F. HOMOLYA.

MOTOR CRANKING DEVICE.

APPLICATION FILED MAY 16, 1911.

1,029,868.

Patented June 18, 1912.

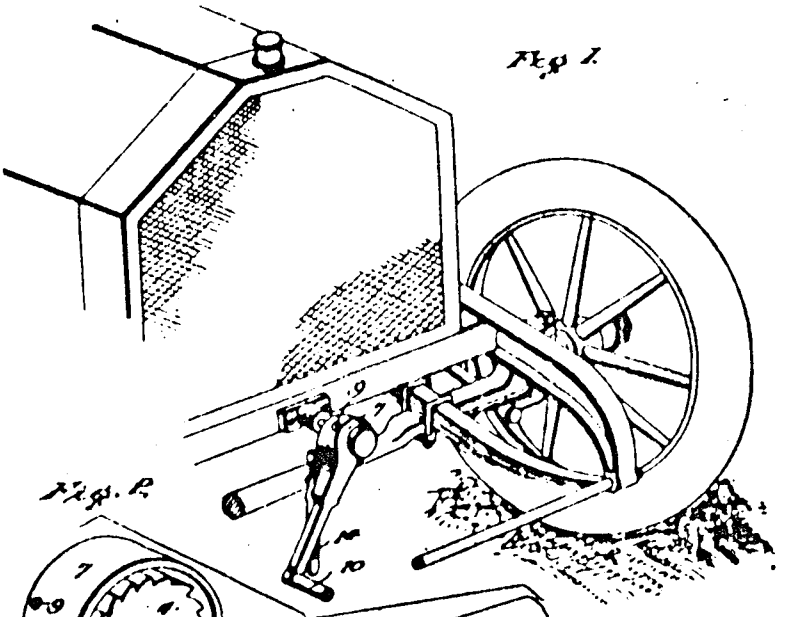

Fig. 1.

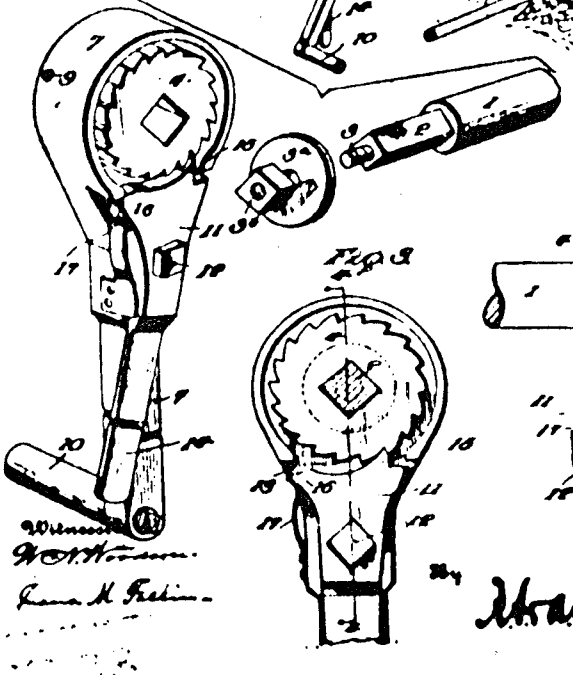

Fig. 2.

Fig. 3.

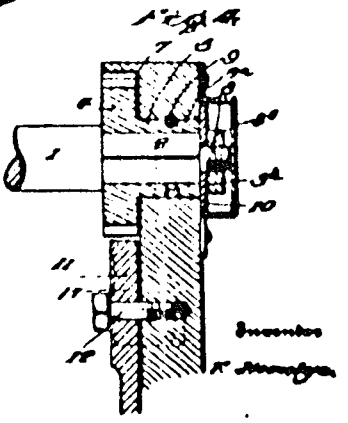

Fig. 4.

Witnesses

Inventor

1,029,868. MOTOR-CRANKING DEVICE. Frederick Homolya, Kenosha, Wis. Filed May 16, 1911. Serial No. 627,616.

To all whom it may concern:

Be it known that I, Frederick Homolya, citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Motor-Cranking Devices, of which the following is a specification.

This invention relates to devices for cranking automobile and similar motors and aims primarily to provide against injury to the operator should the engine "back fire."

The invention also aims to obviate the use of the usual coupling between the motor and cranking shaft, the cranking shaft, in the instance of the present invention, being permanently connected with the motor-shaft and carrying a ratchet which at all times rotates therewith. The cranking handle is rotatable independently of the ratchet and carries a pawl which is normally held disengaged from the ratchet and includes a handle portion extending beside the crank-handle in position for convenient manipulation by the operator to clutch the crank-handle with the ratchet when it is desired to crank the motor. The means which is provided for normally holding the pawl disengaged from the ratchet, serves to automatically disengage the pawl should the engine "back fire," thereby allowing the ratchet to rotate independently of the crank-handle.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a perspective view of the device applied to an automobile. Fig. 2 is a group view illustrating the device in position to be assembled, with the cranking shaft. Fig. 3 is a rear elevation of the device in condition to be operated to crank the motor. Fig. 4 is a section on the line 4—4 of Fig. 3.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

In the drawing, the numeral 1 indicates a cranking shaft which is permanently connected with the motor shaft and has a squared portion 2 and a reduced threaded end 3. A ratchet 4 is held upon the squared portion 2 of the shaft by means of a washer 3^a and nut 3^b and has a hub 5 which is grooved circumferentially as at 6.

The cranking handle has a head 7 which is recessed in one side to receive the body of the ratchet 4, the hub of the ratchet fitting in an opening 8 formed in the said head. A pin 9 is removably fitted transversely through the head 7 and engages in the groove 6 in the hub of the ratchet and serves to prevent disengagement of the crank-handle from the said hub. At its outer end, the cranking handle is provided with a hand-grip 10 which may be grasped for the purpose of rotating the same.

The pawl member of the device comprises a head 11 which is pivoted as at 12 to the rear side of the cranking handle 7 above an opening 13 formed in the wall of the recess in which the body of the ratchet 4 is received, and a handle portion 14 which extends in the rear of the cranking handle 7 and terminates at its end adjacent the hand-grip 10. The head 11 of the pawl is formed with a tooth 15 which is designed to co-operate with the teeth of the ratchet 4 and this tooth is located to one side of the said head. At its opposite side, the head is formed with a toe 16 against which bears a leaf spring 17 secured to the adjacent side of the cranking handle 7. This leaf-spring serves to normally hold the tooth of the pawl disengaged from the ratchet and rests against the adjacent end of the wall of the recess in which the body of the ratchet is received. This spring also serves to hold the pawl in position with the free end of its handle portion projecting at an angle laterally beyond the cranking handle 7, so that when the operator grasps the hand-grip 10 of the said cranking handle, the end of the handle of the pawl will be in convenient position for depression by his thumb. By thus manipulating the pawl, the tooth 15 will be brought into engagement with the teeth of the ratchet and when the cranking handle is rotated, the said ratchet and the cranking shaft 1 will also be rotated.

It will be understood from inspection of the drawing, that after the handle of the pawl has been depressed to move the teeth 15 into engagement with the ratchet 4, and initial pressure has been brought to bear upon the cranking handle, in a direction to crank the motor, the thumb may be disengaged from the pawl without releasing the same.

In cranking the engine of an automobile it is customary to impart to the cranking handle a quick and forceful upward pull and this imparts to the piston of the engine momentum sufficient to drive or throw the piston upwardly within the cylinder beyond the point to which it would be carried if a slow upward pull was exerted upon the handle and this further movement of the piston in the cylinder rotates the engine shaft sufficiently far to momentarily advance the ratchet 4 to permit of disengagement of the tooth 15 of the pawl of the device from the said ratchet. The spring 17

then immediately acts to move the pawl out of position for further engagement with the ratchet and should the engine "back fire" the ratchet would be free to rotate backwardly.

Having thus described the device what is claimed as new is:—

1. In a device of the class described, a shaft-carried ratchet, a crank-handle rotatable upon the ratchet independently thereof a pawl comprising a head pivoted to the crank-handle and having at one side a tooth arranged to coöperate with the ratchet, and a handle extending from the head beside the crank-handle, and a spring bearing against that side of the head opposite the side at which the tooth is located and normally holding the pawl with its tooth disengaged from the ratchet and with the end of its handle projecting laterally beyond the crank-handle.

2. In a device of the class described, a shaft-carried ratchet, a crank-handle rotatable upon the ratchet independently thereof and having a flange partly surrounding the ratchet, a pawl comprising a head pivoted upon the crank-handle and having at one side a tooth arranged to coöperate with the ratchet and having at its opposite side a toe arranged to abut against one end of said flange surrounding the ratchet, and a spring carried by the crank-handle and bearing against the said toe and tending to move the pawl to position with its tooth out of engagement with the ratchet and its toe in engagement with said end of the flange.

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

FREDERICK HOMOLYA. [L. S.]

Witnesses:

P. R. SCHMID,

HENRY W. BIENEMANN.