Dec. 1, 1925. 1,563,527

R. E. ROSS

AUTOMATIC SAFETY DEVICE FOR MOTOR VEHICLE STARTERS

Filed Feb. 16, 1925

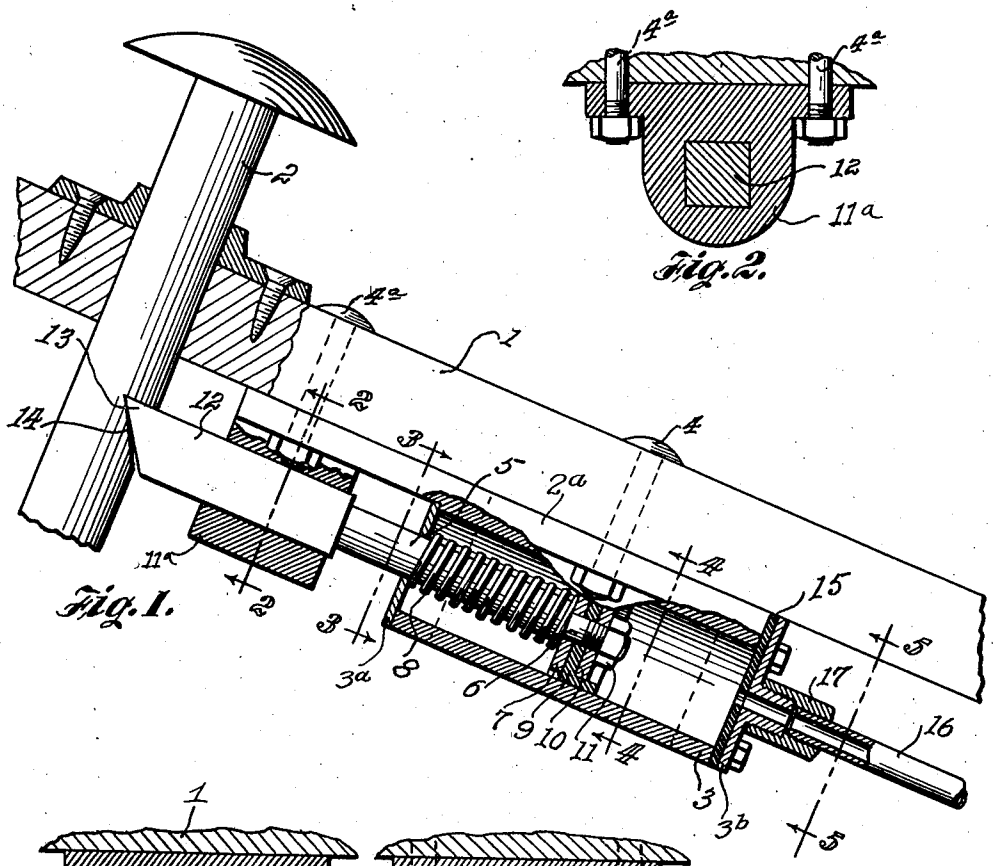


Fig. 1.

Fig. 2.

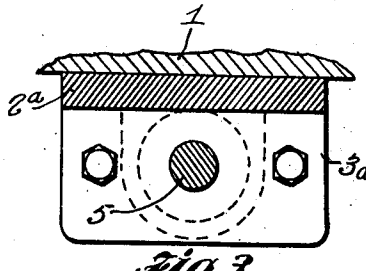


Fig. 3.

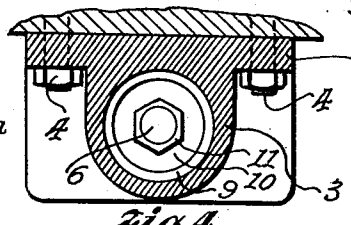


Fig. 4.

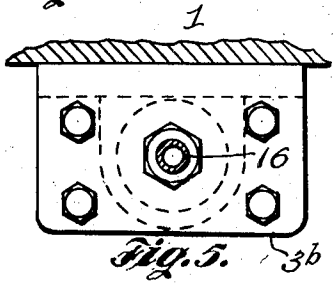


Fig. 5.

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UNITED STATES PATENT OFFICE.

ROBERT E. ROSS, OF EL PASO, TEXAS.

AUTOMATIC SAFETY DEVICE FOR MOTOR-VEHICLE STARTERS.

Application filed February 16, 1925. Serial No. 9,623.

To all whom it may concern:

Be it known that I, ROBERT E. ROSS, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Automatic Safety Devices for Motor-Vehicle Starters, of which the following is a specification.

This invention relates to improvements in motor vehicles and it relates more particularly to the starting mechanism thereon.

In the operation of starting a motor vehicle engine by electrical power, a small foot plunger is depressed which makes electrical connection with a motor to revolve, or start, the engine. At the same time this circuit is connected to operate the starting motor, a small gear on this motor engages with a larger gear on the fly wheel or engine gear mechanism. It frequently occurs that this foot plunger is accidently or otherwise again depressed while the engine is running and this "strips" or tears off some of the gears.

It is the object of the invention to obviate and relieve the possibility of thus "stripping" or breaking these gears by the arrangement of a locking device connected in and operated by the oil pressure of the lubricating system of the vehicle.

Another object of the invention is to provide such an arrangement which is positive and automatic in its action and which may be attached to any type of motor vehicle with a pressure lubricating system.

The invention further provides means for automatically releasing the device when the engine is inoperative.

The invention will be more clearly understood by reference to the following description, taken in connection with the accompanying drawings, forming part hereof and in which—

Figure 1 is a detail sectional view of the invention, showing its position adjacent the floor-board and starting pedal or foot plunger of a motor vehicle; and

Figures 2, 3, 4 and 5 are cross-sectional views on lines 2—2 to 5—5 respectively.

Continuing the description of the invention and referring to its various parts more in detail, 1 denotes the floor-board of a motor vehicle and 2 the foot plunger vertically slidable therein whereby when this plunger is depressed, it will close the usual switch for an electrical starting system of the internal combustion engine of the motor vehicle to which it is applied, but when this plunger is in its raised position, as illustrated in Figure 1, the switch will be opened and the purpose of the invention is to provide a locking means for retaining this plunger in its elevated position while the engine is running, to prevent the switch of the starting system from being closed and the latter brought into operation at that time.

This locking device comprises a base plate 2^a secured to the lower face of the floor boards 1 of the motor vehicle by means of the bolts 4 and 4^a. Formed with and arranged at one end of this base plate is a cylinder or housing 3, in which is slidably mounted a piston. The opposite ends of this cylinder are closed by means of the end plates 3^a and 3^b.

Within the housing is arranged a piston rod 5, one end of which at 6 is reduced in diameter and carries a seat 7 for a spring 8, the opposite end of the spring bearing against one end of the housing. The piston slidable within the cylinder 3 comprises this plate 7 and a plate 10 having arranged therebetween a packing disk 9, which are all retained upon the reduced threaded end of the piston rod by means of the nut 11.

Formed with the base plate 2^a and spaced from the cylinder 3 is a guide way or block 11^a in which is slidably mounted the squared portion or free end 12 of the piston rod 5. It will be seen that the free end 12 of the piston rod 5 is squared and projects beyond the guide-way and on its extremity is cut on an oblique line to provide a sharp edge 13 to engage in a notch 14 in the foot plunger 2.

One end of the housing 3 has a chamber 15 which permits oil under pressure from the lubricating system to enter through pipe connection or tubing 16, this tubing being connected to the chamber entrance at the nipple 17.

When the engine of the motor vehicle is running, the locking means will be in a position as is illustrated in Figure 1, wherein the oil pressure of the engine lubricating system will enter the chamber 15 of the cylinder 3 through the tubing 16 and cause the piston therein to slide towards the upper or left hand end of the cylinder 3. As pressure

upon the switch plunger 2 has been released, it will automatically rise, thereby breaking the switch included in the engine electrical starting system or to the position as illustrated, and the pressure upon the piston will also force its rod outwardly until the pawl or detent 13 engages the notch 14 of the plunger 2, at which time, this plunger will be locked or retained, against being depressed. When the engine of the motor vehicle is at rest, the oil pressure will cease and the spring 8 will expand, causing the piston to travel to the lower end of the cylinder, thereby releasing the pawl 13 from engagement with the plunger 2 and permitting the latter to be depressed for closing the switch included in the engine electrical starting system.

What is claimed is:

A locking device of the character described comprising a base plate adapted to be secured beneath the floor board of a motor vehicle, a cylinder formed with one end thereof, a piston slidably mounted in said cylinder, a rod for said piston and extending from one end of said cylinder, a coil spring for normally holding said piston in one position, a guide block formed with and arranged at the opposite end of said base plate, a squared portion of said piston rod slidably mounted within said guide block, a pawl formed on the end thereof, adapted to engage a coacting notch formed in the shaft of the starter pedal, and a tube communicating with one end of said cylinder whereby the oil pressure of an engine lubricating system may enter said cylinder.

In testimony whereof I have signed my name to this specification.

ROBERT E. ROSS.