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CARTRIDGE CASE RIM GAUGE

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This invention relates to gauges, and more particularly to such devices as may be used to measure the thickness of a cartridge case rim.

A rim fire cartridge has the priming material located only in the rim of the cartridge case head. It has been found that in production manufacture the thickness of the rim varies sometimes as much as .007 inch. The space provided in a rifle for this rim is called "head space." It has been found that with the same elevation of aim there are varying elevations of bullet impact at the target as the thickness of the cartridge rim varies. Sometimes, however, it is found that a certain rim thickness produces much more accurate fire in certain rifles than in others. Some rifles will shoot cartridges of various rim thicknesses and hold a constant elevation of impact on the target as long as cartridges of the same rim thicknesses are used.

There is often a quarter of an inch difference in elevation of impact at the 100-yard target for a variation of .001 inch in the cartridge rim thickness.

It has also been found that cartridges in which the bullet is not concentric with respect to the cartridge casing will cause deflection when shot and, therefore, inaccurate target impact.

The object of this invention is, therefore, to provide a simple, inexpensive and effective gauge whereby rim thicknesses of a given lot of cartridges may be accurately measured or compared and thereby permit the cartridges to be segregated according to size.

A further object of this invention is to provide a simple and effective adjustment in a device of the nature herein described whereby lack of accuracy due to natural wear may be conveniently remedied.

A further object is to provide in this device means whereby the irregularities often occurring on cartridge heads may not affect the accurate determination of the vital thickness of the cartridge rim.

A further object is to provide in this device means whereby cartridges containing bullets not concentrically seated with respect to the cartridge casing will provide an indication that they are faulty.

The above and still further objects of the invention will become apparent from the following description when taken in conjunction with the accompanying drawings, the invention being pointed out in the appended claims.

Reference is made to the drawings wherein like numerals of reference apply to the same parts throughout the several views, and wherein:

Figure 1 is a plan view of the device with a cartridge in place for determination of its rim thickness.

Figure 2 is an elevational view.

Figure 3 is a sectional elevation taken on lines 2-3 of Figure 2, and

Figure 4 is a bottom view of the dial member and supporting screw with which it rotates.

Referring to the drawings in detail, in Figures 1, 2 and 3, a circular base plate 10 of suitable material, such as, for example, steel, is provided with a centrally located tapped hole 11. A narrow slot 12 terminating in a hole 13 is provided from one edge across the face of the base plate 10 for a distance equal to about three-quarters of its diameter and a portion of the periphery is cut away to provide a seat 14 for adjusting screw 15 which operates in tapped hole 17 and serves to draw together the two portions of the slotted base plate 10 in order that wear on the threads in tapped hole 11 may be taken up and inaccuracies avoided in its micrometer-like action.

A hole containing a bushing 18 is provided adjacent the periphery of base plate 10 in which the cartridge 19 to be measured is thrust. This bushing is very accurately bored to nicely fit the normal outside diameter of a perfect cartridge, and yet allow it to be readily inserted or removed. In the event an attempt is made to insert in the bushing 18 an imperfectly assembled cartridge, such as one whose bullet is not concentric with the cartridge shell, the body of the cartridge will not readily enter the bushing and be properly seated for measurement of the thickness of its rim, because of the unsymmetry of its body and may, therefore, be discarded as imperfect. This is the first step in determination of the perfection of the cartridge, as unsymmetrical cartridges will cause deflection of the bullet when fired.

A micrometer dial shaft provided with a lower threaded portion 19 adapted to snugly fit and rotate in the tapped hole 11 is also provided with a shoulder 20 and has its upper end threaded to fit the tapped thumb knob 21. A dial 22 is seated on the shoulder 20 and secured for rotation with the dial shaft by tightening the thumb knob 21 and thus forcing together the dial 22 and shoulder 20 to a locked friction fit. A slot 19a (Figure 4) is provided in the lower end of the dial shaft to permit insertion of a holding tool, while the thumb knob 21 is rotated into locking position with the dial 22.

Dial 22 is of such diameter as will normally cover the head of the cartridge 19', but has a portion 23 of its diameter cut away so that it may be rotated to suitable position that a cartridge may be readily inserted in or removed from the bushing 18.

The outer diametrical edge 22a of the dial 22 is chamfered and numbered graduations stamped thereon to correspond with the index line 24 located on the base plate opposite the cartridge.
bushing 18, and thus determine the thickness or comparative thickness, of the rim of the cartridge when the dial 22 is properly rotated until its under side contacts the head of the cartridge.

Many cartridges have identification letters, symbols or numerals stamped on their heads, such as, for example, the "X" shown on the head of the cartridge 19 in Figure 1. These stampings may cause burs or irregularities on the top of the cartridge which will affect the accuracy determination of the rim thickness; a suitably shaped slot 26 has, therefore, been cut in the under side surface of the dial 22 having a radius and width which permit the stamped symbol to be straddled and only the perfect edge of the rim contacted by the finished under surface of the dial.

A short length chamfer 25 has been provided on the under edge of the straight portion of the dial to avoid abrupt contact with the cartridge when the dial is rotated and about to contact its rim.

It will be readily seen that bushings of different internal diameters may be inserted in the bushing hole and thus cartridges of different diameters or sizes measured.

It is to be understood that various modifications and changes may be made in this invention without departing from the spirit and scope thereof as set forth in the appended claims.

What is claimed is:

1. A cartridge rim-measuring device comprising a base containing a screw thread, a rotatable threaded shaft cooperating with said screw thread and provided with a dial adapted to be rotated with said shaft into contact with the head of a cartridge, a hole in said base containing a bushing adapted to support said cartridge to be measured, and means on said dial adapted to indicate the thickness of the rim of said cartridge when said dial is rotated with said shaft on said threads.

2. A cartridge rim-measuring device comprising a base containing a screw thread, a rotatable threaded shaft cooperating with said screw thread and provided with a dial adapted to be rotated with said shaft into contact with the head of a cartridge, a hole in said base adapted to support cartridges of different diameters to be measured, and means on said dial adapted to indicate the thickness of the rim of said cartridge when said dial is rotated with said shaft on said threads.

3. A cartridge rim-measuring device comprising a base containing a screw thread, means for regulating the diameter of said screw thread, a rotatable threaded shaft cooperating with said screw thread and provided with a dial adapted to be rotated with said shaft into contact with the head of a cartridge, a hole in said base containing a bushing adapted to support said cartridge to be measured, and means on said dial adapted to indicate the thickness of the rim of said cartridge when said dial is rotated with said shaft on said threads.

4. A cartridge rim-measuring device comprising a base containing a screw thread, a rotatable threaded shaft cooperating with said screw thread and provided with a dial adapted to be rotated with said shaft into contact with the head of a cartridge, a hole in said base containing a bushing adapted to support said cartridge to be measured, and graduations on said dial cooperating with an index line on said base to indicate the thickness of the rim of said cartridge when said dial is rotated with said shaft on said threads.

5. A cartridge rim-measuring device comprising a base containing a screw thread, a rotatable threaded shaft cooperating with said screw thread and provided with a dial adapted to be rotated with said shaft into contact with the head of a cartridge, a hole in said base containing a bushing adapted to support said cartridge to be measured, and a coaxially disposed depression in the cartridge-contacting surface of said dial adapted to straddle irregularities on the head of said cartridge when said dial is rotated.

6. A cartridge rim-measuring device comprising a base, means associated with said base including a dial adapted to be rotated into contact with the head of a cartridge, said base including a hole containing a bushing adapted to support a cartridge to be measured, and means associated with said first-mentioned means permitting said first-mentioned means to contact the rim of said cartridge only, straddling the insignia thereon.

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No reference cited.