Nov. 2, 1948. Ø. BLOM 2,452,984

ADVANCE AND RETARD INJECTION MECHANISM FOR DIESEL ENGINES

Filed Sept. 14, 1946

Fig. 1.

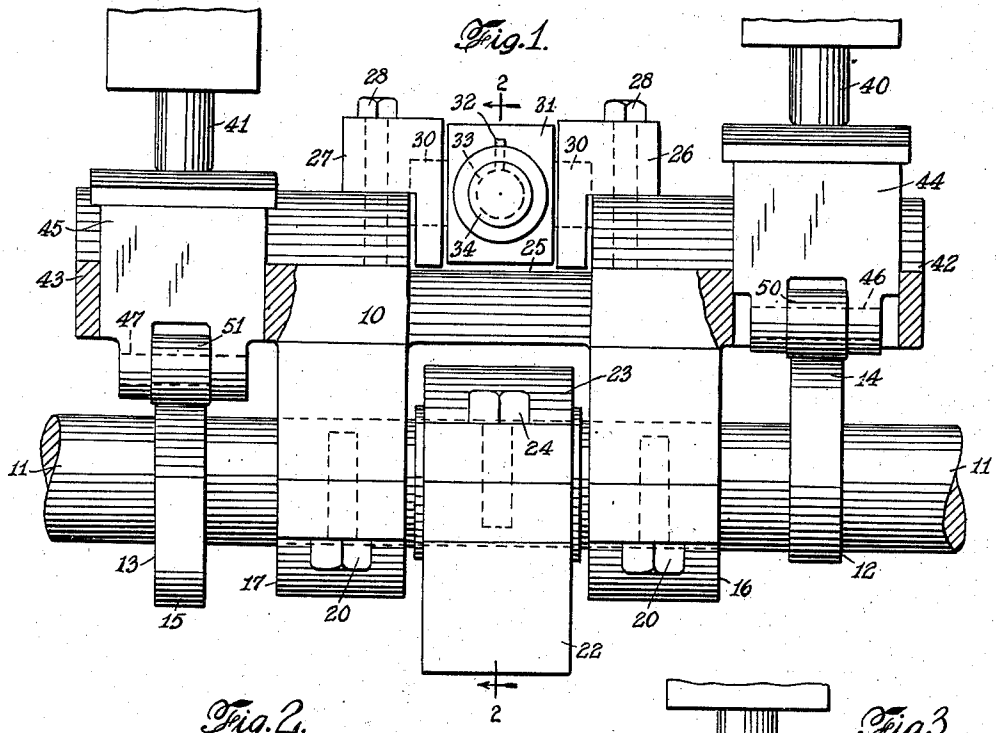


Fig. 2.

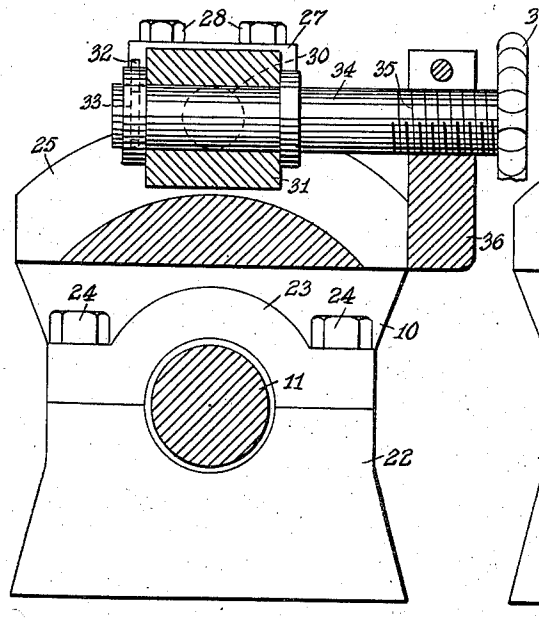
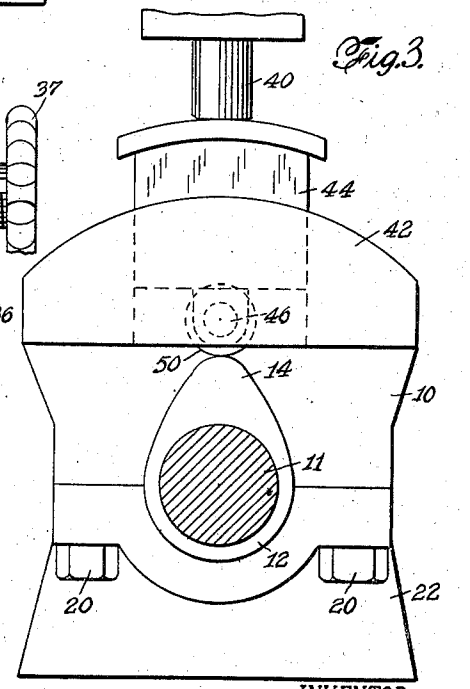


Fig. 3.



INVENTOR.
ØYVIND BLOM

BY

ATTORNEY

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ADVANCE AND RETARD INJECTION MECHANISM FOR DIESEL ENGINES

Øyvind Blom, Brooklyn, N. Y.

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3 Claims. (Cl. 74—569)

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This invention relates to fuel control mechanism especially for Diesel engines.

The primary object of the invention is to improve the efficiency of fuel consumed in engines of this type especially at the starting thereof and also during high speed periods.

Another object is the provision of means for facilitating the control of variable fuel injection mechanism in engines of this kind.

A further object is to provide improved means for lifting and lowering control devices for fuel injection pump plungers.

Yet another object is to so construct the complete fuel control means as to render the same economical of manufacture, practical in operation, and symmetrical in proportions, with neat appearance, so as to enhance its value.

Features of the invention reside in adjustable body means, and means for adjusting the positions of devices, for lifting moveable elements which, in turn, control the position of fuel injection pump plungers, said latter means including a shaft with cams thereon cooperating with rollers on said moveable elements.

With the above indicated objects and advantages in view, as well as others which will hereinafter appear, the particular embodiment of the invention now selected for disclosure is herein fully described and illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of a device constructed in accordance with this invention.

Fig. 2 is a partly sectional view of the line 2–2 of Fig. 1; and

Fig. 3 is an end view.

The showing of said drawing includes a mechanism housing or body generally denoted 10, and a shaft 11 on which are cams 12, 13 with cam lobes 14, 15.

The body 10 has spaced bearings on the shaft 11, as shown, and may be adjusted thereon, said body having under sections 16, 17, through which illustrated bolts 20 pass into adjacent body portions thereat to hold said sections fast with said portions.

On a base support 22, having a top section 23, with cooperating fastening elements 24, the shaft 11 finds a bearing. In the present instance the body 10, at its top medial part is recessed, and in this recess 25 are bearing blocks 26, 27, held by bolts 28.

Journalled by like trunnions 30 in the blocks 26, 27 is a swivel member 31, carrying a pin 32, an end of which freely enters an annular groove 33 in an adjusting rod 34, the latter having

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thereon a thread 35. A supporting member 36 fixedly supported on the base support 22 has a mating thread for the thread 35, when the rod 34 is turned the housing 10 is limitedly moveable for adjustment as aforesaid.

Two fuel injection pump plungers 40, 41 are disposed above the body 10 at extensions 42, 43, said extentions formed to provide guides for vertically moveable actuators 44, 45 for said plungers. Journalled in the actuator walls, in bosses thereof as shown, are two shafts 46, 47, and on these shafts are follower rollers, 50, 51.

As at present shown the cam lobes 14, 15, are oppositely set on the shaft 11 so that as an actuator 44 is lifted, by its related lobe and roller, an actuator 45 becomes gravitationally depressed, the reciprocable action thus performed meeting the definitions herein set forth.

As the construction herein described admits of considerable modification without departing from the invention, the particular arrangements shown should be taken as illustrative of an embodiment at present preferred, and not in a limiting sense; therefore the scope of the protection contemplated is to be taken from the appended claims, interpreted as broadly as is consistent with the state of the prior art.

What I claim is:

1. In a means for supplying fuel to an engine of the class described comprising a pair of reciprocal plungers, a housing having spaced bearings, and slidably supporting the plungers and spacing the latter apart, a shaft passing through said bearings, a fixed support having medial bearings for the shaft, the latter bearings being in the space between the first mentioned bearings, and adjustable means mounted upon the fixed support for moving said housing on its bearings.

2. In a means for supplying fuel to a Diesel or like engine comprising a pair of reciprocable plungers, a revolvable shaft, a housing having spaced bearings on the shaft, a fixed support, shaft bearings on said support disposed in the space between the first mentioned bearings, vertically movable actuators extending from the housing for said plungers, cam elements on said shaft, means connecting the housing with the support, and means disposed between said elements and said actuators for elevating the latter reciprocally.

3. In a means for supplying fuel to an engine of the class described comprising a pair of reciprocable plungers, a revolvable shaft, a housing having spaced bearings on the shaft, a fixed support, adjustable means connecting the housing with the support, shaft bearings on said support disposed

in the space between the first mentioned bearings, vertically movable plunger actuators, guide means in the housing for said actuators, said actuators having follower rollers thereon, cam means on said shaft, and lobes carried by said cam means for engaging said roller whereby to elevate and lower said actuators.

ØYVIND BLOM.

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