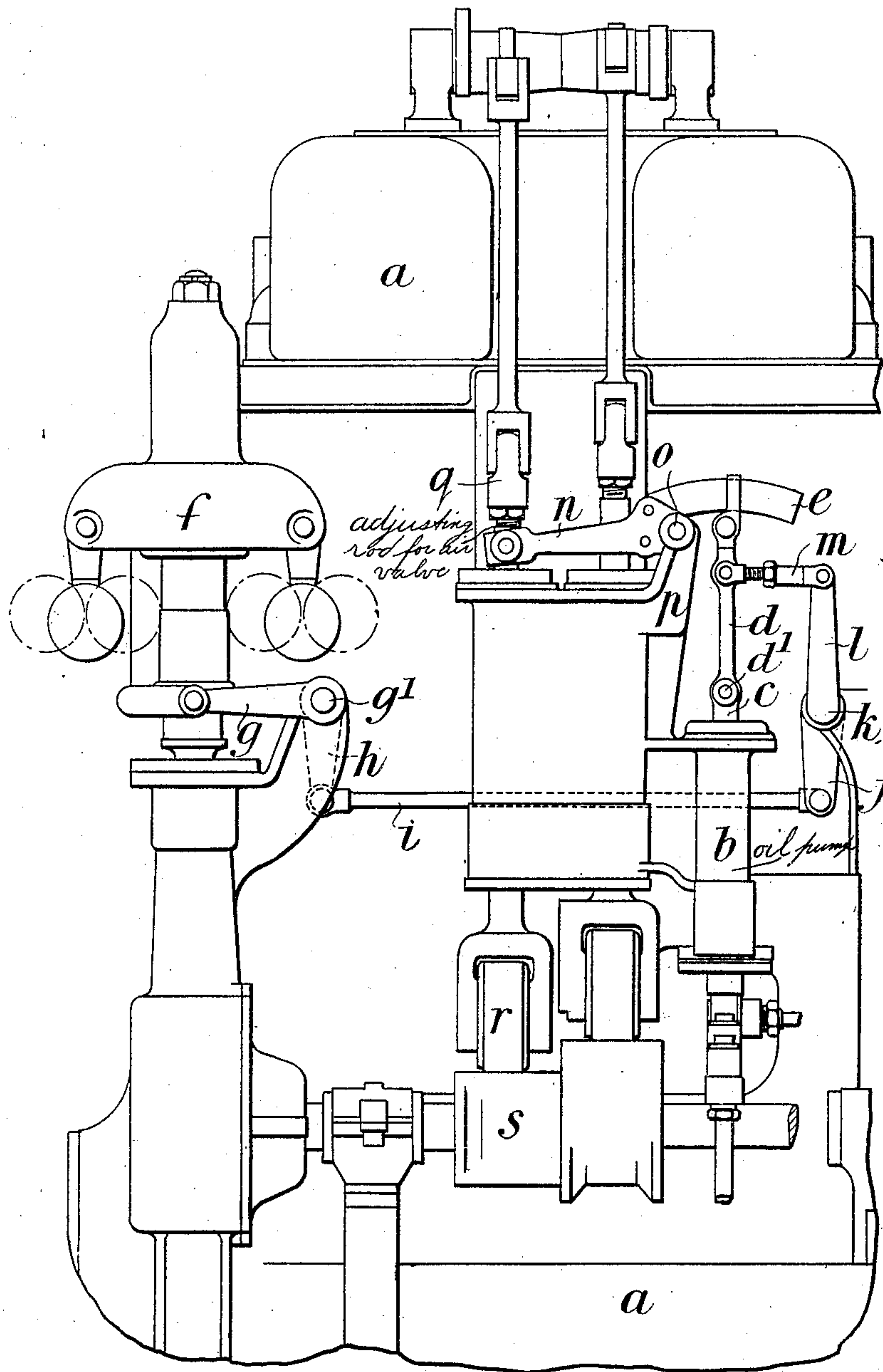


No. 832,422.

PATENTED OCT. 2, 1906.

D. ROBERTS & C. JAMES.
MEANS FOR GOVERNING OIL ENGINES.
APPLICATION FILED OCT. 29, 1904.



Witnesses
J. K. Moore
J. H. Hubbard

Inventors
David Roberts and
Charles James
By Whitaker & Perrot Attys

UNITED STATES PATENT OFFICE.

DAVID ROBERTS AND CHARLES JAMES, OF GRANTHAM, ENGLAND.

MEANS FOR GOVERNING OIL-ENGINES.

No. 832,422.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed October 29, 1904. Serial No. 230,501.

To all whom it may concern:

Be it known that we, DAVID ROBERTS and CHARLES JAMES, subjects of the King of Great Britain, residing at Spittlegate Iron Works, Grantham, in the county of Lincoln, England, have invented new and useful Improvements in Means for Governing Oil-Engines, of which the following is a specification.

In the drawing we have illustrated our invention, and the same is disclosed in the following description and claims.

In a suitable arrangement for carrying out the invention the governor is arranged to vary the position on a rocking quadrant-lever of a link connected to the oil-pump ram. The quadrant is actuated from a cam, preferably the air-admission cam, and the curvature of the quadrant is such that when it is in a certain position the link to the pump-ram can be moved on the quadrant without moving the ram.

In the accompanying drawing we have shown in elevation a part of an internal-combustion engine fitted with our improved mechanism for controlling the oil-supply.

a represents the motor; *b*, the pump; *c*, the pump-ram; *d*, the link pivoted at *d'* to the upper end of the pump-ram, and *e* the quadrant, to which the upper end of the link *d* is also attached and the curve of which is described from the point *d'* as center when in the position shown.

f is the governor, and *g* is a fork which engages with the sliding sleeve of the said governor, the said fork being mounted upon a rocking pivot *g'*, having an arm *h*, connected, by means of a link *i*, to an arm *j* upon a rocking spindle *k*, also having an arm *l*, connected, by means of the adjustable link *m*, to a point on the link *d* intermediate between the ram *c* and the quadrant *e*. The link *m* is made adjustable to different lengths, as shown, so that the normal position of the link upon the quadrant may be changed as desired. By lengthening the link *m* the normal position of the link *d* will be nearer the pivot of the quadrant. When thus placed, the changes in position effected by the governor will produce less variations of movement of the ram.

When the link *m* is shortened, the normal po-

sition of link *d* on the quadrant will be farther from the pivot of the quadrant and the changes in position effected by the governor will produce greater variations of movement in the ram.

The quadrant *e* is secured to an arm *n*, pivoted at *o* to a fixed bracket *p* and in connection with the rod *q* actuating the air-admission-valve. This rod at its lower end carries a roller *r*, which bears upon the periphery of the air-admission cam *s* upon the half-speed shaft.

With this arrangement when the engine is running the operation of the governor moves the link *d* over the quadrant *e* as the speed of the engine varies, thus adjusting the movement of the pump-ram *c* in accordance with such speed. By adjusting the length of the link *m* the position of the link in respect to the quadrant may be brought to the point at which the engine will run most uniformly with the average or usual load, according to the quality and character of the oil employed.

Where a single governor controls the supply of oil to vaporizers on a number of cylinders, the said governor will have a minimum of resistance to overcome, and in the case of four cylinders working on the four-cycle system with cranks at right angles the governor will not have more than the working resistance of one pump at a time to overcome.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In an oil-engine, the combination with the oil-supply pump, of a lever connected with the rod for actuating the air-admission valve, said lever being provided with a quadrant forming a part of said lever, a link for actuating said pump having a sliding engagement with said quadrant, and a governor operatively connected with said link by an adjustable connection to adjust its range of movement upon said quadrant and thereby vary the amount of oil supplied by said pump, substantially as described.

2. In an oil-engine, the combination with the oil-supply pump, of a lever connected with the rod for actuating the air-admission

valve, said lever being provided with a quadrant forming a part of said lever, a link for actuating said pump having a sliding engagement with said quadrant and a governor connected with said link, said connection including a rock-shaft having an arm extending toward said quadrant and an adjustable con-

nection between said arm and said link, substantially as described.

DAVID ROBERTS.
CHARLES JAMES.

Witnesses:

A. ALBUTT,
H. D. JAMESON.