

PN - [US2012204824](#) A1 20120816

PNFP - US8714125 B2 20140506

PR - JP20090232203
20091006; WO2010JP67380
20101004

AP - US201013500451 20101004

DT - **

CT - || STSE (B2)
[US7409938](#) B2 20080812 [
] (DENGLER STEFAN [DE])
- || R141 (A1)
[US7409938](#) B2 []

CCI - [F01L1/047](#) ; [F01L1/18](#) ; [F01L13/0042](#)

CCA - [F01L2013/0052](#) ; [Y10T74/20882](#) ;
[Y10T74/2107](#)

PA - (A1 B2)
KAMICHIKA TAKUROU [JP];
YAMAHA MOTOR CO LTD [JP]

TI - (A1 B2)
VALVE GEAR OF ENGINE

AB - (A1)
A **valve** drive system of an **engine** includes a **camshaft** that is supported by a **cylinder head** of the **engine** and on which a plurality of cams having different **valve** lift characteristics are formed at predetermined intervals (pitches), a **rocker shaft** that is supported by the **cylinder head** so as to be parallel to the **camshaft**, and a **rocker arm** that is swingably supported by the **rocker shaft**. The **rocker arm** is arranged between one of the cams and an intake **valve** or an exhaust **valve** and is arranged so as to be movable in an axial direction of the **rocker shaft**. A **presser** of the **rocker arm** that **presses** the intake **valve** or the exhaust **valve** extends in the axial direction with a length greater than a formation interval (pitch) between the cams. The **valve** drive system includes a drive unit that moves the **rocker arm** toward one side or toward an opposite side in the axial direction by the formation interval between the cams.

- (B2)
A **valve** drive system of an **engine** includes a **camshaft** that is supported by a **cylinder head** of the **engine** and on which a plurality of cams having different **valve** lift characteristics are arranged at predetermined intervals, a **rocker shaft** that is



supported by the **cylinder head** so as to be parallel or substantially parallel to the **camshaft**, and a **rocker arm** that is swingably supported by the **rocker shaft**. The **rocker arm** is arranged between one of the cams and an intake **valve** or an exhaust **valve** and is arranged so as to be movable in an axial direction of the **rocker shaft**. A **presser** of the **rocker arm** that **presses** the intake **valve** or the exhaust **valve** extends in the axial direction and has a length greater than an interval between the cams. The **valve** drive system includes a drive unit that moves the **rocker arm** toward one side or toward an opposite side in the axial direction by the interval between the cams.

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PN - [WO2011043301](#) A1 20110414

PR - JP20090232203 20091006

AP - WO2010JP67380 20101004

DT - **

CT - [JP] ISR (A1)
[JP2001020710](#) A [X];
[JP3365805B](#) B2 [Y];
[JPS63154437](#) A [Y]

CCI - [F01L1/047](#) ; [F01L1/18](#) ; [F01L13/0042](#)

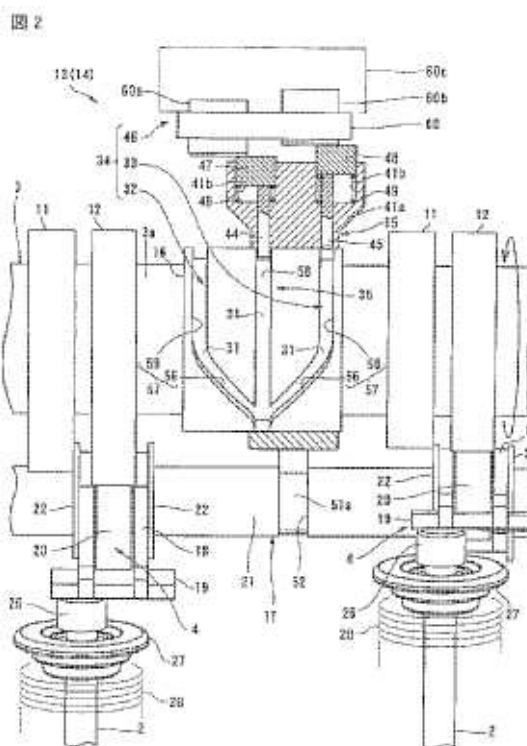
CCA - [F01L2013/0052](#) ; [Y10T74/20882](#) ;
[Y10T74/2107](#)

PA - YAMAHA MOTOR CO LTD [JP];
KAMICHIKA TAKUROU [JP]

TI - **VALVE GEAR FOR ENGINE**

AB - A **valve** gear for an **engine** includes: a **camshaft** which is supported by the **cylinder head** of the **engine** and on which cams having different **valve** lift characteristics are formed at predetermined intervals (pitches); a **rocker shaft** which is supported by the **cylinder head** so as to be parallel to the **camshaft**; and **rocker arms** which are rockably supported by the **rocker shaft**. A **rocker arm** is provided between one of cams and an intake **valve** or an exhaust **valve** and is configured to be movable in the direction of the axis of the **rocker shaft**, and the **presser** of the **rocker arm** which **presses** the intake **valve** or the exhaust **valve** extends in the axis direction by a length greater than each interval (pitch) of the cams. The **valve**

[002]



gear includes a drive device for moving the **rocker** arms in one or the other direction along the axis by the interval at which the cams are formed.

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- PN - [EP2487341](#) A1 20120815
- PNFP - EP2487341 A4 20130410
- EP2487341 B1 20141210
- PR - JP20090232203 20091006; WO2010JP67380 20101004
- AP - EP20100821971 20101004
- DT - *; Rep
- CT - || STSE (A4)
[JP2001020710](#) A 20010123 [X] (YAMAHA MOTOR CO LTD)
[X] 1,2
* the whole document *;
[JP558190507](#) A 19831107 [X] (NISSAN MOTOR)
[X] 1,2
* the whole document *;
[JPH06185322](#) A 19940705 [A] (AISIN SEIKI)
[A] 1-15
* the whole document *;
[DE19700736](#) A1 19980723 [A] (PORSCHE AG [DE])
[A] 1-15
* the whole document *;
[US2007034184](#) A1 20070215 [A] (DENGLER STEFAN [DE])
[A] 1-15
* the whole document *;
[EP2169188](#) A1 20100331 [AP] (HONDA MOTOR CO LTD [JP])
[AP] 1-15
* the whole document *;
[EP2169189](#) A1 20100331 [AP] (HONDA MOTOR CO LTD [JP])
[AP] 1-15
* the whole document *;
[EP2169190](#) A1 20100331 [AP] (HONDA MOTOR CO LTD [JP])
[AP] 1-15
* the whole document *
- CCI - [F01L1/047](#) ; [F01L1/18](#) ; [F01L13/0042](#)
- CCA - [F01L2013/0052](#) ; [Y10T74/20882](#) ; [Y10T74/2107](#)
- PA - (A1 A4 B1)
YAMAHA MOTOR CO LTD [JP]
- TI - (A1 A4 B1)
VALVE GEAR FOR ENGINE
- AB - (A1)
A **valve** drive system of an **engine** includes a **camshaft** that is supported by a **cylinder head** of the **engine** and on which a plurality of cams having different **valve** lift characteristics are formed at predetermined intervals (pitches), a **rocker shaft** that is supported by the **cylinder head** so as to be parallel to the **camshaft**, and a **rocker arm** that is swingably supported by the **rocker shaft**. The **rocker arm** is arranged between one of the cams and an intake **valve** or an exhaust **valve** and is arranged so as to be movable in an axial direction of the **rocker shaft**. A **presser** of the **rocker arm** that **presses** the intake **valve** or the exhaust **valve** extends in the axial direction with a length greater than a formation interval (pitch) between the cams. The **valve** drive system includes a drive unit that moves the **rocker arm** toward one side or toward an opposite side in the axial direction by the formation interval between the cams.

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- PN - [CN201786409U](#) U 20110406
- PR - CN20102536646U 20100920

AP - CN20102536646U 20100920
DT - I
PA - YANG WU
TI - Hydraulic transmission gas distribution system for motorcycle **engine**
AB - The utility model relates to motorcycle **engine** technology and in particular to a hydraulic transmission gas distribution system for motorcycle **engine** so disposed that a **cylinder head** cover of the motorcycle is internally provided with a left hydraulic **cylinder** and a right hydraulic **cylinder**, the piston rods of the left and the right hydraulic cylinders being respectively connected to an inlet **valve** and an exhaust **valve**, a crankcase being simultaneously provided with a high-**pressure** oil pump, a rotating **shaft** of the crankshaft being provided with a driving wheel for driving high-**pressure** oil pump and a correct time control **valve** for controlling folding of the inlet **valve** and the exhaust **valve** so as to change conventional mechanical transmission method of the gas distribution system of the motorcycle **engine** to hydraulic transmission method. The left and the right piston rods can realize folding of the inlet **valve** and the exhaust **valve** by telescoping thereof, which also eliminates mechanical components which are easily damaged such as a correct time chain, a **camshaft**, a **rocker arm**, etc from petrol **engine**. The elimination of these mechanical components will not cause mechanical wearing and friction noise, which can reduce fault incidence rate, increase service time of gasoline **engine**, increase working performance of **engine**, and reduce noise of **engine**.

7/18 © EPODOC / EPO

PN - [CN101936199](#) A 20110105
PNFP - CN101936199B B 20121003
PR - CN20101287690 20100920
AP - CN20101287690 20100920
DT - I
CT - (A)
[US4206728](#) A []; [JPH09100706](#) A [];
[CN1529041](#) A []; [JPH0734833](#) A [];
[WO2004085858](#) A1 []; [EP0197033](#) A1 [];
[CN201786409U](#) U []
PA - (A B)
YANG WU
TI - (A B)
Hydraulic transmission air distribution system of motorcar **engine**
AB - (A B)

The invention relates to the technical field of motorcar engines, in particular to a hydraulic transmission air distribution system of a motorcar **engine**. In the system, a left hydraulic **cylinder** and a right hydraulic **cylinder** are arranged in a **cylinder head** cover of a motorcar; piston rods of the left hydraulic **cylinder** and the right hydraulic **cylinder** are connected with an intake **valve** and an exhaust **valve** respectively; a high-**pressure** oil pump is arranged on a crank case at the same time; and a driving gear used for driving the high-**pressure** oil pump and a timing control **valve** used for controlling the opening and closing of the intake **valve** and the exhaust **valve** are arranged on a rotary **shaft** of the crank **shaft**. Thus the air distribution system of the motorcar **engine** is changed to a hydraulic transmission way from the original mechanical transmission way. The expansion of the left and right piston rods realizes the opening and closing of the intake **valve** and the exhaust **valve**. Vulnerable mechanical components, such as a timing chain, a **camshaft**, a **rocker arm** and the like, are eliminated from a petrol **engine**, so that phenomena of mechanical wear and frictional noise disappear without the mechanical components; and thus the occurrence rate of malfunctions is reduced, the service life of the petrol **engine** is prolonged, the working performances of the **engine** is improved and the noise of the **engine** is also reduced.

8/18 © EPODOC / EPO

PN - [CN201521322U](#) U 20100707
PR - CN20092219285U 20091020
AP - CN20092219285U 20091020

DT - I

PA - SANYANG INDUSTRY CO LTD

TI - **Engine pressure** reduction device

AB - The utility model relates to an **engine pressure** reduction device, which is provided with a **cylinder head** and is characterized by comprising a **camshaft**, a one-way clutch, a **pressure** reduction cam, a **valve** driving part and a pushing part. The one-way clutch is sleeved on the **camshaft** and transmits torsion when the **camshaft** is in counter rotation, the **pressure** reduction cam is fixedly arranged on an outer ring peripheral surface of the one-way clutch and comprises a working portion, the **valve** driving part comprises an **arm shaft**, an **arm** and a roller wheel, the **arm** is pivotally arranged on the **arm shaft**, a driven portion is arranged on a lateral direction of the **arm**, the roller wheel is pivotally arranged on the **arm**, the pushing part is pivotally arranged on the **arm shaft** and comprises an abutting portion and a driving portion, and when the **camshaft** is in counter rotation, the working portion drives the driving portion to push the driven portion to lead the **arm** to rotate. When the **camshaft** is in counter rotation, the working portion of the **pressure** reduction cam drive the driving portion to push the driven portion so as to lead the **arm** of the **valve** driving part to rotate, thereby being capable of preventing widths of a **rocker arm** and the roller wheel from being enlarged to increase dynamic load of the **valve** driving part when in high rotating speed.

9/18 © EPODOC / EPO

PN - [CN201225184Y](#) 20090422

PR - CN2008298450U 20080530

AP - CN2008298450U 20080530

DT - I

PA - CHONGQING WANGJIANG SUZUKI ENG [CN]

TI - Overhead cam type motorcycle **engine valve** mechanism

AB - The utility model relates to a **valve** actuating mechanism of an overhead cam type motorcycle **engine**, which comprises a **camshaft** and two **rocker** arms, wherein the two **rocker** arms are sleeved on a **rocker arm shaft** through **shaft** holes on **shaft** shoulders of the **rocker** arms, and the **rocker arm shaft** is fixed on a **cylinder head** cover; a torsional spring is arranged on the **shaft** shoulders of the **rocker** arms, one end of the torsional spring is hooked on a bolt **arm** of a **valve rocker arm**, and the other end of the torsional spring leans against a positioning seat of the **cylinder head** cover. In the utility model, as the torsional spring is arranged on the **shaft** shoulders of the **rocker** arms, the **pressure** contact between a **valve** bolt of the **rocker** arms and a **valve** can be always kept under the elasticity action of the torsional spring, thereby a clearance generated from overheating or abrasion of the **rocker arm** bolt and the **valve** of the **valve** actuating mechanism during the working process and the impulse noise between the **rocker arm** bolt and the **valve** can be effectively eliminated.

10/18 © EPODOC / EPO

PN - [JP2008240634A](#) 20081009

PR - JP20070082074 20070327

AP - JP20070082074 20070327

DT - I

FI - F01L1/18&H; F01L1/26&B; F02F1/24&F

FT - 3G016/AA02; 3G016/AA05; 3G016/AA19; 3G016/BA03; 3G016/BA06; 3G016/BB12; 3G016/BB19; 3G016/BB24; 3G016/CA14; 3G016/CA28; 3G016/CA39; 3G016/CA46; 3G016/GA01; 3G016/GA02; 3G024/AA05; 3G024/DA02; 3G024/DA03; 3G024/DA06; 3G024/DA08; 3G024/FA06; 3G024/FA13

PA - HONDA MOTOR CO LTD

TI - **VALVE GEAR OF ENGINE**

AB - PROBLEM TO BE SOLVED: To provide a **valve** gear of an **engine** having high durability, equally distributing input to a pair of **engine** valves from a **rocker arm**.
- SOLUTION: This **valve** gear of the **engine** has **valve** springs 5 respectively energizing the pair of **engine** valves 2 installed on a **cylinder head** 1 of the **engine** in the closing direction, a bridge member 8 arranged to be bridged between **head** parts of both **engine** valves 2, the **rocker arm** 10 rockingly supported by the **cylinder head** 1 via a **rocker shaft** 9 and opening both **engine** valves 2, 3 by **pressing** a **pressure** receiving surface 20 formed in an

intermediate part of the bridge member 8 by a rocking end part, and a **camshaft** 6 driving this **rocker arm** 10 to the opening side of the **engine** valves 2, 3. A roller 11 rolling on the **pressure** receiving surface 20 of the bridge member 8 in response to rocking of this **rocker arm** 10, is supported by the **rocker arm** 10.

- COPYRIGHT: (C)2009,JPO&INPIT

11/18 © EPODOC / EPO

PN - [TWI248491B](#) B 20060201
 PNFP - TW200424425 A 20041116
 PR - JP20030075775 20030319
 AP - TW20040105394 20040302
 DT - I
 CCI - [F01L1/022](#) ; [F01L1/182](#) ; [F01L1/46](#)
 CCA - [F01L2105/00](#)
 PA - (A B)
 HONDA MOTOR CO LTD [JP]
 TI - (A B)
 Rotation prevention device for **rocker arm shaft**
 AB - (A B)

The object of the present invention is to improve a rotation prevention device for a **rocker arm shaft** of a **valve** system of an internal combustion **engine**. In the **valve** system of the internal combustion **engine**, a pair of **rocker arm** shafts (26) is supported in a parallel and spaced manner in a **cylinder head** (4) of the internal combustion **engine** and the pair of **rocker** arms that respectively connect suction/discharge cams with suction/discharge valves is swingably supported by the **rocker arm** shafts (26). A cutout (26a) is formed in portions of the **rocker arm** shafts (26) in an opposing manner. Between the cutouts (26a) is inserted a restriction member (40) with a non-parallel cross-section when seen from a **camshaft** direction. The restriction member (40) is **pressed** by an inner surface of a **cylinder head** cover (5).

12/18 © EPODOC / EPO

PN - [JP2007162597](#) A 20070628
 PR - JP20050361141 20051215
 AP - JP20050361141 20051215
 DT - I
 CT - [JP2001055915](#) A []; [JP2004346823](#) A [];
[JP2005098279](#) A []; [JP2005069014](#) A [];
[JP2003172189](#) A []; [JP2001227315](#) A [];
[JP2003343224](#) A []; [JPH0674011](#) A []
 FI - F01L13/00&301K
 FT - 3G018/AB04; 3G018/BA11; 3G018/CA07; 3G018/DA08; 3G018/FA01; 3G018/FA06; 3G018/FA07; 3G018/GA14
 PA - HITACHI LTD
 TI - VARIABLE **VALVE** GEAR OF INTERNAL COMBUSTION **ENGINE**
 AB - PROBLEM TO BE SOLVED: To provide a variable **valve** gear in which a proper **valve** lift amount is secured while reducing cost by making it applicable without largely changing the structure of an existing **cylinder head**.
 - SOLUTION: A **valve** operation member 8 is swung through a first link member 21 according to the rotation of a drive cam 5a formed on a **camshaft** 5 so that a cam surface 20 **presses** a **rocker arm** 6 to open and close intake valves 3, 3. The **valve** operation member 8 comprises a hook-like portion 8a curvedly formed so as to bypass the outer periphery of the **camshaft**. The lift amounts of the intake valves can be variably controlled by controlling the rotating position of a control cam 24 through a control **shaft** 23 to change the position of the swing pivot of a pivot pin 18.
 - COPYRIGHT: (C)2007,JPO&INPIT

13/18 © EPODOC / EPO

PN - [JP2004285845](#) A 20041014

PNFP - JP4052964B B2 20080227

PR - JP20030075775 20030319

AP - JP20030075775 20030319

DT - I

CCI - [F01L1/022](#) ; [F01L1/182](#) ; [F01L1/46](#)

CCA - [F01L2105/00](#)

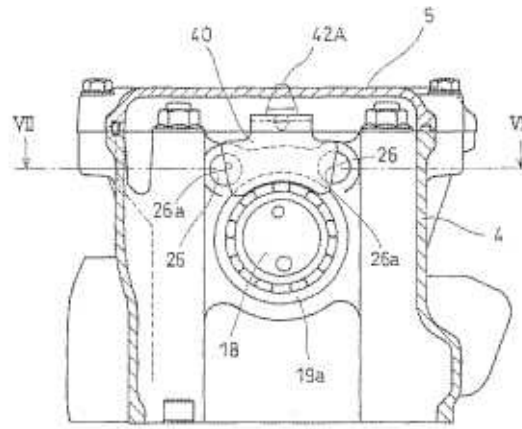
FI - F01L1/18&D; F01L1/18&M

FT - 3G016/AA02; 3G016/AA06;
3G016/AA07; 3G016/AA15;
3G016/AA19; 3G016/BA18;
3G016/BB26; 3G016/CA02;
3G016/CA23; 3G016/CA29;
3G016/CA41; 3G016/EA02;
3G016/FA12; 3G016/FA26;
3G016/FA36; 3G016/FA38

PA - (A)
HONDA MOTOR CO LTD

TI - (A)
ROTATION STOPPER FOR **ROCKER-
ARM SHAFT**

AB - (A)
PROBLEM TO BE SOLVED: To
improve a rotation stopper for
a **rocker-arm shaft** of a **valve**
system of an internal
combustion **engine**.
- SOLUTION: In the **valve** system of
the internal combustion **engine**, a
pair of **rocker-arm** shafts 26 are
spaced from and disposed in
parallel with each other in
a **cylinder head** 4 of the internal
combustion **engine**, and the pair
of the **rocker arm** respectively
connecting intake/exhaust cams
with intake/exhaust valves are
rockably supported by the **rocker-
arm** shafts 26. In the rotation
stopper for the **rocker-arm shaft**,
cutout parts 26a facing each
other are formed in a part of
each of the pair of **rocker-arm**
shafts 26, a regulation member
40 having an inclined cross-
sectional surface seen from
a **camshaft** direction is inserted
between the cutout parts 26a,
and the regulation member 40
is **pressed** by an inner face of
a **cylinder head** cover 5.
- COPYRIGHT: (C)2005,JPO&NCIPI



14/18 © EPODOC / EPO

PN - [JP2001263018](#) A 20010926

PR - JP20000073549 20000316

AP - JP20000073549 20000316

DT - I

FI - F01L13/08&C; F01L13/08&F

FT - 3G018/AA05; 3G018/AB05; 3G018/AB18; 3G018/BA32; 3G018/BA36; 3G018/CA07; 3G018/CB03; 3G018/DA14; 3G018/DA32; 3G018/DA69; 3G018/EA21; 3G018/EA22; 3G018/FA17; 3G018/GA11; 3G018/GA14; 3G018/GA23

PA - FUJI HEAVY IND LTD

TI - DECOMPRESSION DEVICE FOR **ENGINE**

AB - PROBLEM TO BE SOLVED: To provide a decompression device for an **engine** not having necessity for working an elongated hole on a **camshaft** without generating abrasion caused by an operation of the decompression device on a slipper surface of a **rocker arm**. SOLUTION: When the decompression device is not operated, a half arc part 21a of a decompression cam 21 is positioned holding a prescribed clearance from an inner wall surface 4a or a hollow semicylindrical part 4b. The half arc part 21b is brought into contact with a **head** part horizontal member 22a of a piston 22 on which energization force of a spring 23 is received, and an end part of a leg part vertical member 22b of the piston 22 does not abut on an **arm** end part 12a of the **rocker arm** 12. When the decompression device is operated, the piston 22 is pushed down against energization force of the spring 23 by rotation of the decompression cam 21 in association with rotation of a decompression **shaft** 20, it abuts on the **arm** end part 12a, and the **arm** end part 12a is pushed down. As a result, an exhaust **valve** 6 is little opened, internal **cylinder pressure** is reduced, and thereby, a start resistance is reduced.

15/18 © EPODOC / EPO

PN - [JPH01177401](#) A 19890713

PNFP - JP2565521B B2 19961218

PR - JP19870329892 19871228

AP - JP19870329892 19871228

DT - I

FI - F01L1/12&C; F01L1/12&Z; F01L1/24&D; F01L1/245&D

FT - 3G016/AA02; 3G016/BA33; 3G016/BB18; 3G016/BB19; 3G016/BB21; 3G016/BB26; 3G016/BB29; 3G016/BB32; 3G016/BB38; 3G016/BB39; 3G016/CA12; 3G016/CA36; 3G016/DA18; 3G016/DA22; 3G016/GA00; 3G016/GA01

PA - (A)
SUZUKI MOTOR CO

TI - (A)
HYDRAULIC TAPPET OIL FEEDER FOR FOUR-CYCLE **ENGINE**

AB - (A)
PURPOSE: To reduce the number of oil holes which are drilled in a **cylinder head** and reduce the man-hour of casting and processing of the **cylinder head** by drilling a concentric oil hole in a **rocker shaft** which rotatably supports a **rocker arm** and feeding oil from this concentric oil hole to hydraulic tappets. CONSTITUTION: When a **camshaft** 14 rotates, an air intake cam 15 makes one **rocker arm** 7 oscillate making a pivot 8 a supporting point and depresses an air intake **valve** 5 to make it open. An exhaust cam 16 makes the other **rocker arm** 11 oscillate around a **rocker shaft** 12 and depresses an exhaust **valve** 6 to make it open. In this case, hydraulic **pressure** of lubricating oil is added from the concentric oil hole 17 of the **rocker shaft** 12 via a side hole 18 to a hydraulic tappet 10, so that a space between one **rocker arm** 7 and the air intake **valve** 5 is kept zero. And hydraulic **pressure** is added from the concentric oil hole 17 via the side hole 18 and the oil hole 20 of the other **rocker arm** 11 to a hydraulic tappet 13, so that a space between the hydraulic tappet 13 and the exhaust **valve** 6 is kept zero.

16/18 © EPODOC / EPO

PN - [JPH02291409](#) A 19901203

PNFP - JP2741691B B2 19980422

PR - JP19890110720 19890428

AP - JP19890110720 19890428

DT - I

CCI - [F01L1/18](#)

CCA - [F02F7/006](#)

FI - F01L1/18&F; F01L1/26&Z

FT - 3G016/AA07; 3G016/BA27; 3G016/BB09; 3G016/BB26; 3G016/CA31; 3G016/CA57; 3G016/FA38; 3G016/GA00; 3G016/GA01

PA - (A)
SUZUKI MOTOR CO

TI - (A)
VALVE SYSTEM FOR INTERNAL COMBUSTION ENGINE

AB - (A)
PURPOSE:To miniaturize the holding part of a **rocker shaft** by respectively providing a positioning part projecting in the axial direction of the **rocker shaft** on a **rocker arm** and a thrust receiving part projecting to the **rocker arm** side on a **cylinder head**, and positioning the **rocker arm** through engagement of both. CONSTITUTION:In a **valve** system 10 in which intake and exhaust valves are opened or closed by rotation of a **camshaft** 12 through first and second **rocker** arms 20, 24, a positioning part 34a projecting in the axial direction of a **rocker shaft** 26 is provided on the side of a fluctuating **arm** part 34 which is provided with a **pressing** part 28 to **press** the **valve** stem end and a contacting part 32 to contact with the cam part 12a of the **camshaft** 12 of the **rocker arm** 20 (24 is also substantially similar to 20) respectively on its both ends. Meanwhile, on a **cylinder head** 4, a thrust receiving face 36 projecting to the **rocker arm** 20 side is provided for positioning the **rocker arm** 20. Positioning of the **rocker arm** 20 can be performed by **pressing** the positioning part 34a with the thrust receiving face 36.

17/18 © EPODOC / EPO

PN - [JP559226216](#) A 19841219

PNFP - JPH0140203B B2 19890825

PR - JP19830100505 19830606

AP - JP19830100505 19830606

DT - I

CCI - [F01L1/267](#) ; [F01L13/0005](#)

FI - F01L13/00&302B

FT - 3G018/AB04; 3G018/AB17; 3G018/BA13; 3G018/CA19; 3G018/CB02; 3G018/DA10; 3G018/DA12; 3G018/DA18; 3G018/DA28; 3G018/DA51; 3G018/DA57; 3G018/DA85; 3G018/EA02; 3G018/EA03; 3G018/EA17; 3G018/FA11; 3G018/GA02; 3G018/GA03; 3G018/GA14

PA - (A)
HONDA MOTOR CO LTD

TI - (A)
VALVE GEAR EQUIPPED WITH DEACTIVATING FUNCTION FOR INTERNAL-COMBUSTION ENGINE

AB - (A)
PURPOSE:To obtain the highly reliable selective actuation of deactivating function by a simple structure wherein the connection between two **rocker** arms, which actuate each pair of valves, is selectively made possible by means of a hydraulically driven plunger in an internal-combustion **engine** providing with each one pair of suction and exhaust valves per one **cylinder**. CONSTITUTION:Two rockers arms 19 and 20 adjacent to each other are pivotally supported on a fulcrum **shaft** 18 at the upper part of a **cylinder head** 4. A cam splipper 27, with which the cam on a **camshaft** slidably contacts, is arranged on the upper surface of the **rocker arm** 19. In addition, a **cylinder** hole 33, in which a plunger 32 is slidably housed, is formed on the **rocker arm** 19 and at the same time a bottomed guide hole 34, in which the plunger 32 can be inserted, is bored on the **rocker arm** 20. A guide pin 42 is inserted in the guide hole 34 and energized by a spring 44 in the direction of the plunger 32. In such a structure as mentioned above, only a suction **valve** is open and closed at the low **engine** rotating speed and both the suction and exhaust valves are open and closed by making both the **rocker** arms 19 and 20 into an integral body through the protrusion of the plunger 32 by means of hydraulic **pressure** at the speed exceeding the set rotating speed.

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PN - [GB563372](#) A 19440810

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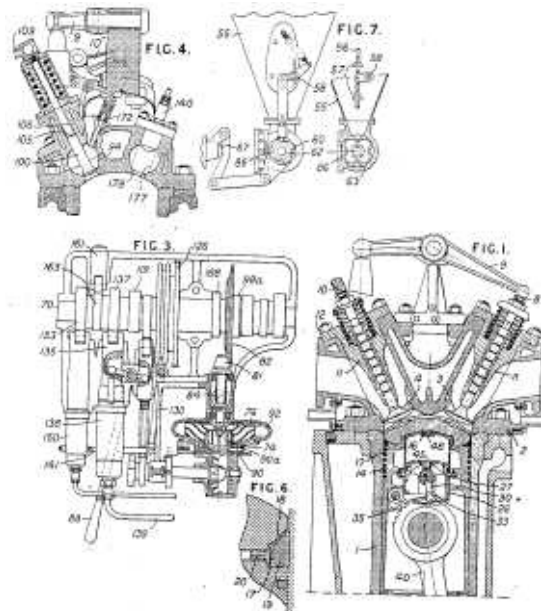
CCI - [F02M21/12](#)

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PA - ANTONIO PEPPINO CASTELLINI;
ROBEY & COMPANY LTD

TI - Improvements in internal
combustion engines

AB - 563,372. Compression-ignition
internal-combustion engines.
CASTELLINI, A. P., and ROBEY &
CO., Ltd. March 24, 1943, No. 4801.
[Classes 7 (ii), 7 (iii) and 7 (vi)] A
compression-ignition internal-
combustion **engine** for using
powdered fuel has a positive
feed device for feeding fuel to a
measuring drum, whence
measured charges pass first to
an aerating turbine associated
with an adjustable air **valve** and
then through a preheating
chamber to the working **cylinder**.
In the application to a single-
cylinder 4-stroke **engine** of Diesel
type, the **cylinder** 1, Fig. 1, has
a **head** 2 which is preferably
detachable so that existing
engines may be modified.
The **head** is provided with an
air **valve** 3 operated by a **rocker** 9
and an exhaust-**valve** 4 operated
by a **rocker** 10. The valves operate
in detachable guides 11 bolted
to the **head** at 12 and have
adjustable stems 8. The main
piston 14 which is recessed to
clear the **valve** heads has a cavity
in its **head** which accommodates
a small **cylinder** 26 secured in
position by bolts 27. This **cylinder**
has a piston whose **head** is fitted
with a non-return **valve** 45, the
piston being operated during the
reciprocation of the main piston
by means of a toothed segment
on the small end 40 engaging a
segment on a lever **arm** 35
pivoted at 33 to the connecting-
rod 30. The upper part of the
auxiliary **cylinder** has a **valve** 48
leading via chamber 16 and
radial passages to a peripheral
groove 17, Fig. 6. Normally, a
spring ring 19 engages valves 20
to close the radial passages,
but **pressure** of air in the
passages opens the valves and
expands the ring, thus allowing
air to escape along passages 18



and clearing dust, ash, &c. from the walls of the working **cylinder**. Air from the crank-case enters the secondary **cylinder** through **valve** 45 and is forced past **valve** 48 to the radial passages on upward movement of the secondary piston. The fuel feed hopper 55, Fig. 7, for powdered carbonaceous fuel such as anthracite with a small proportion of bituminous or volatile fuel, carries a reciprocating rod 56 provided with fins 57 and actuated through an **arm** 58 from a cam-wheel 60 operated intermittently through pawl-and-ratchet mechanism from a camactuated tappet 67. The **shaft** 62 of the camwheel carries a recessed feed-drum 63 receiving measured amounts of fuel from the hopper. The feed-drum communicates through a regulating-shutter 86 with the inlet 74 of a turbine rotor having blades 76 which aerate the fuel particles. The turbine is driven from the halfspeed cam- **shaft** 70 through bevel gearing 82, 81 and free-wheel device. A starting **shaft** 84 is also geared to the turbine **shaft** and may be driven from a starting motor energized from an electrical source for starting the **engine** on solid fuel. The front cover of the turbine casing is perforated at 90 and coacts with a perforated adjusting ring 90a to vary the air supply to the turbine. The walls of the hopper may be jacketed and heated by exhaust gas to keep the fuel dry. A port 92 leading from the turbine is controlled by a **valve** which is operated by lever mechanism from a cam 98a to admit fuel to a chamber 94, Fig. 4. From this chamber a spring-loaded **valve** 100 opened by a lever 109 actuated by a cam 119 allows fuel to pass to the working **cylinder**. A conical shoulder on the **valve** stem coacts with a seating 106 in the guide. One of the tappets in the actuating-train of **valve** 100 may be lengthened and shortened by the coaction of helical surfaces on its component parts so that the **valve** 100 may be put out of action if liquid fuel is to be

used. The change-over is effected by a lever 88 which is also connected to the mechanism for imparting movement to the feeddrum so that the solid fuel feed is put out of action and the **valve** 100 locked against opening when change-over is effected. At the same time a tappet 135 is engaged with a cam 137 to bring into action a pump 138 supplying through conduit 139 an injector nozzle 140, Fig. 4. Another **valve** 172 in the chamber 94 allows inflow of air during the exhaust period of the working **cylinder**. For governing the **engine** speed, a governor of the centrifugal type is driven by gearing 126 and actuates a lever 130 connected to the shutter 86. The lever 130 also controls liquid fuel supply through a rack 141. A water-pump 150 may be operated by a cam 153 to supply water to an injection nozzle. The **engine** may be started by compressed air supplied to a **valve** operated through lever mechanism from a cam 163 on the **camshaft** 70. This compressed air is admitted on the explosion stroke only and the tappet 161 is rendered inoperative as soon as the **engine** starts. To reduce the starting effort a decompressor lever is rocked by a cam 168 so that it engages a roller on the exhaust **valve rocker** and opens the exhaust **valve** for part of the compression stroke. Ignition of the charge begins to occur in the chamber 94. At about 5 degrees before the beginning of the power stroke the **valve** 100 is opened admitting this partly ignited mixture into the compressed air charge in the **cylinder** where complete ignition occurs. The **valve** 100 remains open till near the end of the suction stroke so that the chamber 94 is first exhausted and then supplied with fresh air through the **valve** 172. Water may be injected by pump 150 after the beginning of the power stroke. When solid fuel is being used, the injector 140 is replaced by a plug'177 which closes the port 178. In a modification, the chamber 176 is dispensed with and the chamber 94 fitted with

alternative devices for the use of
solid or liquid fuel.

[SS 13]