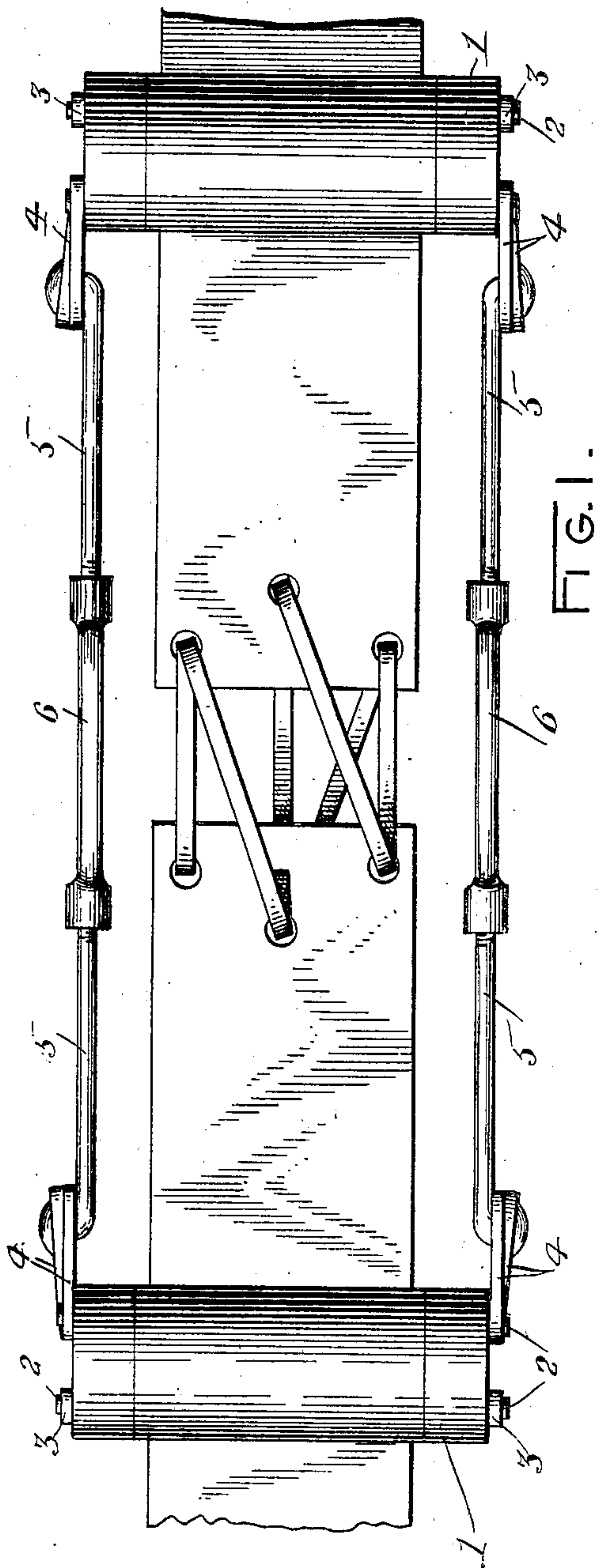
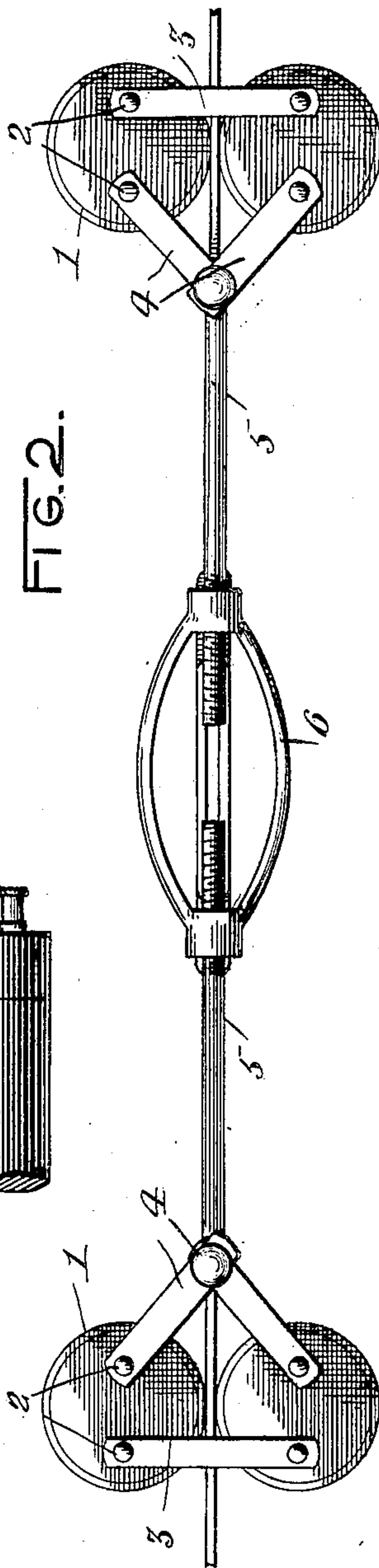


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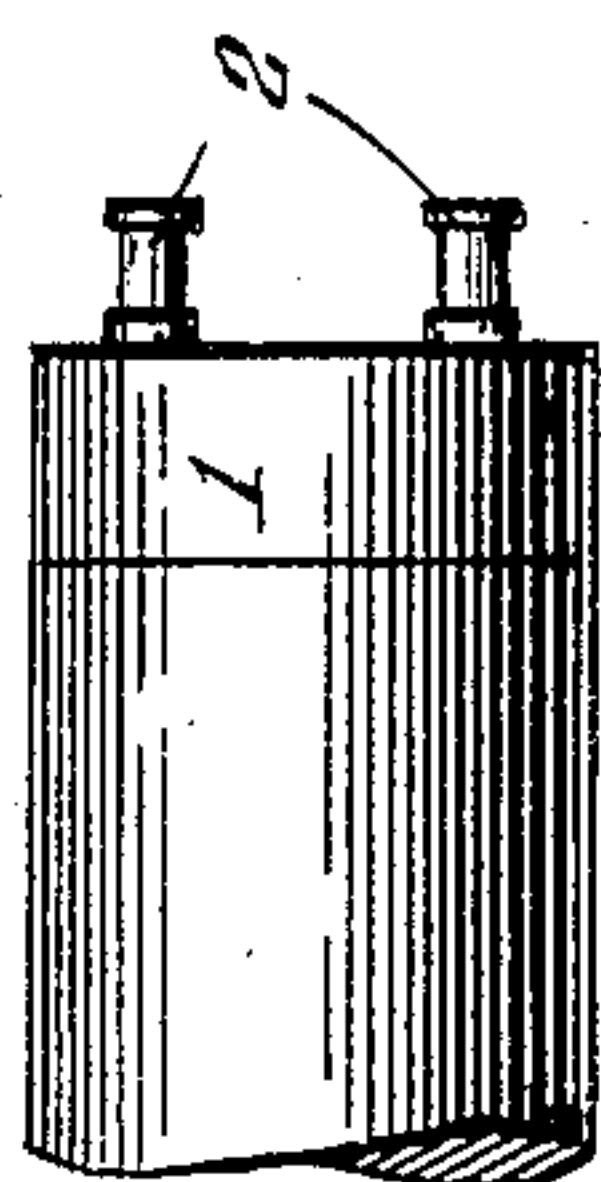
Patented Sept. 15, 1908.



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Witnesses:

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By

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Attorneys

UNITED STATES PATENT OFFICE.

JAMES THOMAS SULLIVAN, OF NEWCASTLE, NEW BRUNSWICK, CANADA.

BELT-TIGHTENER.

No. 898,523.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed January 22, 1908. Serial No. 412,138.

To all whom it may concern:

Be it known that I, JAMES T. SULLIVAN, a subject of the King of Great Britain, residing at Newcastle, county of Northumberland, in the Province of New Brunswick, Canada, machinist, have invented certain new and useful Improvements in Belt-Tighteners; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to belt tighteners, and more particularly to that class of such devices as is adapted to be applied to a belt for drawing together its opposite ends for fastening or lacing them.

In devices of this kind, it is essential that the gripping action of the tightener shall increase as the stretching or drawing action increases, in order to prevent a slipping of the tightener relatively to the belt. It is desirable, of course, to construct the tightener as simply and of as few parts as possible, in order that it may be readily and easily applied and used. Likewise, all power used should be applied to best advantage, and consequently it is very desirable to construct the tightener in such manner that a single force may be used to exert both the drawing and the gripping action.

In order to enable one skilled in the art to which the invention applies to the more readily understand the construction, operation, use and application of the same, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings, the same reference characters designate like parts.

In the drawings: Figure 1 is a plan view of the device; Fig. 2 is an edge view of Fig. 1; and, Fig. 3 is an edge view of one end of one of the gripping rollers.

Broadly speaking, the invention comprises two pairs of gripping rollers, each roller carrying eccentrically mounted gudgeons at its opposite ends, links connecting the rollers in pairs, and devices for simultaneously drawing the two pairs toward each other and for forcing the separate rollers of each pair together.

In the preferred form of the invention, the tightener comprises a plurality of rollers arranged in pairs, and each carrying at its opposite ends eccentrically mounted gud-

geons 2. As shown, the gudgeons are placed comparatively near the circumference of the roller ends, and the corresponding gudgeons at opposite ends have a common axis. In order to limit the separation of the rollers of each pair, perforated bars or links 3 are slipped over corresponding rear or outer gudgeons on each roller. Each of the remaining forward or inner gudgeons has connected thereto a link 4, the free ends of which are pivoted in pairs on the upturned ends of threaded bars 5, each pair of bars being coupled together by a turn buckle 6. Thus it will be readily understood, on reference to Fig. 2, that as the turn buckles are tightened, the links 4 will be drawn forward and downward, bringing the adjacent surfaces of the rollers closer together, and consequently gripping the belt with increasing force. Of course the tightening of the turn buckles draws the pairs of rollers inward for stretching or tightening the belt, and consequently the single force applied on the turn buckles accomplishes the double result of simultaneously gripping and stretching or tightening the belt, the gripping action increasing as the tightening action is increased.

The operation of the device is as follows: The pairs of rollers are moved slightly toward the turn buckles to allow the links 4 to spread and the rollers of each pair to separate, and the belt ends are passed between the rollers of each pair from opposite directions toward each other as far as possible. In this position, the turn buckles 6 are tightened, drawing inward and downward the links 4, and thus clamping the belt securely between the rollers. The tightening of the turn buckles is continued, thus drawing the rods 5 and pairs of rollers inward and bringing the belt ends with them. When the belt ends have been drawn close enough together, a lacing or other connection is applied to fasten the ends.

To release the tightener, the turn buckles are loosened, and the links 3 slipped from the gudgeons, allowing the rollers of each pair to separate as widely as desired.

When the device is used with a continuous or endless belt, the links 4 may also be detachably connected to the gudgeons, thus allowing the complete removal of one or more of the rollers of each pair for freeing the tightener from the belt.

Of course, it will be understood that slotted links may be equally well used for slipping

them over the ends of the gudgeons, and in many instances this form would be preferred to the links with common or usual perforations adapted to fit snugly over the gudgeons.
5 Many changes in the detailed construction of the separate parts, many other equivalents for the parts, many other combinations of these parts, many other arrangements of the device both as to its individual parts and as
10 to the tightener as a whole, and many other applications of the invention may be resorted to, without in any way departing from the field and scope of the same, and it is meant to include all such within the present applica-
15 tion, wherein only a single preferred form of the device has been illustrated in order to more clearly disclose the invention.

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

1. In a device of the character described, a plurality of gripping rollers, links connecting said rollers in pairs, eccentrically mounted gudgeons secured to the ends of said rollers,

links secured to said gudgeons, threaded bars 25 connected to said last named links, and means for coupling said threaded bars in pairs and for drawing the same together to draw the pairs of rollers toward each other and to simultaneously force the individual 30 rollers of each pair together.

2. In a device of the character described, a plurality of gripping rollers, links connecting said rollers in pairs, eccentrically mounted gudgeons secured to the ends of said rollers, 35 links connecting said gudgeons, bars pivotally connected to said last named links, and turn buckles connecting said bars in pairs and adapted to draw the same together to move the pairs of rollers toward each other 40 and to simultaneously force the separate rollers of each pair together.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JAMES THOMAS SULLIVAN.

Witnesses:

MARGARET IRVING,
W. A. HICKSON.