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VALVE OPERATING MECHANISM FOR INTERNAL COMBUSTION ENGINES

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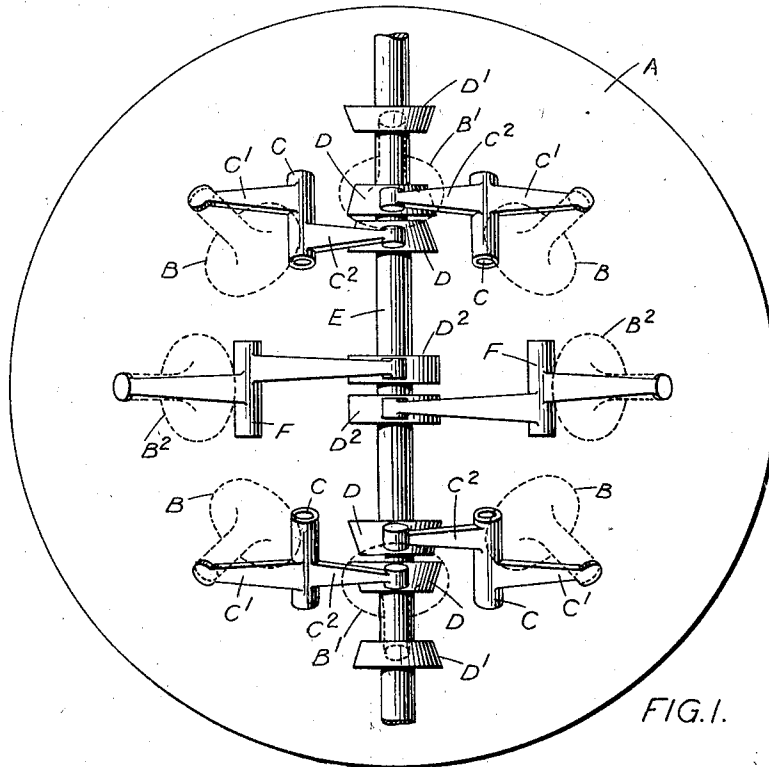


FIG. 1.

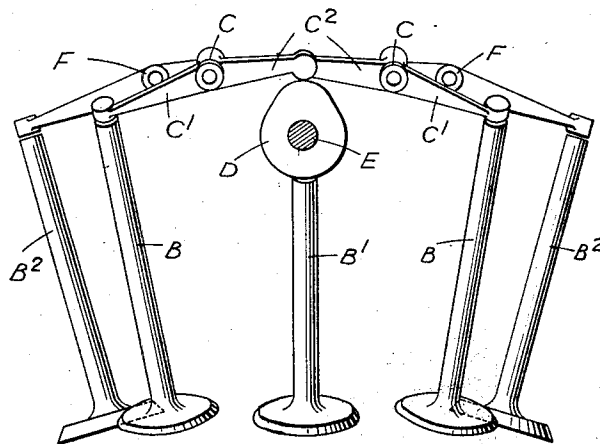


FIG. 2.

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UNITED STATES PATENT OFFICE.

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VALVE-OPERATING MECHANISM FOR INTERNAL-COMBUSTION ENGINES.

Application filed January 16, 1926, Serial No. 81,743, and in Great Britain July 10, 1925.

This invention relates to valve-operating mechanism for internal combustion engines of the kind in which each cylinder has four or more valves in its head inclined to the longitudinal axis of the cylinder.

An object of the invention is to simplify and improve such valve operating mechanism.

A further object is to provide improved means whereby the four valves may be operated from a single cam shaft.

The invention may be carried out in various ways but one construction according to this invention is illustrated diagrammatically by way of example in the accompanying drawings in which—

Figure 1 is a plan view of the cylinder head, and

Figure 2 is an end elevation looking in the direction of the axis of the cam shaft showing the valves without the cylinder.

In the construction illustrated the cylinder diagrammatically shown at A has four inclined valves B arranged in its head. Each of these valves is adapted to be acted upon by one arm C¹ of a rocker arm C mounted on a pivot the axis of which is substantially at right angles to a line parallel to the longitudinal axis of the valve on which it acts. The other arms C² of the rocker arms C rests on cams D each of which is mounted on a common cam shaft E and has its operating surface inclined to the axis of rotation of the cam shaft and substantially parallel to the axis about which the rocker arm on which it acts is adapted to swing.

If desired two valves B¹ may be provided having axes which pass through but are inclined to the cam shaft axis. These valves are each adapted to be operated directly from a cam D¹ mounted on the cam shaft E and having its operating face inclined to the cam shaft axis and substantial-

ly at right angles to the axis of the valve tappet or its equivalent with which it directly engages.

Alternatively or in addition to the valves B¹, two valves B² may be provided adapted to be operated through rocker arms F mounted on pivots the axes of which are substantially parallel to the cam shaft axis and each engaging at one end the valve tappet or its equivalent and at the other end a cam D² having its operating face parallel to the cam shaft axis.

The invention may be applied either to a single cylinder engine or a multicylinder engine and where it is applied to a multicylinder engine having one or more rows of cylinders, a single overhead cam shaft may carry all the cams for each cylinder row. Further, instead of a separate cam being provided for operating each valve, the valves may be operated in pairs from two cams, one rocker of each pair resting on the end of the other which in turn rests on the cam.

What I claim as my invention and desire to secure by Letters Patent is:—

In valve operating mechanism for internal combustion engines the combination of a cylinder, four valves in the cylinder head inclined to the cylinder axis, a cam shaft extending across the top of the cylinder at right angles to the axis thereof, a rocker arm acting on each valve, a pivot for each rocker arm the axis of which is at right angles to a line parallel to the axis of the valve which the rocker arm operates, and a cam acting on each rocker arm having its operative face inclined to the cam shaft axis and substantially parallel to the pivot of the rocker arm as set forth.

In testimony whereof I have signed my name to this specification.

GEORGE SHAKESPEARE WILKINSON.