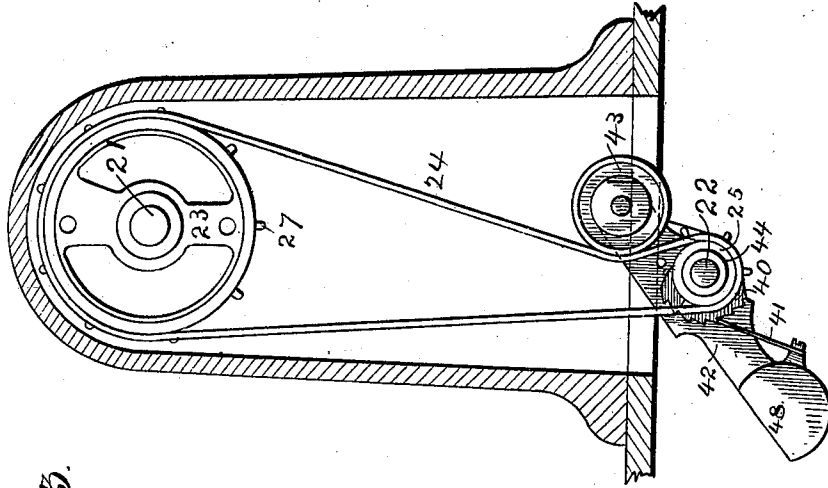


Fig. 2.

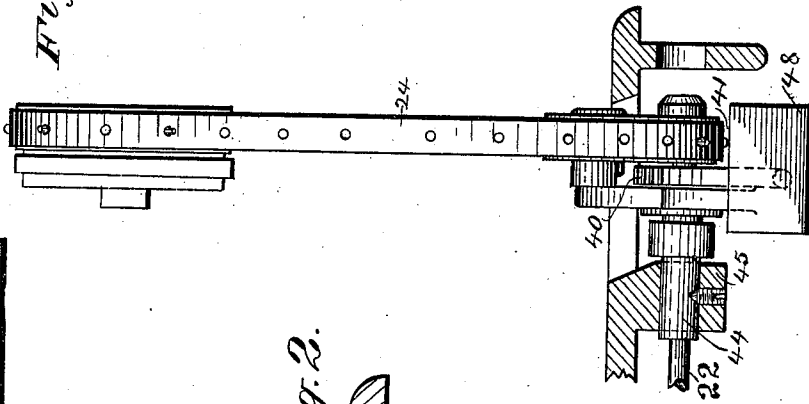


Fig. 3.

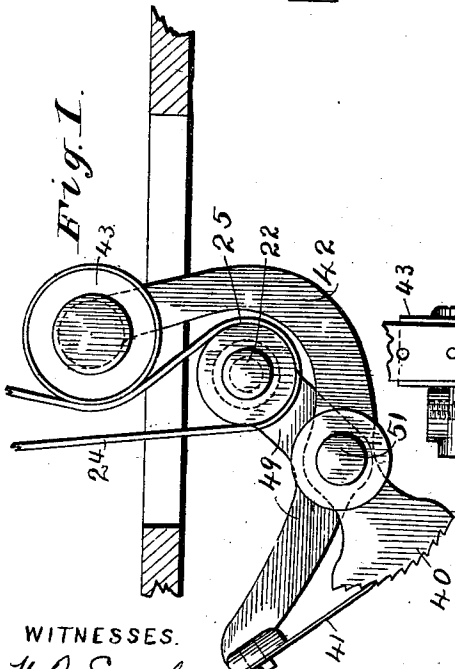
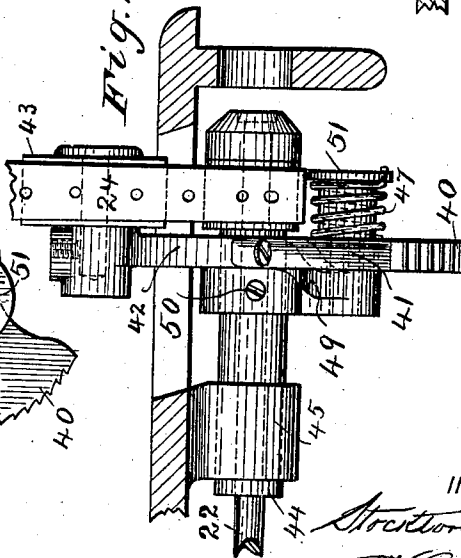


Fig. 4.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 687,295, dated November 26, 1901.

Application filed June 20, 1901. Serial No. 65,296. (No model.)

*To all whom it may concern:*

Be it known that I, STOCKTON BORTON, a resident of Providence, Rhode Island, have invented a new and useful Improvement in Belt-Tighteners, which invention is fully set forth in the following specification.

This invention has reference to means for automatically tightening a driving-belt, and is particularly applicable to the driving-belt of a sewing-machine operating at high speed.

Where a belt is employed in such machines to drive the hook or looper shaft from the main shaft, an ordinary belt-tightener will not operate in a satisfactory manner. When the tightening-pulley has acted to take up the slack in the belt, a jerk or irregularity in running will sometimes throw the pulley back and slacken the belt again. According to the present invention this difficulty is overcome by combining with the tightening roller or pulley, which acts automatically, means, such as a pawl and detent, for preventing motion of the pulley in a direction which would slacken the belt.

In the accompanying drawings, which form part of this specification, Figure 1 is an end view, and Fig. 2 a side view, of the belt-tightener. Figs. 3 and 4 are similar views showing another form of belt-tightener.

The drawings illustrate the invention as applied to the driving mechanism of a sewing-machine. The main shaft 21 carries the driving-pulley 23, from which the hook-shaft 22, carrying pulley 25, is driven through belt 24.

In the construction shown in Figs. 1 and 2 the tightening-roller 43 is carried at one end of a swinging arm or frame 42, which carries at its other end a rack 40. This rack is engaged by a spring-pawl attached at one end of an arm 49, the other end of which is secured by a set-screw 50 to a sleeve or bushing 44, which surrounds shaft 22 and is fastened by a set-screw in lug 45, depending from the bed-plate of the machine. Arm 42, carrying the tightening-roller, is pivoted to arm 49 by a headed pin 51, and surrounding this pin is a spring 47, which presses the arm 42 in such direction as to cause roller 43 to take up slack in belt 24. The engagement of rack 40 by spring-pawl 41 prevents movement of arm 42 in the opposite direction.

In the construction shown in Figs. 3 and 4 the arm or frame 42, carrying the tightening-roller, is loosely mounted on sleeve 44, and said arm or frame has a weight 48, which serves the purpose of spring 47 in the other construction. Rack 40 is in this case attached to sleeve 44.

The construction shown in Figs. 1 and 2 has certain advantages over that of Figs. 3 and 4. The bearing on which arm 42 swings is almost directly opposite the belt and pulley, avoiding the clamping action which occurs when the bearing is to one side of the belt and pulley. The spring-power is applied opposite the belt, which is advantageous, and the construction requires less room between the under side of the bed-plate and the pan which is usually attached beneath the machine.

I claim—

1. The combination with the driving and driven pulleys and the connecting-belt, of the belt-tightener comprising a movable frame, a tightening-roller carried thereby, means for causing said roller to take up automatically the slack in said belt, and means for preventing movement of said roller in the opposite direction.

2. The combination with the driving and driven pulleys and the connecting-belt, of the belt-tightener comprising a swinging frame, a tightening-roller carried thereby, means for causing said roller to take up automatically the slack in said belt, and means for preventing movement of said roller in the opposite direction.

3. The combination with the driving and driven pulleys and connecting-belt, of the belt-tightener comprising a swinging frame carrying a tightening-roller; means for causing said roller to take up automatically the slack in said belt, and a pawl and detent for preventing movement of the roller away from the belt.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

STOCKTON BORTON.

Witnesses:

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