

(No Model.)

2 Sheets—Sheet 1.

B. F. RADFORD.  
BELT TIGHTENER.

No. 527,506.

Patented Oct. 16, 1894.

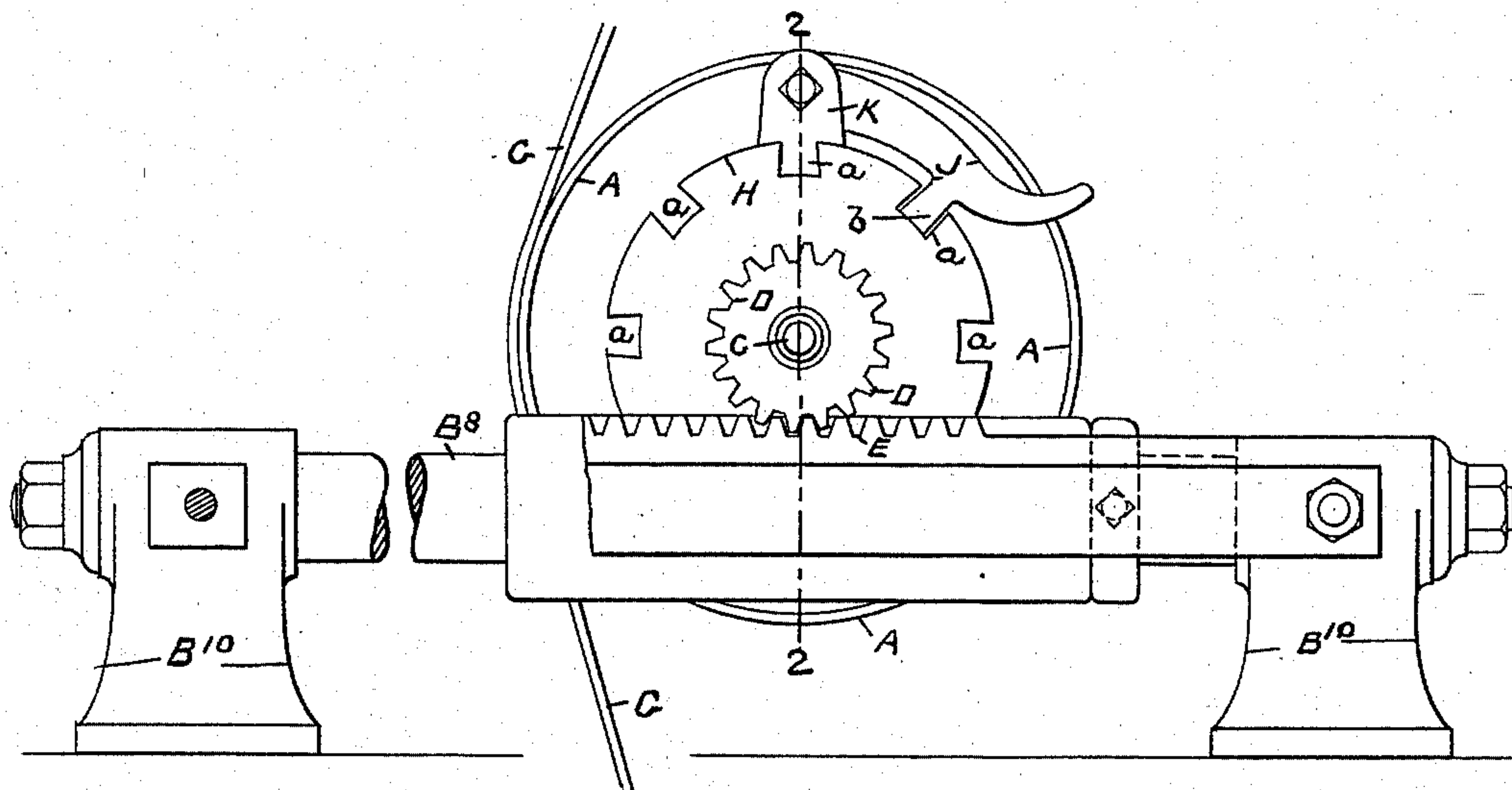


FIG. 1

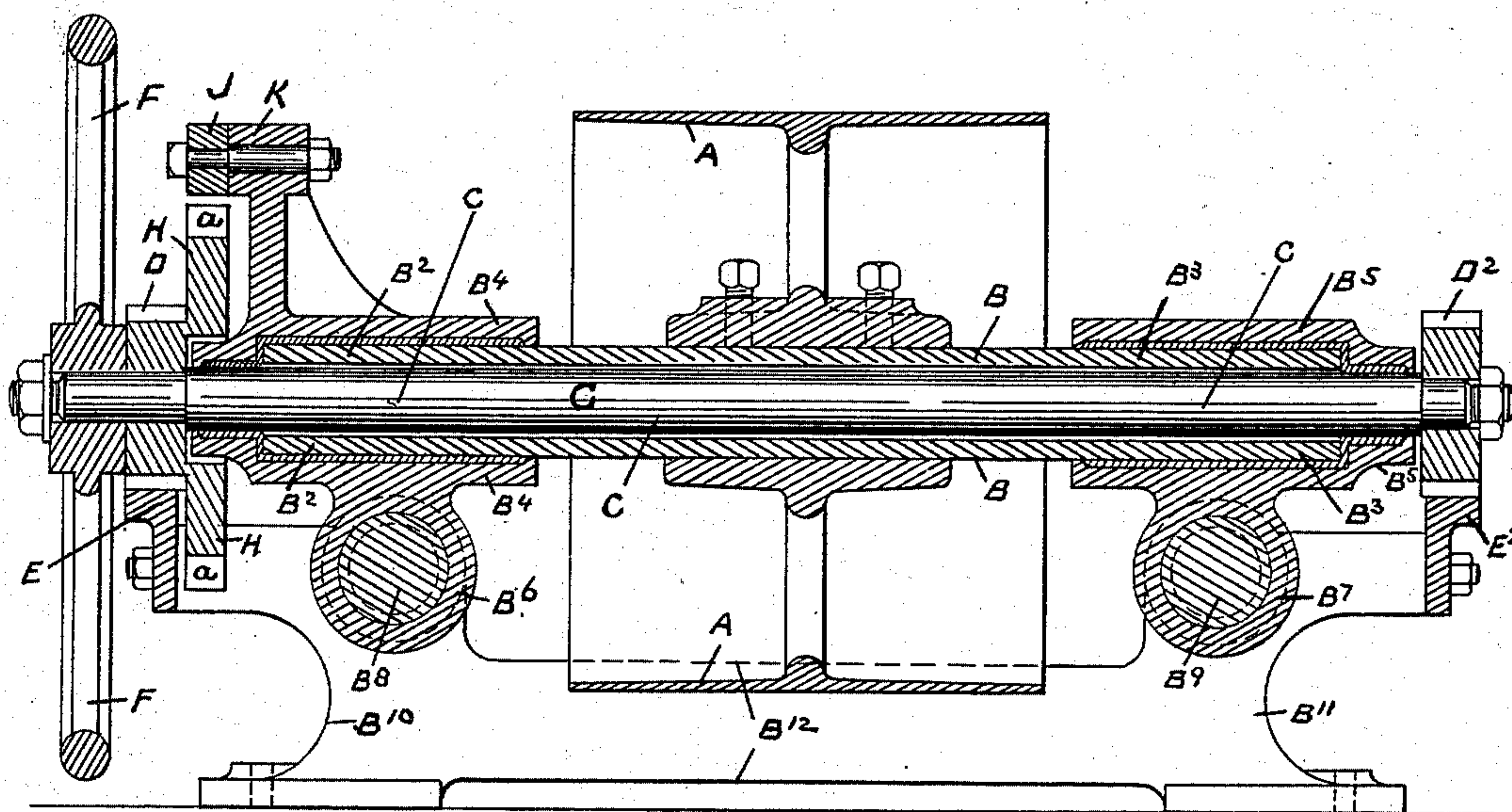


FIG. 2

WITNESSES

Marion E. Brown.  
Frances M. Brown

INVENTOR

Benjamin F. Radford  
by his Attorneys  
Brown Bros.

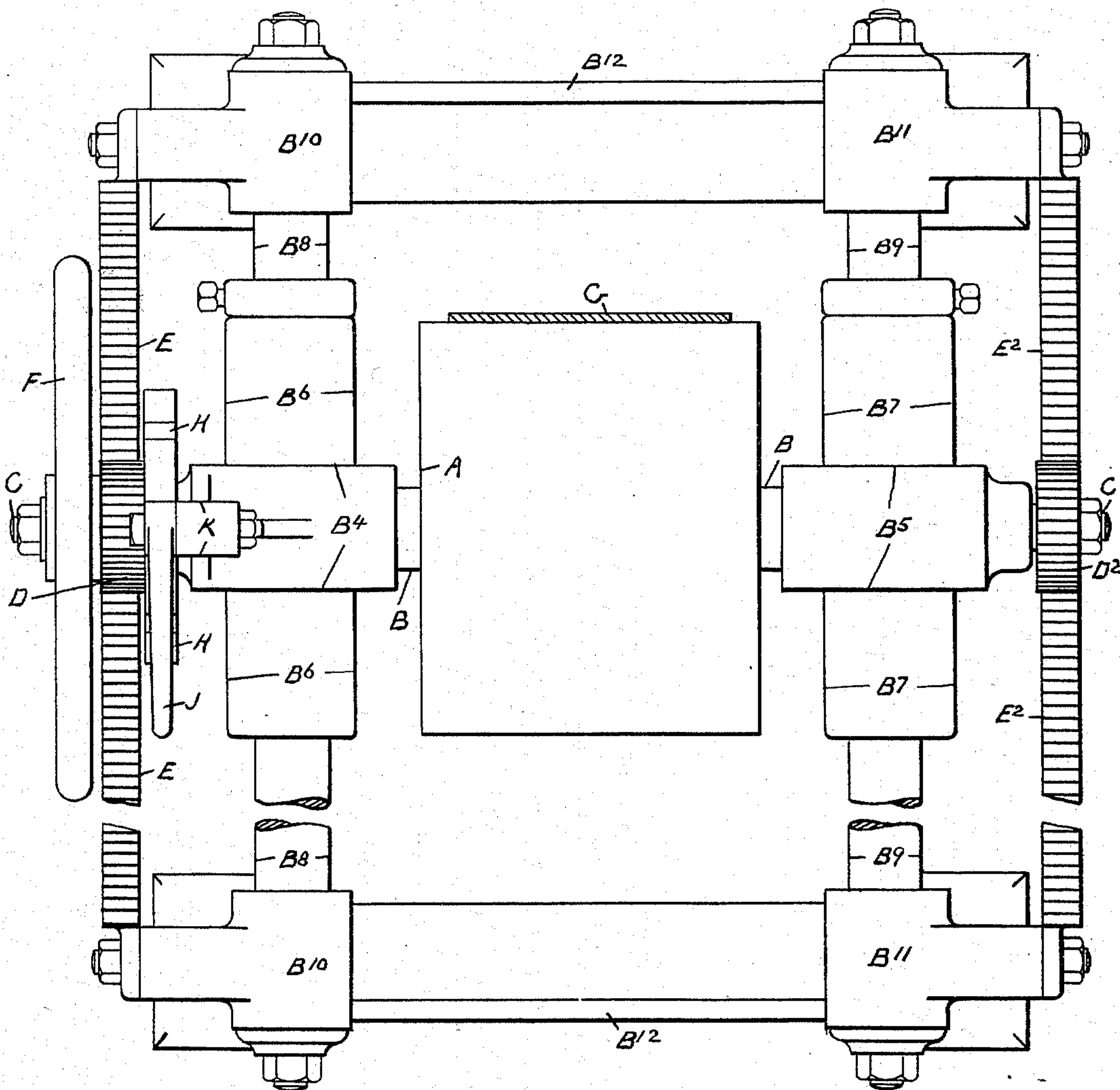
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WITNESSES.

*John F. Nelson*  
*M. C. Nelson*

INVENTOR.

*Benjamin F. Radford*  
*by his Attorneys*  
*Brown Bros.*



# UNITED STATES PATENT OFFICE.

BENJAMIN F. RADFORD, OF HYDE PARK, MASSACHUSETTS.

## BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 527,506, dated October 16, 1894.

Application filed June 15, 1891. Serial No. 396,373. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. RADFORD, a citizen of the United States of America, and a resident in the town of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Belt-Tighteners, of which the following is a full, clear, and exact description.

10 The devices of this invention for tightening belts consist of a horizontal tubular shaft on which a pulley is fixed, bearing-blocks for the opposite end-portions of said tubular-shaft, two parallel stationary horizontal guide-rods, 15 one located beyond each end and in planes at right angles to the axis of the pulley and each rod at its opposite end suitably supported and carrying one of said bearing-blocks, a shaft or spindle extending lengthwise through and projecting from said tubular-shaft, a pinion wheel or wheels, preferably two, one fixed on each end-portion of said spindle, a fixed horizontal toothed rack-bar or bars for each of, and each in suitable 25 position to be meshed with one of said pinions, means to rotate and means to hold said pinion shaft against and to release it for rotation, all as hereinafter described and pointed out in the claim.

30 In the drawings, forming part of this specification, Figure 1 is a side elevation and Fig. 2 is a vertical section, line 2—2, Fig. 1. Fig. 3 is a plan view.

In the drawings, A is a pulley held on the 35 central portion of a tubular horizontal shaft B which, at its opposite end-portions B<sup>2</sup>, B<sup>3</sup>, is supported and confined against lengthwise movement in bearings B<sup>4</sup>, B<sup>5</sup> of blocks B<sup>6</sup>, B<sup>7</sup>, supported and free to move along separate 40 stationary horizontal rods B<sup>8</sup>, B<sup>9</sup>, one beyond and passing across the pulley at each of its sides and each at its opposite end-portions supported in stationary standards B<sup>10</sup>, B<sup>10</sup> and B<sup>11</sup>, B<sup>11</sup> joined, those on the same side of the 45 pulley, by a bed-plate B<sup>12</sup>.

C is a shaft or spindle extending through and projecting from the opposite ends of the tubular shaft B of the pulley. The diameter of shaft C is slightly less than that of the 50 bore of shaft B but the shaft B at its opposite

end-portions is adapted to bear and it is free to rotate on shaft C as also shaft C to rotate within it.

D, D<sup>2</sup> are similar pinions held on the opposite projecting end-portions of the shaft C 55 and each is in position to mesh with a similar horizontal toothed rack-bar E, E<sup>2</sup>, fixed on the stationary standards supporting the rods B<sup>8</sup>, B<sup>9</sup>, as before described.

F is a hand-wheel held on and at one projecting end-portion of the shaft C. By turning this hand-wheel, the pinions D, D<sup>2</sup> and their common shaft C are rotated, securing, as is obvious, a movement of the pulley along the parallel rods B<sup>8</sup>, B<sup>9</sup> in either one or the other 65 direction according to the direction in which the hand-wheel is turned, and thereby, if in one direction, the pulley is brought against and made to tighten up the belt G and in the other direction the pulley is removed from 70 contact with said belt and so the belt is loosened, it being of course understood that the belt is running properly therefor.

To hold the pulley in either position stated, as is plain it should be when in position of 75 contact with the belt as has been stated, means are provided as follows.

H is a circular disk at one side of and extending beyond the periphery of the pinion D with which, as shown, it is integral and 80 turns as said pinion and its shaft C are rotated by means of the hand-wheel F.

a is a series of square sided notches around the periphery of the disk H preferably at equal distances apart, and for the engagement 85 of a suitably shaped lug or projection b of a hand pawl or lever J, at one end fulcrumed on the upper portion of a fixed arm K rising from the bearing-block B<sup>4</sup> for the tubular shaft of the pulley. The pawl J engaged 90 with a notch of the disk H holds the pulley against moving from the position in which it may have been placed by means of the rotation and travel of the pinions D, D<sup>2</sup> over the rack-bars E, E<sup>2</sup>. With the pawl J held out of 95 engagement with the notches of the disk H, the pinions D, D<sup>2</sup> are released for being rotated and thereby to place the pulley as may be desired and when it is so placed it is held as stated. 100



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

5 The combination of a tubular shaft having a pulley fixed thereon, bearing-blocks for opposite end-portions of said shaft, fixed parallel guide-rods, one beyond each side and both at right angles to the axis of said pulley and each supporting one of said bearing-  
10 blocks, a shaft extending through said tubular-shaft and having pinions fixed thereon, a stationary rack-bar for each of said pinions, means to rotate said pinion-shaft, a disk held on said pinion-shaft and notched at its edge

and a pawl-lever fulcrumed on a suitable support held on and moving with one of said bearing-blocks and adapted to be engaged with and to be disengaged from the notches of said disk and thereby to hold said pinion-shaft against and to release it to turn, as described, for the purposes specified. 15 20

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

BENJ. F. RADFORD.

Witnesses:

ALBERT W. BROWN,  
MARION E. BROWN.