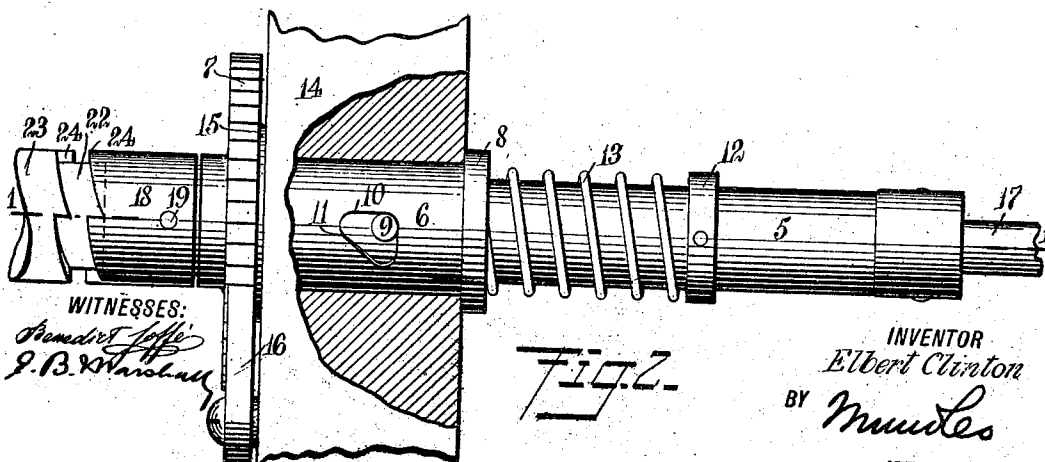
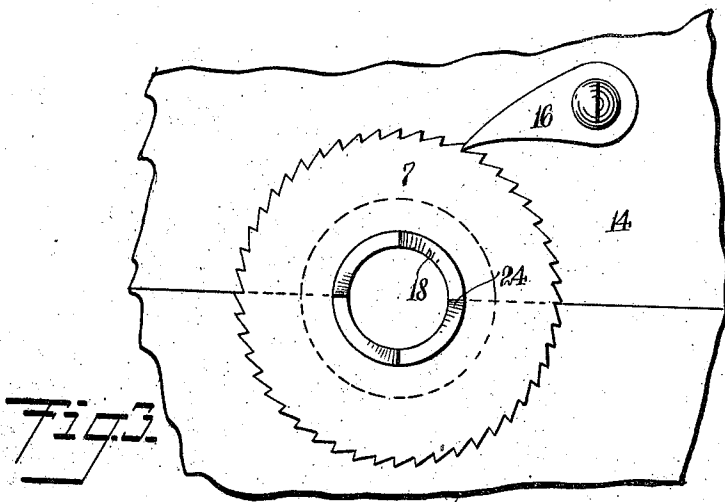
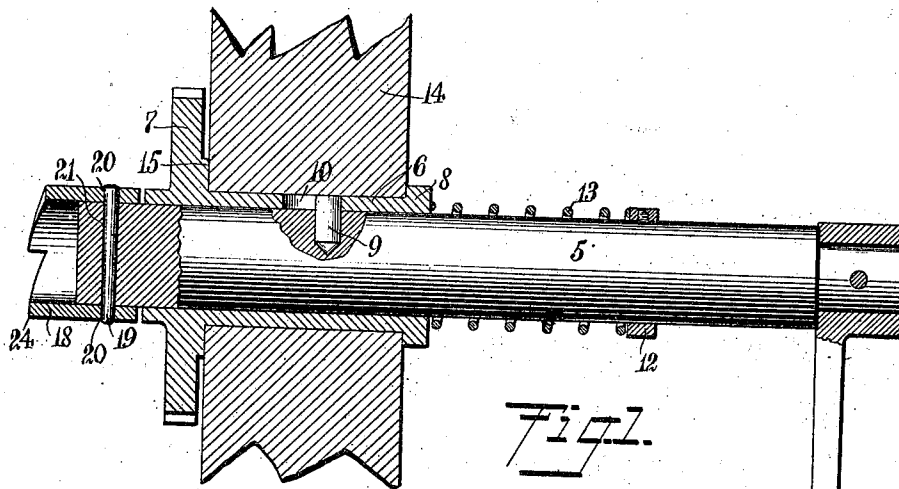


E. CLINTON.
CRANKING DEVICE FOR INTERNAL COMBUSTION ENGINES.
APPLICATION FILED AUG. 10, 1910.

977,931.

Patented Dec. 6, 1910.



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ELBERT CLINTON, OF HAMDEN, CONNECTICUT.

CRANKING DEVICE FOR INTERNAL-COMBUSTION ENGINES.

977,931.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed August 10, 1910. Serial No. 576,482.

To all whom it may concern:

Be it known that I, ELBERT CLINTON, a citizen of the United States, and a resident of Hamden, in the county of New Haven and State of Connecticut, have invented a new and Improved Cranking Device for Internal-Combustion Engines, of which the following is a full, clear, and exact description.

My invention relates to cranking devices for internal combustion engines, and it has for its object to provide one with a stub shaft having a clutch member adapted to engage a clutch member on the engine shaft, means being provided for moving the stub shaft, with its clutch member, out of engagement with the clutch member on the engine shaft, should the engine be reversed by a back fire.

Still other objects of the invention will appear in the following complete description.

In this specification I will describe the preferred form of my invention, it being understood that the scope of the invention is defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a sectional view on the line 1—1 of Fig. 2; Fig. 2 is a plan view, partially in section, of the device shown in Fig. 1; and Fig. 3 is an end view of the device.

By referring to the drawings, it will be seen that a stub shaft 5 is provided, on which is mounted a collar 6, carrying a ratchet wheel 7 and an annular member 8. Secured to and projecting from the stub shaft 5, there is a pin 9, which is disposed in an opening 10 in the collar 6. One side 11 of this opening 10 is disposed obliquely relatively to the normal direction of rotation of the stub shaft 5 and the collar 6. Secured to the stub shaft 5, at a distance from the annular member 8, there is a projecting member, or collar, 12, a spring 13 being mounted on the stub shaft 5 and being disposed between the annular member 8 and the projection, or collar, 12 for holding the stub shaft 5 yieldingly to the right relatively to the collar 6. The collar 6 is journaled in a bearing 14, the bearing 14 extending from an inner hub 15 of the ratchet wheel 7 to the annular member 8, by which

means the collar 6 is prevented from moving laterally relatively to the bearing. Pivoted to the bearing 14, there is a pawl 16, this pawl 16 engaging the ratchet wheel 7, as best indicated in Fig. 3 of the drawings. A crank 17 is secured to the end of the stub shaft 5 beyond the projecting member, or collar, 12. The other end of the stub shaft 5 is disposed in a cylindrical clutch member 18, a pin 19 being provided which extends through orifices 20 in the clutch member 18 and in an orifice 21 in the stub shaft 5, to hold the clutch member 18 in place relatively to the said stub shaft.

The engine shaft 22 is normally disposed relatively to the stub shaft 5, as shown in Fig. 2 of the drawings, the terminal of the engine shaft projecting into the cylindrical clutch member 18, a clutch member 23 being secured to the periphery of the engine shaft 22, adapted to be engaged by the clutch member 18. These clutch members 18 and 23 are constructed with inclined ratchet teeth 24, adapted to grip each other when the stub shaft is rotated in one direction relatively to the engine shaft 22, but which permit the engine shaft 22 to rotate in the same direction independently of the said stub shaft.

In using the invention, the operator thrusts the stub shaft 5 against the pressure of the spring 13 until the teeth 24 of the clutch member 18 engage the teeth 24 of the clutch member 23 when, by rotating the stub shaft by means of the crank 17, the engine shaft is rotated in a well-known manner. On the starting of the engine, the engine shaft 22 continues to rotate and the teeth 24 of this clutch member 23 push back the teeth 24 of the clutch member 18, so that the engine shaft 22 may rotate independently of the stub shaft 5. Should the engine back fire and the engine shaft rotate in the opposite direction, it will carry with it the stub shaft 5 a short distance, or until the pin 9 travels down the obliquely-disposed surface 11 of the opening 10, which will draw the stub shaft 5 to the right, with the teeth 24 of this clutch member 18 removed from the teeth 24 of the clutch member 23, when it will be held in this position by means of the spring 13. The collar 6 is prevented from rotating in the opposite direction, when the engine back fires, by means of the ratchet wheel 7 and the pawl 16.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:

1. In a cranking device for engines, a stub shaft having a clutch member adapted to engage a clutch member on the engine shaft, a collar mounted on the stub shaft and having an opening, one wall of the opening being disposed longitudinally of the collar, the opposite wall of the opening being disposed obliquely relative to and forming with the first-mentioned wall an acute angle, a pin on the stub shaft disposed in the opening in the collar, means for preventing the rotation of the collar in one direction, and a spring means for holding the stub shaft yieldingly with the pin disposed away from the apex of the angle formed by the walls of the said opening.
2. In a cranking device for engines, a stub shaft having a clutch member adapted to engage a clutch member on the engine shaft, a collar mounted on the stub shaft, a ratchet wheel and a flange spaced from each other, a bearing in which the collar between the ratchet wheel and the flange is journaled, a pawl mounted on the bearing and engaging the ratchet wheel, a pin projecting from the stub shaft and disposed in an opening in the collar, one wall of the opening being disposed longitudinally of the collar, the opposite wall of the opening being disposed obliquely relative to and forming with the first mentioned wall an acute angle, means for rotating the stub shaft, a projection on the stub shaft, and a spring mounted on the stub shaft between the flange and the projection.
3. In a cranking device for engines, a stub shaft having a clutch member adapted to en-

gage a clutch member on an engine shaft, a collar mounted on the stub shaft, a ratchet wheel and a flange spaced from each other and secured to the collar, a bearing in which the collar, between the ratchet wheel and the flange, is journaled, a pawl mounted on the bearing and engaging the ratchet wheel, a pin projecting from the stub shaft and disposed in an opening in the collar, one wall of the opening being disposed obliquely relatively to the normal direction of rotation of the stub shaft and the collar, means for rotating the stub shaft, a projection on the stub shaft, and a spring mounted on the stub shaft between the flange and the projection.

4. In a cranking device for engines, a stub shaft, a clutch member in which the stub shaft is disposed and to which it is secured, a projection on the stub shaft, a collar and a spring mounted on the stub shaft, between the clutch member and the projection, a ratchet wheel and an annular flange spaced from each other and secured to the collar, a bearing in which the collar is journaled, between the ratchet wheel and the annular flange, a pin projecting from the stub shaft and disposed in an opening in the collar, one wall of the opening being disposed obliquely relatively to the normal direction of rotation of the stub shaft and the collar, and means for rotating the stub shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELBERT CLINTON.

Witnesses:

W. O. BARRY,
INEZ G. DEANE.