June 8, 1926. 1,588,362

B. M. W. HANSON

PLUG GAUGE

Filed Oct. 22, 1924

Fig. 1.

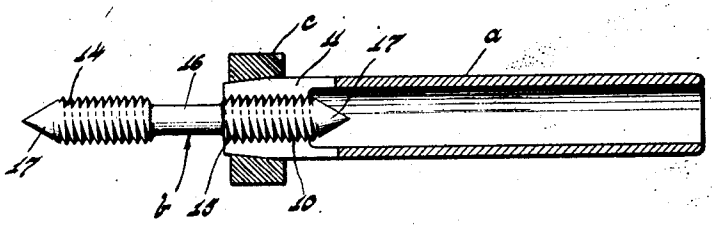


Fig. 2.

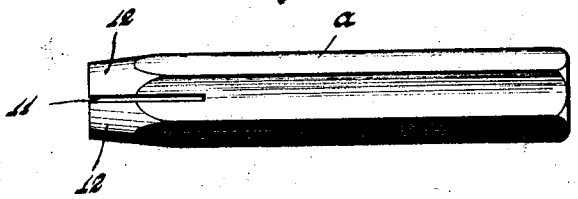


Fig. 3.

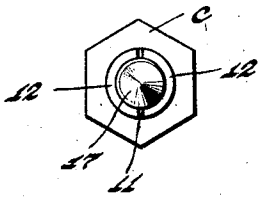
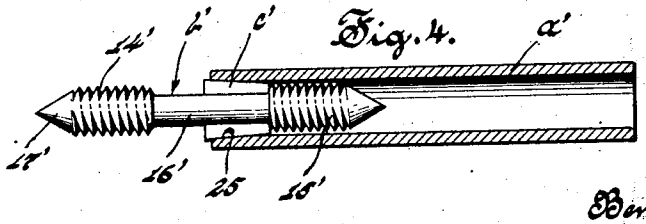


Fig. 4.



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PLUG GAUGE.

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This invention relates to screw testing devices and, more particularly, to thread gauges of the type commonly called plug gauges.

An aim of the invention is to provide a gauge of this sort having various features of novelty and advantage, and which is particularly characterized by the simple and effective manner in which the gauging member, which, preferably, is double ended, is secured to the handle.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings, wherein I have shown, for illustrative purposes, two embodiments which the present invention may take;

Figure 1 is a side elevational view of the gauge with the handle in longitudinal section;

Fig. 2 is a side view of the handle;

Fig. 3 is an end view of the gauge looking at the left hand end of Fig. 1; and

Fig. 4 is a view similar to Fig. 1, but showing another embodiment of the invention.

Referring to the drawings in detail, and particularly to the embodiment of Figs. 1 to 3, inclusive, *a* denotes a handle; *b*, a gauging member, and *c*, a tapered sleeve or bushing for binding the parts together. In this embodiment, the handle is generally of tubular form and, preferably, its external periphery is polygonal, for example hexagonal, so that the device, when laid on a surface, will not roll. The forward end of the handle is provided with an internal screw thread 10 and is longitudinally slit, as at 11, so as to provide spring fingers 12 which are adapted to be contracted against the gauging member. These spring fingers are contracted by means of the sleeve *c*, the internal periphery of which and the external periphery of the forward end of the handle being slightly tapered so that the sleeve will have a wedging action when driven onto the handle.

The gauging member *b*, in the present instance, comprises a generally cylindrical part having, at its respective ends, threads 14 and 15 which are similar. By way of illustration, these threads are shown as being identical in construction, that is, of the same pitch, diameter, size and shape. If desired, the gauging member, intermediate its ends, may have an unthreaded portion 16. The gauging member may be considered as having a single thread extending substantially throughout its length, the thread being interrupted to form the portion 16. In the present instance, the gauging member is shown as having its extreme ends terminating in conical portions 17, the purpose of which is to permit the gauging member to be supported in the work holder of a grinding machine or the like with the ends 17 positioned in recesses in the opposed centers of the work holder. This arrangement is particularly adapted for use where the gauging member is of rather small diameter.

From the foregoing description, it will be seen that, to finish the gauging member *b*, the same may be rotatably mounted with its ends 17 positioned in recesses in the centers of a work holder, and a grinding wheel may be moved longitudinally of the gauging member from one end to the other thereof so as to accurately grind both of the threads 14 and 15 in a single grinding operation. To secure the gauging member to the handle, one end of the former is screwed into the threaded portion 10 of the handle, and then the wedge or bushing *c* is forced onto the tapered end of the handle so as to contract the same tightly against the gauging member. The resulting binding action is such that the gauging member is securely and rigidly held in place and against rotation. After the thread, for instance that designated by the numeral 14, which has been used for gauging purposes, becomes worn, the bushing may be forced from place, the gauging member unscrewed from the handle, reversed end for end, and then the threaded portion 14 screwed into the handle, and the bushing forced onto the tapered end of the handle. In this condition, the thread 15 may be employed for gauging purposes.

Referring now to the embodiment illustrated in Fig. 4, the gauging member *b'* is generally similar to the gauging member *b* of the preceding embodiment. The handle

has an opening adapted to slidably and selectively receive the threaded portions of the gauging member, and the forward end of the handle is internally tapered, as at 25. The gauging member is secured in place in the handle by means of a bushing or sleeve c'. This sleeve, which, preferably, is in two parts, fits about the unthreaded portion 16′ of the gauging member and is externally tapered corresponding to the tapered surface 25. To secure the gauging member in place, the parts of the sleeve c' are positioned about the unthreaded portion 16′, and one end of the gauging member and the sleeve are slipped into place within the handle. The sleeve is then forced, under pressure, inwardly of the handle so that the sleeve is tightly contracted against the unthreaded portion 16′.

It will be seen that, in each of the embodiments shown, the device comprises but a relatively few number of parts, each of which may be constructed at a relatively low cost; the gauging member has a relatively long life, particularly so since, after one end of it has become worn, the other may be employed for gauging purposes, and the gauging member is very rigidly, effectively and readily secured in place in the handle. The threaded portion of the gauging member within the handle is protected against mutilation or other damage by the handle itself.

It will further be observed that, in the embodiment of Figs. 1 to 3, inclusive, the sleeve c is polygonal, for instance hexagonal, and is of larger diameter than the gauging member or handle. By preference, the handle is of such weight as to overbalance the protruding end of the gauging member so that when the gauge is placed on a flat surface the gauging member will be held out of contact with that surface. The handle is relatively softer than the gauging member so that the threads of the latter are not injured when the wedge is driven home.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

What I claim is:—

1. A gauge of the character described including a gauging member having a gauging thread, a handle having a threaded portion adapted to receive the same, and means for contracting said handle to bind the parts together.

2. A gauge of the character described including a gauging member having a gauging thread, a handle having a contractible threaded portion into which said gauging thread is adapted to be screwed, and a tapered sleeve for contracting the threaded portion of said handle against said gauging member.

3. A gauge of the character described including an elongated gauging member having at its opposite ends substantially alike thread portions, an elongated handle having a longitudinally slit threaded portion complementary to the threaded portions of said gauging member and adapted to selectively receive the same, and means movable longitudinally of said handle for contracting the same against said member.

4. A gauge of the character described including a handle having a contractible end provided with an internal screw thread, a gauging member having at opposite ends identical threads complementary to the thread of said handle and adapted to be received thereby, and a sleeve having a wedging fit on said contractible end of said handle.

5. A gauge of the character described including a gauge member of generally cylindrical form having at opposite ends like screw threads, a hollow handle having at one end an internal thread adapted to selectively receive the threads of said gauge member, said end of said handle being contractible and externally tapered.

6. A gauge of the character described including a gauging plug having a thread at each end, a handle having a contractible end provided with a screw thread complementary to the threads of said gauging plug, and a sleeve having a wedging fit on the contractible end of said handle, said handle overbalancing said plug.

7. A gauge of the character described including an elongated gauging plug having a thread at each end, an elongated handle member adapted to selectively receive and house said threads, and a member movable longitudinally of said handle member, one of said members surrounding the other one, the inner of said members being contractible about said plug.

8. A gauge of the character described including a gauging plug having a thread at each end, a member having a tapered contractible portion fitting about said plug, and a member having a tapered opening wedgedly receiving said first member, one of said members constituting a handle.

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