July 29, 1947. J. G. WANTZ 2,424,868

FULL FLOATING PISTON

Filed Sept. 18, 1945

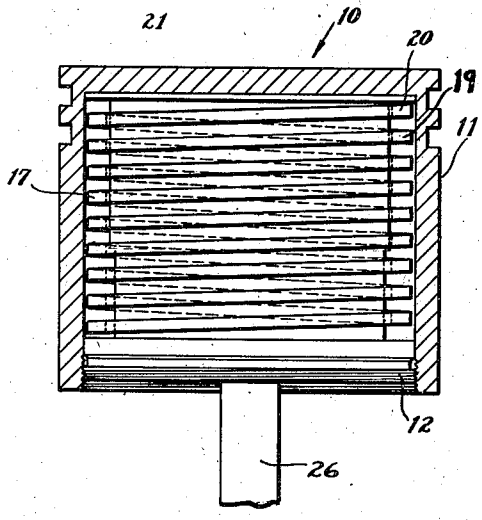



Fig. 1

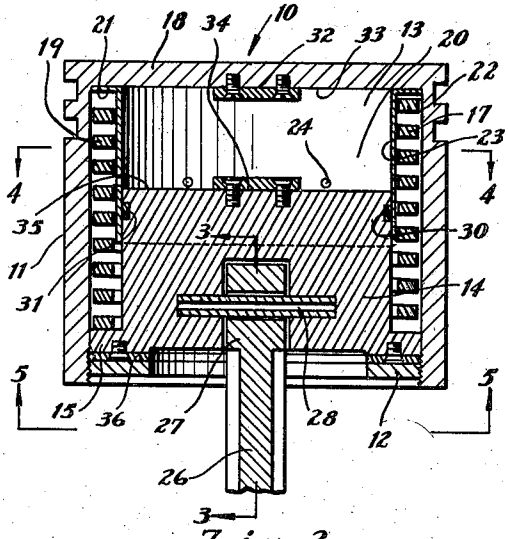
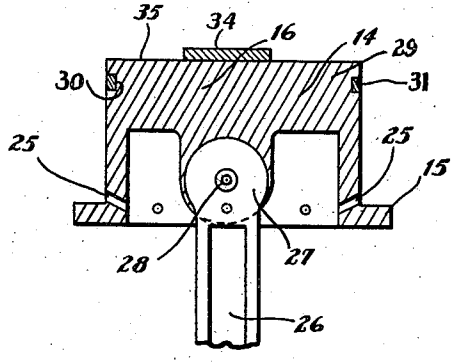



Fig. 2

Fig. 3



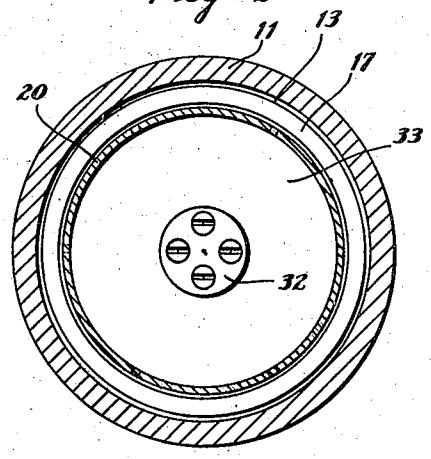




Fig. 4

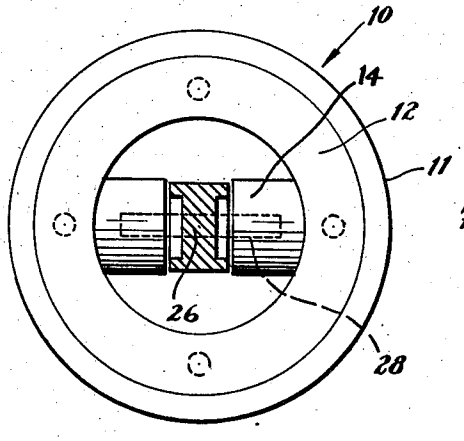



Fig. 5

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Patented July 29, 1947 2,424,868

# UNITED STATES PATENT OFFICE

2,424,868

## FULL FLOATING PISTON

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Application September 18, 1945, Serial No. 617,077

2 Claims. (Cl. 123—78)

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My present invention relates to internal combustion or other compression motors and has for an object to provide a full floating piston therefor.

Another object of this invention is to provide a spring supported piston.

A primary object of this invention is to provide means for greatly or entirely eliminating detonation (carbon knock), increase power output, provide for the use of lower grade fuel for present day engines, increase super-charging possibilities, provide more even and high compression, and make for more economical and smoother running in such engines.

A further object of this invention is to provide a pair of pistons operating one within the other and a spring support interposed between the two.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings in which:

Figure 1 is a vertical sectional elevational view of a floating piston formed in accordance with my invention,

Figure 2 is a similar view, the parts shown in a different position,

Figure 3 is a sectional view along the line 3—3 of Figure 2,

Figure 4 is a sectional view taken on line 4—4 of Figure 2, and

Figure 5 is a bottom plan view as seen from line 5—5 of Figure 2.

In the above drawings as well as in the specification to follow the same reference characters indicate the same parts throughout.

While one embodiment of my invention is illustrated in the above referred to drawings, it is to be understood that they are merely for the purpose of illustration and that various changes in construction may be resorted to in the course of manufacture in order that the invention may be utilized to the best advantage according to circumstances which may arise, without in any way departing from the spirit and intention of my device, which is to be limited only in accordance with the appended claims. And while I have stated the primary field of utility of my invention it remains obvious that it may be employed in any other capacity wherein it may be found applicable.

My invention 10, consists of an outer piston 11, within the lower end of which is screw-threaded a retainer ring 12, and within the chamber 13, of the piston, is another piston 14, provided with a lower annular guide flange 15, which snugly fits

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the surface of the chamber 13. Seated upon said flange and coiled around the body 16, of piston 14, is a flat expansion spring 17, which normally completely fills the space between the flange 15, and the head 18, of piston 11, and the upper convolution 19, of the spring also encompasses a sleeve 20, held within the upper part of chamber 13, by its annular flange 21, upon which the upper convolution 22, of the spring 17, bears. The diameter of the body 16, of the inner piston 14, is such as to snugly fit into the bore 23, of the sleeve 20, within which sleeve the upper portion of the piston 14, operates. Apertures 24, are provided for admission of lubricating oil into the inner piston and inclined bores 25, provide for the passage of oil from between the pistons.

The connecting rod 26, has its inner end 27, secured to the body 16, by a connecting rod pin 28. The upper end 29, of the body 16, is provided with an annular channel 30, to receive the piston ring 31, said end 21, operating entirely within the sleeve 20. A buffer 32, is provided on the inner surface 33, of head 18, and a cooperating buffer 34, is provided upon the upper surface 35, of the piston 14. There is also provided a buffer 36, secured under the flange 15, and lower end 37, of the piston 14, for contact with ring 12, which buffers absorb shock and deaden noise and also limit travel between pistons to relieve undue stress.

The cycle of operation is similar to any other engine in which combustion gases are admitted to the engine cylinder above the outer piston 11 where they are compressed, after which the compressed charge is fired or exploded, and finally the exploded or burned gases are exhausted. It is to prevent detonation or "carbon knock" that the piston has been devised, and upon the firing of the charge, the shocking action on the piston is entirely absorbed by the coil spring positioned between the inner and outer pistons when relative movement is had between said pistons.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Changes in shape, size and rearrangement of details and parts such as come within the purview of the invention claimed may be resorted to, in actual practice, if desired.

Having now described my invention that which I claim as new and desire to procure by Letters Patent is:

1. A full floating piston including an outer piston, an inner piston formed with an annular flange extending outwardly from its lower end snugly received in said outer piston for reciprocating movement therein, a connecting rod secured to said inner piston, a cylindrical guide sleeve formed with an outwardly extending annular flange adapted to seat against the under surface of said outer piston head and to be slidably engaged by said inner piston, and a coil cushioning spring disposed about said inner piston and engaging the annular flanges on said inner piston and on said cylindrical guide.

2. A full floating piston including an outer piston, an inner piston formed with an annular flange extending outwardly from its lower end snugly received in said outer piston for reciprocating movement therein, a connecting rod secured to said inner piston, a cylindrical guide sleeve formed with an outwardly extending annular flange adapted to seat against the under surface of said outer piston head and to be slidably engaged by said inner piston, a packing ring supported by said inner piston contacting the inner surface of said cylindrical guide, and a coiled cushioning spring disposed about said inner piston and engaging the annular flanges on said inner piston and on said cylindrical guide.



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