June 26, 1923. 1,459,906

H. DEMERS

COMPRESSION RELIEVING MECHANISM FOR INTERNAL COMBUSTION ENGINES

Filed June 17, 1921

Fig. 1.

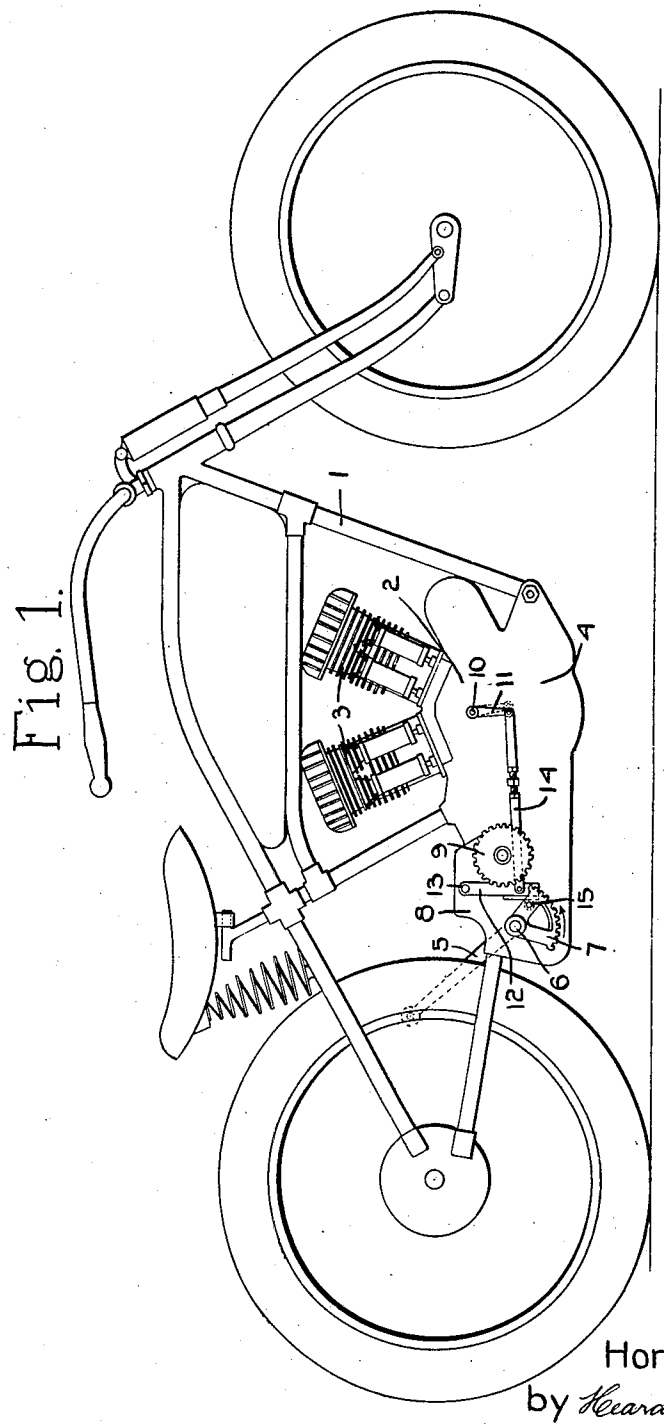


Fig. 2.

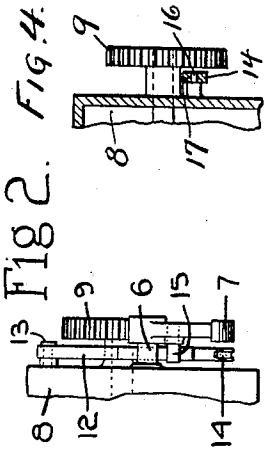
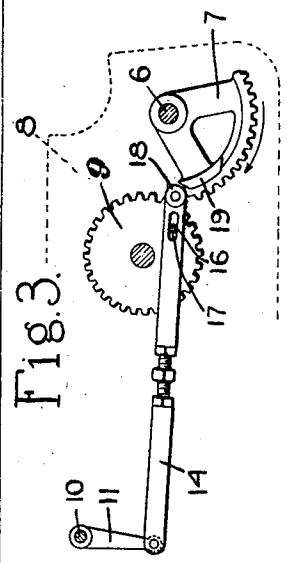


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

HONORE DEMERS, OF MANCHESTER, NEW HAMPSHIRE.

COMPRESSION-RELIEVING MECHANISM FOR INTERNAL-COMBUSTION ENGINES.

Application filed June 17, 1921. Serial No. 478,330.

To all whom it may concern:

Be it known that I, HONORE DEMERS, a citizen of the United States, residing at Manchester, county of Hillsborough, State of New Hampshire, have invented an Improvement in Compression-Relieving Mechanism for Internal-Combustion Engines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to internal combustion engines and particularly to a device for relieving the compression in the cylinders of the engine when the latter is being started thereby to facilitate the cranking of the engine. Although the invention is capable of being used on various types of internal combustion engines, yet it is specially applicable to internal combustion engines used in motor cycles and as thus applied the invention is constructed so that the operation of cranking the engine will automatically relieve the compression in the cylinders thus rendering the cranking operation easy and facilitating the starting of the engine.

In order to give an understanding of the invention I have illustrated in the drawings a selected embodiment thereof which will now be described after which the novel features will be pointed out in the appended claim.

In the drawings:

Fig. 1 is a side view of a motor cycle having an internal combustion engine embodying my invention.

Fig. 2 is a rear end view of the compression relieving mechanism.

Fig. 3 is a view showing a different embodiment of the invention.

Fig. 4 is a vertical sectional view taken in the vertical line of the pin 16 Fig. 3.

As stated above my invention is particularly applicable to internal combustion engines such as are used in motor cycles and in Fig. 1, 1 indicates a motor cycle frame and 2 the engine of any suitable construction by which the motor cycle is operated. This engine is shown as having the two cylinders 3, the crank case 4, the gear box 8, the starting crank 5 by which the engine is started and which is mounted on the shaft 6 carrying the sector gear 7, and the starting gear 9 with which the sector gear 7 meshes to start the engine when the pedal or crank 5 is depressed.

The parts thus far described are, or may be, all as usual in internal combustion engines of this type and form no part of my present invention.

To facilitate the starting of internal combustion engines such as are used on motor cycles it is customary to provide means to relieve the compression in the cylinders by opening the exhaust valve slightly and 10 indicates a shaft which when turned or rocked slightly will operate to open the exhaust valves. This shaft 10 and the mechanism actuated by the turning thereof to relieve the compression is common to various types of internal combustion engines and for this reason I have not illustrated in detail the valve-opening mechanism.

My invention relates to novel means whereby the shaft 10 may be operated when the pedal 5 is depressed to start the engine so that the relieving of the compression in the cylinders will be properly timed with the cranking of the engine.

In Figs. 1 and 2 I accomplish this by providing a lever 12 which is pivoted at its upper end to the gear box at 13 and is connected to a link 14 which in turn is pivotally connected to an arm 11 fast on the valve-controlling shaft 10. The sector gear 7 is provided with a laterally-extending pin 15 which engages the lever 12 when the gear 7 is rotating in the direction of the arrow Fig. 1 by the depression of the starting pedal 5 and the engagement of the pin 15 with the lever 12 will swing the latter to the right and such movement of the lever is communicated to the arm 11 through the link 14 thereby swinging the arm 11 into the dotted line position Fig. 1 and turning the shaft 10 sufficiently to open the exhaust valves and relieve the compression. With this arrangement, therefore, the compresion will be automatically relieved at the proper time relative to the cranking operation so as to facilitate the starting of the motor.

In Fig. 3 I have shown a different embodiment of the invention wherein the link 14 is guided by means of a pin 16 extending from the gear box 8 and operating in a slot 17 formed in the link. In this construction the end of the link 14 is provided with a roll 18 adapted to be actuated by a cam 19 formed on the sector gear 7 so that when the sector gear is rotated in the direction of the arrow the cam will move the link 14 forwardly thereby turning the shaft 10 and

opening the exhaust valves sufficiently to relieve the compression.

I claim.

In a motor cycle, the combination with a motor cycle frame having a gear box, of an internal combustion engine having a shaft by which the compression in the cylinders may be relieved, a starting gear, a starting pedal, a sector gear rigid with the starting pedal and adapted to actuate the starting gear, an arm fast on said shaft, a slotted link pivoted to said arm, a guiding pin extending from the gear box and operating in said slot and by which the link is guided, and a cam on the periphery of said sector gear adapted to engage the end of the link and thereby operate the shaft to relieve the pressure in the engine cylinders.

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

HONORE DEMERS.