

April 22, 1924.

1,491,716

T. M. McKELVY

TIMING GEAR CHAIN ADJUSTER

Filed April 10, 1922

Fig. 1.

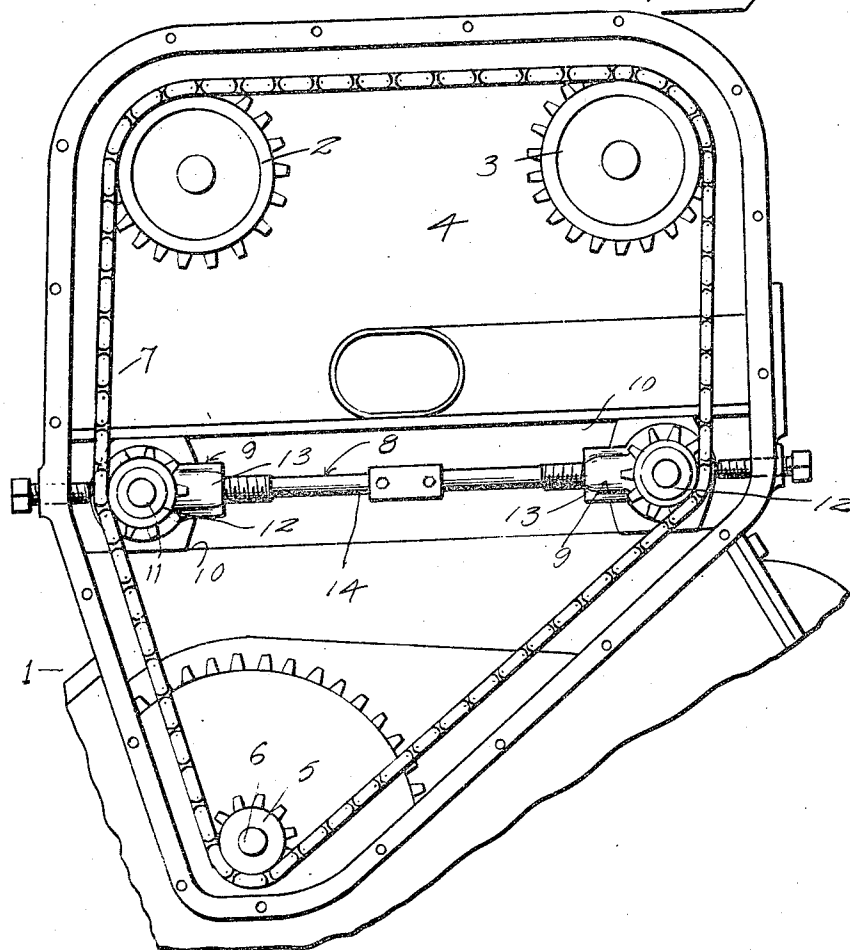
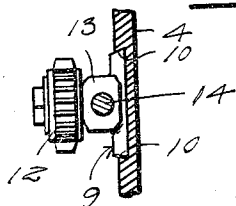


Fig. 2.



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UNITED STATES PATENT OFFICE.

THOMAS M. McKELVY, OF FRESNO, CALIFORNIA.

TIMING-GEAR-CHAIN ADJUSTER.

Application filed April 10, 1922. Serial No. 551,429.

To all whom it may concern:

Be it known that I, THOMAS M. McKELVY, a citizen of the United States, residing at Fresno, in the county of Fresno and State of California, have invented certain new and useful Improvements in Timing-Gear-Chain Adjusters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in internal combustion engine timing gear chain adjusters and has for its primary object the provision of a device especially adapted for taking up the slack in the chain employed to drive the rotary intake and exhaust valves of an engine, and which forms the subject matter of my copending application filed September 12th, 1921, and serially numbered 500,029 by applying force or tension to each vertical run of the chain, and which device may be easily and quickly actuated with the minimum expenditure of manual labor and time.

Another object of this invention is the provision of a timing gear chain adjuster of the above stated character which will be simple, durable, and efficient, and which may be manufactured and sold at a comparatively low cost.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination, and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention reference is to be had to the following description and accompanying drawings in which:—

Fig. 1 is a front elevation, illustrating a timing gear chain for operating the intake and exhaust valves of an engine with an adjuster applied thereto and constructed in accordance with my invention, and

Fig. 2 is a sectional view illustrating the mounting of the adjuster.

Referring in detail to the drawing, the numeral 1 indicates an internal combustion engine having applied thereto intake and exhaust rotary valves that form the subject matter of my copending application heretofore referred to, and which have gears 2 and 3 located within the timing gear chamber 4

of the engine 1 and the chamber is closed by a removable cover. Also located in the chamber 4 is a gear 5 connected to the cam shaft 6 of the engine 1. The gears 2, 3, and 5 are connected together by an endless chain 7 whereby the valves heretofore referred to are driven from the cam shaft of the engine. After the chain 7 has been in use for a time, the same stretches consequently causes a slack in the chain which if allowed to remain or to increase in size will cause the valves to become out of time and thereby cause improper function or operation of the engine and to overcome this objection or to provide a convenient means for taking up the slack in the chain 7, an adjuster 8 is provided which comprises blocks 9 slidably mounted in transversely extending guides 10 formed in the inner wall of the timing gear chamber and said blocks are provided with shafts 11 on which are journaled gears 12 that mesh with the chain 7 at diametrical points so that when the adjuster 8 is actuated the slack will be taken out of the chain in both of its vertical runs. The blocks 9 are provided with internally screw threaded bosses 13 to receive the screw threaded ends of a shaft 14. One of the bosses and one of the ends of the shaft are provided with right hand screw threads, while the other boss in the other end of said shaft is provided with left hand screw threads so that the rotation of the shaft in one direction will cause a separation of the blocks consequently applying a force on the vertical runs of the chain to remove or take up the slack within the chain. A rotation of the shaft in an opposite direction decreases the force against the vertical runs of the chain consequently permitting the chain to have a desired slack in the same in case the chain happens to be adjusted too tightly.

From the foregoing description taken in connection with the accompanying drawings, it will be noted that a device has been provided which will take up the slack in the chain at two points in such a way that the timing of the rotary valves is not altered, and also it is to be noted that this device is completely housed and can be easily actuated by simply removing the cover plate to the timing gear chamber of the engine.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in

construction, combination, and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

5 Having thus described my invention what I claim is:—

10 In combination, an engine having relatively spaced driven timing sprockets and a driving sprocket located below the driven sprockets, a chain passing about all of said sprockets, guides carried by the engine and located between the driven and driving sprockets and in a plane in rear of the vertical plane occupied by the sprockets, blocks
15 slidably mounted by said guides, chain adjusting sprockets journaled upon the front

faces of said blocks and engaging the inner sides of the chain, and said chain adjusting sprockets being mounted for simultaneous adjustment in a plane parallel to the plane 20 passing through the axis of the driven sprockets, whereby any slack occurring in the chain may be taken up without altering the timed relation between the driven sprockets. 25

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS M. McKELVY.

Witnesses:

A. R. JACK,

FRANCES L. BLAIR.