G. N. WILLIAMS, JR. & J. TINLIN.

TENSION DEVICE.

APPLICATION FILED JUNE 27, 1908.

916,081. **Patented Mar. 23, 1909.**

Fig 3.

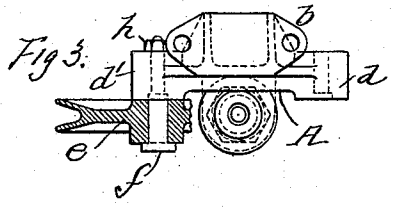


Fig 1.

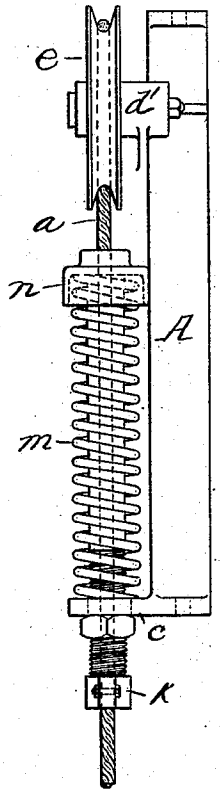
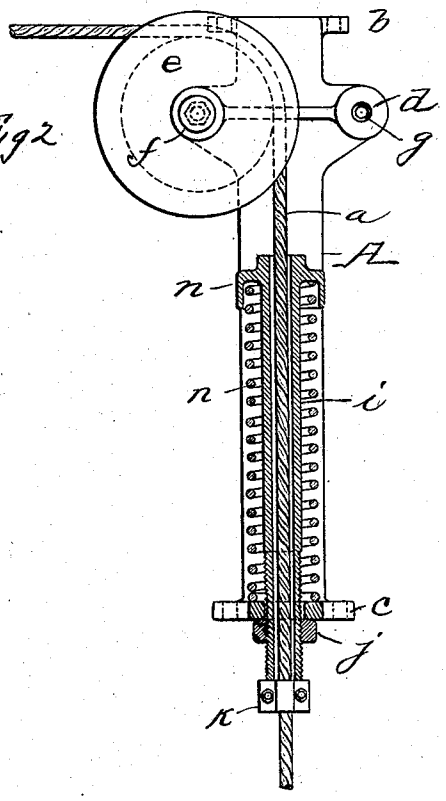


Fig 2



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TENSION DEVICE.

No. 916,081. Specification of Letters Patent. Patented March 23, 1909.

Application filed June 27, 1908. Serial No. 440,764.

To all whom it may concern:

Be it known that we, GEORGE NELSON WILLIAMS, Jr., a citizen of the United States, residing at New York, in the county and State of New York, and JAMES TINLIN, a citizen of the United States, residing at Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Tension Devices; and we 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.

Our invention relates to certain new and useful improvements in devices for anchoring the free ends of tension members to a suitable fixed point of support, and, at the same time, subjecting the said tension members to a predetermined tension within its limits of safety, so that it shall be out of the power of a careless or uninformed attendant to impose upon it a strain or tension beyond that designed by the constructor.

In the accompanying drawing, for purposes of illustration, we have shown our improvements as applied to a cable, but it will be understood that it is equally applicable to tension members of any other character, as, for instance, chains, rods, or the like.

Figure 1 represents a side elevation of a tension device embodying our improvements; Fig. 2 represents a front elevation thereof, partly in section, and Fig. 3 represents a top plan view, also partly in section.

Similar letters of reference indicate similar parts throughout the several views.

Referring to the drawing, *a* indicates the rope, cable, or like tension member and A indicates its point of anchorage, which, in the instance chosen, may conveniently consist of a bracket casting, provided with suitable flanges as *b*, *c*, for attaching it to some permanent fixed structure or abutment, the said flanges being provided with suitable perforations, as shown, for permitting such attachment.

The bracket casting A may be provided with one or more projecting hubs or journals *d*, *d'*, on opposite sides of its longitudinal center; so that, should it be desirable to change the general direction of the cable or tension member *a*, this may be effected by mounting a suitable sheave *e* in one or the other of the said hubs, through the intermediacy of the headed pin or gudgeon *f*, which, passing through the aperture *g* of the hub is secured or locked in position by means of the retaining nut *h* engaging its screw-threaded end. Upon this headed pin or gudgeon as a center, the sheave *e* is adapted to turn freely, and the sheave may be shifted from the hub *d'* to the hub *d*, or conversely, according to the direction in which it is desired to carry the tension member.

The tension member *a* is passed through the hollow interior of a spindle *i*, having at its free end a screw-threaded exterior, with which engages the adjusting nut *j*. The spindle *i* passes freely through an aperture in the flange *c* of the bracket casting and the tension member *i* is provided with a retaining clip, as shown in Figs. 1 and 2, which retaining clip may conveniently consist of the clamping plates *k*, adapted to be clamped firmly to the tension member by means of bolts and nuts, or the like, as shown. The clip engages the end of the hollow spindle *i*, against which it abuts. The hollow spindle *i* is provided at its opposite end with a receiving cup *n*, and between this cup *n* and the flange *c* of the bracket casting reacts the coiled spring *m*, which is of a predetermined tension, appropriate to the safety limit of the tension member, as will hereinafter more fully appear.

In organizing the structure, for any particular or specific use, the tension of the spring M is so chosen that the maximum predetermined load will be just sufficient to close the convolutions of the spring, when applied thereto in the form of tension. The nut *j*, having suitable facets for engagement with a turning wrench, is adapted to increase or diminish the working tension, according as it is turned to the right or the left. Thus, by screwing the nut *j* in one direction upon the threaded end of the spindle, the spindle will be drawn through the flange *c* of the bracket casting and will increase the tension upon the cable; or, by turning the nut *j* in the opposite direction, the spindle will be permitted to withdraw proportionately from the flange *c*, thereby relaxing the tension; it being the intent of the invention that the working load should compress the spring to a certain amount, in the first instance, leaving a margin to be subsequently taken up by the nut *j*, if necessary. The predetermined tension of the spring *m*, however, restricts

the capacity of the adjustable nut *j* to impose tension upon the tension member *a*, for the reason that when, as hereinbefore indicated, the spindle has been caused to advance through the flange *c*, through the intermediacy of the nut, to close the convolutions of the spring, the maximum predetermined load is attained and it is impossible for the careless, inexperienced or uninformed attendant to put a greater or undue strain upon the tension member. It will be apparent, therefore, that, while establishing the desired working tension for the cable or other tension member, the construction serves as a means for varying that tension, and also as a safeguard for preventing the tension from being increased beyond the predetermined maximum limit contemplated by the constructor. At the same time, the device, in the form described and shown, is so designed as to afford a secure anchorage for the free end of the tension member, which anchorage is adapted for ready attachment to, or removal from, any suitable abutment or other permanent and fixed place of support or attachment.

Having thus described our invention, what we claim is;

1. A tension device, consisting of a hollow spindle through which the rope or other tension member is adapted to pass, a bracket through which the said spindle extends, a spring re-acting between the spindle and the bracket, and means for moving the spindle and with it the tension member with respect to the bracket, whereby the tension that can be exerted upon said member is limited to a predetermined maximum represented by the amount of movement necessary to close the spring; substantially as described.

2. A tension device, consisting of a hollow spindle provided at one end with a cup-shaped recess and provided at the other end with a screw-threaded portion carrying an adjustable nut, a bracket through which the screw-threaded portion of the spindle passes freely a spring reacting between the spindle and bracket, and means for establishing such a relation between the spindle and the tension member that the tension member will move with the spindle to an extent limited by the closing movement of the spring; substantially as described.

3. A tension device, consisting of a hollow spindle provided at one end with a cup-shaped recess and provided at the other end with a screw-threaded portion carrying an adjustable nut, a bracket through which the screw-threaded end of the spindle passes freely and against whose lower surface the adjustable nut abuts, and a clamp for attachment to the tension member and in the path of movement of the spindle; substantially as described.

4. A tension device, consisting of a plate having a bracket and a journal bearing thereon, a sheave journaled in said bearing, a tension rope passing over the sheave, a hollow spindle through which the tension rope passes, said spindle having at one end a cup-shaped recess and being screw-threaded at its other end where said end passes through the bracket, an adjustable nut mounted on said screw-threaded end and abutting against the under side of the bracket, and a clamp carried by the rope and in the path of movement of the spindle; substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses.

GEORGE NELSON WILLIAMS, JR.
JAMES TINLIN.

Witnesses:
L. B. PENFIELD,
JOHN C. PENNIE.