D. C. WILGUS.

ENGINE STARTER.

APPLICATION FILED MAY 29, 1907.

921,933. **Patented May 18, 1909.**

Fig. 1.

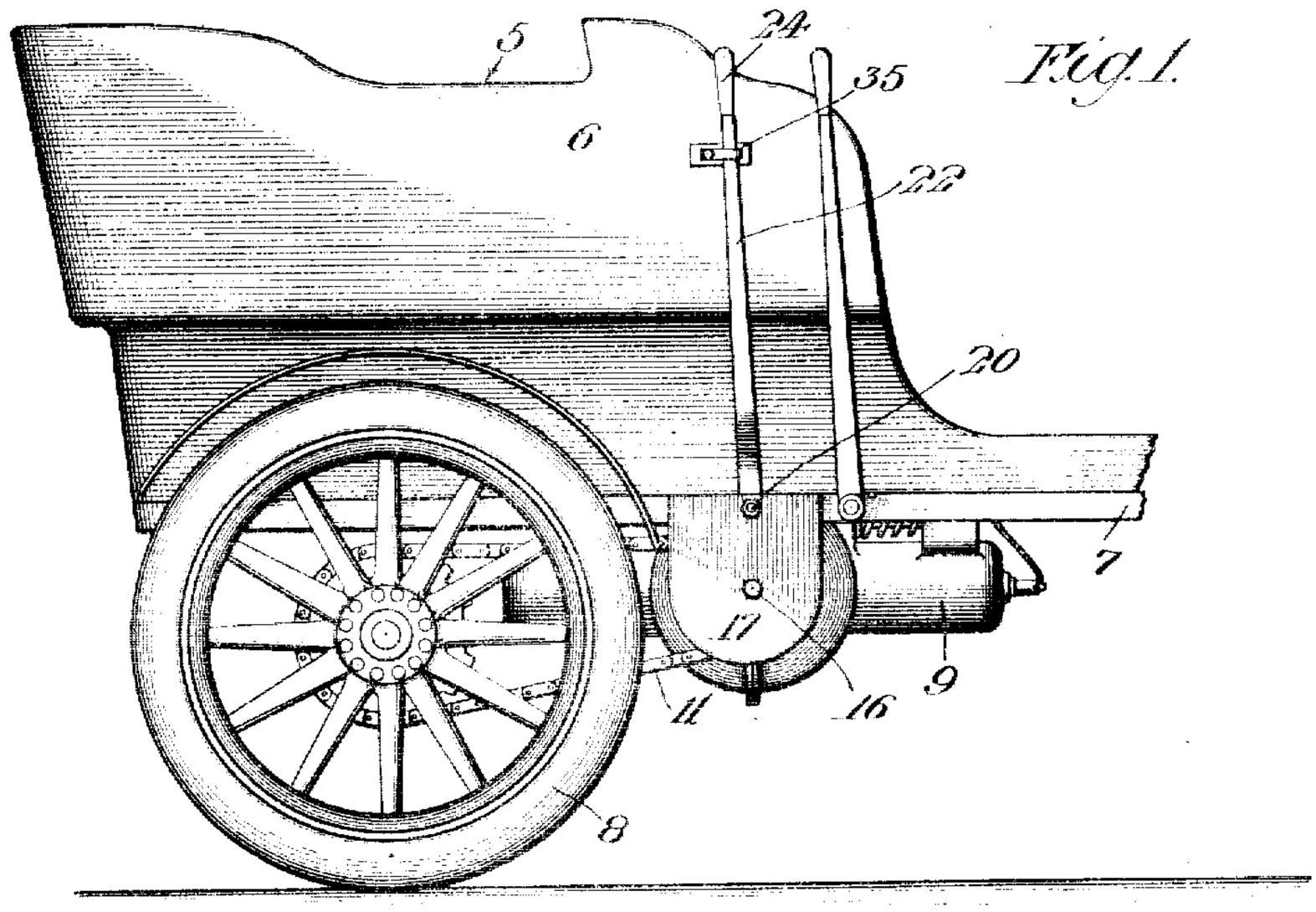


Fig. 2.

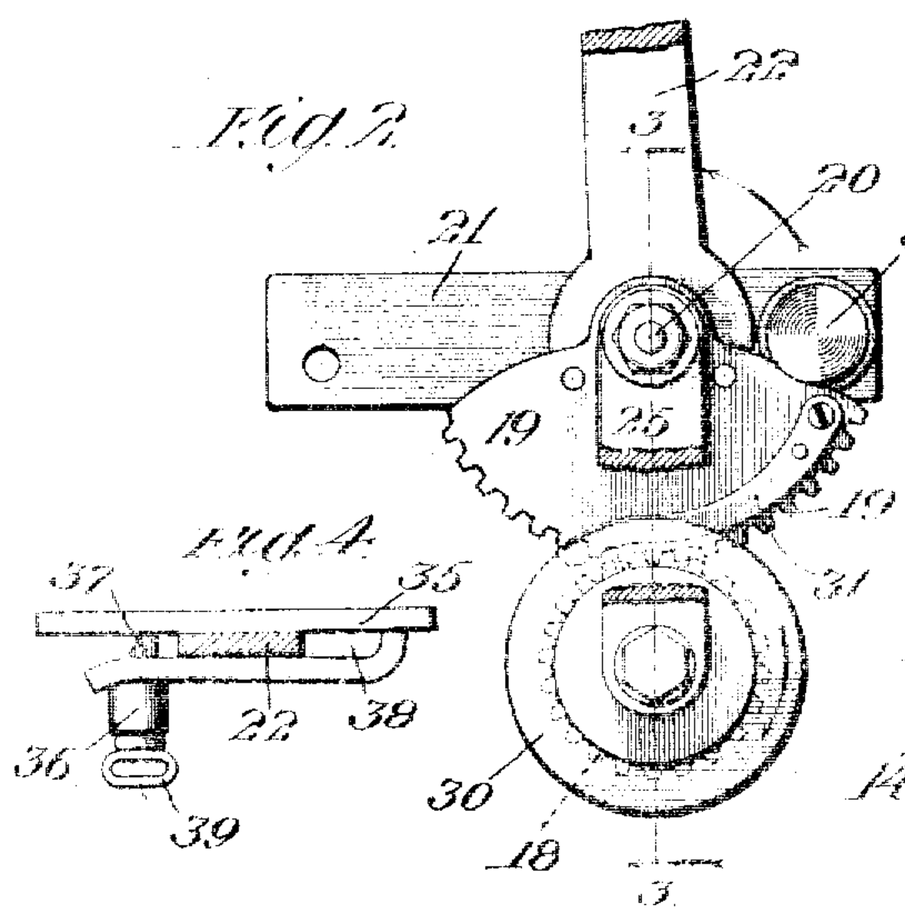
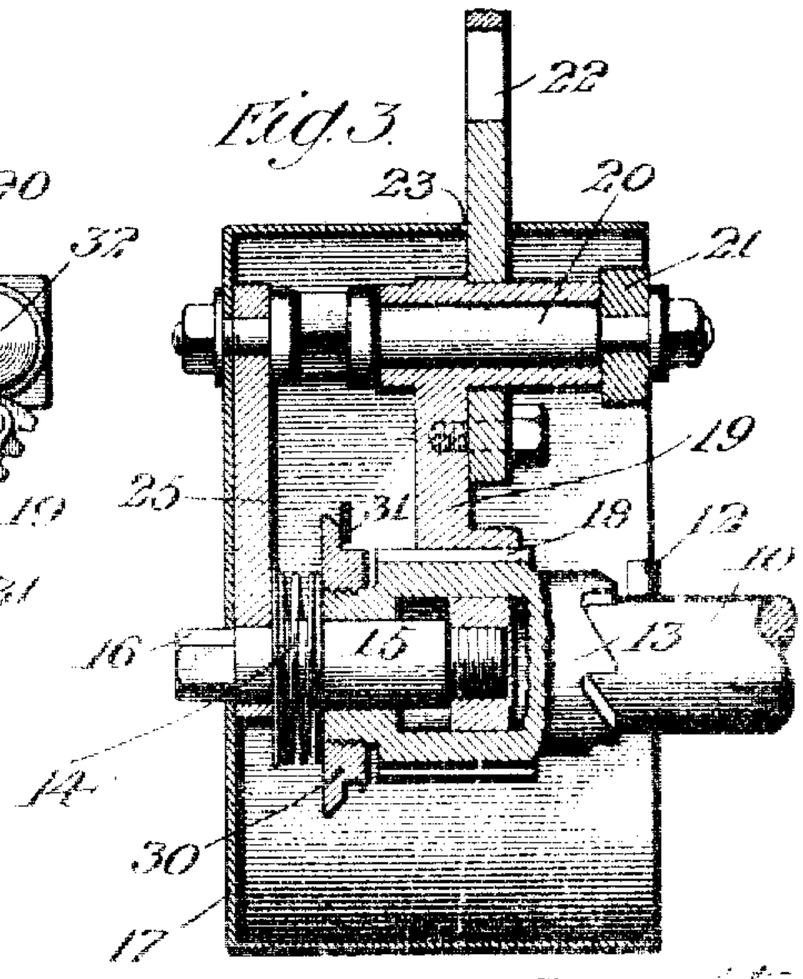


Fig. 3.



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UNITED STATES PATENT OFFICE.

DANIEL C. WILGUS, OF LOS ANGELES, CALIFORNIA.

ENGINE-STARTER.

No. 921,933. Specification of Letters Patent. Patented May 18, 1909.

Application filed May 29, 1907. Serial No. 376,350.

To all whom it may concern:

Be it known that I, DANIEL C. WILGUS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Engine-Starters, of which the following is a specification.

My invention relates to an engine starter which is adapted to be attached to motor cars provided with explosion motors which have to be started by some outside source of power.

The prime object of my invention is to provide an engine starter for automobiles which may be operated from the driving seat of the car.

A further object is to provide means whereby a large leverage is obtained so as to render the starting of the engine easy.

A further object is to provide means whereby the starting mechanism is automatically thrown out of connection with the engine shaft while the engine is running.

A further object is to provide a starter which may be attached to any car without making any alterations in the mechanism of the car.

A further object is to provide means which will prevent the accidental displacement of the starting lever from the engine shaft and thereby cause damage to the car or the operator.

I accomplish these objects by means of the device described herein and illustrated in the accompanying drawings, in which:—

Figure 1— is an elevation of the rear portion of a motor car equipped with my improved starter. Fig. 2— is an elevation of the starting mechanism, the casing being removed. Fig. 3— is a vertical section taken on line 3—3 of Fig. 2 with the casing in place. Fig. 4— is a detail of the holding clip for the starting lever and showing the lock attached thereto.

Referring to the drawings, 5 designates an automobile provided with body 6, under frame 7, driving wheels 8 and engine 9. Engine 9 is mounted underneath the under frame on transverse drive shaft 10 (see Fig. 3) which is connected to drive wheels 8 by sprocket chain 11. Shaft 10 is provided with a pin 12 with which a ratchet clutch sleeve 13 is adapted to engage, being pressed into engagement by coil spring 14 at the outer end of sleeve 13. Sleeve 13 is mounted partly on shaft 10 and partly on stud 15 forming a continuation of that shaft and provided with a hexagon end 16 which projects through casing 17 and provides means whereby shaft 10 may be turned to start the engine should the starting mechanism become disabled.

Clutch sleeve 13 carries a gear 18 which is adapted to mesh with a sector gear 19 mounted on stud 20 secured to plate 21 which is in turn bolted to the under frame 7 of the car. Lever 22 is bolted to sector 19, projecting upwardly through a slot 23 in casing 17 and being provided with a handle 24 on its upper end which is situated conveniently for manipulation of the lever from the driving seat. Stud 20 is rigidly attached at its outer end to a bar 25, in the lower end of which stud 15 is journaled and which serves to rigidly connect the two studs together. Clutch sleeve 13 is also provided with a hardened flange 30 against which a flat spring 31 attached to sector 19 is adapted to press when the starting mechanism is in its normal position as shown in the drawings. Spring 31 is stronger than spring 14 so that when spring 31 contacts with flange 30 clutch sleeve 13 is forced outwardly and out of engagement with pin 12 on shaft 10 so that shaft 10 may rotate without the pin rubbing over the ratchet teeth on the clutch sleeve. When lever 22 is moved forwardly, spring 31 moves out of engagement with flange 30 and spring 14 forces sleeve 13 into engagement with pin 12 and the mechanism is in position to start the engine.

The operation of my device is as follows: Lever 22 is moved forwardly until it contacts with stop 32 on plate 21 when clutch sleeve 13 will be in operative engagement with pin 12. Lever 22 is then moved rearwardly as indicated by the arrow in Fig. 2 and sleeve 13 is thereby rotated in the direction shown by the arrow in the same figure, rotating shaft 10 in the same direction. It will be observed from the general arrangement in Fig. 1 that this direction of rotation is the one required for the starting of the engine, and, being started, the engine will rotate the shaft in that same direction. Meanwhile lever 22 has been moved back to its original position and spring 31 has contacted with flange 30 to move sleeve 13 out of engagement with pin 12. The car may then be started by the usual clutching operations.

A clip 35 is provided on the side of the body of the car into which lever 22 is slipped when in its normal position so as to provide against any accidental displacement thereof. Clip 35 is provided with a lock 36 with its spring bolt 37 projecting across opening 38 into which lever 22 is placed. A key 39 provides means for opening a lock and releasing the lever from the clip. By the means above described no one but the owner of the car may start the same as it is impossible for any one else to unlock the starting lever so as to start the engine.

It will be observed that I have provided a starter for automobile engines which is adaptable to any automobile whether that automobile be provided with a transverse drive shaft or not, as it is only necessary to put in a transverse shaft and connect the same by bevel gearing or the like with the longitudinal shaft with which all automobiles are provided when not provided with a transverse guide shaft. The transverse shaft hereinbefore referred to may be either one originally on the car or one especially fitted to the car for the purposes of my starter.

It will further be observed that my starter is extremely simple in construction and operation and enables the driver to start the car with very little effort.

It will further be observed that the starting mechanism is automatically thrown out of engagement with the engine shaft at all times except when the engine is being started, so that no accidental injury is liable to occur to the starting mechanism by contact with the pin on the engine shaft while the engine is running.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In an automobile engine starter, engaging means rigidly mounted on the engine shaft, a ratchet sleeve loosely mounted on said shaft and spring pressed into engagement with said engaging means, a pinion forming an integral part of said ratchet sleeve, a manually operated sector adapted to engage with said pinion, and resilient means secured to said sector, whereby said ratchet sleeve is forced out of engagement with said engaging means.

2. In an automobile engine starter, a clutch mounted on the engine shaft, one member of said clutch being loosely mounted thereon, the other member being rigidly secured thereto, resilient means to force said members into engagement with each other, means to rotate the loose member, and resilient means mounted on said rotating means to engage with the loose clutch member and to force said members out of engagement with each other.

3. In an automobile engine starter, a pin rigidly mounted on the engine shaft, a ratchet sleeve loosely mounted on said shaft and adapted to engage with said pin, resilient means to force said ratchet sleeve into engagement with said pin, a pinion on said ratchet sleeve, a sector provided with an operating lever and adapted to engage with said pinion, said sector being pivotally mounted on the under frame of the automobile, a flange on said ratchet sleeve, and a spring on said sector adapted to contact with said flange and to force said ratchet sleeve out of engagement with said pin.

In witness that I claim the foregoing I have hereunto subscribed my name this 21st day of May, 1907.

DANIEL C. WILGUS.

Witnesses:
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