

No. 889,447.

PATENTED JUNE 2, 1908.

J. EICHMÜLLER.
INTERCHANGEABLE COMPASS POINT.

APPLICATION FILED OCT. 11, 1907.

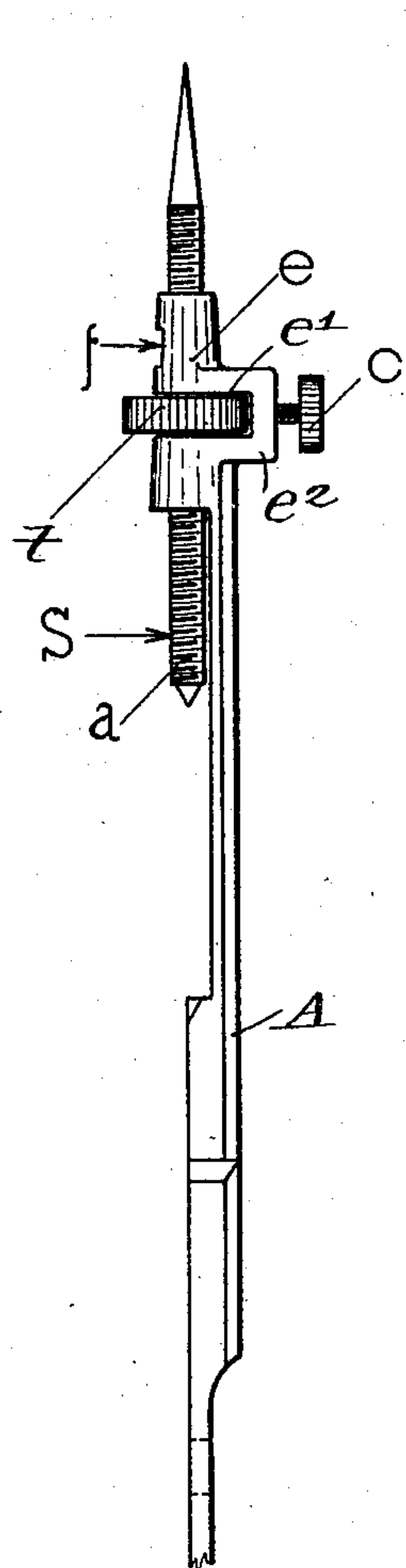


FIG. 1.

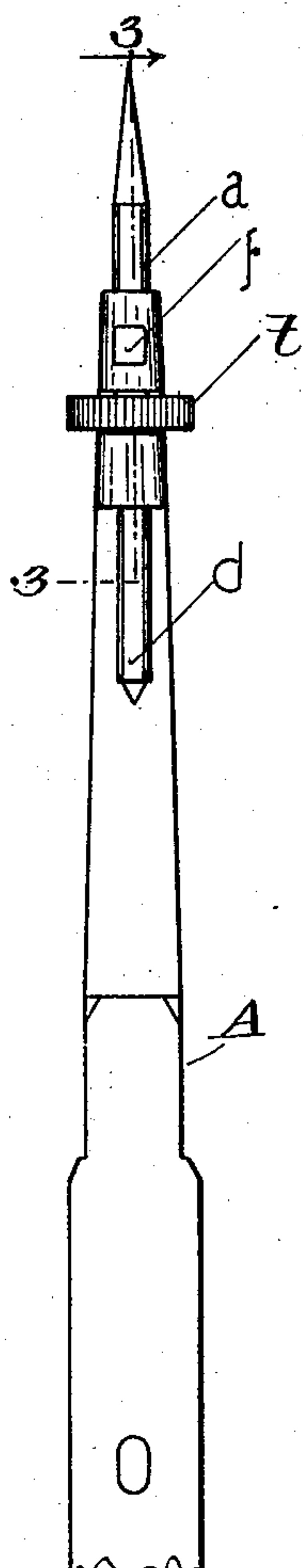


FIG. 2.

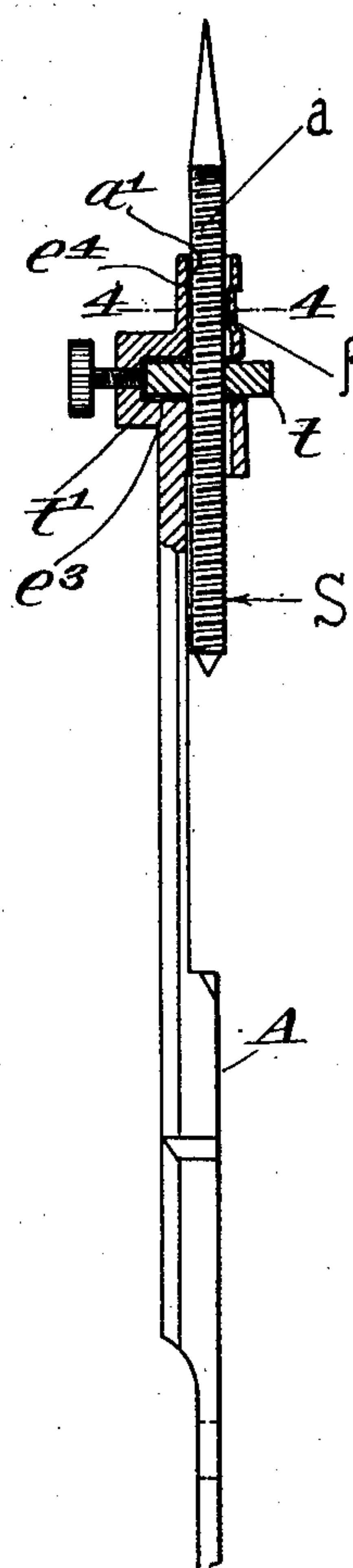


FIG. 3.

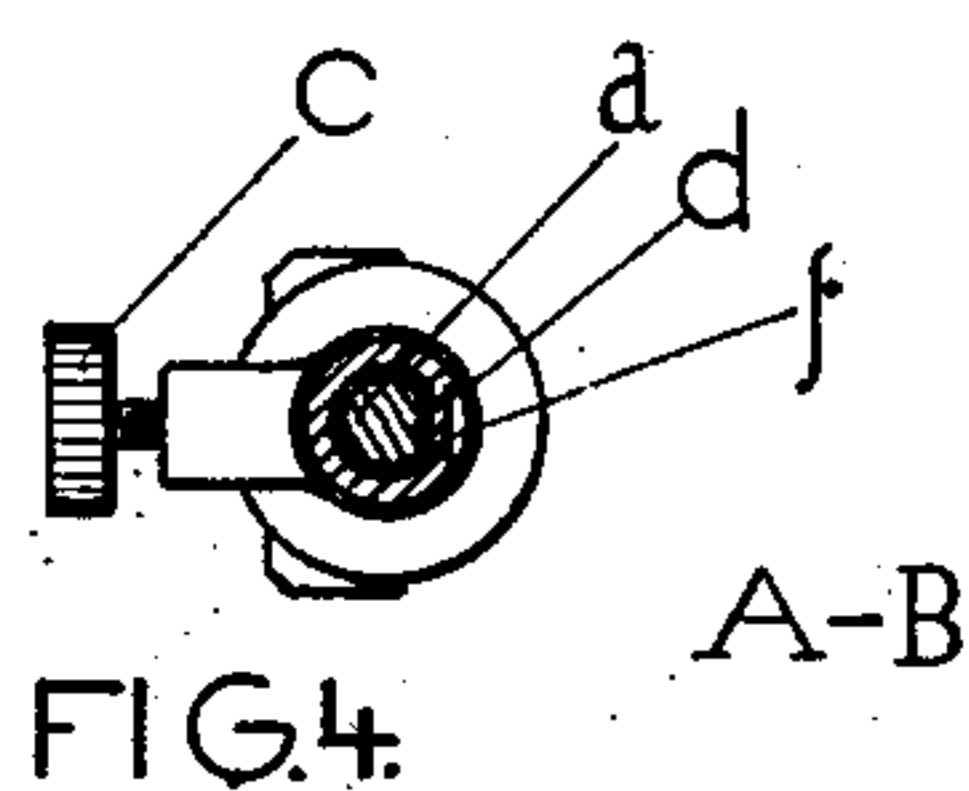


FIG. 4.

WITNESSES:
C. Heymann.
E. Singer.

INVENTOR.
Johann Eichmüller
BY *B. Singer*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHANN EICHMÜLLER, OF NUREMBERG, GERMANY.

INTERCHANGEABLE COMPASS-POINT.

No. 889,447.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed October 11, 1907. Serial No. 396,946.

To all whom it may concern:

Be it known that I, JOHANN EICHMÜLLER, of Nuremberg, in the Kingdom of Bavaria, Germany, have invented new and useful Improvements in Interchangeable Compass-Points, of which the following is a specification.

This invention relates to improvements in adjusting means for compass needles wherein the needles are threaded and wherein an adjusting nut or member is provided having threaded engagement with the needle for the purpose of permitting longitudinal adjustment of the latter, suitable devices being provided to lock said member or nut in its adjusted position and to prevent rotation of the needle during adjustment thereof by the nut.

In devices of this character the needle is usually of a very small diameter and its threads are easily mutilated and in adjusting mechanisms of prior constructions it has been found impossible to lock the needle in its adjusted position without subjecting threaded portions thereof to injurious pressure against either the adjusting means or the compass foot in which the needle is adjusted.

It is the object of the present invention to not only provide an improved device for preventing rotation of the needles but to provide an adjusting and holding means so constructed that it will effectively hold and maintain the needle in its adjusted position without subjecting the threads thereof to pressure from an unthreaded surface.

The invention will be more fully described in connection with the accompanying drawing and will be more particularly pointed out and ascertained in and by the appended claims.

In the drawing:—Figure 1 is a view in side elevation of a compass leg equipped with a device embodying the main features of my invention. Fig. 2 is an inside face view thereof. Fig. 3 is a side elevation of the leg with sectional portions taken on line 3—3 of Fig. 2. Fig. 4 is a sectional view on line 4—4 of Fig. 3.

Like characters of reference designate similar parts throughout the different figures of the drawing.

As shown A designates one leg of a compass which is provided with needle receiving means which may be in the form of a foot *e* provided with a centrally disposed longitudinal bore through which the needle is adapted to be inserted. Said foot *e* is conveniently

provided with a device for preventing rotation of the needle and as shown said device consists of an integrally formed indented portion *f* located on one side of the foot *e* and projecting a slight distance into the bore thereof. A member preferably in the form of a nut *t* is operatively associated with the foot *e* and the needle in a manner which will be hereinafter more fully described and as shown said foot *e* is provided with a transversely disposed recess *e'* to receive said member *t*. A bridge portion *e''* unites the ends of the foot *e* which are divided by said recess *e'* and conveniently said bridge portion forms a support for an instrumentality serving to lock said nut *t* in its adjusted position and which instrumentality as shown consists of a set screw *c*. In order to afford an effective locking engagement between the set screw and said nut the latter is roughened or serrated on its periphery as clearly shown in Figs. 1 and 2. It will be seen that the recess *e'* is so proportioned with respect to the nut *t* as to permit of a relatively slight play or clearance between the nut and the lateral walls of said recess, the purpose of which construction will hereinafter more fully appear. It will also be noted that the disposition of the set screw *c* with respect to the indented portion *f* is such that when the former is operated it will coact with the latter through the needle.

The compass needle or point is indicated at *a* and is provided with an engaging surface which in the form shown consists of a longitudinally flattened portion *d* adapted to be engaged by the indented portion *f* to prevent rotation of the needle. Said needle is cylindrical throughout its main body portion except for said flattened surface and is provided with screw threads on its cylindrical portion which are interrupted by said flattened surface. The threaded portion of said needle is in threaded connection with the nut *t* and is adapted to be longitudinally adjusted thereby in the bore of the foot *e*. The needle *a* fits relatively loosely in the bore of the foot *e* and is provided therein with a clearance or play slightly in excess of the play afforded the nut *t* in the recess *e'* and the indented portion *f* projects into the bore of the foot *e* a sufficient distance to normally prevent rotation of the needle *a* while the latter is being adjusted and when the parts are free.

After the operator has adjusted the needle *a* by turning the nut *t* so that said needle is

in the desired position the set screw *c* is turned until it engages the nut *t*. The result of such engagement will be that the nut and needle will be moved bodily transversely to the longitudinal axis of the needle until the flattened surface *b* engages the indented portion *f*. Said indented portion *f* will then act as a fulcrum for the needle and continued pressure from the screw *c* will swing the upper end of the needle away from the leg *A* until the surface *t'* of the nut *t* engages the lateral wall *e³* of the recess *e'* whereupon the parts will be securely locked with the flattened surface *b* in engagement with the indented portion *f* and the nut *t* in engagement with the wall of the recess *e'* as described. Of course the movement hereinbefore described will be almost infinitesimal and the parts are so proportioned that such movement will not be sufficient to bring the threaded portion *a'* into engagement with the unthreaded portion *e⁴* of the bore in the foot *e* thereby protecting the threaded portions of the needle *a* from injurious engagement with unthreaded portions of the foot *e*. It will thus be seen that a firm and rigid locking engagement of the needle can be effected without subjecting any of its threaded portions to mutilating pressure. Such pressure as may be imparted to threaded portions of the needle through the nut *t* will not as a matter of course be injurious because the nut has threaded engagement with the needle.

By the provision of the integrally formed indented portion *f* applicant avoids not only the first cost but the subsequent annoyance and trouble attending the maintenance of movable means in properly adjusted positions. The indented portion *f* is not only cheaply and easily formed in the foot *e* but it constitutes a convenient and effective stationary device for preventing rotation of the needle.

I claim:—

1. In combination, a compass leg provided with a foot having a bore and an indented portion projecting into said bore, said foot also having a transversely disposed recess, a threaded compass needle fitting said bore with a limited clearance and provided with a flattened surface adapted for engagement with said indented portion, a nut having threaded engagement with said needle and

fitting said recess with a clearance relatively reduced with respect to the clearance afforded said needle in said bore, and a set screw mounted in said foot and engaging said nut and acting therethrough to force the flattened surface of said needle into engagement with said indented portion and effect engagement of said nut with said recess to lock said needle in its adjusted position and prevent engagement between threaded portions of said needle and the wall of said bore.

2. In combination, a compass leg, a threaded compass needle provided with an unthreaded engaging portion, said leg being provided with means for receiving said needle and also with a device adapted to engage said unthreaded portion to prevent rotation of said needle, a member operatively connected with said needle and associated with said means for effecting adjustment of said needle, and an instrumentality cooperating with said member and acting therethrough to force said unthreaded portion into engagement with said device, the parts being so arranged that said member will engage said means to lock said needle in its adjusted position without engagement between the threaded portions of said needle and said means.

3. In combination, a compass leg provided with a foot having a bore and stationary integrally formed means for preventing rotation of a needle, said foot having a transversely disposed recess, a threaded compass needle fitting said bore loosely and provided with a flattened surface adapted to be engaged by said means, a nut having threaded engagement with said needle and fitting said recess, and a set screw mounted in said foot and engaging said nut to force said flattened surface into engagement with said means, the parts being so arranged that engagement between said nut and recess and said flattened surface and means to lock said needle in its adjusted position will maintain the threaded portions of the needle out of contact with said foot.

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

JOHANN EICHMÜLLER.

Witnesses:

HEINRICH FICHT,
HERMANN DÖHLEMANN.