X. CAVERNO.

BELT TIGHTENER.

APPLICATION FILED MAY 29, 1911.

1,163,891. Patented Dec. 14, 1915.

Fig. 2.

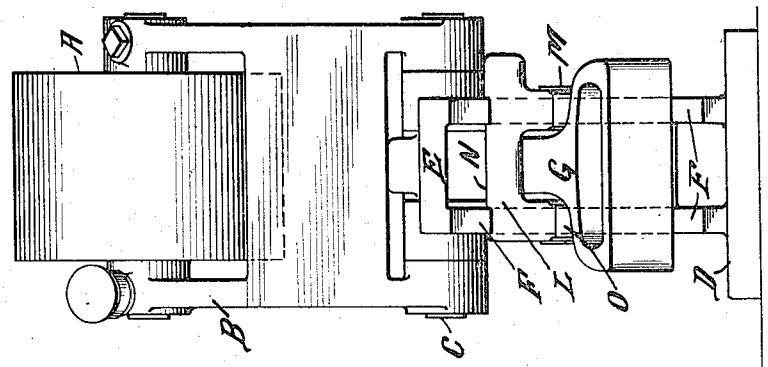
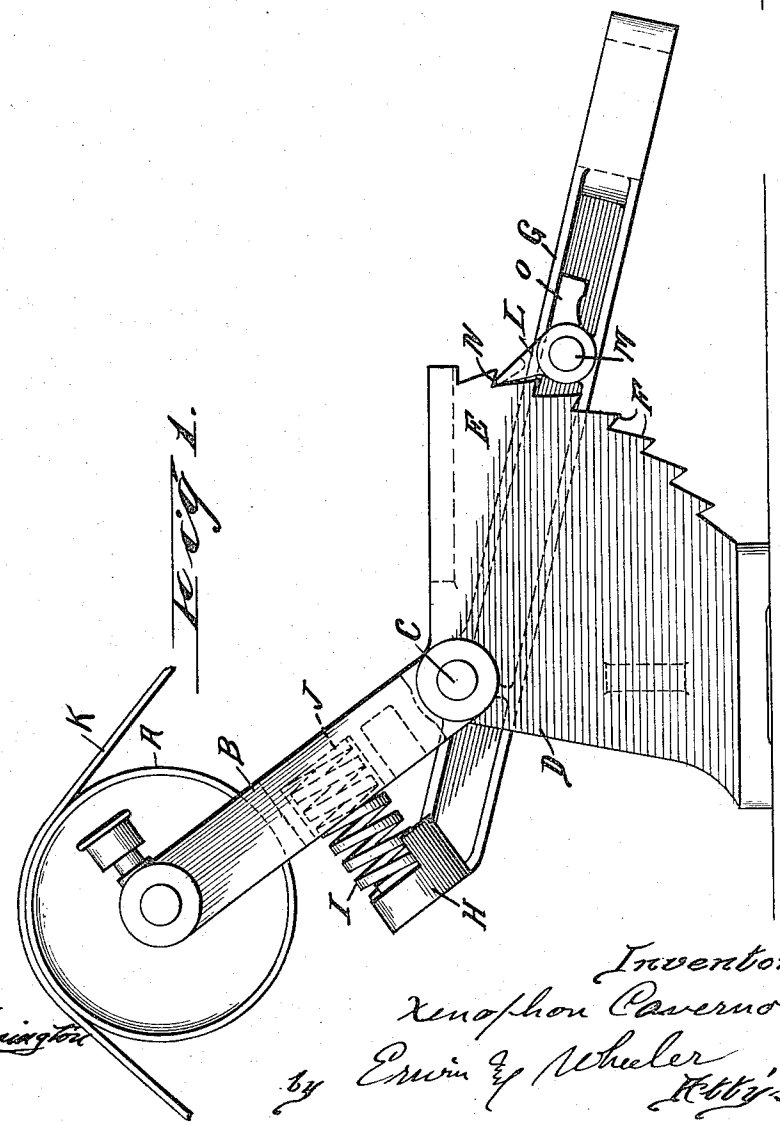


Fig. 1.



Witnesses

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BELT-TIGHTENER.

1,163,891. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed May 29, 1911. Serial No. 630,046.

To all whom it may concern:

Be it known that I, XENOPHON CAVERNO, a citizen of the United States, residing at Kewanee, county of Henry, and State of Illinois, have invented new and useful Improvements in Belt-Tighteners, of which the following is a specification.

My invention relates to improvements in belt tighteners.

The object of my invention is to provide an improved form of construction in which the belt tightening pressure will be resiliently applied and the resilient pressure applying means carried by an adjacent lever, and in such a manner that a uniform pressure may be maintained, in various adjustments.

More particularly my invention contemplates the use of a cushion spring between an adjusting lever and a pulley supporting lever in such relation that the spring will be moved with the levers and maintain its efficient tension under all adjustments.

A further object of my invention is to provide a form of construction in which the different adjustments may be accomplished by foot pressure and such adjustments made in either direction.

In the following description, reference is had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved belt tightener. Fig. 2 is a front elevation of the same.

Like parts are identified by the same reference characters throughout the several views.

A belt tightener pulley A is mounted in a supporting frame B, which is pivoted at C to a base D. Said base is provided with a projecting portion E, having segmentally arranged teeth F along its front margin, the arrangement being such that the frame B will project upwardly from the rear portion of the base D. The base is preferably a double wall structure, and each of the walls is provided with a segmental row of teeth F along its front margin, as clearly shown in Fig. 2. An actuating lever G extends between the walls of the base and is fulcrumed to the pivot bolt C on which the pulley supporting frame B is mounted. The short or load arm of this lever is provided with a cup shaped extremity H forming a socket for the spring I, which is also socketed in the frame B at J, said spring being therefore adapted to hold the frame B in a raised position with the pulley A bearing against a belt K, a portion of which is shown in Fig. 1.

A pawl L is pivoted at M to the long or power arm of the lever G and has an upper margin N adapted to engage with the teeth F on both walls of the member E. This pawl is provided with outwardly extending arms O, which serve as counterweights and may also serve as arms upon which pressure may be exerted by the foot of the operator or otherwise, to retract the pawl from engagement with the teeth F.

The lever G is preferably angularly disposed with the long or power arm inclined downwardly in a position to be easily actuated by pressure exerted by the foot of the operator. The arrangement is such that by merely pressing downwardly upon the long arm of the lever G, the pawl L will automatically engage with the teeth F and prevent the lever from retracting, the movement of the lever in this direction serving to tighten the belt. If it is desired to relieve the tension of the belt, the long arm of the lever G can be slightly depressed in the same manner and the foot of the operator then manipulated to press downwardly upon one of the arms O of the pawl L to retract the pawl, and then by relieving the pressure on the lever G, the long arm is permitted to move upwardly, the tension of the belt upon the pulley A coöperating in producing this movement. The combined weight of the pulley A, frame B, and short arm of the lever G, is also greater than that of the long arm of the lever, so that said long arm will be lifted, when the pawl is in retractive position. With the above described structure, the pressure of the spring I is applied in comparatively close proximity to the pulley, and as the lever G is, under normal working conditions, rigidly held against the tension exerted by the belt, there is no tendency to cause a vibration of the belt, which would be accentuated by vibrations in the lever and might cause such lever to oscillate and release the pawl.

My improvement also avoids the tendency heretofore found to exist in spring pressure belt tighteners to add the momentum of the tightener pulley and connected parts to that of a vibrating belt and cause the belt to throw off. Another advantage of my improvement is found in the fact that I am

able to use a comparatively short spring I, this being another feature which aids in preventing vibration, since the resistance offered by the spring to vibration in one direction, rapidly increases, and its tendency by reaction to force vibration in the other direction to an extreme, is also minimized.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A belt tightener, consisting in the combination of a base, an arm pivotally connected therewith, a belt tightener pulley mounted upon said arm, an actuating lever independently fulcrumed to the base on the pivotal axis of said pulley supporting arm, a spring interposed between the lever and arm at one side of said fulcrum pivot, and yieldingly supporting the arm from said lever at one side of the fulcrum pivot, and pawl and ratchet mechanism operatively connected with the lever and base on the other side of the fulcrum pivot for holding the lever in various positions of adjustment, said pawl being pivoted to said lever and provided with an outwardly projecting arm, whereby said pawl may be actuated by the foot of the operator to releasing position.

2. A foot operated belt tightener, consisting in the combination of a raised base provided along its front margin with a set of downwardly and forwardly projecting teeth, an operating lever pivotally connected with the rear upper portion of said base and having one arm projecting past said toothed margin, a pawl mounted on said lever in operative relation to said teeth, a pulley supporting member also pivoted to the base, a belt tightener pulley carried thereby, and a compression spring interposed between the lever and said pulley supported member, said lever having an arm projecting rearwardly from the base and provided with a socket for said spring, the arrangement being such that the pawl supporting arm of said lever projects forwardly with a downward inclination in a position convenient to be actuated by the foot of the operator, said pawl being also adapted to be retracted under pressure of the foot of the operator, substantially as described.

3. A belt tightener, consisting in the combination of a double walled base provided with a set of segmentally arranged ratchet teeth, a foot lever pivoted to the base between said walls, and provided with a socket, a pawl pivotally mounted upon the lever in operative relation to said teeth, a pulley supporting member pivoted to the base, and a spring socketed in the pulley supporting member and in the lever socket in a position to resiliently support the pulley supporting member, the pulley supporting member being otherwise movable independently of said lever.

In testimony whereof I affix my signature in the presence of two witnesses.

XENOPHON CAVERNO.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."