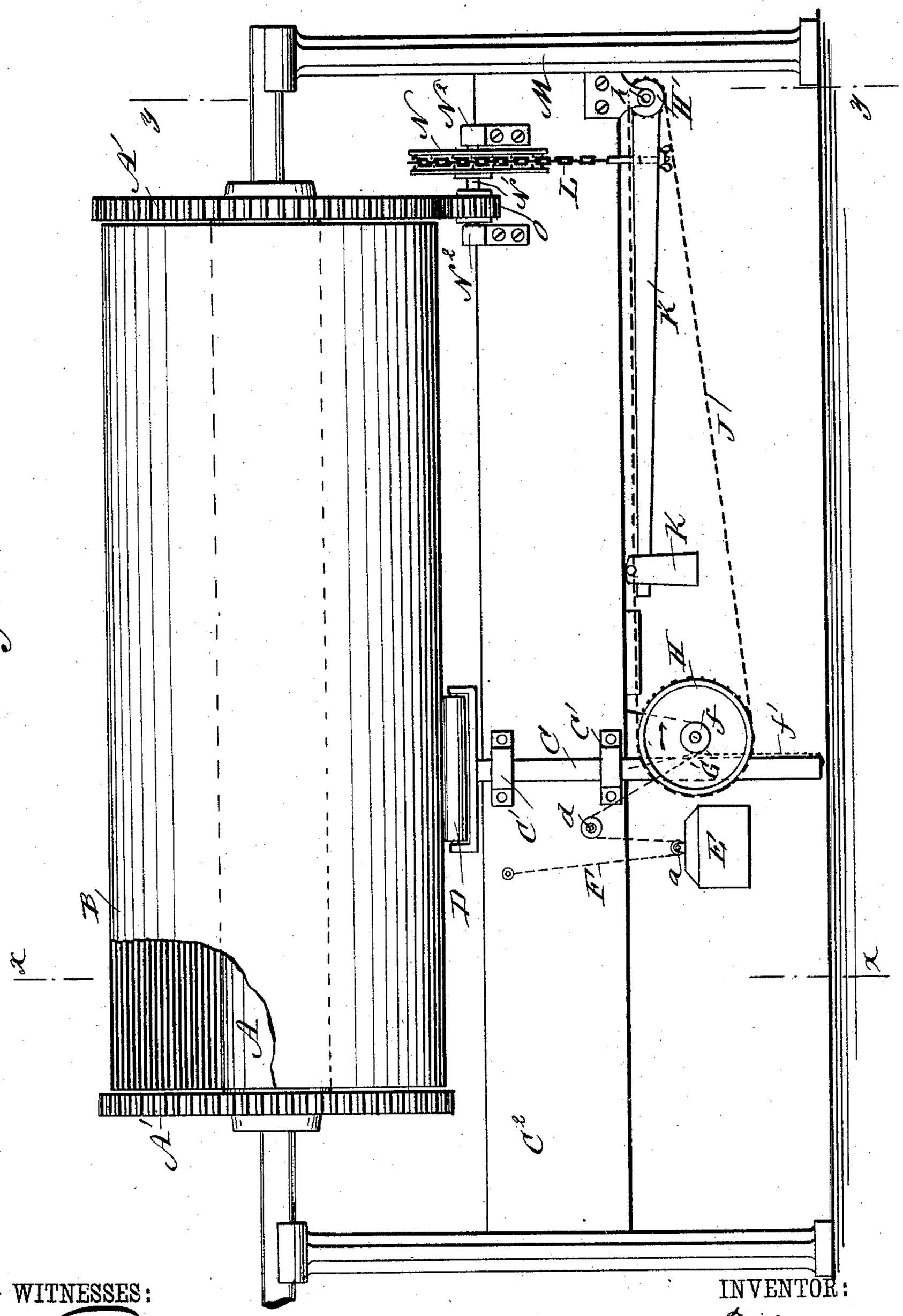
(No Model.) 2 Sheets—Sheet 1.

C. BAILEY.

TENSION DEVICE FOR THE WARP BEAM OF LOOMS.

No. 378,567. Patented Feb. 28, 1888.



WITNESSES:

C. Neveux

C. Sedgwick.

INVENTOR:

C. Bailey

BY Munn & Co

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

C. BAILEY.

TENSION DEVICE FOR THE WARP BEAM OF LOOMS.

No. 378,567. Patented Feb. 28, 1888.

Fig. 1

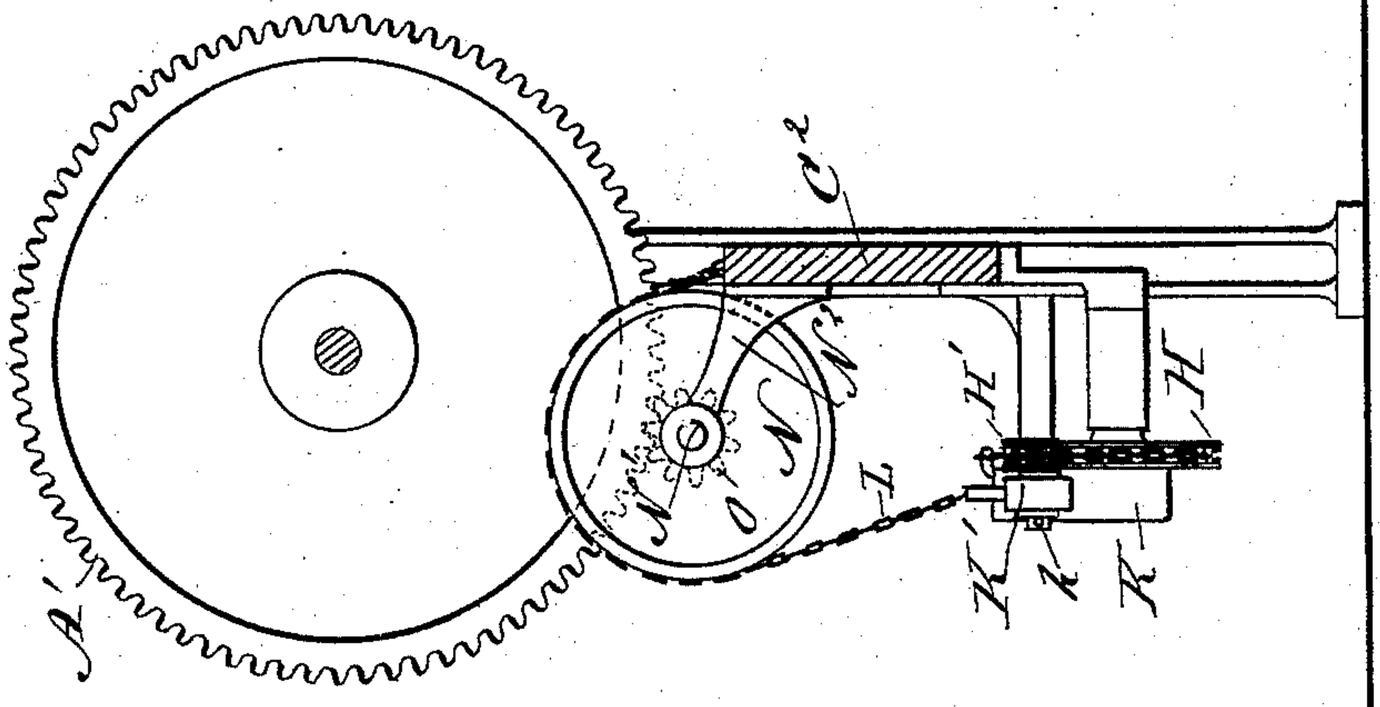


Fig. 2

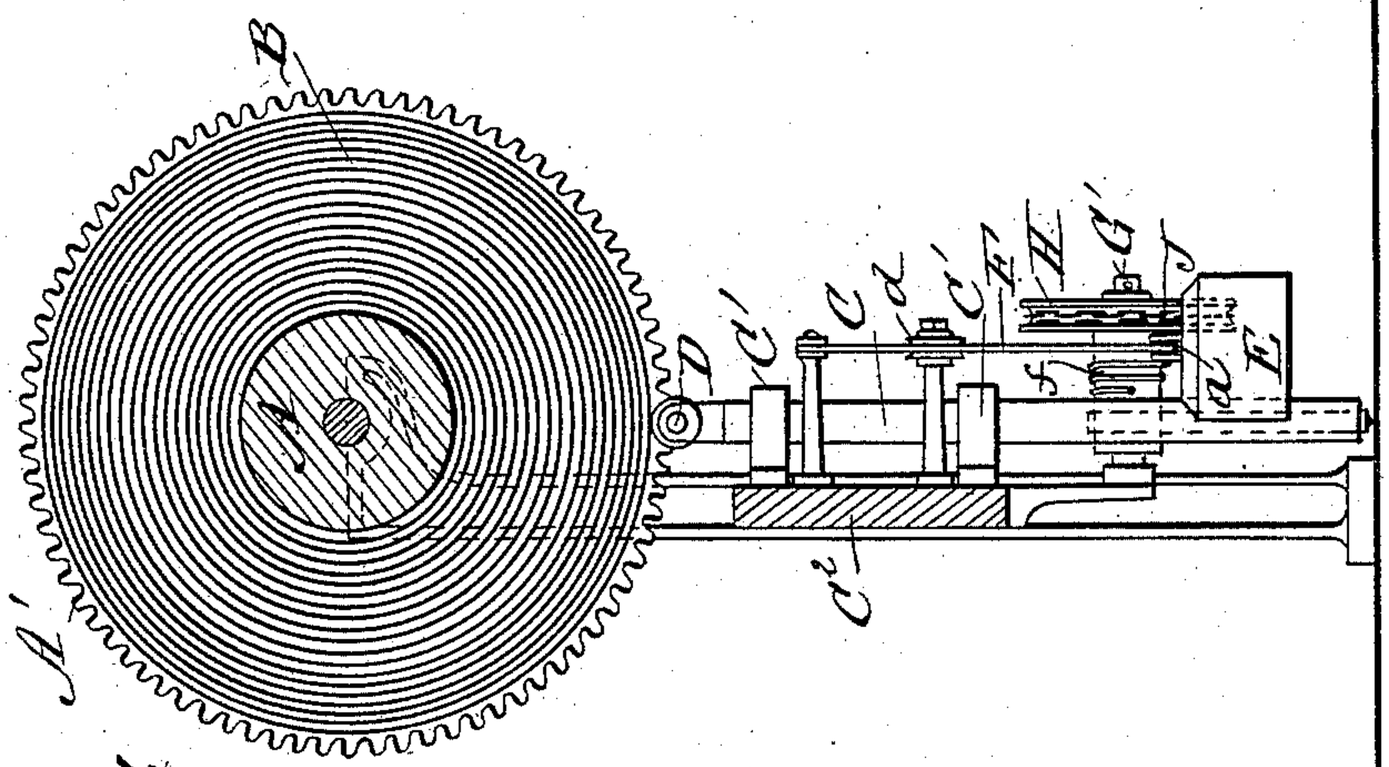
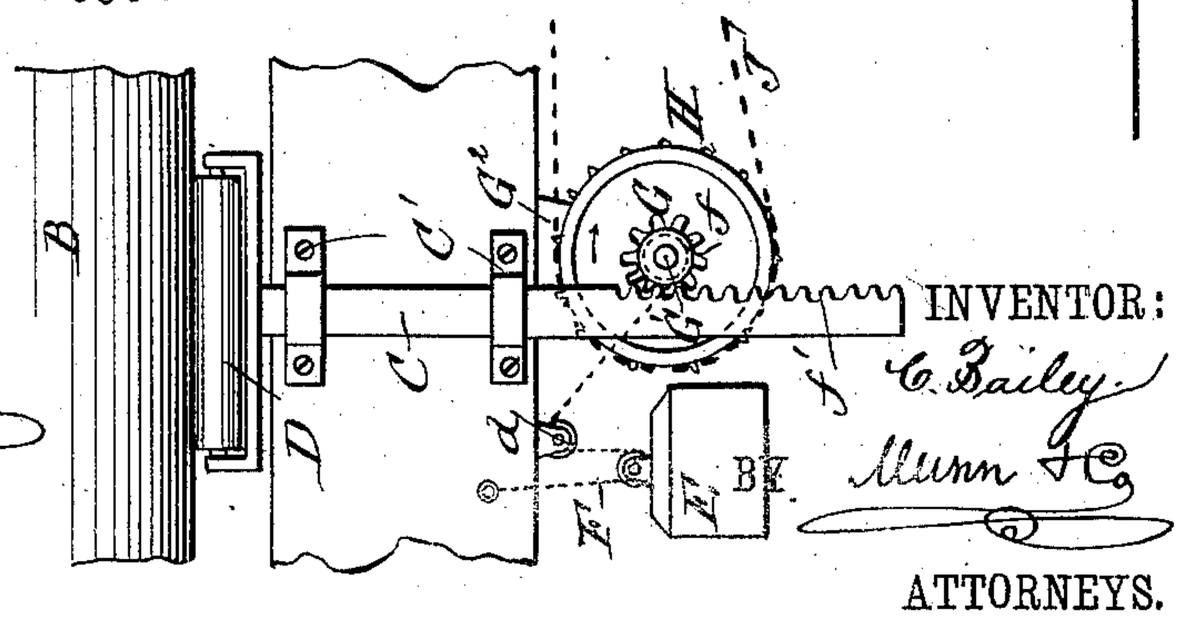


Fig. 4



WITNESSES:

C. Neveux

C. Sedgwick.

INVENTOR:

C. Bailey.

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHESTER BAILEY, OF JANESVILLE, WISCONSIN.

TENSION DEVICE FOR THE WARP-BEAM OF LOOMS.

SPECIFICATION forming part of Letters Patent No. 378,567, dated February 28, 1888.

Application filed June 7, 1887. Serial No. 240,522. (No model.)

To all whom it may concern:

Be it known that I, CHESTER BAILEY, of Janesville, in the county of Rock and State of Wisconsion, have invented a new and Improved Tension Device for the Warp-Beams of Looms, of which the following is a full, clear, and exact description.

In weaving, as the warp is drawn off from the warp-beam the diameter of the roll of warp diminishes, and the tension of the warp would be increased accordingly, the feed of the fabric being constant and uniform, unless some means were provided to prevent such increase of tension.

My invention consists in a certain combination and arrangement of devices for regulating the tension, so that it shall be as nearly uniform as possible at all stages of the weaving.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a rear elevation of a loom-frame and warp-beam, showing my invention. Fig. 2 is a transverse sectional elevation on line *x x* of Fig. 1. Fig. 3 is a similar view on line *y y* of Fig. 1, and Fig. 4 shows a modified form of connection between the follower and its lifting-drum.

A represents an ordinary warp-beam shown partially filled with warp B, and provided with gear-wheels A′ at its ends in the usual manner.

C represents a vertically-arranged follower-bar held loosely in guides C′, attached to the cross-piece C^2 of the loom-frame. To the upper end of this bar is attached the roller D, which is held in constant contact with the roll of warp by the weight E, which acts upon the follower-bar through the cord F, to which it is attached, one end of the cord being attached to the cross-piece C^2 of the main frame and passed through the pulley *a*, attached to the weight, thence over the pulley *d*, attached to the cross-piece C^2, thence to the drum *f*, to which it is attached. The follower-bar C is connected to the drum *f* by a strap, *f′*, and secured upon the short shaft G′, to which the drum *f* is secured, is the gear or chain wheel H. Over this and over the small chain or cog wheel H′, journaled on the shaft *h*, near the standard M of the loom-frame, passes the chain J. This chain is attached to the weight K, placed loosely upon the pressure or tension lever K′, fulcrumed at the axis of the small chain-wheel H′ and supported by the band L, which passes up over the friction drum or wheel N, which is held on the shaft N′, journaled in the brackets N^2 N^2, attached to the cross-piece C^2. On the shaft N′ is also secured the small gear-wheel O, which runs in contact with the large gear-wheel A′, so that as the latter is turned by the drawing off of the warp the friction-wheel N will be turned, which will be retarded by the band L, acting thereon as a brake, said band being drawn downward by the lever K′ and weight K. This retarding action of the band L reacts upon the warp-beam, and thus always maintains a tension upon the warp. This tension will be increased or diminished according to the locality of the weight K upon this lever K′, and this will be automatically and continuously moved toward the fulcrum of the said lever as the diameter of the roll of warp diminishes, so that the friction will gradually diminish, thus maintaining a uniform tension.

The gradual movement of the weight K is effected by the gradual lifting of the follower C, caused by the weight E acting upon said bar through the cord F, drum *f*, and strap *f′*, attached to the drum and lower end of the bar. As the diameter of the warp upon the beam diminishes, the weight E descends and turns drum *f* in the direction of the arrow in Fig. 1. This movement winds up the strap *f′* and lifts the follower C, and at the same time turns the shaft G′ and chain-wheel H, and this movement turns the chain J, and thus slides the weight along the lever K′ with the desired result above stated.

In place of the strap *f′*, I may use in some cases a rack and pinion for connecting the follower-bar C with the shaft G′, as shown in Fig. 4, rack-teeth *f′* being formed upon one edge of the bar, as shown.

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

The combination of the gearing A′ O, the shaft N′, friction-wheel N, chain L, the weight K, and lever K′, with the weight E, its cord F, the sliding follower C, its roller D, and strap *f′*, the drum H, pulley H′, and chain J, all arranged and operating as shown and described.

CHESTER BAILEY.

Witnesses:
GEO. G. SUTHERLAND,
MARK RIPLEY.