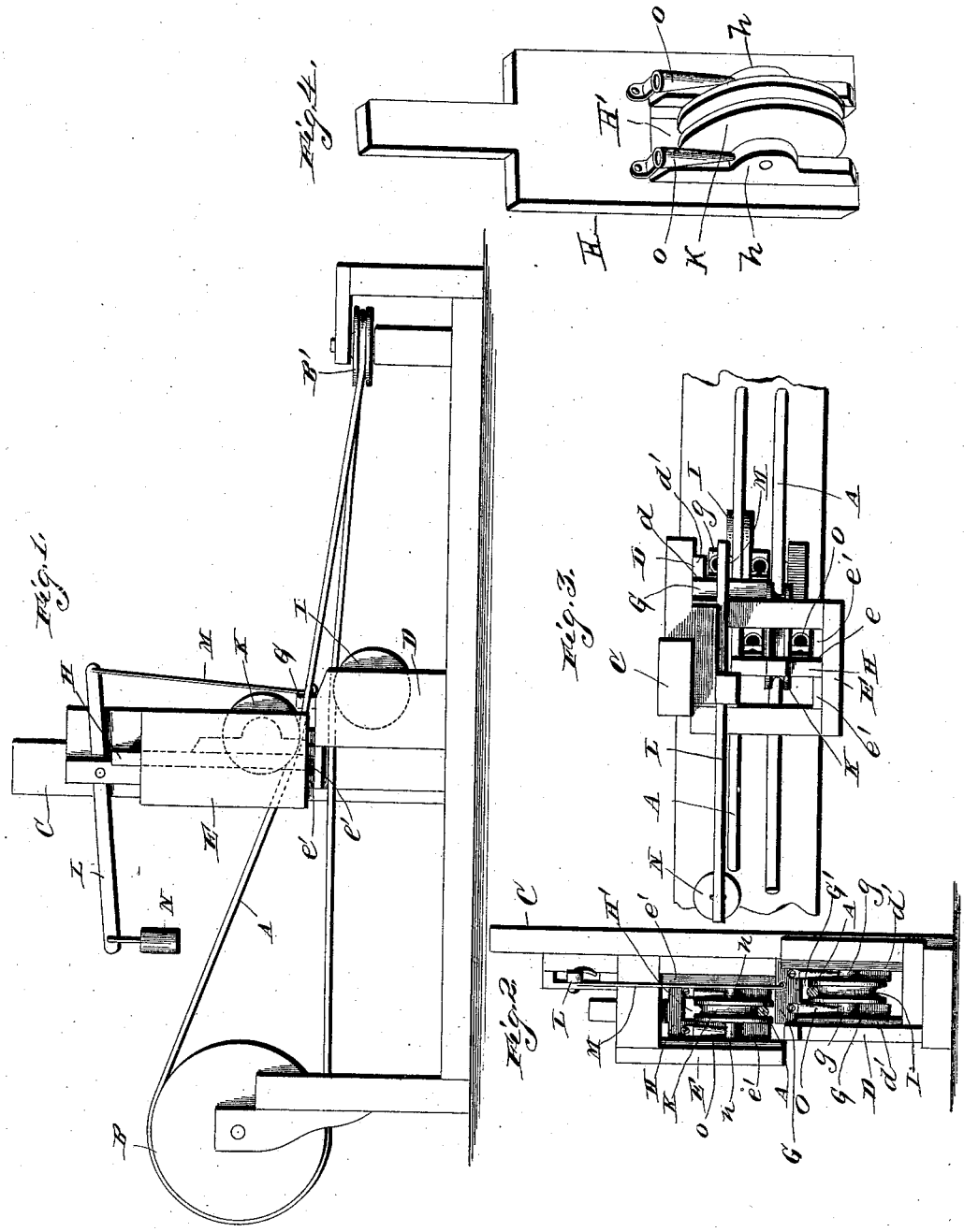
(No Model.)

C. PIERCE.

BELT TIGHTENER.

No. 382,007. Patented May 1, 1888.



Witnesses.
C. L. Taylor
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UNITED STATES PATENT OFFICE.

CHARLES PIERCE, OF MONTICELLO, IOWA.

BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 382,007, dated May 1, 1888.

Application filed January 6, 1888. Serial No. 259,949. (No model.)

To all whom it may concern:

Be it known that I, CHARLES PIERCE, a citizen of the United States, residing at Monticello, in the county of Jones and State of Iowa, have invented a new and useful Improvement in Belt-Tighteners, of which the following is a specification.

My invention relates to improvements in belt-tighteners, and it has for its object to provide automatic means for taking up the slack in an endless belt; and it consists in a certain novel construction and combination of devices, fully set forth hereinafter, and clearly illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of my improved device. Fig. 2 is a front view of the same. Fig. 3 is a top plan view. Fig. 4 is a detail view of the upper carrier and idler.

Referring by letter to the accompanying drawings, A designates an endless belt, which operates around the pulleys B and B′; and C represents a standard, which is vertically disposed at an intermediate point of the length of the said belt. To this standard near its lower end is secured the frame D, and a similar frame, E, is secured to the standard above the lower frame. These frames are shown out of alignment with each other in the drawings, so as to be in line with the two portions of the belt. It will be seen that the pulley B′ is horizontal, while the pulley B is vertical, thereby causing the belt to be twisted a quarter-turn in the distance between the pulleys. As the above-mentioned frames are situated at about the center of the said distance, the two portions of the belt (where they pass through the frames) are not in the same vertical plane.

The inner sides of the frames D and E are provided with vertical guide-grooves *d* and *e*, which are formed between two parallel guide-ribs, *d′* and *e′*.

G designates the lower sliding carrier, the side edges of which are disposed in the grooves in the sides of the lower frame; and H designates the upper sliding carrier, which is mounted at its side edges in the guide-grooves in the upper frame. These carriers are provided with vertical slots G′ and H′, respectively, and also with bearings *g* and *h* on opposite sides of the said slots. In these bearings are mounted the idle-pulleys I and K, which operate in the slots in the carriers.

The belt shown in the drawings is round, and consequently the peripheries of the pulleys are grooved to receive the same; but a flat belt may be used with this tightener as well as a round belt. The upper idle-pulley, K, is adapted to bear downward upon the upper portion of the belt, and the carrier H may be weighted to cause it to press downward with the desired force. The lower idle-pulley, I, is designed to bear upward upon the lower portion of the belt, and in order to cause it to exert a constant pressure I provide the following means:

L designates a lever, which is mounted on a suitable bearing at the upper end of the upper frame, and one end of the lever is connected to the lower carrier, G, by means of the rod M, while the other end thereof is provided with a weight, N, sufficient to cause the lower pulley, I, to bear upward against the lower portion of the belt with the desired force. Therefore the upper pulley bears downward upon the belt with a pressure which is due to the force of gravity (and is therefore constant) and the lower pulley bears upward upon the other side or portion of the belt with a force due to the same agency, but applied in a different way.

The object in utilizing the force of gravity in this device will be obvious—namely, gravity is a constant force, and whatever the position of the carrier (whether near the top or near the bottom of the frame) the pressure will be the same. Thus this tightener is automatic and self-adjustable to suit any tension of the belt. The pressure of the idle-pulleys upon the belt may be altered by adding to or taking from the weights which govern the carriers.

Oil-cups O O are arranged at each bearing for the idle-pulleys.

It will be observed that the drawings do not show the upper carrier weighted, the frame thereof being deemed in many cases sufficient to properly tighten the belt.

Having thus described my invention, I claim—

1. The herein-described belt-tightener, adapted to be disposed at an intermediate point of an endless belt, and consisting of the lower grooved frame, D, and the upper grooved

frame, E, the sliding carriers G and H, mounted in the grooves in the said frames, the idle-pulleys mounted in the said carriers and adapted to bear respectively against the lower and upper sides of the belt, the lever L, mounted on a suitable bearing at the upper end of the upper frame and connected at one end to the carrier G, and the weight N, attached to the opposite end of the lever, substantially as and for the purpose specified.

2. In a belt-tightener, the combination of the upper gravity-carrier having a pulley bearing on the upper portion of the belt, the lower carrier having a similar pulley to bear against the lower portion of the belt, the lever mounted on a stationary pivot and having a weight on one end, and the connecting-rod between the lower carrier and the other end of the said lever, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHARLES PIERCE.

Witnesses:
HARRY WRIGHT,
GEORGE S. HOWARD.