

S. L. GOULD.
Belt-Tighteners.

No. 146,132.

Patented Jan. 6, 1874.

Fig. 1.

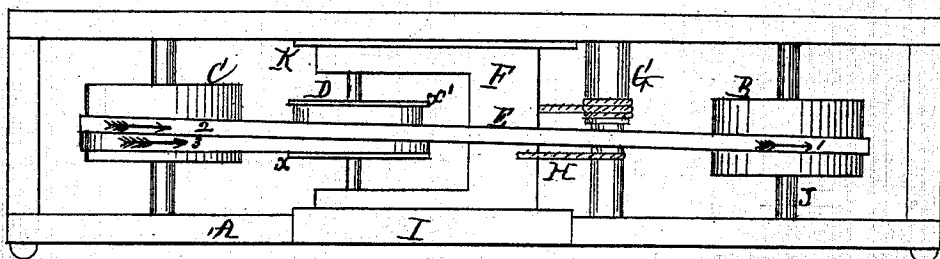


Fig. 2.

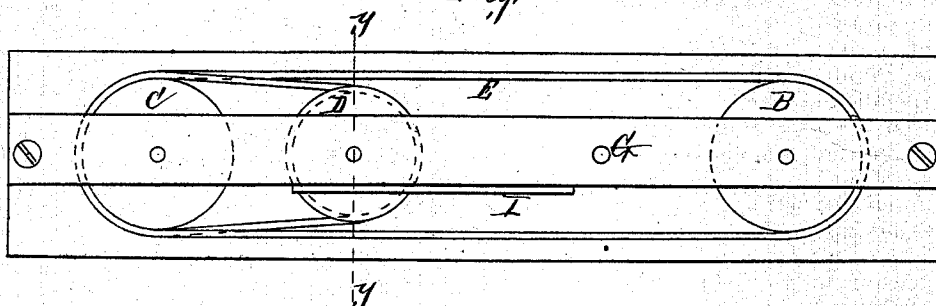
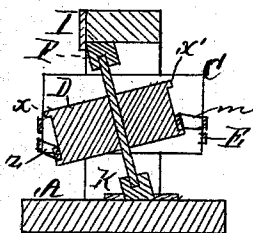


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

SIMEON L. GOULD, OF GARDINER, MAINE.

IMPROVEMENT IN BELT-TIGHTENERS.

Specification forming part of Letters Patent No. **146,132**, dated January 6, 1874; application filed December 3, 1873.

To all whom it may concern:

Be it known that I, SIMEON L. GOULD, of Gardiner, in the county of Kennebec, State of Maine, have invented a certain new and useful Combined Tension Mechanism and Guide for Belts; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my combined tension mechanism and guide. Fig. 2 is a plan of the same. Fig. 3 is a cross-sectional view taken on the dotted line *y y*, Fig. 2.

Like letters refer to like parts in the various figures of the drawing.

My invention relates more especially to long heavy belts, running horizontally on pulleys having perpendicular axes, as shown in Fig. 1; and consists in a flanged auxiliary pulley, of less diameter than the counter-pulley, disposed between the main pulley and counter-pulley, mounted in a sliding hanger on an axis inclined to the axis of the counter-shaft, and provided with a windlass or mechanism for obtaining tension on the belt, all as herein-after more fully explained, the object being to provide a simpler and more effective method for tightening and guiding belts than has heretofore been used.

It is well known to all familiar with the subject that belts running edgewise, or in a position similar to that shown in Fig. 1, especially if very long and heavy, soon become loose and sag, rendering it difficult to keep them in position; and to make them hug or adhere to the face of the pulley various devices have been used to overcome these difficulties, but I am not cognizant of any so simple and effective as mine.

In Fig. 1, A is the frame-work, in which the mechanism is mounted. B is the main pulley; C, the counter-pulley; D, the auxiliary or guiding and tension pulley; E, the belt; F, the sliding hanger in which the pulley D is arranged; G, the windlass; H, the cable or rope; I K, guides or stays for holding the sliding hanger F in the frame A; and X X', flanges or projecting heads to the pulley D. To put the belt E upon the pulleys it is first carried around the pulley B in the direction of the arrow 1;

then brought around the lower half of the pulley C, as shown by arrow 3; then carried around the lower section of the pulley D, next the flange X; then around pulley C again, but in a higher position than before, as shown by arrow 2, and the ends then joined. In case the ends of the belt are joined before it is put on, as is usual with very heavy belts, a single twist must be taken in the belt before the ends are united, in order that it may not be twisted, when the double turn is taken around the pulley C, which will be readily understood by those conversant with such matters. To admit of putting on the belt when thus joined, the upper half of the frame is removed, and when the belt is in position the proper tension is given it by turning the windlass G, thus drawing the pulley D away from the counter-pulley C, and putting a strain on the belt.

A ratchet and pawl, or any similar device, may be used for retaining the windlass in any desired position, and any one of a great variety of other mechanisms may be used in place of the windlass to effect the same purpose, as will readily suggest themselves to any mechanic. I therefore do not confine myself strictly to a windlass in that connection; neither are the main pulley B and counter C always mounted in the same frame, frequently being a very long distance apart, in which case I use another frame-work for mounting the pulley D, hanger F, and roller or windlass G; but the pulley D is always arranged in the same relative position to the pulley C, and as shown in the various figures of the drawing.

From the above it will be understood that, the belt being in place with the proper tension on the same, when power is applied to the shaft J, rotating it in the direction of the arrow 1, the belt will pass around the pulleys in the direction shown by the arrows 1 2 3, and in the various figures of the drawing. The belt E, in passing from the pulley B to the pulley C, will naturally sag and tend to feed or run off from the same, but on passing around the pulley D, as shown at X, Fig. 3, it will be delivered to the pulley C again at a higher plane than where it first encircled it, by means of the inclination of the pulley D and flange X, on which the belt rests on its passage around said pulley, as will be readily seen and under-

stood. This constant lifting or carrying of the belt upward by means of the inclined pulley receiving it from the pulley C, at *z*, Fig. 3, and delivering it at *m*, operates to keep the belt in a proper position on the main and counter pulleys. The flange X enables me to use a tension-pulley with a much narrower face, and to incline it much less than could otherwise be done, which is very important where space will not permit the use of wide pulleys B C and a wide belt, E.

I am aware that a flanged pulley, like the pulley D, has been used prior to my invention for the purpose of twisting or changing the run of a belt, and for various other purposes; also, that such pulleys have been inclined on their axes to the axes of the pulleys in connection with which they have been run. I therefore do not claim such a pulley, in and of itself

considered, or when used in any other manner than shown and described; but I am not aware that such a pulley was ever before used both as a guide and tension pulley by having its axis inclined and a loop of the belt carried around it, and by being otherwise arranged and disposed, as shown; neither do I claim any other part of the mechanism described, when in and of itself considered; but

What I do claim is—

In combination with the driving and counter pulleys the auxiliary pulley D, having flanges XX' and its journal inclined in the sliding frame F, substantially as and for the purpose specified.

SIMEON L. GOULD.

Witnesses:

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