

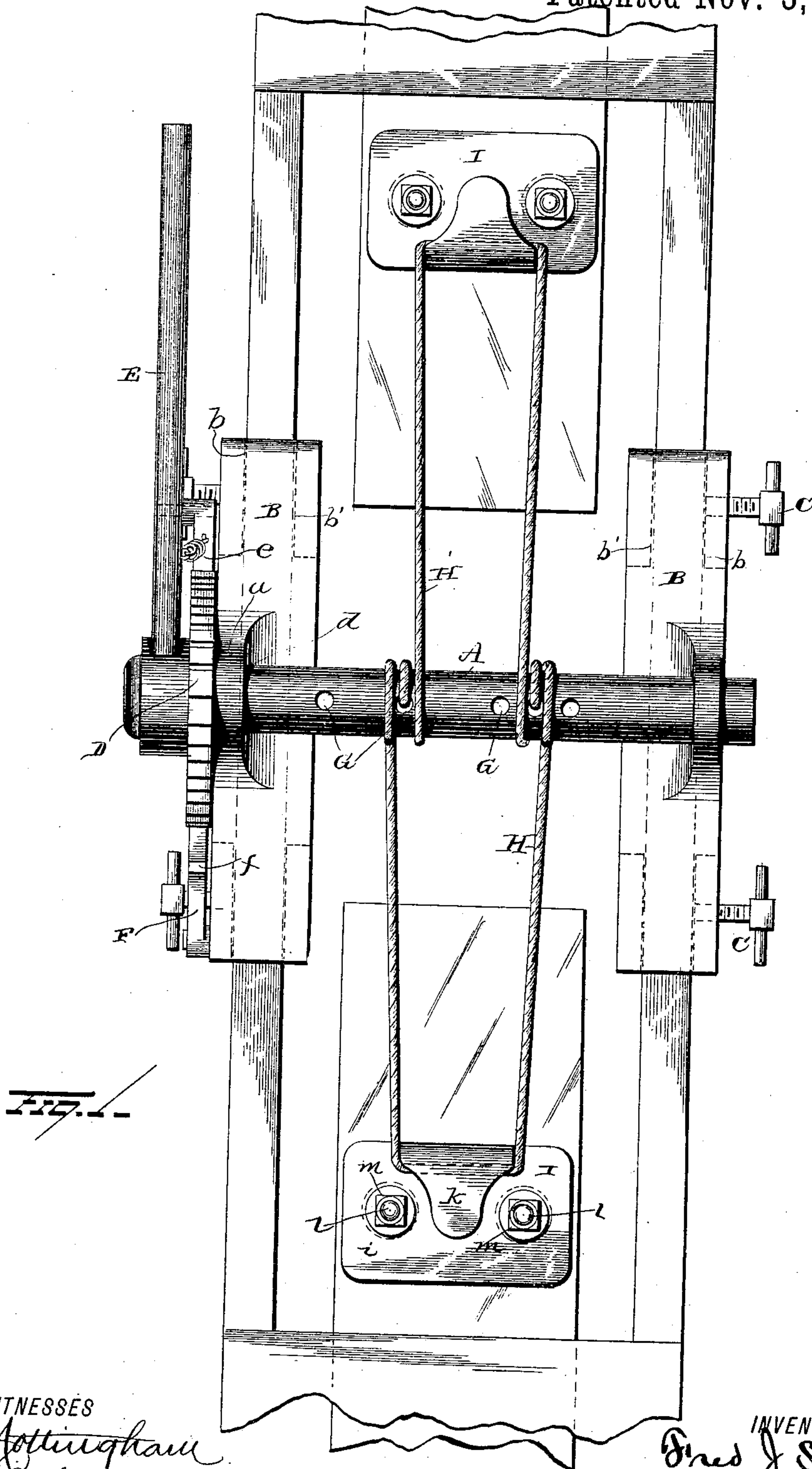
(No Model.)

2 Sheets—Sheet 1.

F. J. SCHUPP.
BELT TIGHTENER.

No. 329,492.

Patented Nov. 3, 1885.



WITNESSES
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Geo. F. Downing

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 2.

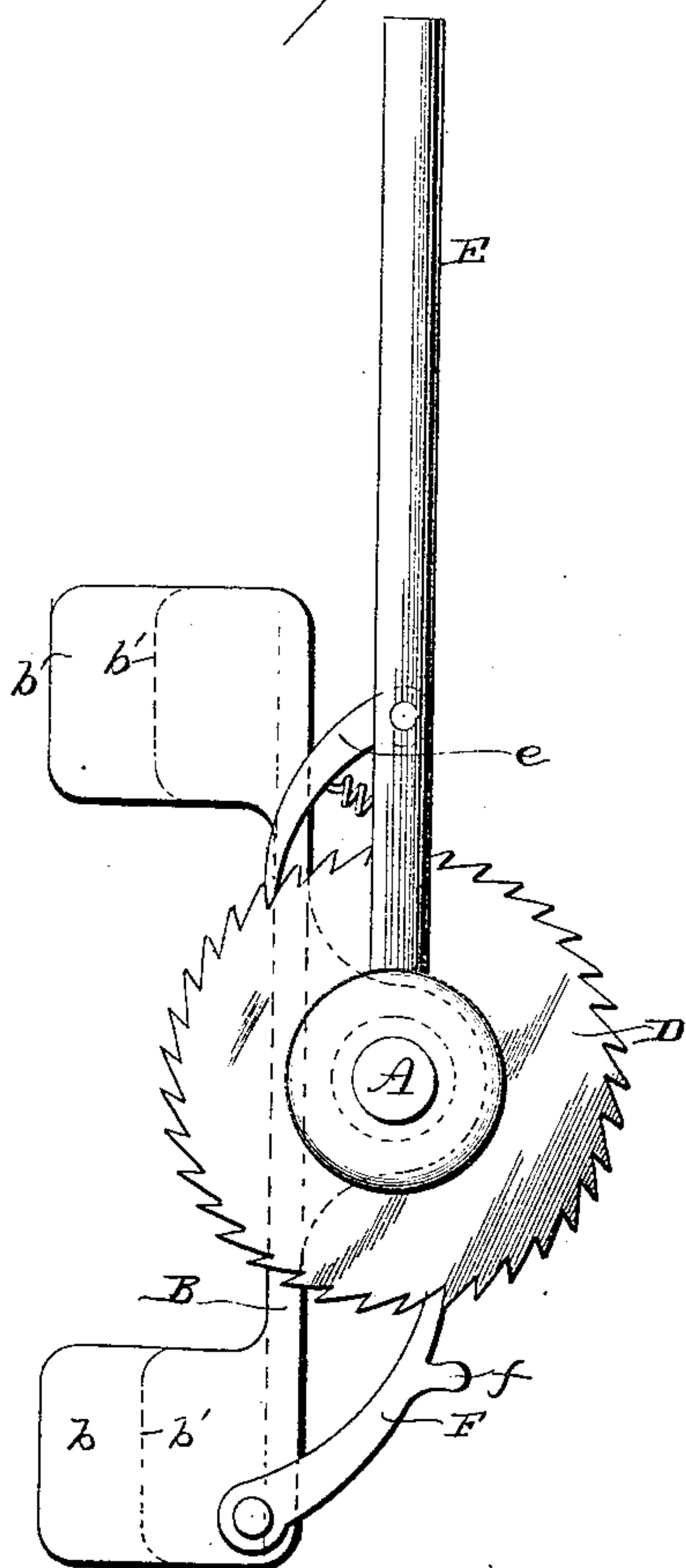


FIG. 4.

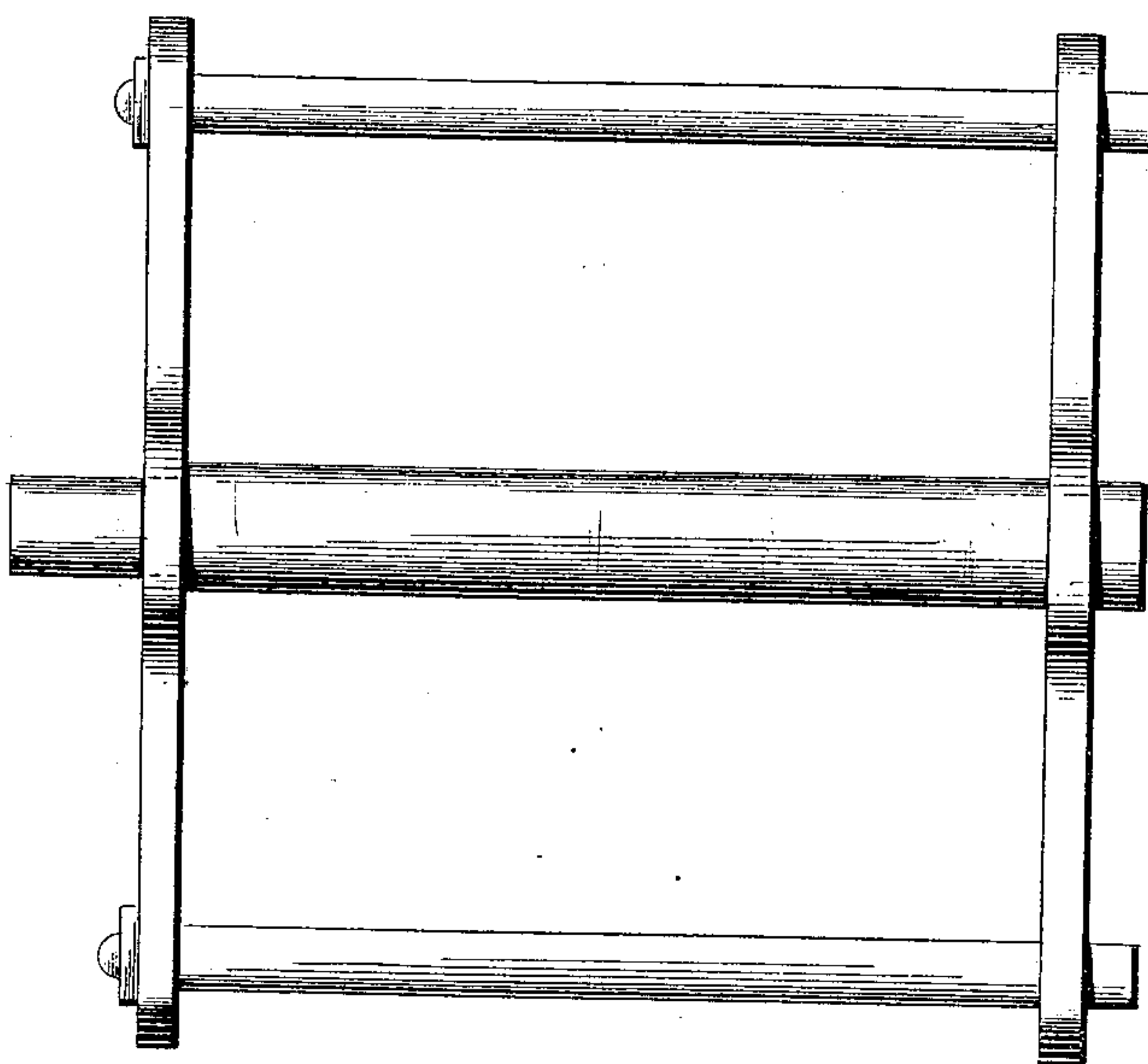
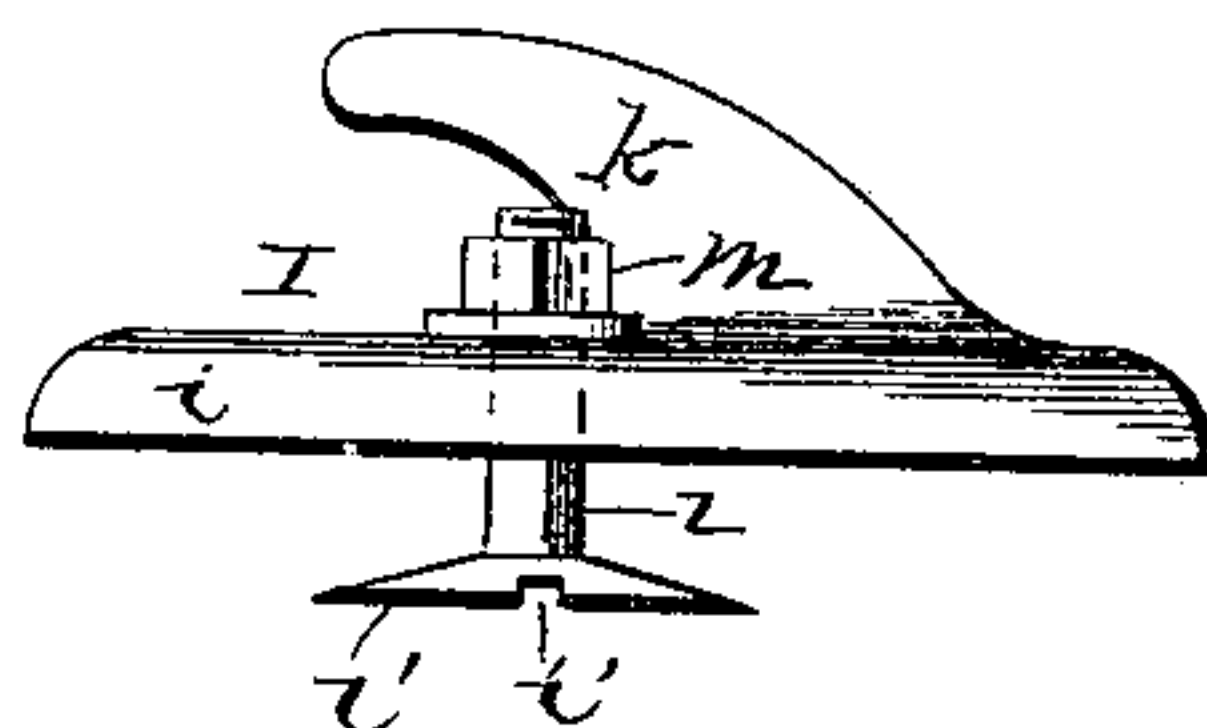


FIG. 3.



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UNITED STATES PATENT OFFICE.

FRED. J. SCHUPP, OF MARSHALL, MISSOURI.

BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 329,492, dated November 3, 1885.

Application filed September 9, 1885. Serial No. 176,574. (No model.)

To all whom it may concern:

Be it known that I, FRED. J. SCHUPP, of Marshall, in the county of Saline and State of Missouri, have invented certain new and useful Improvements in Belt-Tighteners; and I do hereby declare the following to be 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.

My invention relates to an improvement in belt-tighteners. The object is to provide a device for drawing together the ends of a belt and holding them in a convenient position for being united in taking up slack.

With this end in view my invention consists in a windlass or its equivalent suitably mounted and connected with the opposite ends of the belt to be tightened by a flexible connection in such a manner that the rotation of the windlass will simultaneously draw the opposite ends of the belt toward each other.

My invention further consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the tightening device in position for use. Fig. 2 is a view in side elevation, and Fig. 3 is a detached view, of the clamp for attaching the flexible connection to the belt. Fig. 4 is a modification.

The device represented in Fig. 1 is particularly adapted to use in tightening an elevator-belt, or any belt which is adapted to move in a box, tube, or housing.

A represents an elongated drum, or it may be simply a solid or tubular shaft of the desired size mounted in suitable bearings, *a*, secured to the clamping and supporting plates B. The plates B are provided with depending lugs *b* and *b'*, located at or near the outer and inner edges of the lower faces of the plates, respectively, said lugs being formed at such a distance apart as to receive the sides of the boxing or housing ordinarily employed in flour-elevators. Of course it would be impossible to form these grooves of such width as to fit the different thicknesses of boxing employed in elevators of different styles and for different purposes; but they may be made to fit the thicker sides, and be provided with remova-

ble washers or spacing-plates to take up the space left when used with the thinner boxings. Thumb-screws C are inserted through the outer lugs, *b*, the points of which screws are caused to impinge against the edges of the boxing, and thereby fasten the plates B firmly to the boxing in the desired position.

It is evident that other devices than the thumb-screw might be employed to secure the plates B to the boxing—as, for example, the eccentric, in connection with a bolt or stud for securing it to the plate; and it is also evident that flanges extending the entire length of the plates B might be employed on either the outer or inner edges of the plates, or on both, in the place of the lugs *b b'*, and hence I do not wish to limit myself to the particular form and means shown and specifically described, but introduce them as showing one very effective and convenient form and manner of constructing and securing the plates.

The drum or shaft A is provided with a ratchet-toothed wheel, D, rigidly secured to one end thereof outside of the bearing *a*, and is shouldered or provided with a collar at *d*. The shoulder *d* on the one side of the bearing *a* and the wheel D on the opposite side of the bearing serve to lock the drum or shaft against displacement relatively to one of the plates B. The other plate B is, however, free to slide on the drum or shaft A, and thereby serves to adjust the device to boxes of different widths. An operating-lever, E, is loosely mounted on the drum or shaft A, or on the hub of the wheel D, conveniently in close proximity to the side of the wheel. A spring-actuated pawl, *e*, is pivotally secured to the lever and adapted to automatically engage the teeth on the wheel D and cause the latter, and hence the drum or shaft A, to rotate with the lever when the lever is moved in one direction, and to slip over the teeth when the lever is moved in the opposite direction. A second pawl, F, is pivotally secured to the plate B, and is adapted to engage the teeth on the wheel D and prevent the wheel and hence the drum or shaft A from a retrograde movement while the lever E is being returned for a new grip. The pawl may be actuated by gravity or by a spring, as the case may demand, and is conveniently provided with a projection, *f*, for

convenience in lifting it out of engagement with the wheel D when it is desired to release the tightener from the belt or slacken its tension. The drum or shaft A is further provided with two or more perforations, G, located between its bearings, through which the parts of the flexible draft cord or chain H pass, and by means of which it is secured to the drum by other means and by the perforations mentioned. I find it convenient, however, to use an endless cord or chain, the parts of which extend through the perforations G, and the loops of which are passed over hooks or projections on the clamps I, as follows:

The clamp I consists of a plate, *i*, having a hook or lug, *k*, secured thereon or formed integral therewith, and a pair of bolts, *l*, provided with flat heads *l'*, adapted to rest in contact with the under side of the belt, and the threaded ends of which are adapted to extend through perforations in the belt and in the plate *i*, said threaded ends being provided with washers and draw-nuts. The heads of the bolts are conveniently formed by upsetting the ends, and are provided with grooves *i'*, for inserting a screw-driver or other convenient tool to prevent the bolts from turning when the nuts are screwed on or off. To adjust the clamp I to the belt, form two holes at a suitable distance apart to receive the bolts *l*, place the plate *i* in position on the belt, insert the bolts, and turn the nuts *m* home. This will draw the plate *i* snugly into contact with the belt and afford a secure hold for the loop of the draft-cord H. When the opposite loops of the latter have been adjusted over the hooks on the clamps I, and the plates B have been adjusted over the hooks on the clamps I, and the plates B have been secured to the bar, the rotation of the drum or shaft A by means of the operating-lever will draw the portions of the belt to which the clamps I are attached simultaneously toward each other, thereby taking up any amount of slack desired, and the pawl F will lock the drum, and hence the ends of the belt in the desired adjustment for fastening.

The modification represented in Fig. 4 consists in doing away with the clamping devices on the plates B, and connecting the corresponding ends of the latter by cross-rods. This construction of tightener is adapted to use in connection with belts of all descriptions, whether in boxes or not, the cross-bars serving to hold the ends of the belt which lead under them from twisting.

The device as a whole is simple, inexpensive, and effective, enabling one person to perform with ease the quite difficult task of taking up

slack in heavy or light belts with the finest degree of accuracy.

It is evident that other slight changes than those mentioned might be resorted to in form and construction of the several parts without departing from the spirit and scope of my invention; hence I do not wish to restrict myself strictly to the construction herein set forth; but,

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

1. In a belt-tightener, the combination, with a rotary drum or shaft and a suitable support for the same, of a flexible cord or chain adapted to be attached to the drum or shaft and to the ends of the belt on opposite sides of the drum or shaft, whereby the rotary motion of the drum or shaft simultaneously draws the opposite ends of the belt toward each other, substantially as set forth.

2. In a belt-tightener, the combination, with a rotary drum or shaft, a flexible cord or chain adapted to connect the drum or shaft with the opposite ends of the belt, of a ratchet-toothed wheel rigidly secured on the shaft, an operating-lever loosely mounted on the shaft, a pawl adapted to throw the lever into engagement with the wheel, and a pawl adapted to lock the wheel against a retrograde movement, substantially as set forth.

3. In a belt-tightener, the combination, with a rotary drum or shaft and means for supporting and operating the same, of clamps, each consisting of an upper plate provided with a hook or lug and draw-bolts for securing the plates together and to the belt, and a flexible cord or chain adapted to connect the rotary drum or shaft with the hooked clamp-plates, substantially as set forth.

4. In a belt-tightener, the combination, with a rotary drum or shaft and means for connecting it with the belt, of a drum or shaft support adapted to be secured to the boxing or housing of an endless-belt carrier, substantially as set forth.

5. In a belt-tightener, the combination, with a rotary drum or shaft and means for attaching it to the belt, of a drum or shaft support adapted to be adjusted to boxes of different widths, substantially as set forth.

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

FRED. J. SCHUPP.

Witnesses:

JOHN S. TUCKER,
EUGENE GRAHAM.