July 12, 1927. 1,635,935

A. F. GODEFROY

SOLENOID MOTOR

Filed April 8, 1922

Fig. 1.

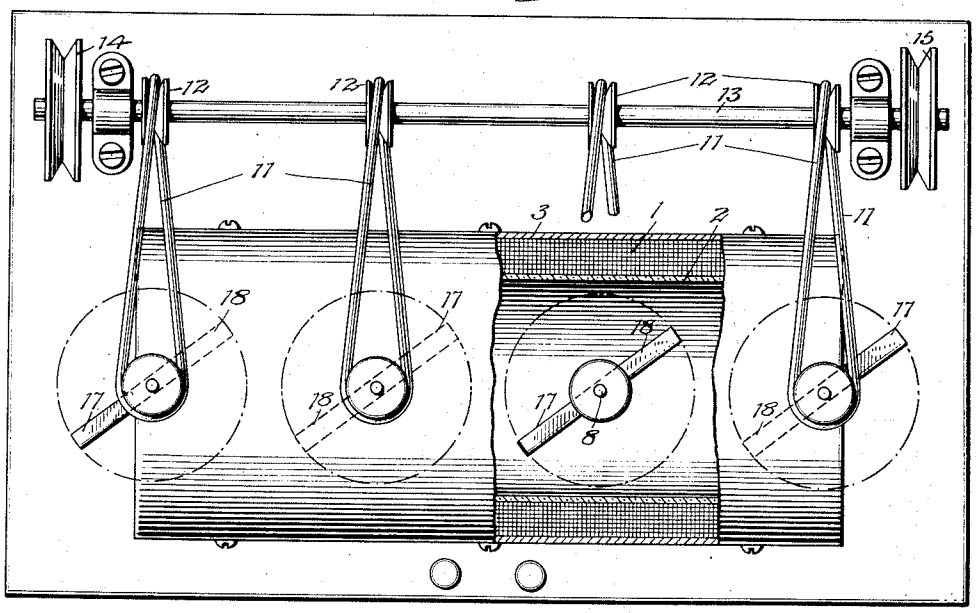


Fig. 2.

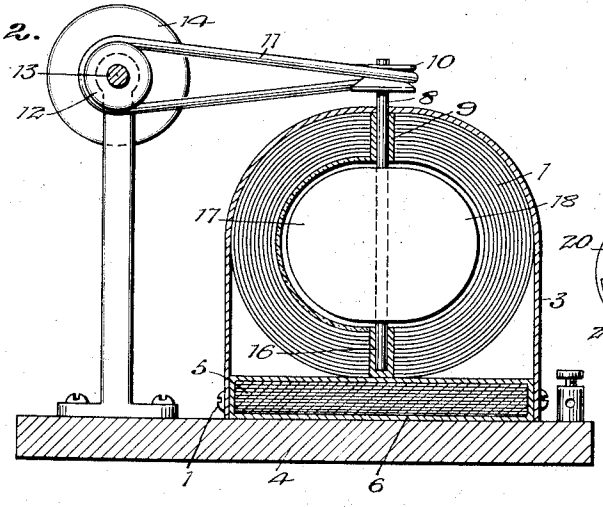


Fig. 3.

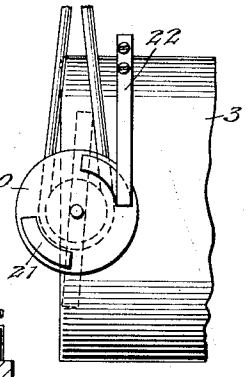
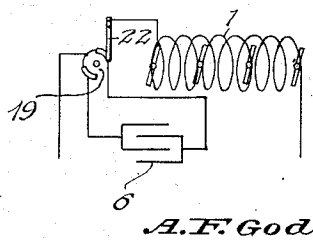


Fig. 4.



WITNESSES

W. L. Jones

Robert D. Hulsizer

INVENTOR

A. F. Godefroy

BY Munn & Co

ATTORNEYS

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UNITED STATES PATENT OFFICE.

ALEXANDRE F. GODEFROY, OF ST. LOUIS, MISSOURI.

SOLENOID MOTOR.

Application filed April 8, 1922. Serial No. 550,671.

This invention relates to a solenoid motor, and has for an object the provision of a motor in which the interruption of current in the solenoid, by reason of the actuation of a plurality of armatures or rotating elements, produces power which can be made use of.

Another object resides in the provision of a simple, efficient, durable apparatus that requires the minimum attention for repairs and operation.

A further object resides in the particular construction and arrangement of parts which are hereinafter described and claimed and shown in the accompanying drawings.

The invention is illustrated in the drawings, of which—

Figure 1 is a plan view of the motor unit.

Fig. 2 is a transverse section of the unit.

Fig. 3 is a partial end elevation showing the circuit interrupter.

Fig. 4 is a circuit diagram of the apparatus.

The form of the invention shown in the drawings is a preferred form, although it is understood that modifications in the construction and arrangement of the parts and in the character of the materials used may be adopted without departing from the spirit of the invention.

The preferred application of my invention as shown in the drawings comprises a long, hollow solenoid winding 1, preferably lined within by a shell of insulating material 2 and covered by a sheet of metal such as 3. This solenoid is formed of any number of layers or windings of suitably insulated wire and is disposed on a platform or base 4. As shown, a condenser 5 is mounted on the base 4. The condenser is provided with a casing 6 which in the particular form shown in the drawing is disposed on the base 4 and supports the solenoid, the sheet 3 being connected to the side of the condensers by screws 7. Within the solenoid I dispose a plurality of armatures, each armature being pivoted on a shaft 8 which extends through a suitable sleeve or bushing 9 in the solenoid and is provided with a pulley 10 on its upper end. Over this pulley runs a belt or other connection 11 leading to another pulley 12 on the main shaft 13. On the ends of the shaft 13, large pulleys 14 and 15 are disposed to transmit power from the shaft to any suitable mechanism to be driven. The lower ends of the shafts 8 are also seated in a suitable bushing or socket 16 disposed in any suitable manner in the wall of the solenoid. Each of the armatures is in the form of a plate having two sections, one, such as 17, of a metal such as copper, and the other section 18 made of a metal such as iron. Preferably the disposition and relation of the sections of adjacent armatures is as shown in Fig. 1. As shown in Figs. 4 and 5, the condenser 6 is bridged across the end terminals of the solenoid winding. The condenser is used for the purpose of distributing the energy of the circuit to prevent sparking at the points of the brake of the circuit breaker. In Fig. 4 any suitable circuit breaker 19 is shown. The disclosed form of circuit breaker is a plate or disk 20 mounted on the end of one of the armature shafts 8 having contact plates 21 with which a brush 22 is adapted to make contact. The brush and the contact plates are, of course, connected in the circuit in any desired manner, as shown in Fig. 4.

It will be apparent that whenever the magnetic field set up by the current in the solenoid is disposed electrically in one direction the armatures will aline themselves in one direction. Therefore, if the making and breaking of the circuit is properly synchronized in any desired manner with respect to the motion of the armatures their motion can and is made continuous whereby power is contributed through the connections or apparatus 11 to the shaft 13. The condenser 6 is shunted across the brushes 22 to prevent sparking at said brushes.

In other words, I have provided a simple, durable means whereby the energization and deenergization of a solenoid will result in a continuous motion in a plurality of armatures associated with the magnetic field produced by the current in the solenoid, these armatures being connected to a suitable element to be driven and from which power can be obtained.

What I claim is:

1. An electric motor which comprises a hollow solenoid, a plurality of armatures disposed along the axis of said solenoid and adapted to be affected by a variation in the field of the solenoid, a driven shaft, connections between the armatures and said shaft whereby motion of the armatures is transmitted to the shaft, a circuit connected with the solenoid, and means in the circuit for varying the current in the solenoid in accordance with the motion of the armature.

2. An electric motor which comprises a hollow solenoid winding, a plurality of armatures disposed along the axis of said solenoid and adapted to be affected by a variation in the field of the solenoid, a driven shaft, connections between the armatures and the driven shaft whereby the motion of the armatures is transmitted to the shaft, a circuit for said winding, a circuit breaker in circuit with said windings, and means for actuating the circuit breaker in accordance with the movement of the armatures.

ALEXANDRE F. GODEFROY.