A. KLIGGE.

PISTON LOCATOR.

APPLICATION FILED JAN. 31, 1922.

1,420,110. Patented June 20, 1922.

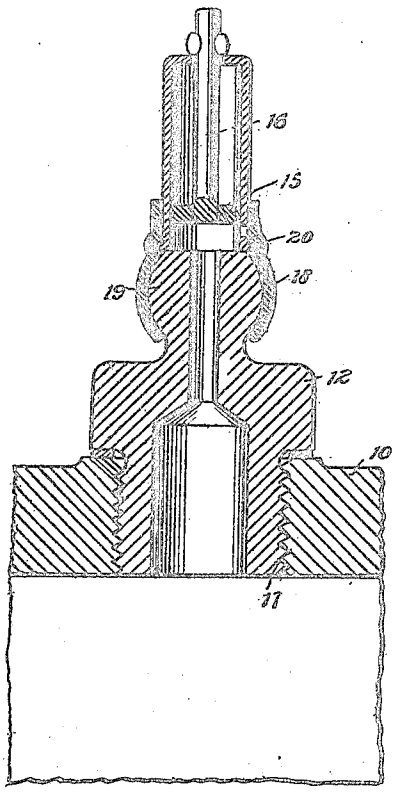


Fig. 1.

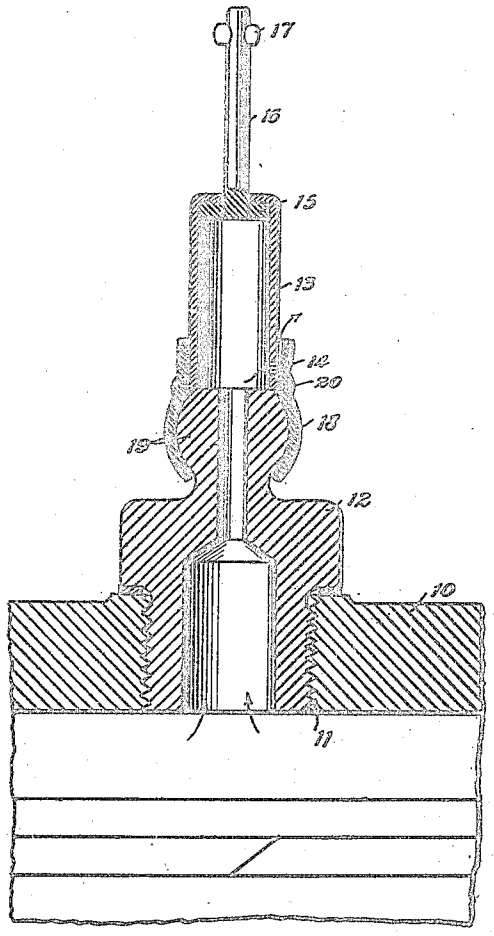


Fig. 2.

WITNESSES

Geo. W. Naylor

E. W. Savage

INVENTOR

Albert Kligge

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBERT KLIGGE, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO PAUL A. SCHUMACHER, OF BROOKLYN, NEW YORK.

PISTON LOCATOR.

1,420,110. Specification of Letters Patent. Patented June 20, 1922.

Application filed January 31, 1922. Serial No. 533,138.

To all whom it may concern:

Be it known that I, ALBERT KLIGGE, a citizen of Germany, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Piston Locator, of which the following is a full, clear, and exact description.

This invention relates to improvements in piston locators and was primarily designed for use with internal combustion engines.

The general object of the invention is the provision of means that may be used in conjunction with an internal combustion engine cylinder to determine when the piston has reached dead center in order to adjust the timing apparatus.

This object is accomplished by providing means for mounting in the engine cylinder wall to convey the compressed air to an indicating means and associating with the indicating means and the conveying means, means for allowing the air to escape after it reaches a certain pressure.

These and other objects of the invention will be more fully understood from the following detail description and accompanying drawings, in which—

Figure 1 is a cross-section through the piston locator showing the indicating means in its normal position.

Figure 2 is a cross-section through the piston locator showing the indicating means operated and how the air escapes from the cylinder.

Referring to the above-mentioned drawings, a portion of an engine cylinder wall 10 is shown having a threaded spark plug opening 11 extending therethrough. Mounted in this spark plug opening 11 is a hollow plug 12. Located on this hollow plug 12 is a cylinder 13 open at its lower end. An opening 14 extends through the wall of the cylinder 13 near its lower end. Slidably mounted in the cylinder 13 is a piston 15, to which a piston stem 16 is attached. This piston stem 16 is slidably mounted in the end of the cylinder 13, and projections 17 are provided near the end of the piston stem 16 to limit its downward movement. An elastic band 18 is provided and serves to retain the cylinder 13 in position on the hollow plug 12. In order to give the elastic band 18 a better gripping surface, the upper end 19 of the hollow plug 12 is made spherical, and a flange 20, which extends outward, is provided on the lower end of the cylinder 13. The elastic band 18 extends over the opening 14 provided in the cylinder 13, thus preventing the escape of air from the cylinder until the air has reached a certain pressure.

The operation of the device is as follows: After the hollow plug has been placed in position in the cylinder wall 10, the engine crank is rotated, moving the piston upward, compressing the air and forcing it through the hollow plug into the cylinder 13. The compressed air pushes the piston 15 upward indicating an increase in pressure. After the pressure has reached a certain value, the air will escape through the opening 14, forcing the elastic band 18 outward. When the piston has reached dead center, it begins to move in the opposite direction and tends to reduce the pressure of the air below atmospheric and the piston 15 and stem 16 are drawn downward indicating that the piston has just passed dead center.

Various slight changes might be made in the general form and arrangement of the parts described without departing from the invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Claims:

1. A piston locator of the class described comprising means for attaching it to an engine cylinder, means for indicating pressure changes in the engine cylinder mounted on the attaching means, and elastic means for retaining the pressure indicating means in position on the attaching means and for controlling the escape of fluid.

2. A device for locating the position of pistons in engine cylinders, comprising a hollow plug for extending through the engine cylinder wall, a cylinder open at one end mounted on the plug, means in conjunction with the cylinder for indicating changes in pressure, and elastic means for retaining the cylinder in position on the plug and for preventing the escape of air until it reaches a certain pressure.

3. A piston locator of the class described comprising means for attaching it to an engine cylinder, a hollow cylinder having an opening in one end mounted on the attach-

ing means and provided with a fluid escape opening, elastic band means for retaining the hollow cylinder in position on the attaching means and controlling the escape of fluid through said fluid escape opening, and means slidably mounted in the solution for indicating the pressure.

4. As a new article of manufacture, a piston locator of the class described comprising a hollow plug for mounting in the engine cylinder wall, a cylinder closed at one end only mounted on the plug with the open end downward and having an air escape opening extending through the wall near the lower end, a pressure indicator slidably mounted in the cylinder, and elastic means for retaining the cylinder in association with the hollow plug and for closing the air escape opening until the pressure increases to a certain value.

5. A piston locator of the class described comprising a cylindrical casing having a fluid escape opening extending through the wall, means associated with the casing for indicating changes in pressure, means provided in conjunction with said casing for establishing communication between the casing and an engine cylinder, and elastic means for retaining the cylindrical casing in association with the communicating means and for controlling the flow of fluid through the fluid escape opening.

ALBERT KLIGGE.