

G. WALKER.  
Belt-Tighteners.

No. 151,256.

Patented May 26, 1874.

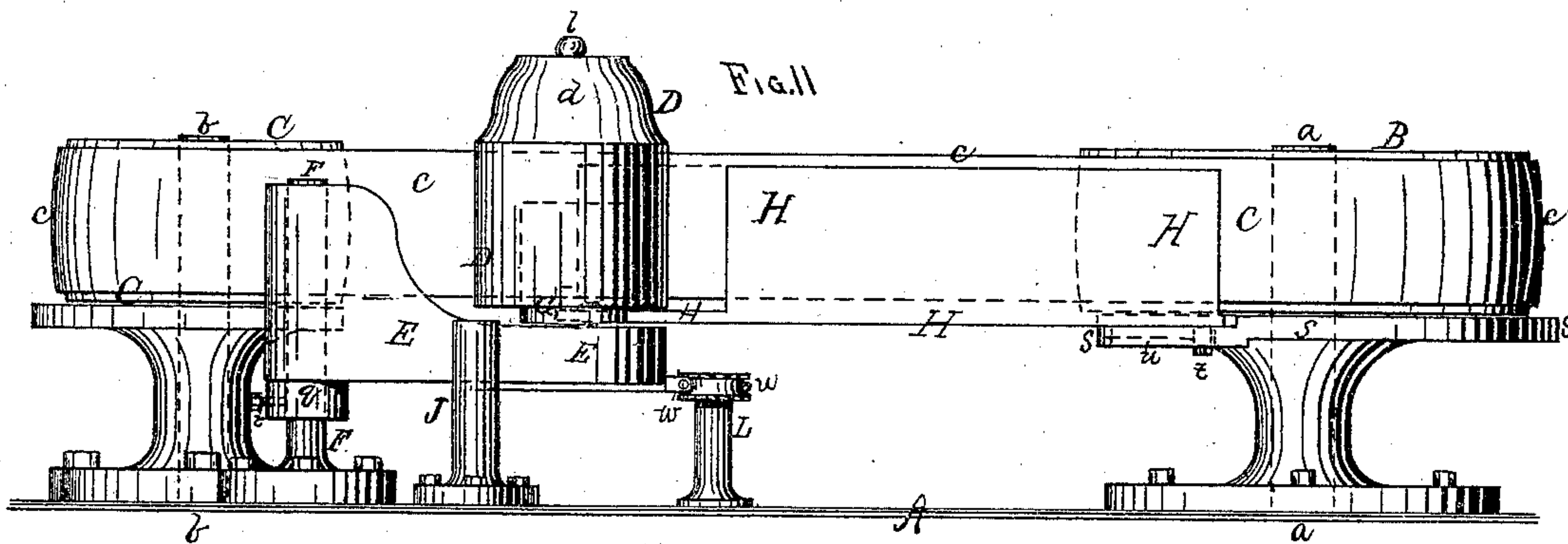
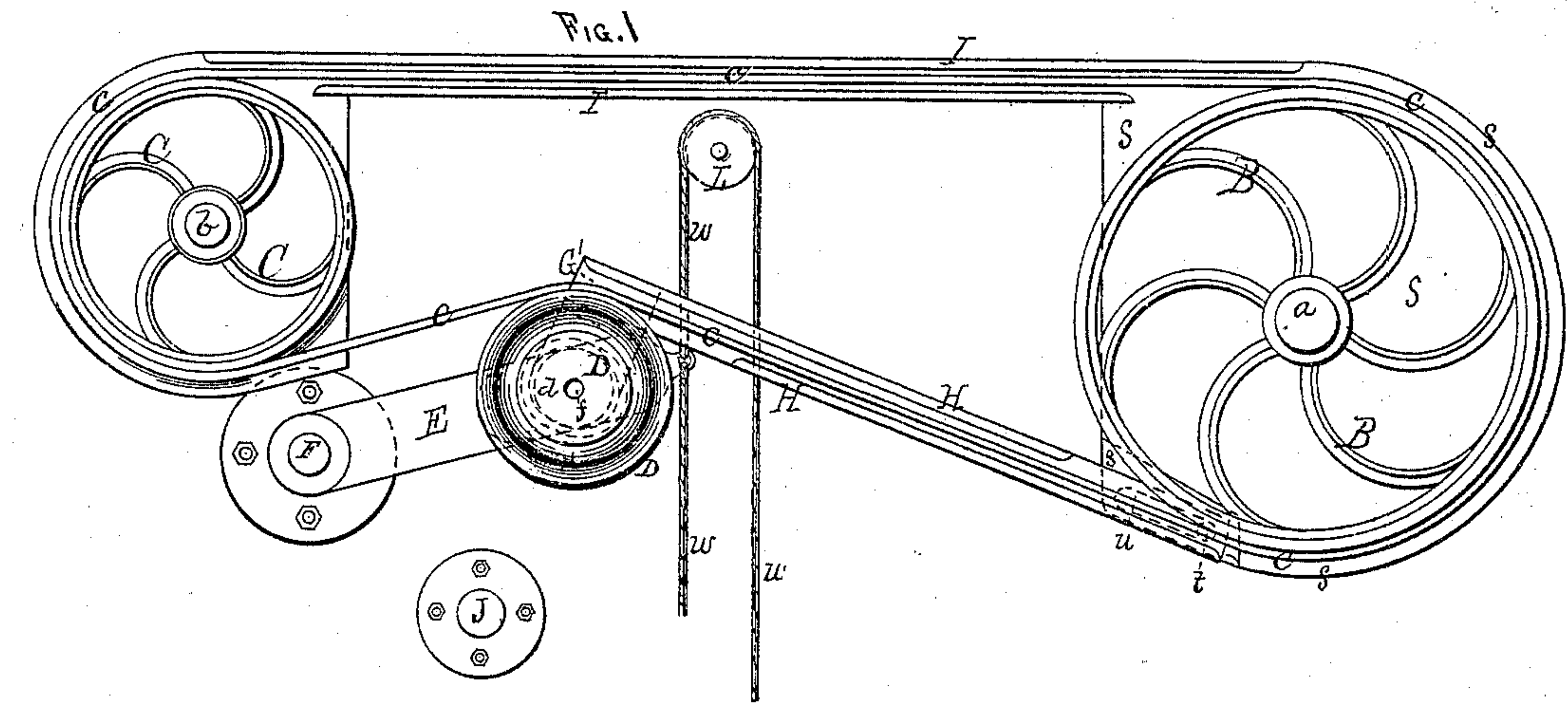


Fig. V

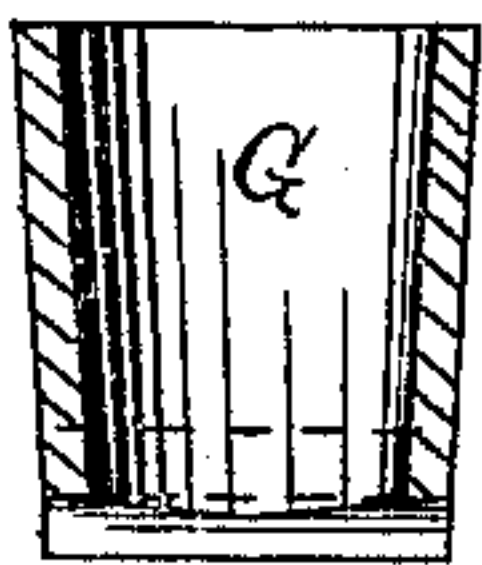


Fig. VI

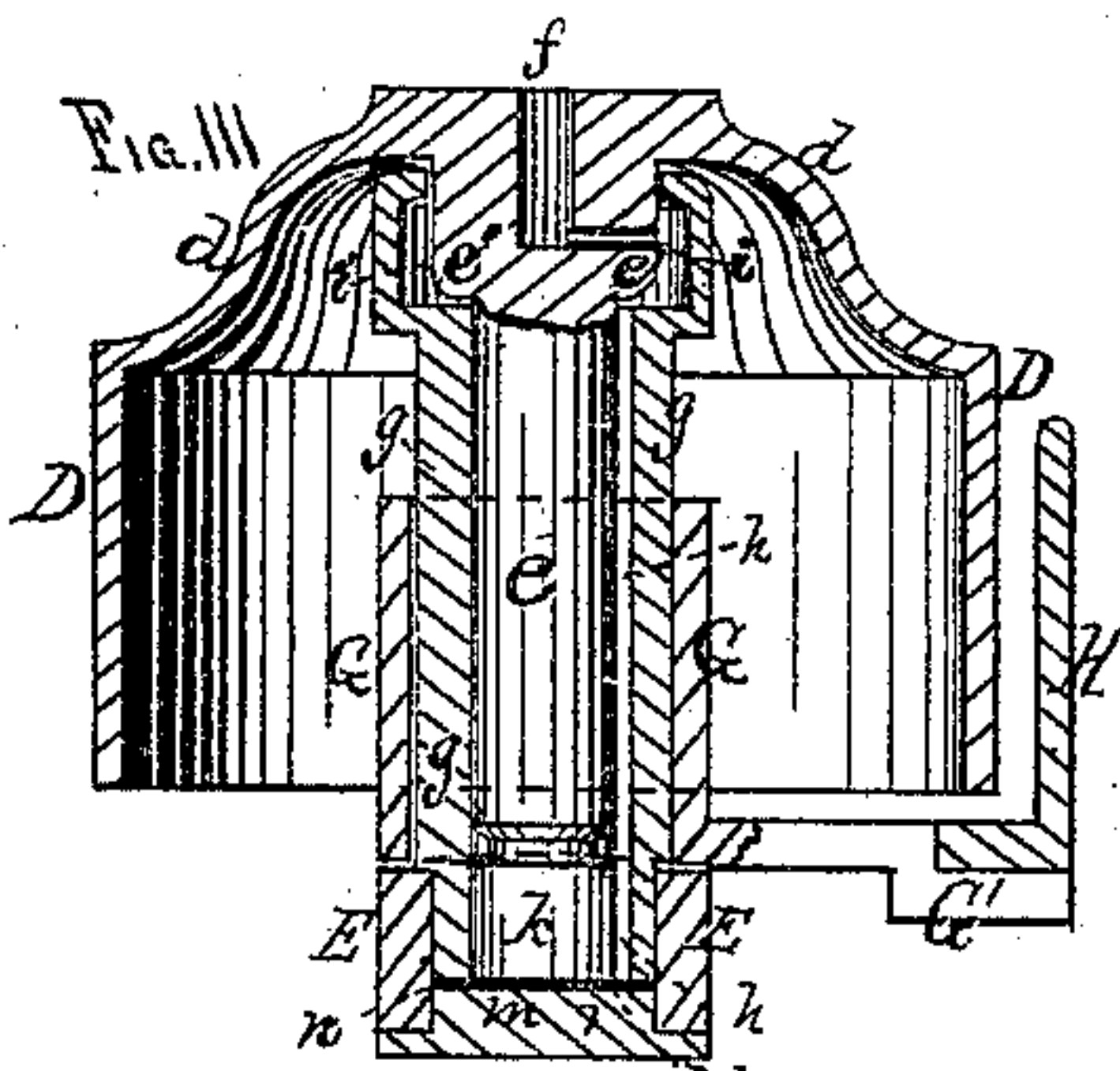
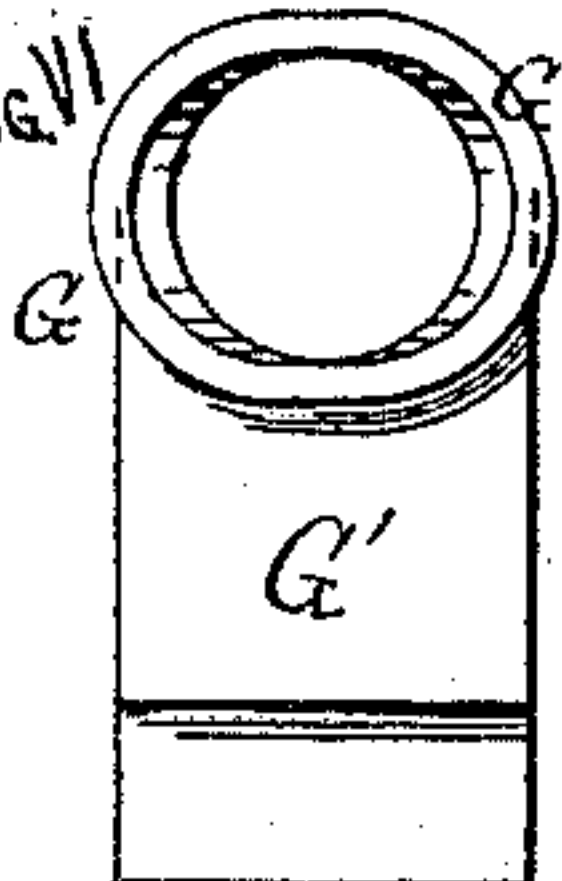
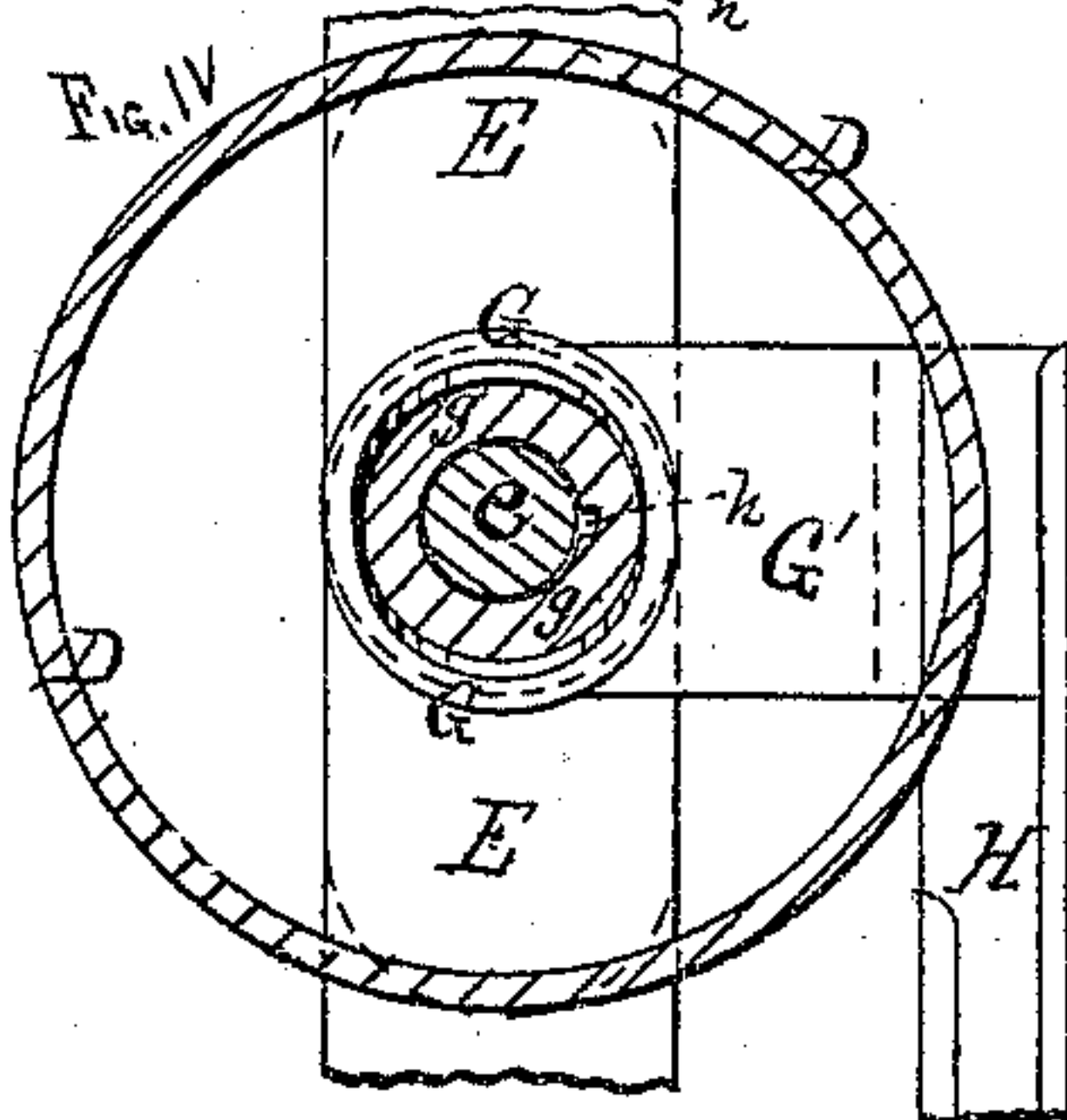


Fig. IV



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WITNESSES.

C. N. Woodward  
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# UNITED STATES PATENT OFFICE.

GEORGE WALKER, OF HAMBURG, NEW YORK.

## IMPROVEMENT IN BELT-TIGHTENERS.

Specification forming part of Letters Patent No. **151,256**, dated May 26, 1874; application filed April 18, 1874.

*To all whom it may concern:*

Be it known that I, GEORGE WALKER, of Hamburg, in the county of Erie and State of New York, have invented certain Improvements in Belt-Tighteners, of which the following is a specification:

This invention relates to devices for tightening and loosening belts operated by band-wheels on vertical shafts; and the invention consists in the construction, arrangement, and operation of a hollow tightening-pulley, a hollow arbor-standard, and a clamp uniting the pulley with a swinging belt-guide. It further consists in the construction of the crane-standard, all as hereinafter explained.

In the drawings, Figure 1 is a plan, Fig. 2 a side elevation, Fig. 3 vertical section, of the pulley, &c.; Figs. 4, 5, and 6, detail views.

A is the bed or floor; B, the driving-wheel on vertical shaft *a*; and C, the driving-pulley on vertical shaft *b* carrying the belt *c*. D is a hollow tightening-pulley, having a raised hollow top, *d*. In the center of this is a spindle or arbor, *e*, having a boss or hub, *e'*, at the top, and through this is formed an oil-hole, *f*, with a side vent, as shown in Fig. 3, to discharge the oil into a hollow arbor-standard, *g*, in which the arbor *e* of the pulley D revolves. This has an oil-groove, *h*, extending from top to bottom, (see Figs. 3 and 4,) and which will be placed in the side having the least wear. The upper part of this hollow arbor-standard *g* is made into an enlarged cylindrical oil-chamber, *i*, with a contracted opening from same in the top of the standard, which opening is of a little larger diameter than the boss of the pulley-arbor, and in which the boss revolves. *k* is a plug forming part of or attached to the crane E in any suitable manner, and sitting in the bottom of the hollow standard *g*, and having a hardened point, smaller in circumference than the rest, and upon which the end of the arbor *e* of the pulley D revolves. This may be attached to a sliding bed instead of the crane E. This plug or step *k* also has a shoulder, *m*, provided with a packing-ring, *n*. When the tightening-pulley is set up for use, as in Fig. 2, the plug *l* is taken out and oil poured into the hole *f* until the arbor-standard is filled. The plug *l* is then set in, and by this means there will be a sufficient supply to last

several weeks, and it will be kept clean all the time. The crane E swings on a vertical standard, F, having a base-flange, *p*, fastened down in any suitable manner to the floor, &c., or it may be inverted and bolted to the under side of a support, if required. The standard is encircled by an adjustable collar, *q*, fastened with a set-screw, *r*, to support the crane and adjust it to a proper height.

As before stated, the crane may be done away with and a sliding bed substituted, if desired; also, the arbor-standard may be cast in one piece with the crane or separate, and fastened thereto or to a sliding bed and operated thereby.

G is a clamp, which encircles the hollow arbor-standard *g* inside the hollow pulley D. It will usually be made in two parts bolted together by ears or side flanges for convenience in setting loosely around the arbor-standard, on which it turns. It has formed on or attached to it an arm, G', projecting at right angles from the bottom and resting on the crane or a sliding bed, E. The interior of the clamp is a circle at the base and widens from bottom to top.

The outer end of the arm G' is attached, as shown, to a swinging belt-guide, H, in which this side or portion of the belt runs to keep it from sagging or bending over out of a true line of motion. Opposite this is the usual stationary belt-guide I. One end of the swinging belt-guide H is fastened to the arm G', by which it is supported and held at a uniform distance from pulley D, the enlargement of the clamp from bottom to top, together with a ridge on the center of the bottom of each part, allowing the clamp to tip either way in the direction of its transverse axis, so that the parts may accommodate themselves to any inaccuracy of level in the crane E or swinging guide H. The other end of the swinging belt-guide is attached to the belt-rest *s* by a pin, *t*, set into a mortise or slot, *u*, notched in the belt-rest, thus giving it sufficient play as it swings either way. The pin may be set in the rest and the slot be in the bottom of the guide, if desired. J is a stud to keep the crane in position when idle. L is a stud with a neck to turn a cord, *w*, around, one end of cord of course attached to end of crane, and the other end of the cord



used to draw the pulley in contact with the belt, as is usual.

One of the great advantages of my invention is that a pulley, constructed as described, can be filled at long intervals with oil, instead of every day, as is ordinarily the case, and it greatly lessens the danger of frictional heating. The swinging guide is also very important, as it prevents belts from tipping, sagging, and remaining in close frictional contact with revolving pulleys or band-wheels, besides making a saving of material and mechanical labor in setting up in comparison with others. The guide will be made of any length required.

I claim—

1. In a belt-tightener, the combination of the flanged crane-standard *F*, adjusting-ring *g*, and screw *r*, with the crane *E*, as and for the purpose set forth.

2. In combination with the standard *F* and swinging crane *E*, the hollow arbor-standard *g*, steps *k m*, and hollow pulley *D*, having the

interior arbor *e e'*, substantially as and for the purpose described.

3. In a belt-tightening mechanism, the hollow pulley *D*, having the interior arbor *e e'*, in combination with the hollow arbor-standard *g*, substantially as and for the purpose described.

4. The clamp *G G'*, in combination with the hollow arbor-standard *g* and swinging guide *H*, as and for the purpose specified.

5. The swinging belt-guide *H*, pivoted to the belt-rest *s*, and attached to the crane *E* in any suitable manner, to move with the pulley *D*, as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEO. WALKER.

Witnesses:

J. R. DRAKE,

T. H. PARSONS.