Dec. 22, 1931. E. LE BLOND 1,837,556

FEELER GAUGE

Filed Aug. 21, 1928

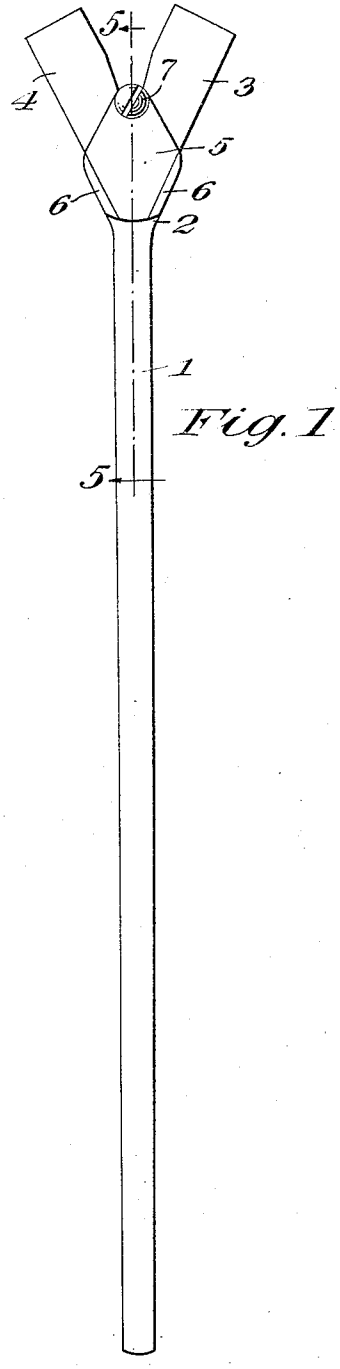


Fig. 1

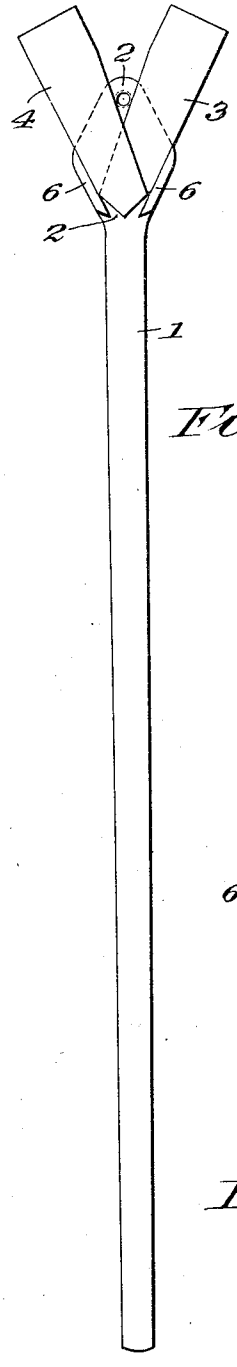


Fig. 2

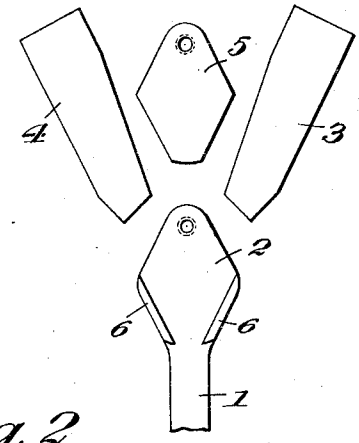


Fig. 3

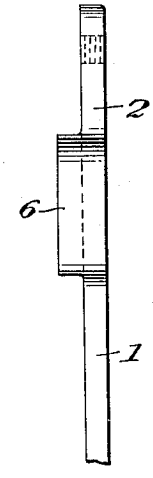


Fig. 4

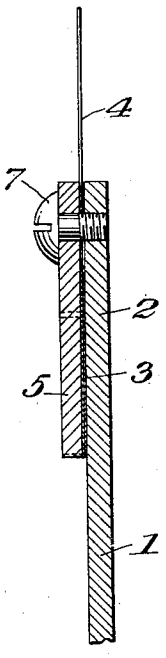


Fig. 5

Inventor:
Emil LeBlond.

By Macleod, Calver, Copeland & Dike.

Attorneys.

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UNITED STATES PATENT OFFICE

EMIL LE BLOND, OF GROSSE POINTE PARK, MICHIGAN

FEELER GAUGE

Application filed August 21, 1928. Serial No. 301,112.

This invention relates to gauges and more particularly to an improved feeler gauge device.

While gauging devices of the type described herein are capable of a wide variety of applications, one of their chief uses is in the production of internal combusion engines. One of the uses especially contemplated is for adjusting valve clearance in motors of the L-head type. In the operation of these motors it is important that there be sufficient clearance between the valve stem and the valve tappet when the valve is seated to allow for the expansion of the metal when heated. This adjustment must be made very accurately since too great clearance would result in loss of power.

In the production of many of the feeler gauge devices which have heretofore been used, a soldering operation is employed to bind the gauges to a holder. It has been found that the exposure to heat involved in this operation softens the thin metal of the gauges with the objectionable result that they pound out rapidly in use. Where the gauges have been soldered to a handle the failure of one gauge results in the loss of the entire device. Other types of feeler gauge devices now in use are wasteful of material and are crude and slow in operation since it is necessary to turn the device end for end to try the "go" and "no go" gauges.

The object of this invention is to provide a gauge device having interchangeable gauges, which will be economical to construct and which will not require any operation tending to destroy the hardness of the metal used.

While one embodiment of the invention has been disclosed herein for the purpose of illustration, other modifications are possible without departing from the scope of the invention which is defined by the appended claims.

The invention will best be understood from the following description if read in connection with the accompanying drawings, in which:

Fig. 1 is a top plan view of the device.

Fig. 2 is a plan view showing the cover plate removed.

Fig. 3 is an exploded view showing the holder, cover plate and gauges.

Fig. 4 is a side view showing the flange on the holder.

Fig. 5 is a sectional view on the line 5—5 of Fig. 1.

The numeral 1 denotes a handle of any suitable shape having an enlarged portion at one end forming a back plate 2 adapted to receive the ends of the gauges 3 and 4, respectively. The back plate 2 as illustrated is roughly diamond shaped and is provided at its rear end with the flanges 6 which serve to guide and retain the gauges 3 and 4 in place. The gauges are thin metal strips which may be stamped out of any suitable hard sheet metal and vary in thickness according to the use for which they are designed. In measuring valve tappet clearance, the gauges used ordinarily vary in thickness by 1 or 2 one thousandths of an inch.

The gauges 3 and 4 are secured in place by means of a cover plate 5 which is designed to fit snugly between the flanges 6 of the back plate 2. Any suitable means may be provided for removably securing the cover plate to the back plate such, for example, as the screw 7 which extends through an opening therefor in the cover plate and threadedly engages the back plate.

While the gauges may be given any suitable position relative to one another it is preferred to arrange them in forked relation with the secured ends overlapping. This is the position which will naturally be assumed by the gauges when their ends are cut to abut firmly against the flanges 6 as shown in the drawings.

Because of the adjacent position of the gauges the gauging operation may be very speedily performed. In the production of applicant's device there is a considerable saving of labor as well as of material in securing the gauge members in the handle. Experiment has shown that the life of applicant's device is very much greater than that of gauge devices which have been subjected to the heat necessary to obtain a good bond when

the gauge members and handle are soldered together.

In the event of one gauge member pounding out or becoming thinner while the other is still in good condition, applicant's construction makes it possible to salvage the device by the substitution of a new gauge member.

When the gauge described above is to be used for measuring the clearance between the valve stem and the valve tappet, the operation which will be well understood to those skilled in the art is as follows:

The clearance between the valve stem and valve tappet is measured by inserting therebetween first one gauge and then the other. The clearance is adjusted until the maximum or "no go" gauge cannot be readily inserted, although the "go" gauge can be so inserted. The predetermined thickness of the gauges is such that when one gauge will enter the space readily and the other will not, the clearance will be sufficient to allow for the expansion of the metal when heated without being great enough to cause a loss of power

What I claim as my invention is:

1. A device for testing valve tappet clearance in motors comprising an elongated handle having an enlarged portion at one end, angularly disposed flanges along the edges of said enlarged portion adjacent the handle, a plurality of feeler gauges having an end cut to abut against the respective flanges of said portion, a cover plate for retaining said gauges in position, and means for removably securing said plate to said enlarged portion.

2. In combination, a gauge holder comprising a back plate having flanges so placed that the gauges may be angularly disposed, a cover plate, and clamping means for securing said cover plate to said back plate, feeler gauges insertable between said back plate and said cover plate, said gauges being angularly disposed with respect to each other and adapted to abut against the flanges of said back plate.

In testimony whereof I affix my signature.

EMIL LE BLOND.