No. 664,995. Patented Jan. 1, 1901.

G. ERNST.

SCREW THREAD GAGE.

(No Model.) (Application filed Feb. 15, 1899.)

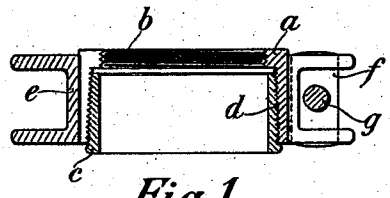


Fig. 1.

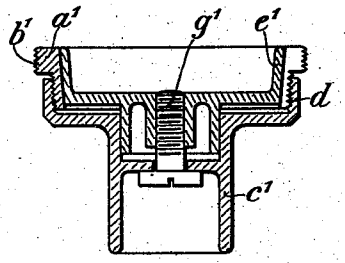


Fig. 3.

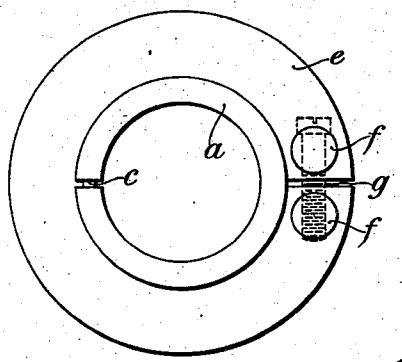


Fig. 2.

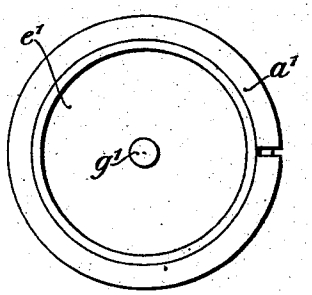


Fig. 4.

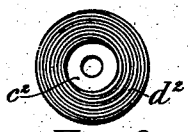


Fig. 6.

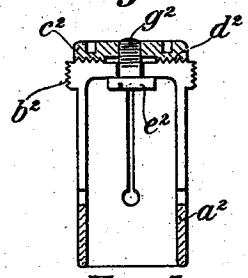


Fig. 5.

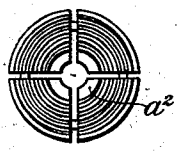


Fig. 7.

Witnesses:
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Paul Krüger

Inventor.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GUSTAV ERNST, OF JENA, GERMANY, ASSIGNOR TO THE FIRM CARL ZEISS, OF SAME PLACE.

SCREW-THREAD GAGE.

SPECIFICATION forming part of Letters Patent No. 664,995, dated January 1, 1901.

Application filed February 15, 1899. Serial No. 705,567. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ERNST, a subject of the King of Prussia, Emperor of Germany, and a resident of Jena, Grand Duchy of Saxe-Weimar, German Empire, have invented a new and useful Thread-Gage, of which the following is a specification.

The invention relates to external and internal gages for screw-threads, and particularly to such thread-gages the diameter of which is adjustable for the purpose of compensating for wear and tear.

The object of the invention is to make the adjustment uniform in all diametrical directions, so that contraction and expansion of the gage do not induce a deviation from the circular section. For this purpose the hollow gage-body carrying the cylindrical gage-thread is made diametrically yielding—viz., either fully slit up or provided with incisions both in an axial direction. This gage-body is coaxially fitted in or upon an abutment-body, the surface in which both bodies engage each other being a thread-surface (the abutment-thread) of gradually-increasing diameter. A third coaxial body (the pressure-body) is applied to the opposite side (relatively to the abutment-thread) of the gage-body in circular concentric contact with it and is adapted to be operated in such a way that the gage-body is forced against the abutment-body, and the abutment-thread surfaces of both bodies are tightened together, whereby an accurately-cylindrical shape of the gage-thread is secured. As the abutment-thread gradually increases in diameter a more expanded or contracted condition of the gage, and in consequence thereof a larger or smaller diameter of the gage-thread, will result, when the pressure device is loosened, the gage-body and the abutment-body rotated relatively to each other, and then the pressure device tightened again, so as to make the gage again ready for use.

In the accompanying drawings, Figure 1 is an axial section through an external thread-gage constructed according to the present invention. Fig. 2 is a plan view of the gage of Fig. 1. Fig. 3 is an axial section through an internal thread-gage. Fig. 4 is a plan view of the gage of Fig. 3. Fig. 5 is an axial section through a modified internal thread-gage. Fig. 6 is a view from below of the abutment-body of the gage of Fig. 5. Fig. 7 is a plan view of the gage-body of the gage of Fig. 5.

In the external thread-gage represented in Figs. 1 and 2 the annular gage-body a, carrying the gage-thread b, is slit up and surrounds the abutment-ring c, both rings engaging each other in a conical abutment-thread d. The outer surface of the gage-body a is cylindrical and in contact with the inner cylindrical surface of the slit-up pressure-ring e. The section of the pressure-ring is U-shaped, and at each end of the ring one of two bolts f is fastened, which bolts are connected by the clamping-screw g. When the diameter of the gage-thread is to be altered, the pressure-ring e is loosened by unscrewing the clamping-screw g. Then the abutment-ring c is suitably rotated relatively to the gage-ring a, and finally the screw g is again tightened.

The internal thread-gage (represented in Figs. 3 and 4) consists of an annular slit-up gage-body a', having the gage-thread b', and a tubular abutment-body c', the widened end of which partly surrounds the gage-ring a' and engages with it by means of a conical abutment-thread d'. A pressure-body e' is, with its tapering circumferential surface, fitted into the gage-ring a', a screw g' being supported by the abutment-body c' and engaging the pressure-body e', so as to hold it tightly drawn into the gage-body a'. The more the abutment-body c' overlaps the gage-body a' by means of the conical abutment-thread d' the less a diameter of the gage-thread b' will result after the pressure-body e' has been applied and tightened.

In the internal thread-gage shown in Figs. 5 to 7 the abutment-thread of gradually-increasing diameter consists of a plane spiral thread d^2, the abutment-body being a disk c^2. The pressure-body is integral with the clamping-screw g^2, being the head e^2 of this screw. The diameter of the gage-thread b^2 differs with the angular position, in which by means of the screw $e^2 g^2$ the spiral thread d^2 is pressed into the yielding spiral thread on the front wall of the slotted tubular gage-body a^2.

What I claim as my invention, and desire to

secure by Letters Patent of the United States, is—

1. An adjustable thread-gage comprising three coaxially-arranged bodies, a hollow gage-body yielding diametrically and having, in addition to the gage-thread, a thread of gradually-increasing diameter, an abutment-body engaging the gage-body by means of a thread which corresponds to the said increasing thread of the gage-body, and a pressure-body in circular concentric contact with the gage-body at the side opposite to the abutment-body, this pressure-body being adapted to force the gage-body against the abutment-body, essentially as described.

2. An adjustable thread-gage comprising three coaxially-arranged bodies, an annular gage-body slit up at one point so as to yield diametrically and having, in addition to the gage-thread, a concentric conical thread, an abutment-body engaging the gage-body by means of a corresponding conical thread, and a pressure-body in circular concentric contact with the gage-body at the side opposite to the abutment-body, this pressure-body being adapted to diametrically force the gage-body against the abutment-body, essentially as described.

3. An adjustable external thread-gage consisting of a slit-up gage-ring having, in addition to its inside gage-thread, an inside conical thread, an interior abutment-ring engaging the inside conical thread of the gage-ring by means of a corresponding outside conical thread, a slit-up pressure-ring surrounding the gage-ring, and means for contracting the pressure-ring, essentially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GUSTAV ERNST.

Witnesses:
RUDOLPH FRICKE,
B. H. WARNER, Jr.