Sept. 11, 1945. T. GERDES 2,384,548

ROTARY VALVE

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Fig. 1.

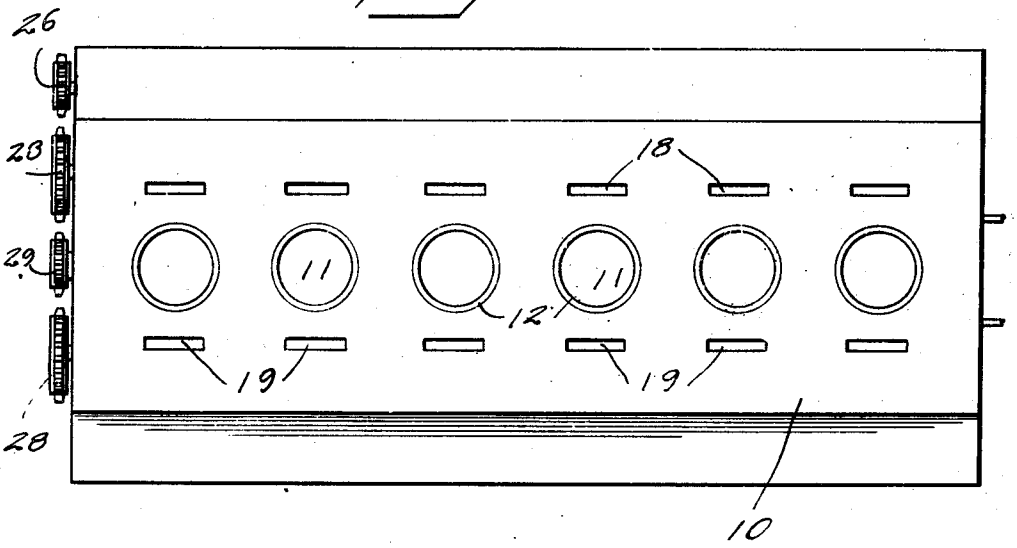


Fig. 2.

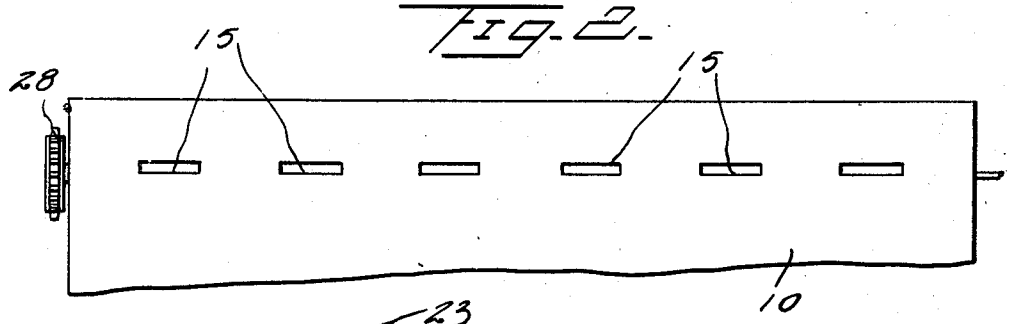
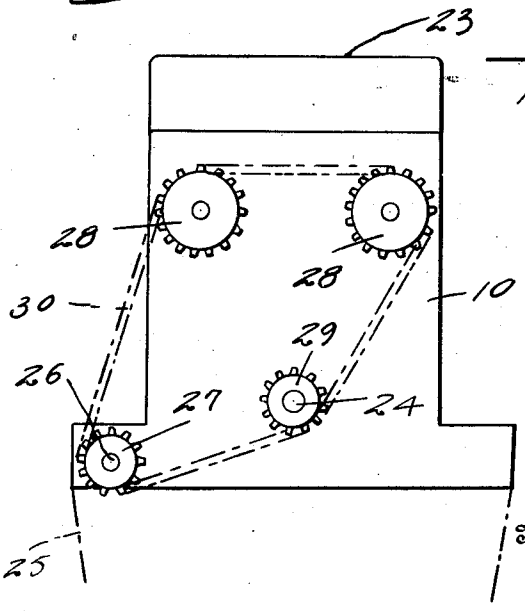


Fig. 3.



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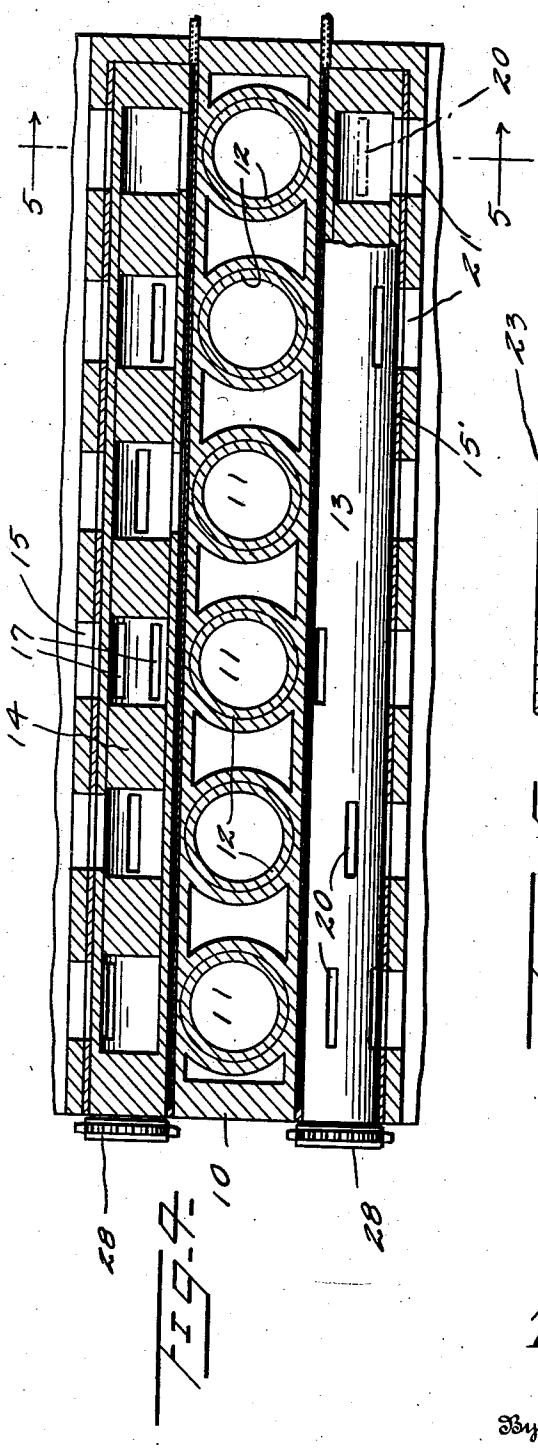


FIG. 4

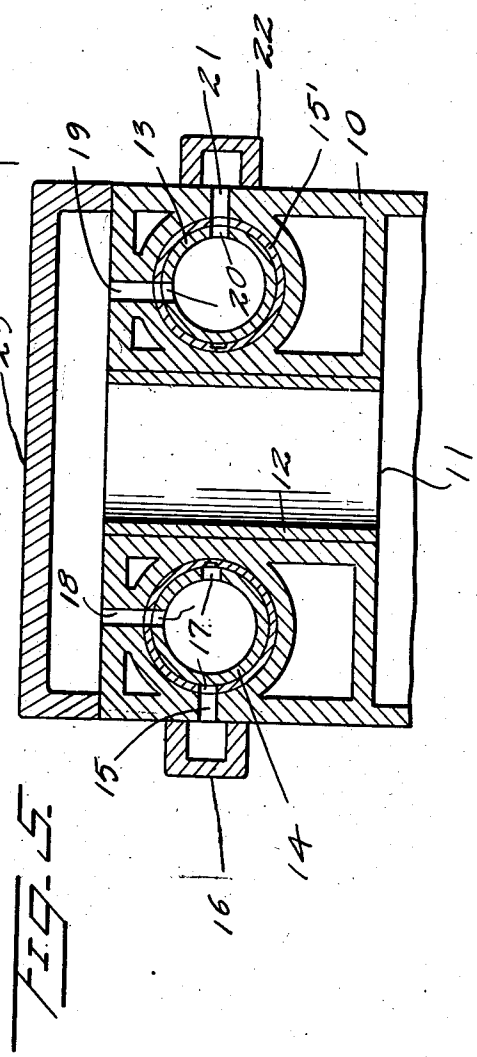


FIG. 5

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Patented Sept. 11, 1945 2,384,548

UNITED STATES PATENT OFFICE

2,384,548

ROTARY VALVE

Theodor Gerdes, Gilman, Ill.

Application April 28, 1943, Serial No. 484,910

2 Claims. (Cl. 123—80)

This invention relates to an internal combustion engine and particularly to the block thereof.

It is aimed to provide a motor wherein the sticking of valves is eliminated and the construction of which is simpler and will produce a smoother running motor.

Another object is to provide a structure wherein a one-piece or equivalent block has but two valves, both positively driven from the crank shaft, and disposed on the opposite sides of the cylinders.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a plan view of my improved cylinder block;

Figure 2 is a fragmentary side elevation thereof;

Figure 3 is an end elevation of such block;

Figure 4 is a view primarily in horizontal section taken through the axes of the valve; and

Figure 5 is a vertical section taken on the line 5—5 of Figure 4.

Referring specifically to the drawings wherein like reference characters designate like or similar parts, the improved cylinder block is disclosed at 10. For the most part this cylinder block may be cast in a single piece as shown. Any operative number of cylinders may be employed, for example six as shown at 11. These cylinders preferably are provided with linings 12 of harder and better wear-resisting metal than the cylinder block itself, which linings are incorporated into the cylinder block when it is cast.

In accordance with my invention, I provide similar valves 13 and 14 on opposite sides of the cylinders and within the cylinder block. These valves are of sleeve form as shown and are rotatable, and they preferably operate in tubular linings 15' of hardened or better wear-resisting metal than the casting of the cylinder block.

The valve 14 may be an intake valve adapted to receive the fuel charge through passages 15' in cylinder block and sleeves 14, in communication with an intake manifold at 16, being suggested in dot-dash lines, detachably applicable to the cylinder block and in communication with a source of fuel supply. The valve 14 has suitable passages 17 therein whereby it may register with the passages 15' and passages 18 feeding through the lining 14 and cylinder block to the associated cylinders.

Rotatable valve 13 is primarily an exhaust valve, and exhaust gases are adapted to pass from the cylinders through passages 19 in the cylinder block and sleeve 14 and through ports 20 into and from the exhaust valve through passages 21 to an exhaust manifold 22 of conventional form detachably bolted to the cylinder block.

In dotted lines, a conventional cylinder head 23 has been disclosed, such cylinder head being adapted to be bolted or otherwise fastened on the top of the cylinder block. The conventional pistons (not shown) operate in the cylinders 11 and are operatively connected to the crank shaft of the engine suggested at 24 and which is journaled longitudinally of the cylinder block. The crank case of the engine is suggested in dot-dash lines at 25 and is detachably connected to the cylinder block as by bolts or the like. A rotatable shaft 26, to operate a cam shaft, is journaled longitudinally of the cylinder block 10.

A distributor is driven from the shaft 26, and the valves 13 and 14 are positively driven, all in timed sequence, being previously set by key adjustment or means not necessary to show specifically. The valves under such circumstances cannot stick as do existing pocket valves. Such valves and the timing mechanism or distributor are driven from the crank shaft 24 of the engine, and to this end said shafts respectively have sprocket wheels 27, 28, and 29 keyed thereto, over which a sprocket chain 30 is disposed in order to drive the same.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. A cylinder block for an internal combustion engine, said cylinder block having an upper surface across which a head is disposable and cylinders opening at said surface, valves journaled in the block, one on each side of the cylinders and below the upper extremities of the cylinders and surface of the block, the block having passages extending upwardly from the valves to the upper surface of the block, one of the valves having means of communication with the cylinders through one of said passages to serve as an intake valve, and the other valve having means of communication through the other of said passages with the cylinders to serve as an exhaust valve, the block also having passages leading to the valves from the sides of the block.

2. A cylinder block for an internal combustion engine, said cylinder block having an upper surface across which a head is disposable and cylin-

ders opening at said surface, valves journaled in the block, one on each side of the cylinders and below the upper extremities of the cylinders and surface of the block, the block having passages extending upwardly from the valves to the upper surface of the block, one of the valves having means of communication with the cylinders through one of said passages to serve as an intake valve, and the other valve having means of communication through the other of said passages with the cylinders to serve as an exhaust valve, the block also having passages leading to the valves from the sides of the block, the cylinder block being hollow around said cylinders and valves to accommodate cooling water, means on the cylinder block to operate a distributor, and means operable from the crank shaft of the engine to drive said means and valves in timed relation, consisting of gear wheels thereon, a gear wheel on the crank shaft, and a sprocket chain traversing said gear wheel.

THEODOR GERDES.