No. 875,370. PATENTED DEC. 31, 1907.

W. A. ODELL.

OIL PUMP.

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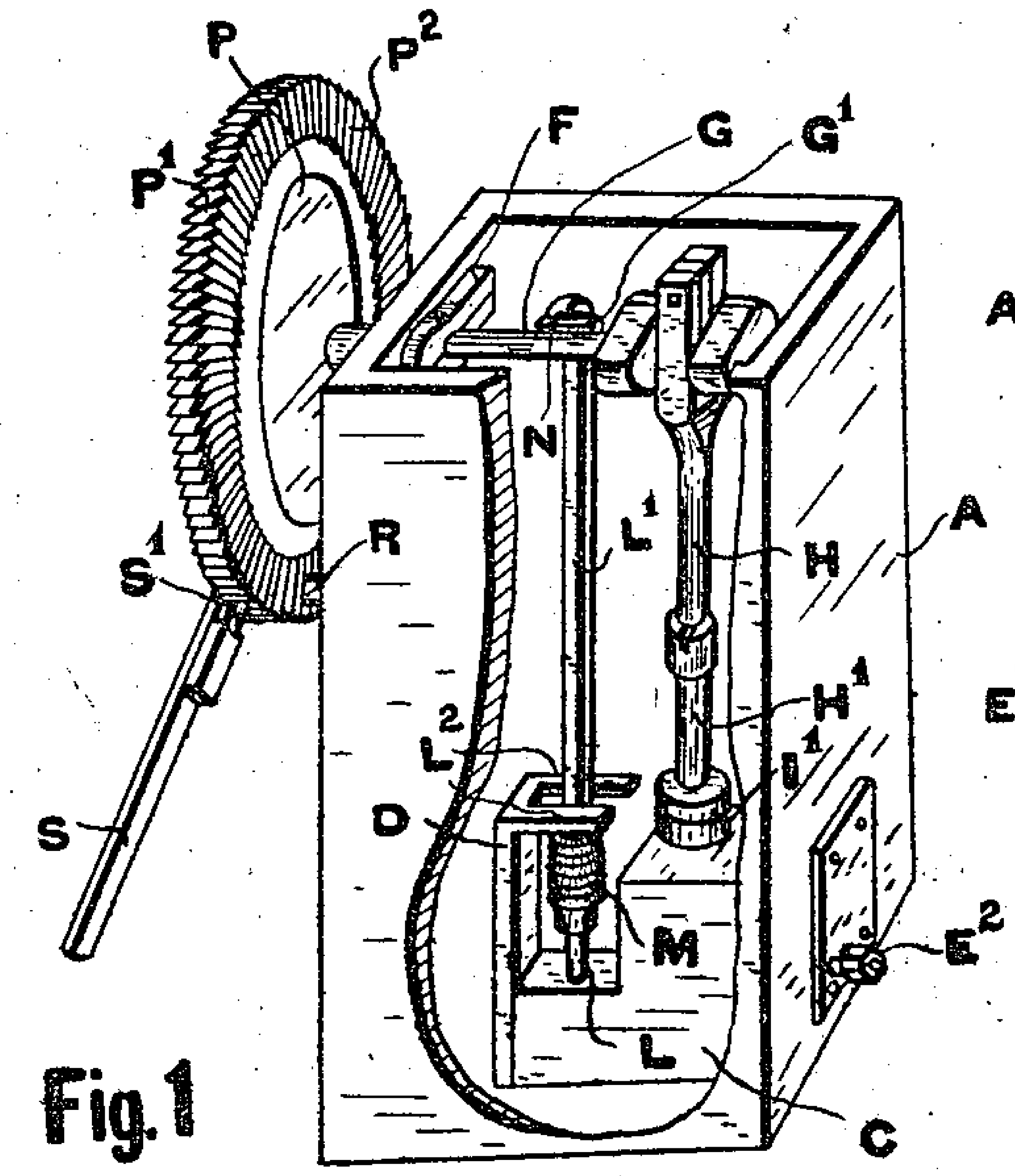

Fig.1

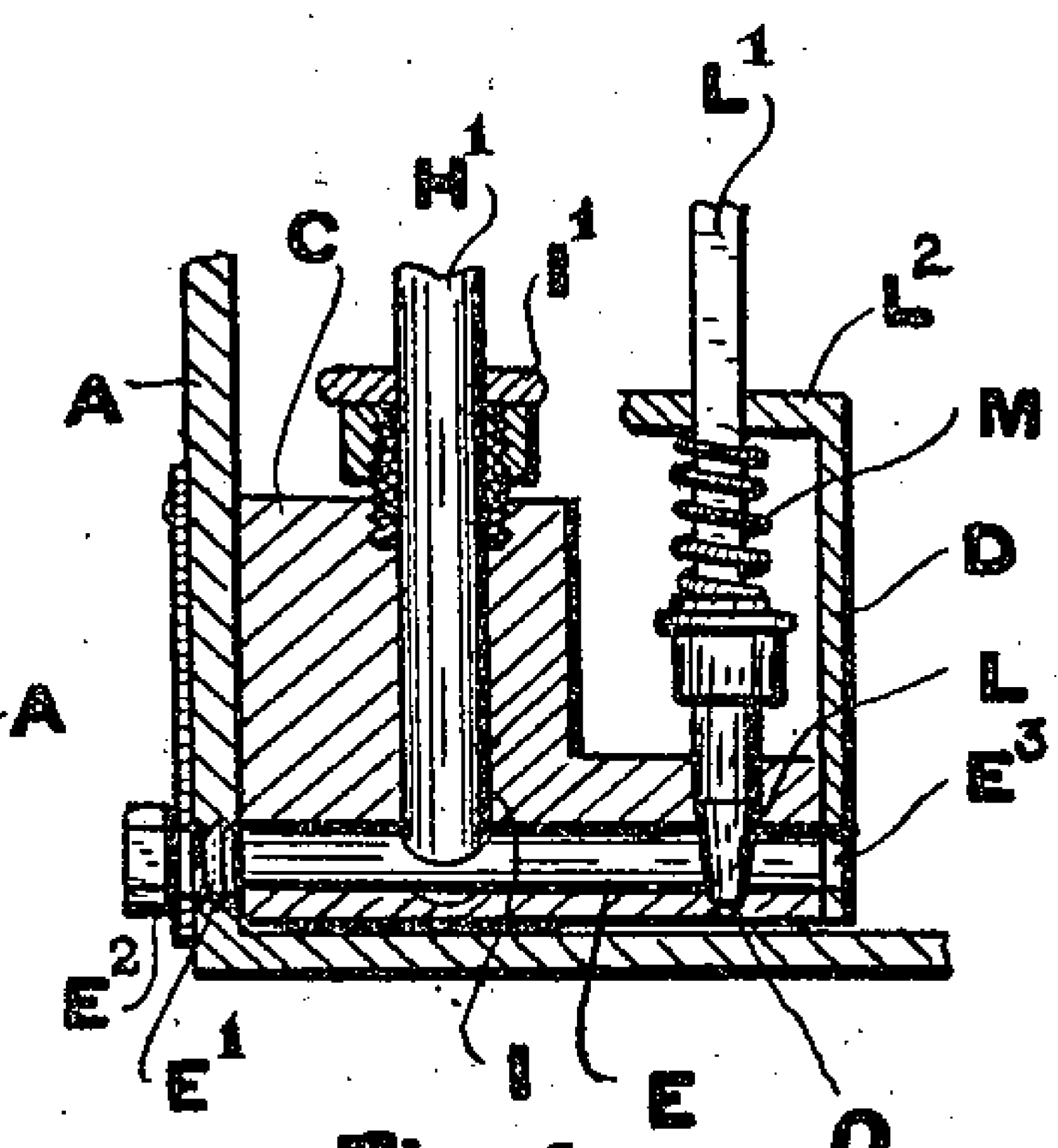

Fig.4

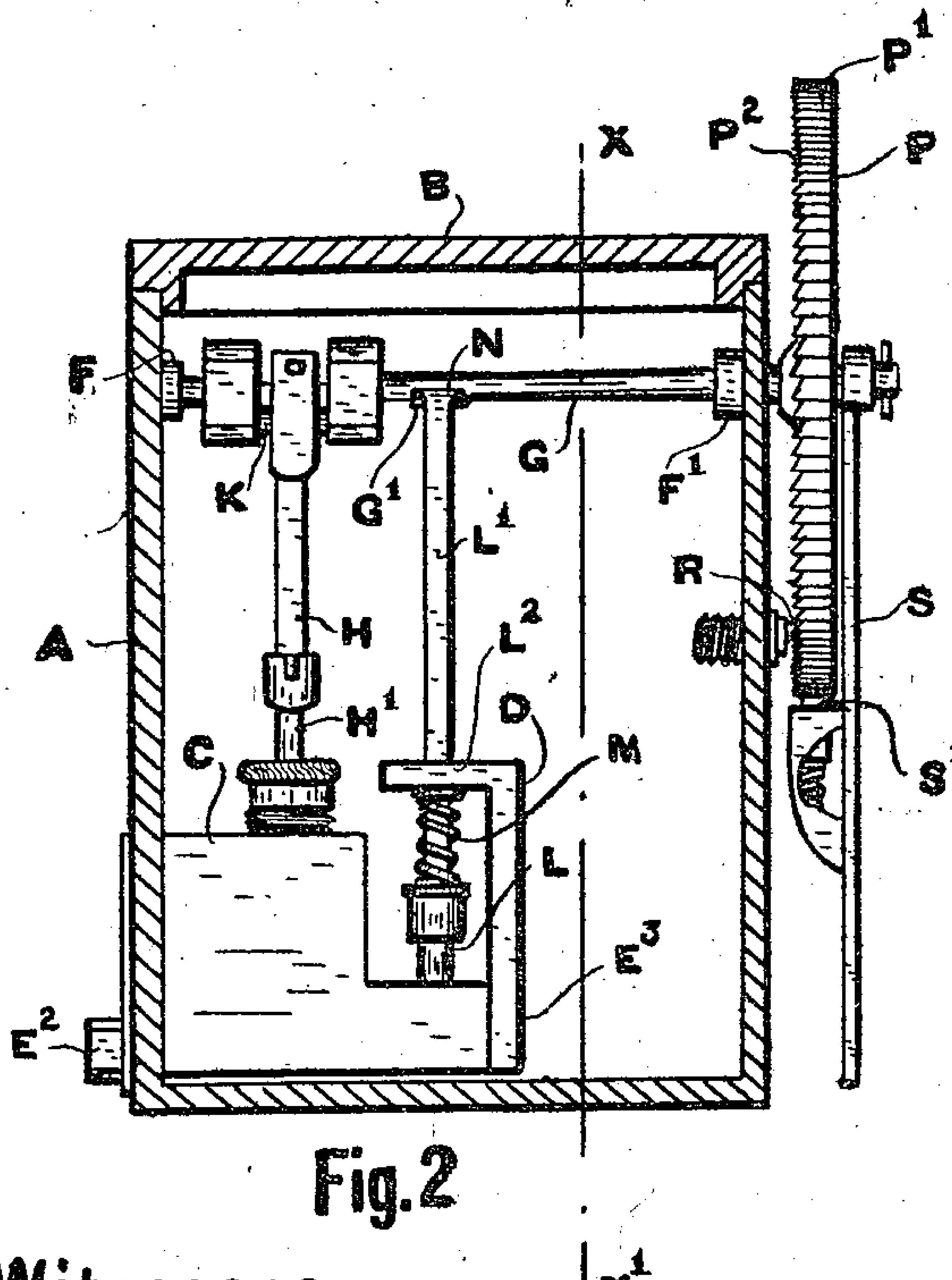

Fig.2

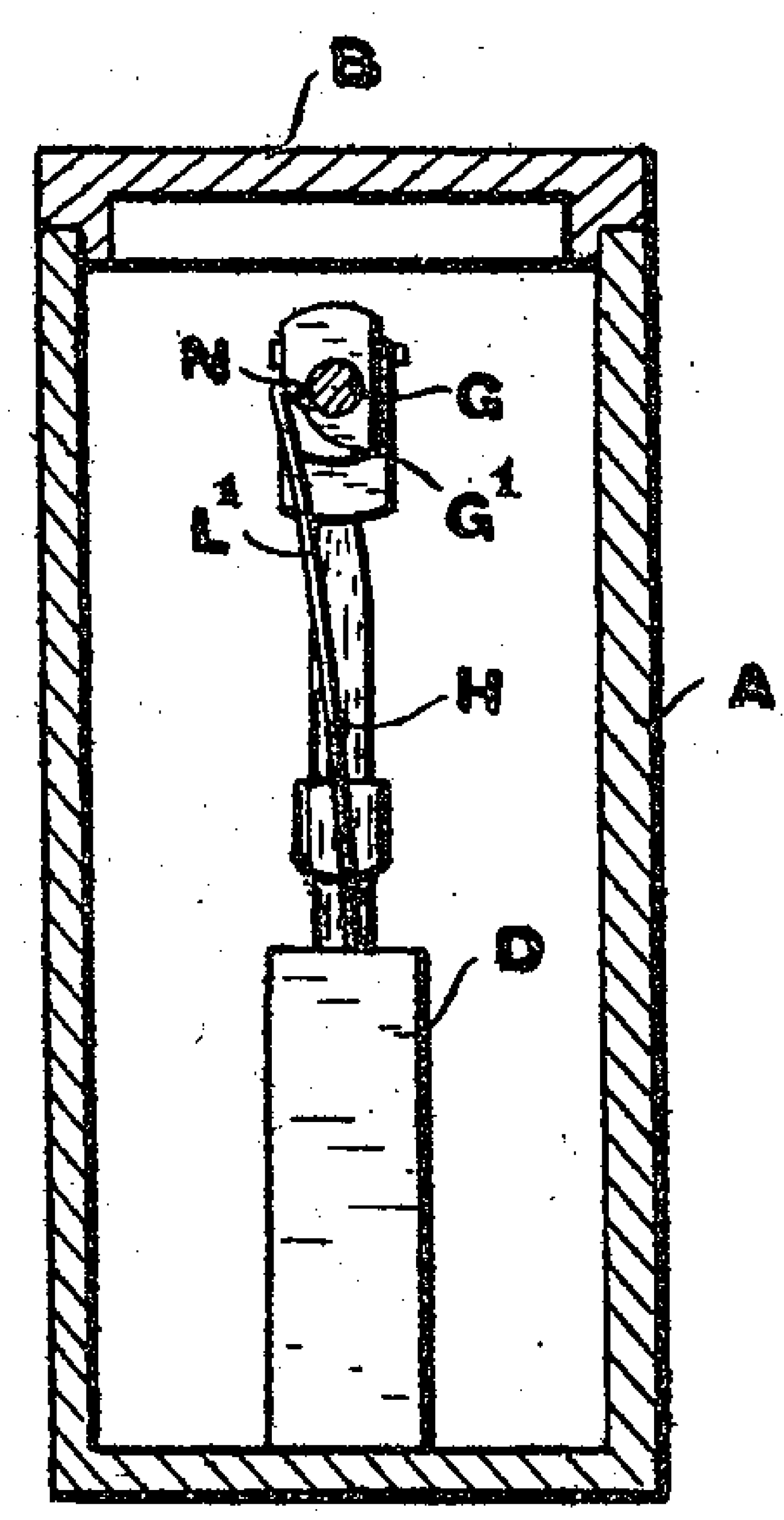

Fig.3

Witnesses.

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WILLARD ARANZO ODELL, OF WINNIPEG, MANITOBA, CANADA, ASSIGNOR OF ONE-FOURTH TO GEORGE EDWARD NORRIS AND ONE-FOURTH TO JOHN ROBERT NORRIS, OF WINNIPEG, CANADA.

OIL-PUMP.

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Application filed June 1, 1906. Serial No. 319,774.

To all whom it may concern:

Be it known that I, WILLARD ARANZO ODELL, of the city of Winnipeg, in the Province of Manitoba, Canada, machinist, have invented certain new and useful Improvements in Oil-Pumps, of which the following is the specification.

My invention relates to oil pumps, more especially those used in feeding automatically the oil to the cylinders of engines or such like, and it consists essentially of an outer casing or oil receptacle, a centrally disposed and secured upright block section, a passage-way extending longitudinally in the lower portion of said block, a cylinder extending perpendicular from said passage-way, a cutoff valve and valve seat, bearings on said casing, a crank shaft journaled in said bearings, a connecting rod secured to the crank and actuating a plunger in the aforesaid cylinder, a cam extending from the shaft, means actuated by said cam for operating the cutoff valve, an outlet check valve secured to the casing and continuous with the passage-way and inlet opening to the passage-way from the oil receptacle and means for operating said crank shaft, all arranged and constructed as hereinafter more especially described.

Figure 1 is a perspective view of my complete oil pump, a portion being broken away for the sake of clearness and the cover removed. Fig. 2 is a side sectional elevation of the casing to one side of the block. Fig. 3 is an end sectional view of the pump, the section being taken in the plane X—X′, Fig. 2 Fig. 4 is a vertical sectional view of the block, through the center of the passage-way.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is an outer casing or oil receptacle, closed at the top with the cover B.

C is a centrally disposed block section supported on the inner face of the bottom of the casing, being a portion thereof or inserted and secured thereto.

D is a bifurcated upright portion secured to the block and forming a guideway for the cutoff valve stem hereinafter referred to.

E is a passage-way extending longitudinally the full length of the block C to an opening E^1 in the casing.

E^2 is an outlet valve screwed in the opening E^1.

E^3 is an inlet through the portion D, from the passage-way, to the oil receptacle.

I is a working cylinder extending from below vertically upward and through the passage-way E, and of a diameter equal to or greater than said passage-way.

I^1 is a stuffing box screwed into the block section C, and at the upper extremity of the cylinder.

F F^1 are opposing bearings secured to the upper portion of the ends of the casing.

G is a crank shaft supported in the bearings having a cam G^1 extending therefrom.

H is a connecting rod secured to the crank shaft, to the bottom portion of which is secured by means of a pivot a plunger H^1. The upper end of the connecting rod is fitted with brass steps and these are in turn fitted to the crank pin K. The plunger H^1 extends downwardly through the stuffing box into the cylinder I and is slidable therein.

L is a conical cutoff valve normally supported in a valve seat formed in the passage-way E.

L^1 is a valve stem extending upwardly from the valve and passing through the guideway formed by the forked ends L^2, and M is an encircling actuating spring. The end of the valve stem L^1 is hooked at N and is designed to engage with the cam G^1 when in active operation.

O is an opening through the block section C vertically below the valve seat and acting as a dash pot for the valve stem.

P is a drive wheel with a double set of ratchet teeth one set P^1 extending around the periphery and the other P^2 around the outer edge of the inner face.

R is a spring pawl secured to the end of the casing A and engaging the ratchet teeth P^2 on the inner face of the wheel.

A lever S is revolubly secured on the crank shaft and adjoins the outer face of the wheel P. Inwardly offset from the face of the lever is a bearing for a spring pawl S^1 which engages the ratchet gearing on the periphery of the wheel.

In operation the oil pump is secured in proximity to the cylinder or such like and the lever S is connected by a link motion to the crosshead of the engine. The oil tank or receptacle A is filled with oil to be fed.

From the check valve E^2 a pipe leads to the cylinder. The motion of the driving

wheel P is directly dependent upon the action of the spring pawl S^1 supported on the lever S, the pawl driving in the forward motion and sliding on the backward or return stroke.

The second pawl R acts in the ratchet teeth P^2 and prevents the wheel from rotating upon the backward stroke of the lever S.

At the beginning of the upstroke of the plunger the check valve is closed and the cutoff valve open, thus allowing a direct passage to the oil chamber.

Throughout the upstroke, oil is drawn into the cylinder and when the plunger is in its upper position or thereabouts the cutoff valve is closed automatically and the down stroke of the plunger forces the oil out through the heck valve to the cylinder.

The operation of the cutoff valve is directly controlled by the extending cam G^1 which, in the rotation of the shaft engages the hook at the upper extremity of the valve stem carrying it upwardly till the cam is forced, due to the rotation of the shaft to clear the hook and the valve stem being set free is forced downwardly by the actuating spring M, closing the cutoff valve. It is to be noted that this is a particularly active cutoff.

The various position of the plunger and the cutoff valve are predetermined throughout the stroke by the relative position of the crank pin and the cam.

What I claim as my invention is:

1. In a device of the class described, the combination with an inclosed casing forming an oil receptacle, of a lower solid portion centrally disposed therein and having a passage-way extending longitudinally through the said portion and provided with an inlet opening into the passage-way from the receptacle, an outlet valve secured in the passage-way, a vertical working cylinder formed in the solid portion and extending into the passage-way, a plunger working in the cylinder, a packing ring at the top of the cylinder and adjoining the plunger, a crank shaft journaled in the casing, a connecting rod extending from the crank pin to the plunger, a cam protruding from the shaft, a spring pressed inlet cutoff valve extending into and through the passage-way, a hooked shank or stem extending upwardly from the inlet valve and designed to engage the cam, and means for revolving said shaft, as and for the purpose specified.

2. In a device of the class described, the combination with an oil reservoir having an inner block portion, said portion having a passage-way connecting the interior and the exterior of the reservoir, a cylinder communicating with the passage-way through the side walls thereof, a plunger operating in said cylinder, an eccentric actuating said plunger, a drive shaft for the eccentric, a second cylinder communicating with the passage-way through the side wall thereof, a conical valve operating in said second cylinder, a hooked stem to the valve, a cam on the drive shaft for engaging with the stem, a helical spring embracing the stem and adapted to seat the valve when released by the cam and a valve in the passage-way, said valves being located on opposite sides of the plunger.

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