Aug. 26, 1924. 1,506,626

F. L. FREER

MECHANICAL MOVEMENT

Filed March 23, 1923

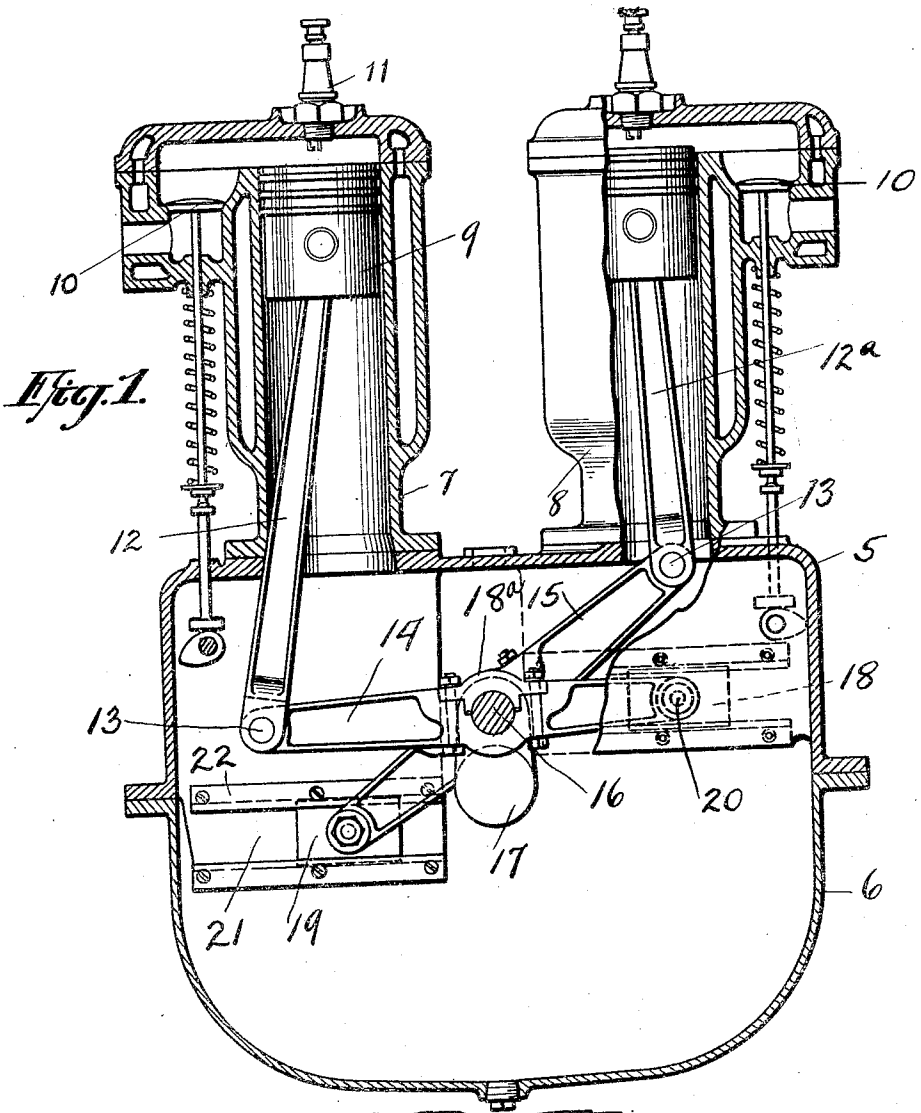


Fig. 1.

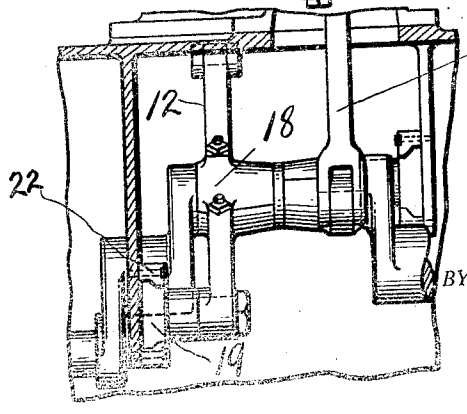


Fig. 2.

INVENTOR.

Frank L. Freer.

BY

Richard B. Owen

ATTORNEY.

Patented Aug. 26, 1924. 1,506,626

UNITED STATES PATENT OFFICE.

FRANK L. FREER, OF NEW YORK, N. Y.

MECHANICAL MOVEMENT.

Application filed March 23, 1923. Serial No. 627,176.

To all whom it may concern:

Be it known that I, FRANK L. FREER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to mechanical movements for internal combustion engine constructions of the four, eight or twelve cylinder type, and the primary object of the same is to produce novel and improved means for converting the alternating reciprocatory motion of pistons into rotary motion of the main shaft.

One of the objects of my invention is to provide a novel and improved lever operating mechanism for connection with the connecting rods and crank shaft of an engine to produce an efficient mechanical movement to obtain the maximum power to be imparted to the main shaft of the engine.

A continued object of my invention is to provide a mechanical movement which is extremely simple in construction, practical, involving a minimum number of parts, capable of use in various types of engines, possessing a high degree of efficiency and utility.

With these and other objects in view the invention consists in certain novel and improved features of construction and combination and arrangement of parts as more fully hereinafter set forth and pointed out in the subject matter being claimed.

Figure 1 is a vertical sectional view showing the mechanical movement as applied to an engine.

Figure 2 is a detail view showing the connection of the levers and connecting rods and their relation with the crank shaft.

Referring now to the drawings wherein like reference characters designate corresponding parts throughout the several views, 5 designates the upper and 6 the lower section of the crank case and 7, 8, the jacketed cylinders in which the pistons 9 operate. The exhaust valve 10 is indicated generally and the spark plugs 11, positioned in the top of the cylinders as is common in engine construction. Each of the connecting rods 12, 12^a, of the pistons are pivotally connected as at 13 at their lower ends to levers 14, 15, respectively. The levers above referred to are mounted on the crank pin 16 of the main operating shaft 17 for rotary movement therewith being provided with bearings 18^a, it being observed that the levers are mounted on the crank pin 16 at a point somewhat beyond the central portion thereof, or in other words, off center. Connected to the opposite ends of each lever 14, 15, I have provided a horizontally sliding block 18, 19, pivotally secured as at 20 and operable in a horizontal guide-way 21 of the guide rails 22 secured to the crank case. It will be noted that the guide 21 and the blocks operating therein are disposed on each side and above each other, the block 18 operating upon the reciprocatory movement of the connecting rod 12, and the block 19 moving upon the reciprocation of the connecting rod 12^a, which motion is imparted simultaneously upon the rotation of the crank shaft.

While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations therein may be made. I therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit of the invention or the scope of the appended claims.

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

1. A mechanical movement for internal combustion engines in combination with a crank shaft and connecting rods therefor, pivotally connected levers attached to the ends of the connecting rods and mounted on the crank shaft of the engine and sliding blocks attached to the opposite end of the levers for movement therewith in opposite directions upon the reciprocation of the connecting rods.

2. A mechanical movement for internal combustion engines in combination with a crank shaft and connecting rods therefor, pivotally connected levers attached to the ends of the connecting rods, said levers being mounted at a point somewhat adjacent the central portion thereof on the crank shaft for rotary movement therewith, sliding blocks offset relative to each other connected to the opposite end of the levers and movable simultaneously in opposite directions.

3. A mechanical movement for internal combustion engines in combination with a

crank shaft and connecting rods therefor, pivotally connected levers attached to the ends of the connecting rods, said levers each being mounted beyond their center on the crank shaft and normally disposed at an angle to each other, a bearing for each lever, a sliding block pivotally connected to the opposite end of the levers and a horizontal guide-way for each of the blocks, said guide-ways being positioned on opposite sides of the crank shaft and crank case.

In testimony whereof I affix my signature.

FRANK L. FREER. [L. S.]