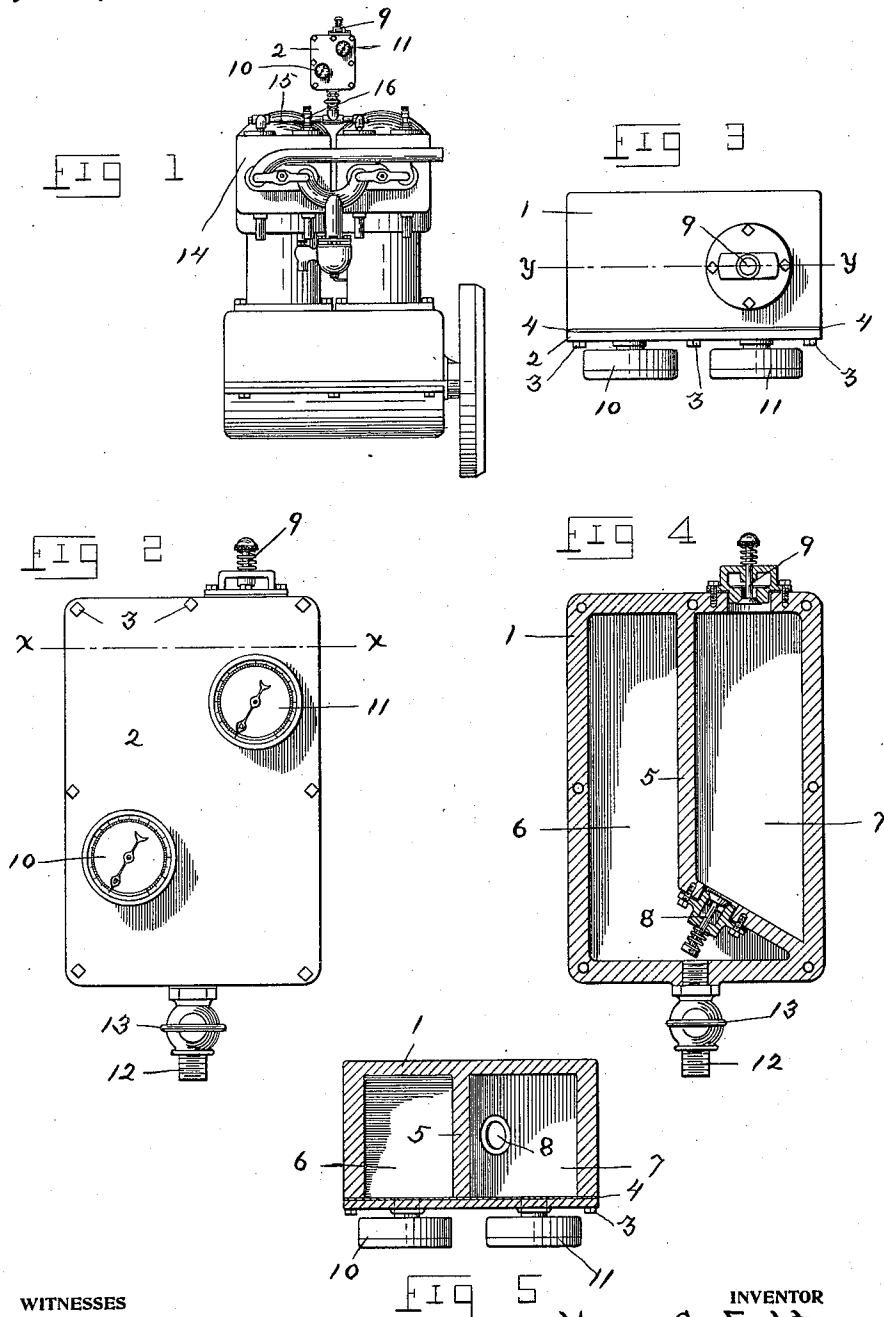


H. S. ECHTERNACH.
CARBURETER ADJUSTING DEVICE.
APPLICATION FILED MAY 15, 1911.

1,029,111.

Patented June 11, 1912.



WITNESSES

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CARBURETER-ADJUSTING DEVICE.

1,029,111.

Specification of Letters Patent.

Patented June 11, 1912.

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To all whom it may concern:

Be it known that I, HARRY S. ECHTERNACH, a citizen of the United States, residing at Strasburg, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Carbureter-Adjusting Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a device for adjusting the carbureter of a gasoline engine to produce the most efficient mixture, and the device can also be employed to test the compression of the cylinder.

Heretofore, it has been impossible to properly adjust the carbureter of an engine without, particularly in the case of a vehicle engine, giving the same a road test, or in other words, running the engine under a load, as it was impossible to ascertain the proper mixture of fuel required to produce the greatest explosion in the cylinder when the engine is not under a load.

The objects of the invention are to produce a device of this class that shall be cheap, durable and efficient and be quickly and easily attached to any type of explosive engine cylinder.

Another object of the invention is to produce a device that contains few parts and is positive in its action.

Still another object of the invention is to provide a device of this class that may be also used to test the compression of the cylinder, and which may simply be attached to the engine for testing or used as a regular equipment.

With these and other objects in view, my invention consists in certain construction and combination of parts as will hereinafter be described and claimed, in the annexed specification and illustrated in the accompanying drawings which form a part of this application, and in which like figures of reference refer to corresponding parts in all of the views; but it is fully understood that while I have here described my invention as shown, that I do not confine myself to the exact design, as slight changes may be made in the construction and arrangement of the several parts without departing from the spirit of the invention.

In the drawings:—Figure 1, is a partial view of an explosive engine showing the device attached thereto for use with either cyl-

inder. Fig. 2, is a detail front view of the device. Fig. 3, is a top plan view of the same. Fig. 4, is a vertical sectional view of the device, taken on the line Y—Y of Fig. 3. Fig. 5, is a cross-sectional view of the case, taken on the line X—X of Fig. 2.

Referring to the drawings, the device comprises a casing 1, supplied with a removable cover plate 2, secured thereon by the screws 3, and rendered gas-tight by the packing or gasket 4. Said casing 1, is divided longitudinally by a wall 5, which extends in a parallel relation to the sides to within a short distance of the bottom of the case, where it assumes an angular direction to one corner of the case 1; said wall being so arranged as to divide the interior of said case into two chambers 6, and 7, of equal volume. The angular portion of the wall 5, is provided with a check valve 8, allowing entrance to the chamber 7, from the chamber 6, but preventing any return from the chamber 7, to the chamber 6. The upper end of the chamber 7, is provided with a relief valve 9, for allowing the contents of said chamber to escape when desired.

To the cover plate 2, are attached the two pressure gages 10, and 11, which communicate with and register the compression in the chambers 6, and 7, respectively.

For attaching the device to the engine cylinder, the lower end of the case 1, is provided with a nipple 12, which may be provided with a cut-off valve 13, and secured to the engine cylinder 14, by substituting it for the usual relief or pet cock; or the device may be attached to a pipe 15, communicating with several cylinders and controlled by valves 16, or the cylinder may be tapped to receive it.

The operation of the device is as follows:—The valve 13, having been opened to admit the charge from the cylinder and the engine being in operation, an adjustment of the carbureter 17, is made and the resulting charge being exploded in the engine cylinder, the compression or expanding gas enters the chambers 6, and 7, in equal volume, registering the amount of compression by both the gages 10, and 11; but the compression created in the chamber 7, is prevented from escaping by the check valve 8; and thus the gage 11, will indicate the maximum amount of compression; while the compression in the chamber 6, will escape

back to the cylinder and exhaust, and the gage 10, will fly back to zero. The carbureter 17, is then adjusted until the gage 11, registers the maximum amount of compression desired; while the gage 10, will tell if each adjustment of the carbureter 17, is increasing or diminishing the compression or efficiency of the charge. When the required compression is attained, the relief valve 9, is opened, allowing the gage 11, to fly back to zero.

The device is so simple, that further description is deemed useless.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A carbureter and compression testing device for explosive engines, comprising in combination with the engine cylinder, a gage box divided into two chambers, one of said chambers communicating with the engine cylinder, the second chamber communicating with the first chamber and the outer air, means for preventing the contents of said second chamber from entering the first chamber, means for controlling the discharge of the contents of said second chamber into the outer air, and a gage for measuring the pressure in both of said chambers.

2. A pressure indicating and testing device for explosive engines, comprising in combination with the explosive chamber of the engine, of a gage box communicating with said explosive chamber, means carried by said gage box for indicating the pressure of the successive explosions and means car-

ried by said gage box for indicating the maximum pressure reached during a succession of explosions and during variations of the explosive mixture.

3. In a combined pressure indicator and carbureter adjuster for explosive engines of the class described, the combination with the explosive chamber of the engine, of a casing mounted adjacent thereto and communicating therewith, said casing divided into two chambers of equal volume, the first of said chambers communicating with the explosive chamber of the engine, and provided with a gage, the second of said chambers communicating with the first chamber, a check valve allowing a flow from the first to the second chamber and preventing any return, and a relief valve in said second chamber for regulating the discharge therefrom.

4. In a carbureter adjusting device for explosive engines of the class described, the combination with the explosive chamber of the engine and the carbureter, of a gage adapted to receive the pressure from said explosive chambers, means carried by said gage for indicating the pressure of each explosion and means carried by said gage for indicating the maximum pressure reached during a series of explosions.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY S. ECHTERNACH.

Witnesses:

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