

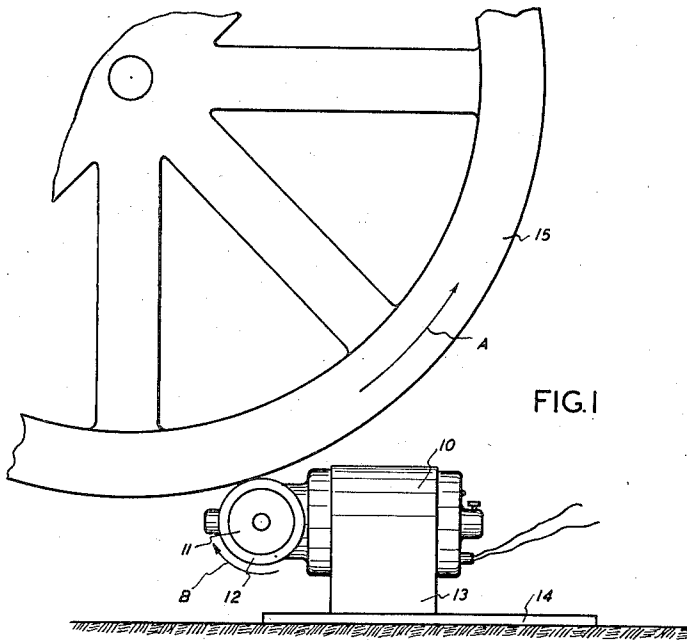
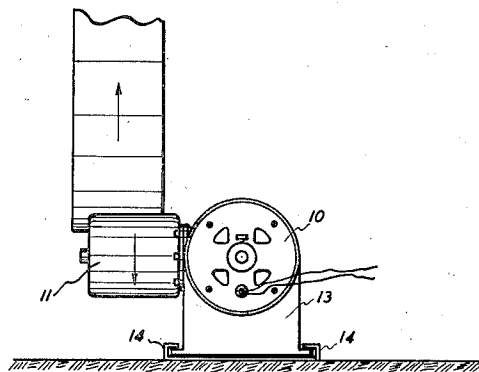
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STARTER FOR GAS ENGINES

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STARTER FOR GAS ENGINES

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2 Claims. (Cl. 74—8)

For stationary use, gas or gasoline engines of large bore, operating at low speed, are advantageous over high speed, multicylinder engines as regards durability, maintenance, and fuel consumption. These large bore engines are, however, so difficult and dangerous to turn over by hand, for putting them into operation, that a less economical and desirable engine is often selected for that reason alone.

So far as I am aware, no really satisfactory means for starting large, low-speed engines has heretofore been proposed, and the object of my invention is to provide such means, at a low cost and in a form applicable to any internal combustion engine having a fly-wheel.

The invention may best be understood on inspection of the attached drawing and the following description thereof, in which:

Fig. 1 is an elevation of a portion of the fly-wheel of an engine with the starting device in operating position, and

Fig. 2 is an elevation of the right end of Fig. 1.

Referring to the drawing, 10 is a prime mover, here represented as a small electric motor, having a driving pulley 11, this pulley being provided with a circumferential band 12 of a slightly resilient material such as leather or semi-soft rubber. The motor is mounted on a base 13 which is arranged to slide in or on rails 14 in such manner that it may be advanced into and withdrawn from contact with the fly-wheel 15 of the engine to be started.

Directional arrow A indicates the normal direction of revolution of the engine to be started, and arrow B indicates the direction in which the starting pulley 11 should revolve. This pulley should always be so oriented as to revolve in the plane of revolution of the fly-wheel and in such position that it will be drawn toward the fly-wheel when the resilient band 12 in rotation engages the face of the fly-wheel 15 at rest. By this means a firm engagement of the resilient band with the fly-wheel face is assured and the fly-wheel is positively revolved until the engine fires and begins to operate under its own power. At such time or shortly thereafter the peripheral speed of the fly-wheel exceeds the peripheral speed of the band 12 and the pulley and prime mover are thrown back (to the right as represented in Fig. 1) until the rim is out of contact with the fly-wheel rim.

To effect the initial contact of the pulley band with the fly-wheel rim, which may be made either before or after the prime mover is set in motion, the motor may be moved into the contacting position by hand or foot or by means of a hand lever and bell crank. It may be desirable to use a speed reducing device between the motor shaft and the pulley shaft; so that the pulley will revolve at the speed most suitable for starting the engine, but as such devices for reducing speed are well known and understood and are no part of the present invention, I do not illustrate in detail any manner in which the speed may be reduced, though the figures show the conventional casing of a worm gear speed reducer.

In most situations, large internal combustion engines are electrically lighted so that small electric motors may be used as the prime mover in the described combination, but if electric power be not available, a small, high-speed internal combustion engine may be substituted for the electric motor as a prime mover, such engines being readily started by hand.

I claim as my invention:

1. A device for starting internal combustion engines comprising a prime mover provided with a pulley having a resilient face, said prime mover being mounted to move freely in substantially the plane of rotation of the flywheel of the engine to be started and to permit said pulley to contact the face of said flywheel at a low point in its circumference, the relative positions of said pulley and said flywheel being so arranged that said pulley will tend to move into pressure contact with said face when said pulley is driving said flywheel and will tend to move away from said face when the peripheral speed of said flywheel exceeds the peripheral speed of said pulley.

2. A source of torque and a friction pulley driven thereby, said elements being freely slidable on a base so located and oriented as to permit the face of said friction pulley to move into contact with the periphery of a wheel to be revolved at an acute angle whereby said pulley will, by its rotational effort, pull itself into firm engagement with said periphery, when rotating said wheel and will be thrown out of engagement when the peripheral speed of said wheel exceeds the peripheral speed of said pulley.

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