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HIGH PRESSURE PUMP FOR DIESEL ENGINES

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Fig. 1

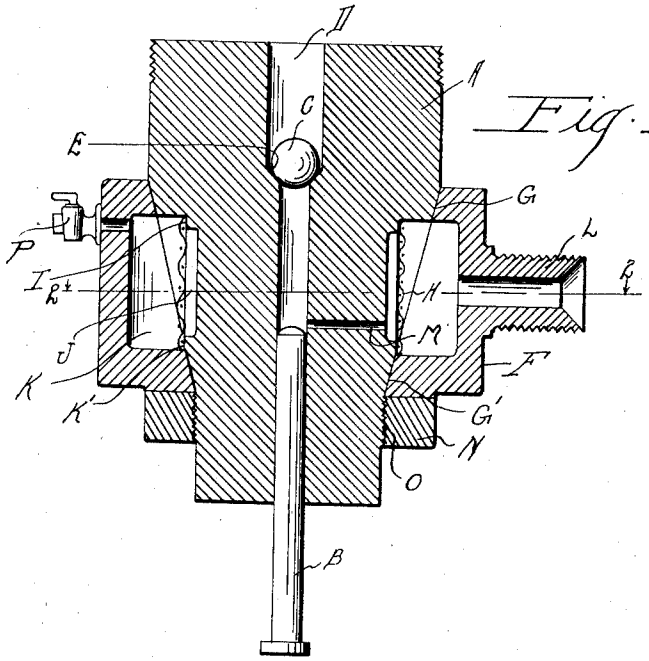
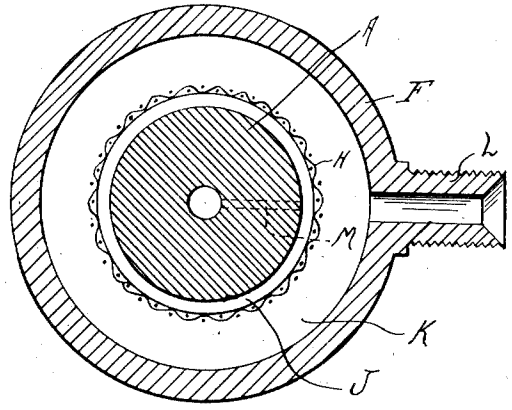


Fig. 2



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HIGH-PRESSURE PUMP FOR DIESEL ENGINES.

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The invention relates to fuel injector pumps for Diesel engines and consists in the novel construction as hereinafter set forth.

In the drawings:—

Figure 1 is a longitudinal section through the pump.

Figure 2 is a cross section thereof on line 2—2 of Figure 1.

For the injection of liquid fuel into the combustion chamber of a Diesel engine, it is of the utmost importance that the liquid so injected should be free from any sediment which might clog the injector nozzle. On the other hand it is equally important that there should be no clogging in the fuel line as might occur through the placing of a screen therein for removing sediment. My improvement is designed to insure the complete removal of sediment from the fuel by a construction of screen or strainer which forms but slight obstruction to the passage of the fuel therethrough and which may be readily removed at any time for cleaning.

As specifically shown, A is the pump barrel, B the plunger reciprocating therein and C a ball check valve located in an enlarged passage D at the discharge end of the barrel and normally resting upon a seat E. Surrounding the barrel A is a removable housing F preferably engaging conical bearings G and G′ on said barrel. Between said conical bearings the barrel is fashioned to receive an annular screen or strainer H which at its opposite ends engages bearings I and K′ while intermediate said bearings there is arranged an annular recess J. The housing F also forms an annular chamber K surrounding the screen and which at one point communicates through the nipple L with the fuel supply line (not shown). M is a restricted inlet passage from the annular chamber J to the chamber within the barrel at a point which will be uncovered in the reciprocation of the plunger B. N is a nut engaging a threaded portion O on the barrel and operating to force the casing F into sealing engagement with the conical bearings G and G′.

With the construction as described, the liquid fuel entering the housing F through the nipple L will be distributed around the annular chamber K in contact with the outer surface of the screen H. On account of the large area of this surface the liquid will pass through the screen with slight resistance even though the openings in the screen are very fine. After passing the screen the liquid fills the annular space J from which it passes through the port M into the chamber of the barrel and during the reciprocation of the plunger or piston, is ejected past the check valve C. At any time the screen may be cleaned or removed and replaced by another screen it being only necessary to remove the nut N, disengage the casing F from the conical bearings G and G′ and then slip off the screen H from its bearings I and K′. Such operation is quickly performed and without the necessity of disconnecting any other part of the fuel line.

To permit the original priming of the pump, an air cock P is arranged to vent the chamber K.

What I claim as my invention is:

1. The combination with a pump barrel and a reciprocating plunger or piston engaging the same, of an annular screen or strainer longitudinally engageable with the outer surface of the barrel, bearings or seats on said outer surface of the barrel for receiving said strainer and spaced at opposite sides of a central annular recess having a port connection with the interior of the barrel, and an annular housing detachably engageable with the outer surface of said barrel and surrounding said screen, said housing communicating with the fluid inlet.

2. A pump comprising a barrel formed with a small diameter cylindrical recess and comparatively thick walls, the outer surface of said walls being formed with spaced seats and with an annular groove therebetween having port communication with the chamber of the barrel, an annular screen for engaging said spaced seats, annular bearings on said barrel at opposite ends of said screen, an annular housing for engaging said annular bearings on the barrel, and means for clamping said housing in sealing engagement with said bearings.

3. In a pump, a barrel formed with a small diameter cylindrical recess for receiving the plunger or piston and having comparatively thick walls, annular bearings on the outer surface of said barrel at opposite ends of an annular groove therein, an annular screen longitudinally engageable with said barrel in sealing engagement with said annular bearings, conical bearings on said barrel at opposite ends of the bearings for said screen, a housing formed with cooperat-

ing conical bearings and adapted to surround said screen, a threaded bearing on the small end of said barrel and a nut engaging said threaded bearing for clamping said housing in sealing engagement with said conical bearings.

4. In a pump, a barrel having a cylindrical recess of small diameter for receiving a reciprocating plunger or piston and having relatively thick surrounding walls, the outer surface of said barrel having a conical portion, an annular groove in said conical portion, annular bearings at opposite ends of said groove and a threaded portion adjacent to the small end of said conical portion, an annular screen or strainer sleeved upon said barrel and engaging said bearings at opposite ends of said groove, an annular housing surrounding said screen and having conical bearings for engaging the conical portion of said barrel at opposite ends of the screen and a nut engaging said threaded portion for clamping said housing in sealing contact with said barrel.

5. In a pump, a barrel having a cylindrical recess of small diameter for receiving a reciprocating plunger or piston and having relatively thick surrounding walls, with an annular groove in the outer surface thereof having port connection with said cylindrical recess, an annular screen or strainer detachably sleeved on said barrel and bridging said annular groove, an annular housing sleeved on said barrel surrounding said screen and having sealing contact with the barrel, means for clamping said housing in different positions of rotative adjustment.

In testimony whereof I affix my signature.

HERMANN I. A. DORNER.