No. 861,147. PATENTED JULY 23, 1907.

H. SMILEY.

RAIL BOLT NUT ADJUSTER.

APPLICATION FILED JUNE 3, 1907.

2 SHEETS—SHEET 1.

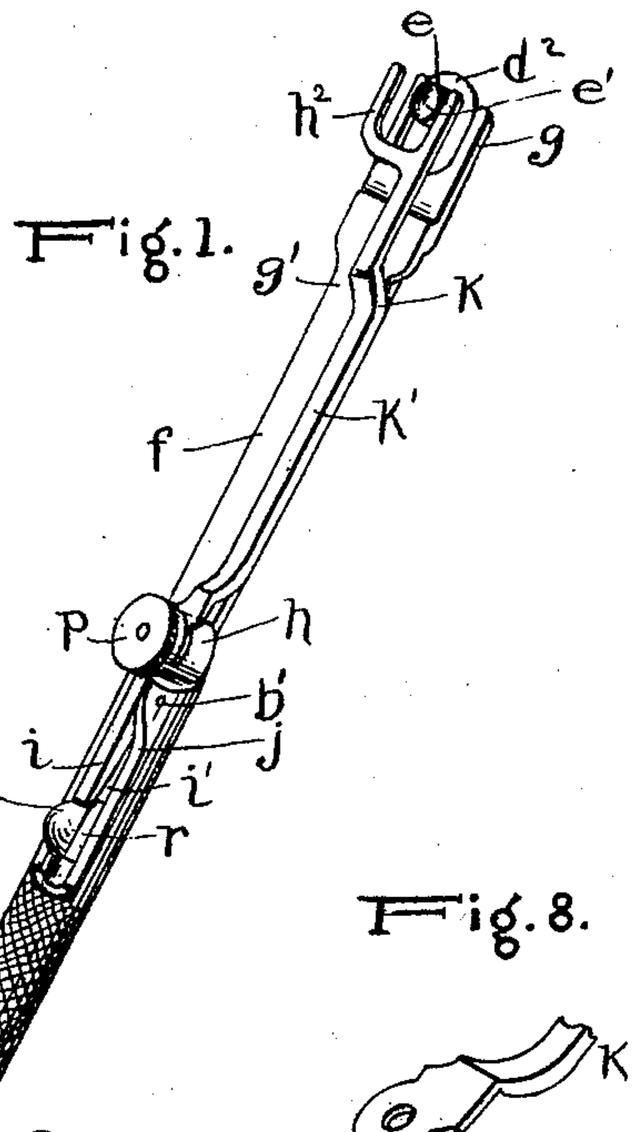


Fig. 1.

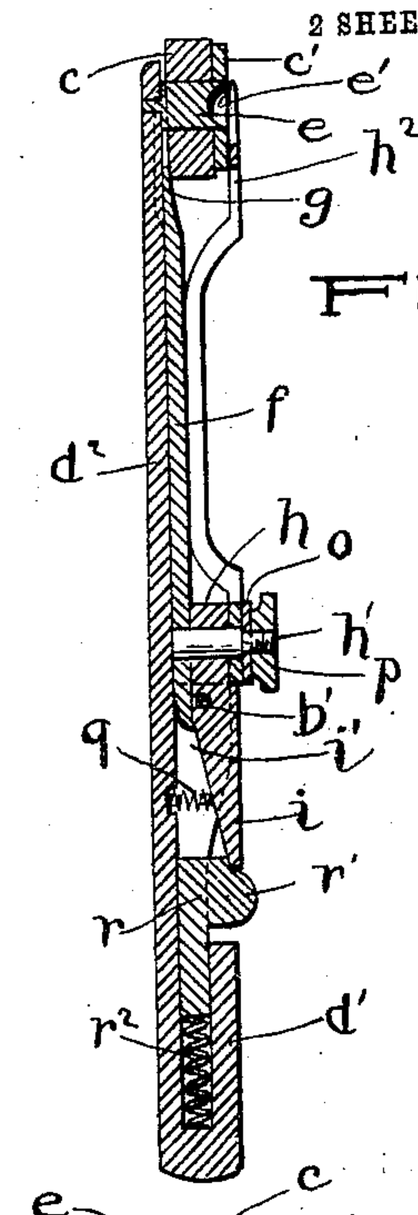


Fig. 4.

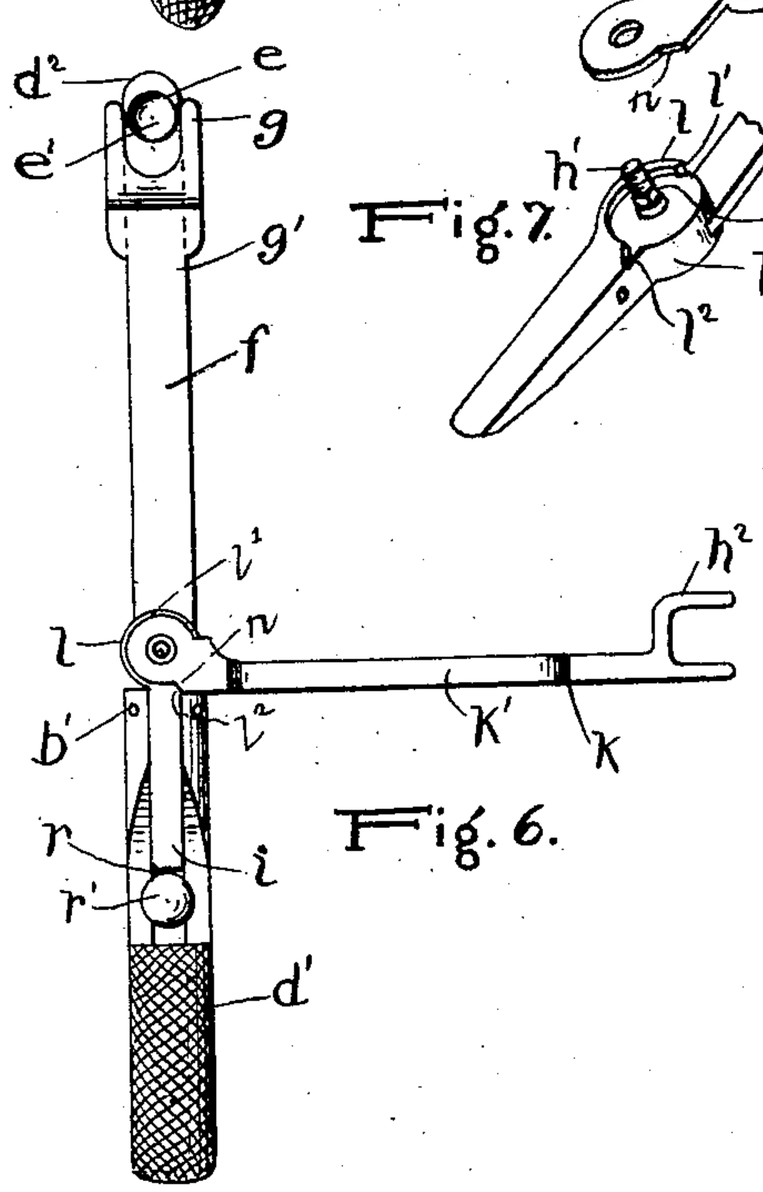


Fig. 6.

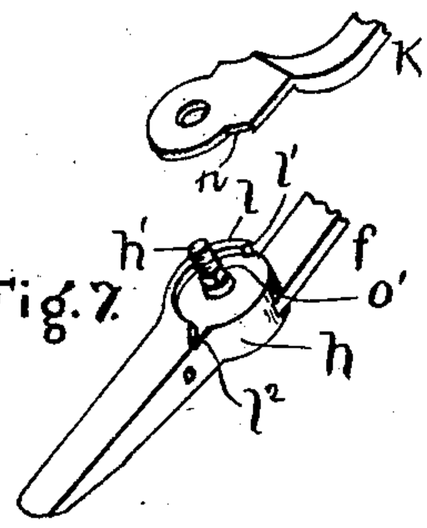


Fig. 7.

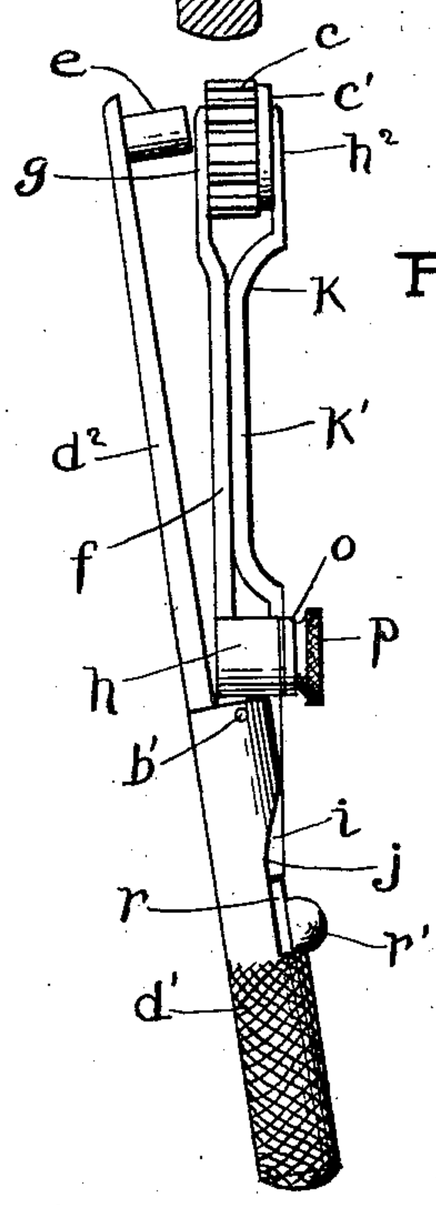


Fig. 5.

Witnesses

Stuart Hilder.

George M. Anderson.

Inventor

By

Henry Smiley,

E. W. Anderson

his Attorney

No. 861,147. PATENTED JULY 23, 1907.

H. SMILEY.

RAIL BOLT NUT ADJUSTER.

APPLICATION FILED JUNE 3, 1907.

2 SHEETS—SHEET 2.

Fig. 2.

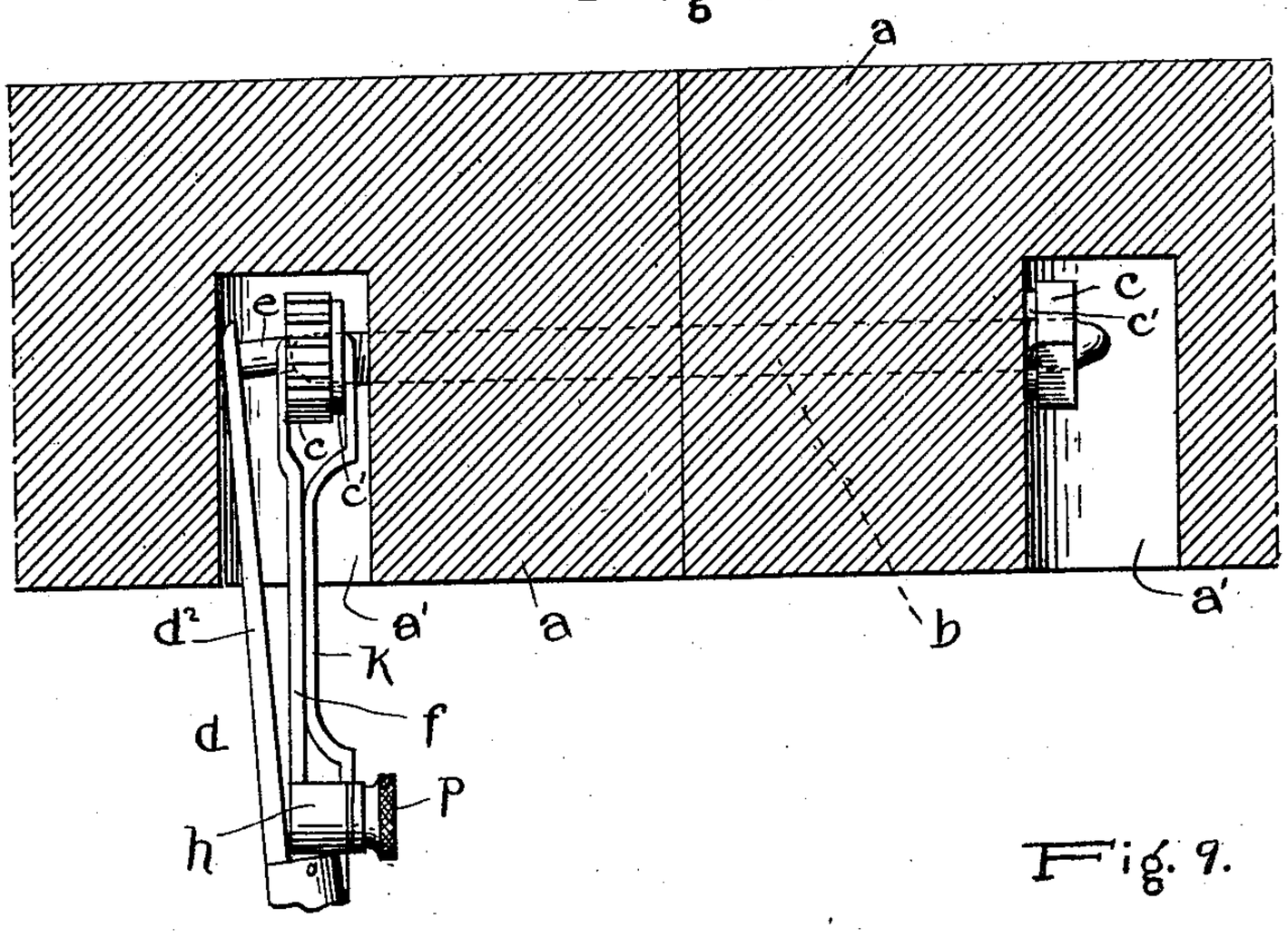
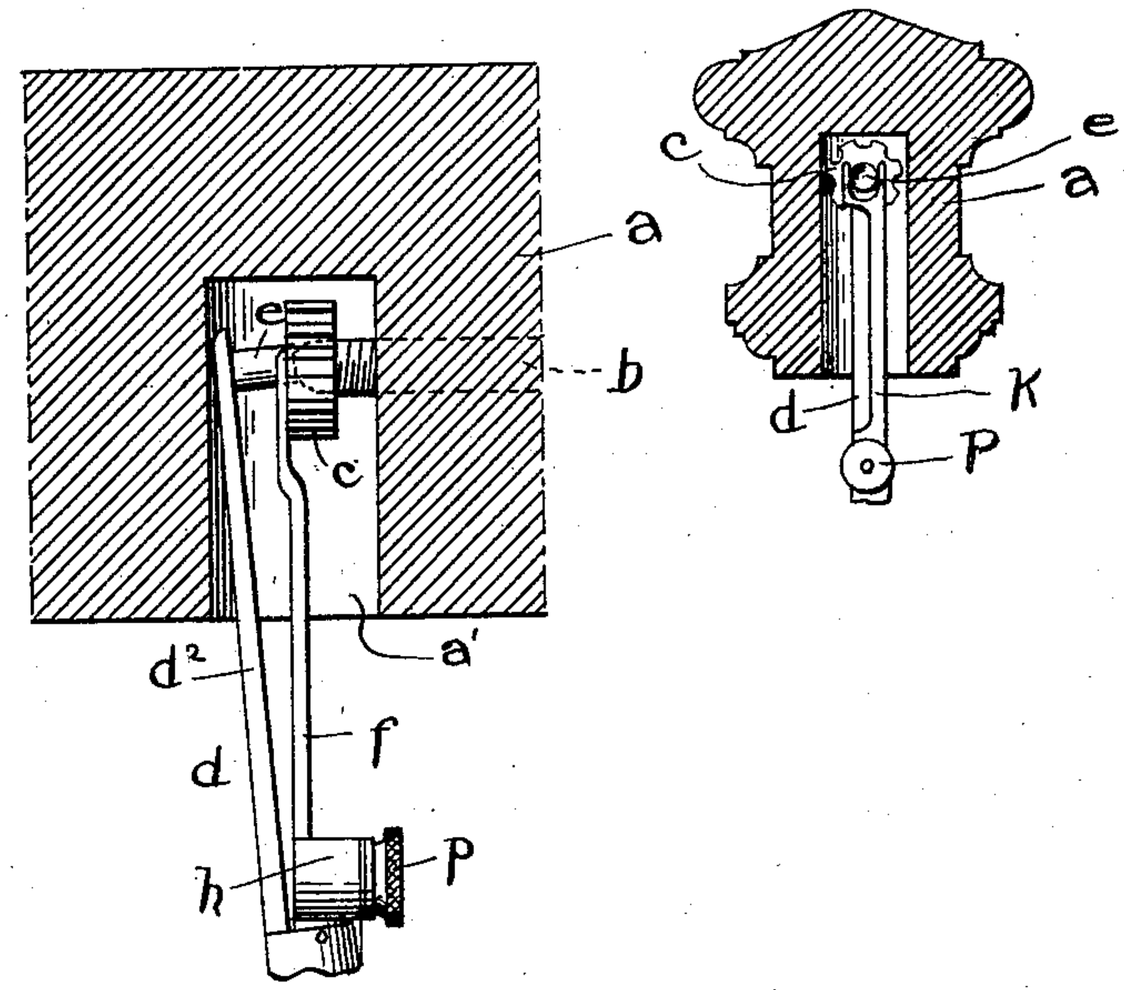


Fig. 9.

Fig. 3.



Witnesses

Stuart Hilder.

George M. Anderson.

By

Inventor

Henry Smiley,

E. W. Anderson

his Attorney

UNITED STATES PATENT OFFICE.

HENRY SMILEY, OF BOSTON, MASSACHUSETTS.

RAIL-BOLT-NUT ADJUSTER.

No. 861,147. Specification of Letters Patent. Patented July 23, 1907.

Application filed June 3, 1907. Serial No. 377,026.

To all whom it may concern:

Be it known that I, HENRY SMILEY, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have made a certain new and useful Invention in Rail-Bolt-Nut Adjusters; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of the invention. Fig. 2 is a side view partly broken away of the invention as applied for adjusting a nut and washer. Fig. 3 is a similar view of the invention as applied for adjusting a nut, the holding arm being turned aside, out of the way. Fig. 4 is a central longitudinal section of the tool. Fig. 5 is a side view of the same, with parts separated as in use. Fig. 6 is a front view of the same, the holding arm being shown as turned to one side out of the way. Fig. 7 is a detail perspective view of one end portion of the lever device. Fig. 8 is a similar view of one end portion of the holding arm. Fig. 9 is a front view partly broken away of the invention as applied.

The invention relates to a rail-bolt nut adjuster, especially designed for use in connection with the sections of stairway rails or balustrades.

The invention consists in the novel construction and combinations of parts as hereinafter set forth.

In the accompanying drawings illustrating the invention the letter *a*, designates the sections of the rail to be connected, such sections having the usual openings or recesses *a'*, in the bottom adjacent to the joint thereof, and *b*, is the rail-bolt having threaded end portions carrying, each a nut *c*, having a washer *c'*.

d, designates the tool, having the handle portion *d'*, and the nut-carrying flattened shank portion d^2, provided at its outer or upper end with a right angle cylindrical stud *e*, upon which the nut is slipped. For the purpose of adjusting this nut laterally after it has been inserted into the recess *a'*, of the rail by the tool, a lever device *f*, is fulcrumed to the handle portion *d'*, of the tool at *b'*, this lever device having a bifurcated or forked end portion *g*, the arms of which lie at each side of the carrying stud *e*, such arms being offset laterally or of greater thickness than the web *g'*, connecting the same. The lever *f*, is also of flattened form, the work arm thereof normally lying in close contact with and having similar dimensions to the shank portion d^2, of the tool with the exception of the arms of the fork *g*, which project laterally of such shank and are offset or of sufficient thickness to normally embrace the same. This lever device has an intermediate enlarged head portion *h*, shown as of cylindrical form and forming the inner end portion of the work arm thereof; the power or operating arm *i*, of the lever being tapered from the fulcrum thereof and seated in a slot *i'*, of the handle end of the tool with the side walls of which the fulcrum pin engages. The side walls of the slotted portion of the handle are cut away or notched at *j*, to admit of finger pressure upon the operating arm of the lever, which is thus caused to move to one side away from the shank of the tool, carrying therewith the nut upon the stud *e*.

k, designates a holding arm pivoted at one end thereof to a stud pin *h'*, of the head *h*, and having an intermediate laterally offset portion *k'*, constituting the greater portion of its length and normally lying in close contact with the work arm of the lever *f*. This holding arm has a forked outer end portion h^2, having the same level or lying in the same plane as its pivoted inner end portion, and the arms of which lie at the sides of the stud *e*, being separated from the nut upon such stud by an interval sufficient to allow for the reception of a washer upon such stud, with which the arms of the fork are designed to contact. In this manner the nut and washer therefor lie between the forked end portions of the lever device *f*, and of the holding arm *k*, which forks are separated from each other just the thickness of nut and washer, and upon lateral adjustment of the lever device by finger pressure upon its operating arm, nut and washer are at the same time adjusted to position upon the bolt. In order that the adjustment may be in direct line with the bolt, the inner end of the stud *e*, is concaved to provide a seat at *e'* for the rounded inner end of the bolt. The nut may be in this manner adjusted squarely in position upon the bolt, and upon insertion of a screw driver or other slender tool, the nut may be given a whirl upon the bolt to cause it to be turned home upon the thread thereof.

The head portion *h*, of the lever *f*, has a semicircular wall *l*, at one side terminating at one end in a square shoulder *l'*, and at the other end in a beveled shoulder l^2. The circular pivotal end of the holding arm *k*, lies upon this head portion of the lever with its squared shoulder normally in contact with the shoulder *l'* of such wall forming a stop for the holding arm when in line with the shank of the tool.

To facilitate placing the nut, or nut and washer, upon the stud *e*, the arm *k*, may be turned to one side upon its pivot, until the beveled shoulder *n*, at its inner end contacts with beveled stop shoulder l^2, of the head *h*, of the lever. In order to provide tension adjusting means for this holding arm, a washer *o*, having a square central hole engages a squared portion *o'*, of the stud pin *h'*, a nut *p*, engaging the threaded end of such pin and having frictional contact with the washer *o*, which on its under side contacts with the pivotal end of the holding arm. The holding arm is not needed to be

used when the nut alone is to be adjusted to position upon the bolt, but is provided to hold nut and washer together when both are to be adjusted to place.

A coiled spring q, is located beneath the operating arm of the lever f, between the same and the bottom of the slot in the handle of the tool, such spring engaging projections upon lever and handle to keep it in position. In this way, the parts are automatically returned to normal position, where they will be held by the spring.

A safety catch device r, is seated in a recess of the handle of the tool and normally projects underneath the operating arm of the lever f, to prevent its accidental operation or depression. A knob projection r', upon this catch device enables it to be readily shoved back by the thumb or finger out of the way, against the pressure of its coiled spring r^2, which causes it normally to project.

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

1. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, and a lever device having a forked end portion, the arms of which normally lie at each side of such stud.

2. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, upon which the nut is designed to fit, and a lever device having its end portion adapted for pressure against the side of such nut.

3. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, upon which the nut is designed to fit, and a lever device having a forked end portion adapted for pressure against the side of such nut.

4. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, upon which the nut is designed to fit, and a spring-pressed lever device, having a forked end portion, the arms of which normally lie at each side of such stud, and a catch device for normally preventing operation of the lever device.

5. A rail-bolt nut adjuster, having a handle portion provided with a flattened shank extension carrying a stud at right angles thereto at its outer end, a lever device pivoted intermediately thereof to such handle portion, and having a flattened work arm normally lying in close contact with such shank extension and provided with a forked end portion, the arms of which normally lie at the sides of such stud.

6. A rail-bolt nut adjuster, having a handle portion provided with a flattened shank extension carrying a stud at right angles thereto at its outer end, a spring-pressed lever device pivoted intermediately thereof to such handle extension and having a flattened work arm normally lying in close contact with such shank extension and provided with a forked end portion, the arms of which normally lie at the sides of such stud, and catch means for normally preventing operation of the lever device.

7. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, upon which the nut is designed to fit, a lever device having its outer end portion adapted for pressure against the side of the nut, and holding means carried by such lever device and located at the opposite side of such nut.

8. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, upon which the nut is designed to fit, a spring-pressed lever device, having its outer end portion adapted for pressure against the side of the nut, and forked holding means carried by the lever device and located at the opposite side of such nut.

9. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, a lever device having a forked end portion, the arms of which normally lie at the sides of such stud, and forked holding means carried by the lever device.

10. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, a lever device having a forked end portion, the arms of which normally lie at the sides of such stud, forked holding means pivoted to the lever device and means for clamping such holding means in position.

11. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, a lever device having a forked end portion, the arms of which normally lie at the sides of such stud, and a holding arm carried by such lever device, and having a forked end portion separated by an interval from the forked end portion of the lever device.

12. A rail-bolt nut adjuster, having a shank portion provided with a stud at its outer end, a lever device having a forked end portion, the arms of which normally lie at the sides of such stud, a holding arm pivoted to such lever and having a forked end portion separated by an interval from the forked end portion of the lever device, and tension adjusting means upon the pivot pin of such holding arm.

In testimony whereof I affix my signature, in presence of two witnesses.

HENRY SMILEY.

Witnesses:
ANNA L. DEMPSEY,
JOHN E. ANDREWS.