

E. STEWART.  
ENGINE SHAFT CHECK.  
APPLICATION FILED NOV. 30, 1910.

1,012,176.

Patented Dec. 19, 1911.

FIG. 1.

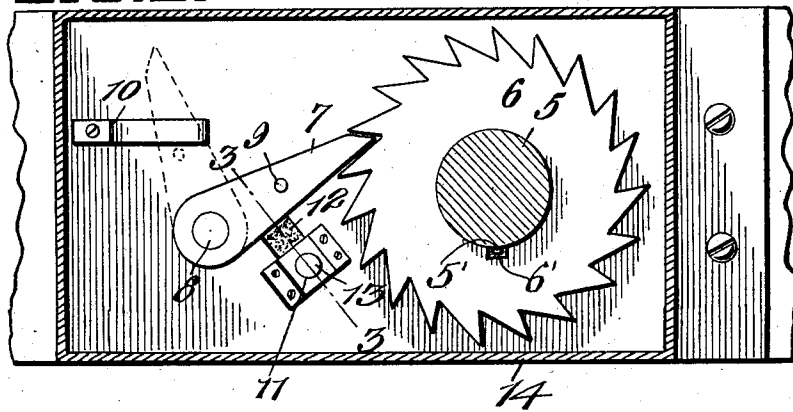


FIG. 2.

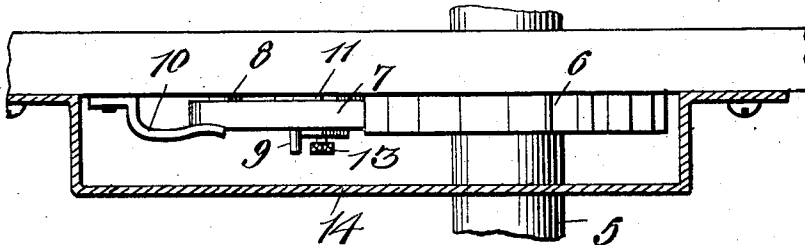
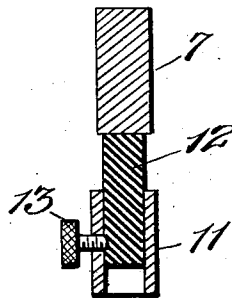


FIG. 3.



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# UNITED STATES PATENT OFFICE.

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## ENGINE-SHAFT CHECK.

1,012,176.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed November 30, 1910. Serial No. 594,950.

*To all whom it may concern:*

Be it known that I, EDWARD STEWART, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Engine-Shaft Checks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of devices which are employed to prevent the cranks for rotating the fly wheel shaft of an engine, from reversing or "flying back" when released from the hand of the operator.

The primary object of the invention is to provide a device of the above character which is simple and very efficient in its construction and may be manufactured at a comparatively low cost.

The invention has for a more particular object, the provision of a shaft holding device which is particularly designed with a view to its use in connection with the crank shafts of automobile engines, with the end in view of eliminating all liability of injury to the operator in the cranking of the engine.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, the casing being in section illustrating a shaft check or holding device embodying my improvements; Fig. 2 is a longitudinal sectional view through the casing, the other parts of the device being shown in plan; and Fig. 3 is a section taken on the line 3—3 of Fig. 1.

Referring in detail to the drawing 5 designates an engine crank shaft and upon this shaft a ratchet 6 is keyed or otherwise fixed. As shown in Fig. 1, the crank shaft 5 is provided with a longitudinal key or rib 5', which is movable through the recess 6' in the ratchet 6. This construction is provided in order to permit of the longitudinal movement of the crank shaft with respect to the ratchet, in engines of that character wherein the engine shaft and the cranking shaft are automatically disconnected after the engine is started. It will be obvious that if desired the ratchet may be provided with a lug to

extend into a longitudinal groove in the shaft.

It will be obvious from the following description, that while my invention is particularly devised for use in connection with the crank shafts of motor vehicles, it is also capable of efficient service in connection with other engines. The check includes a gravity pawl 7 which is pivoted upon the frame of the vehicle or other stationary element as indicated at 8. This pawl gradually tapers to one end for engagement between the teeth of the ratchet 6. A pin 9 is fixed to the pawl 7 by means of which it may be elevated to an inoperative position as shown in dotted lines in Fig. 1. A spring 10 fixed at one end to the vehicle frame engages and retains the pawl 7 in its inoperative position.

A short rectangular case 11 is fixed upon the vehicle frame and in this case a rubber bumper 12 is disposed and may be adjusted and secured in its adjusted position by means of the set screw 13. The rubber bumper is disposed for engagement by the lower longitudinal edge of the pawl 7 and supports said pawl in such position that if the same is left in the position shown in full lines in Fig. 1, by the operator, after the engine has been started, there will be no disagreeable clicking noise between the pawl and the ratchet in the rotation of the engine shaft. This noise is entirely eliminated owing to the fact that the bumper 12 supports the pawl out of gravity contact with the teeth of the ratchet, the ratchet teeth moving against the lower edge of the pawl and raising the same.

From the above it is thought that the construction and operation of my improved engine shaft check or stop device will be properly understood. The device is simple and may be manufactured at an extremely low cost. Furthermore, the invention is capable of arrangement upon the vehicle without changing the construction of the frame or engine shaft in any manner whatever. A casing 14 would preferably be provided for the ratchet 6 and the coöperative parts as shown in Figs. 1 and 2 so that their proper operation would not be interfered with by the accumulation of dust or dirt upon the same.

While I have shown and described the preferred construction and arrangement of the various elements, it will be understood that the device is susceptible of considerable

modification in the form, construction and minor details of construction without departing from the essential feature or sacrificing any of the advantages thereof.

5 Having thus described the invention what is claimed is:—

1. In combination with a motor crank shaft and a support in which the same is mounted for revolution, a ratchet wheel connected to the shaft for rotation therewith, 10 a pawl pivotally mounted on the support at a point substantially in the plane and to one side of the shaft and acting, by gravity, to engage the ratchet wheel, a guide on the support below the pawl, a rubber bumper 15 mounted in the guide and adjustable toward and from the lower side of the pawl to engage and check the latter and prevent it from reaching the ratchet teeth when it drops, and means to secure the bumper in 20 adjusted position in the guide and enable the bumper to be adjusted as may be required from time to time to compensate for wear and shrinkage thereof.

25 2. In combination with a motor crank shaft and a support in which the same is

mounted for revolution, a ratchet wheel connected to the shaft for rotation therewith, a pawl pivotally mounted on the support at a point substantially in the plane and to one side of the shaft and acting, by gravity, to engage the ratchet wheel, a guide on the support below the pawl, a rubber bumper mounted in the guide and adjustable toward and from the lower side of the pawl to engage and check the latter and prevent it from reaching the ratchet teeth when it drops, and means to secure the bumper in adjusted position in the guide and enable the bumper to be adjusted as may be required from time to time to compensate for wear and shrinkage thereof, and a holder for the pawl also mounted on the support, above the pawl, and to engage and secure the pawl when the latter is to be turned and out of engagement with the ratchet wheel. 30 35 40 45

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

EDWARD STEWART.

Witnesses:

H. C. ANDERSSON,  
RAY WOLFE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."