Sept. 15, 1959 C. H. PORTER 2,903,797

PLUG GAUGES

Filed Sept. 5, 1957

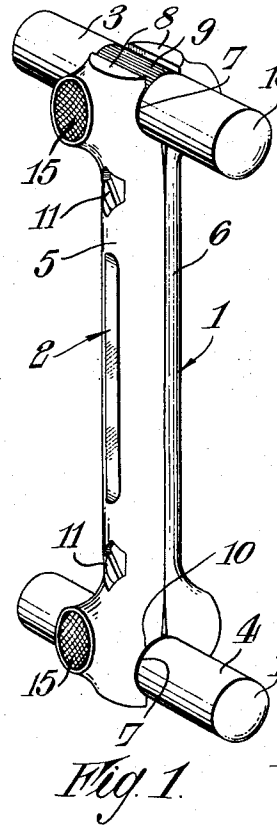


Fig. 1.

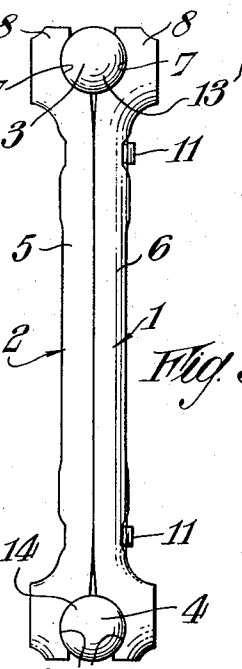


Fig. 3.

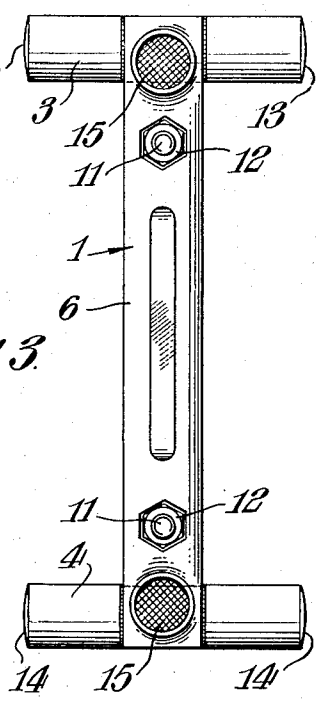


Fig. 2.

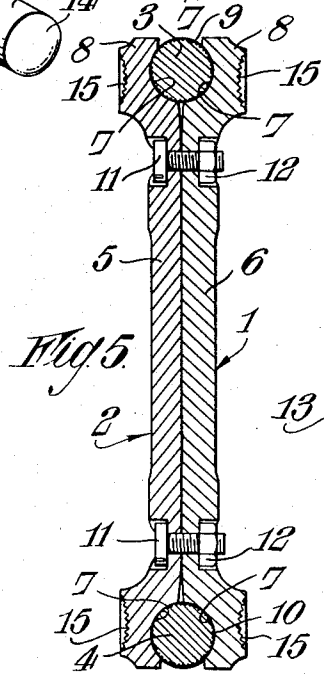


Fig. 5.

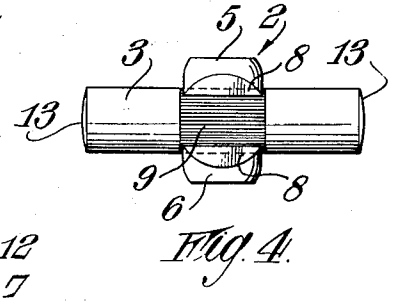


Fig. 4.

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United States Patent Office 2,903,797 Patented Sept. 15, 1959

2,903,797

PLUG GAUGES

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Application September 5, 1957, Serial No. 682,221

Claims priority, application Great Britain September 11, 1956

1 Claim. (Cl. 33—178)

This invention relates to plug gauges of the bar plug type for use in the inspection of hollow cylindrical work pieces, in which bar plugs are arranged perpendicularly at the ends of an intermediate body or handle, said plugs having precision ground part-spherical ends serving as "go" and "no go" gauges for hollow cylindrical work pieces whose curvature is substantially similar to that of the said ends.

Presently, these plugs are fixtures with the body or handle and, consequently, each gauging end possesses between its part-spherical ends only one line contact for use in gauging hollow cylindrical work pieces whose bore is of substantially similar curvature to that of the said ends of the gauge. The result is that as inspection control proceeds, inevitable wear occurs on the spherical ends, and gauges cannot be relied upon for attaining the high standard of accuracy demanded by the inspection control.

The primary object of the present invention is to avoid or substantially reduce this drawback in a simple and inexpensive manner and thereby prolong the useful life of such gauges.

According to the present invention in a bar plug gauge of the type referred to, the bar plugs are arranged to be held so as to be capable of being turned about their axes so that different line contacts can be provided between the spherical ends.

Preferably each bar plug is provided between its ends with a cylindrical neck which is turnably held in jaws at the end of the body or handle.

The body or handle may be made of two similar parts which are releasably secured together so as to hold the bar plugs by their necks between jaws formed by complementary recesses in the body or handle parts.

In order that the invention may be fully understood and more readily carried into practice, a constructional example thereof will be hereinafter described with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a bar plug gauge according to the invention,

Figure 2 is a side view of the gauge shown in Figure 1,

Figure 3 is an end view of Figure 2,

Figure 4 is a plan view of Figure 2, and

Figure 5 is an end view in medial section of Figure 2.

Referring to the drawings, in the construction shown therein, the bar plug gauge **1** comprises a body or handle **2** and bar plugs **3** and **4** respectively, mounted at either end of the handle **2**, which consists of two similar parts **5** and **6**, conveniently moulded from a thermosetting material. The parts **5** and **6** each have part-cylindrical

recesses **7** at their ends, opposed recesses cooperating to form jaws **8** which serve to clamp the bar plugs **3** and **4** in given axial positions. Each bar plug **3**, **4** has portions **9**, **10** respectively provided with longitudinal serrations adapted to cooperate with the jaws **8** and hold the bar plugs **3**, **4** in their adjusted positions. The parts **5**, **6** of the handle **2** are secured together in two positions adjacent the jaws **8** by screws **11** and nuts **12**.

Each plug **3**, **4** has part-spherical ends **13**, **14** respectively, which are employed to gauge the bore of hollow cylindrical work pieces, such bore being substantially similar in curvature to that of the part-spherical ends **13**, **14**. After the gauge has been in use for some time with constant line contact between the bar plug ends and the bores of the work pieces gauged, wear along such line takes place. A fresh line contact can be obtained by unscrewing the screws **11** so as to loosen the jaws **8** and enable the bar plugs **3** and **4** to be turned about their axes, the screws **11** being tightened to clamp the bar plugs **3** and **4** in their new positions. Adjustment when required can be repeated until all unworn line contacts have been used, when the bar plugs can be replaced by new ones. By this expedient the gauge is provided with a very much longer life compared with hitherto, when replacement was necessary after the wearing of one line contact only.

For convenience, each handle part **5** and **6** is also provided with recesses **15** on its outer surface adjacent each jaw-part recess **7**. Opposed pairs of the recesses **15** form finger grips for using the gauge and for quickly identifying the "go" and "no go" bar plugs, and for this purpose can be differently coloured, for example, green for the "go" end of the gauge and red for the "no go" end.

What is claimed is:

For gauging hollow cylindrical work pieces, a bar plug gauge comprising an elongated handle assembly of two similar handle parts, screw and nut means for releasably securing said handle parts together, jaws at either end of the handle assembly and formed by opposed cooperating lateral cylindrical recesses in said handle parts, a bar plug of fixed length clamped in each of said jaws when said handle parts are secured together and axially rotatable in said jaws when the handle parts are released, a serrated portion on each bar plug in registration with said jaws, and part-spherical ends on said bar plugs whose curvature corresponds to that of the bore of the work pieces intended to be gauged, said bar plugs presenting a different line contact upon axial rotation thereof.

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