

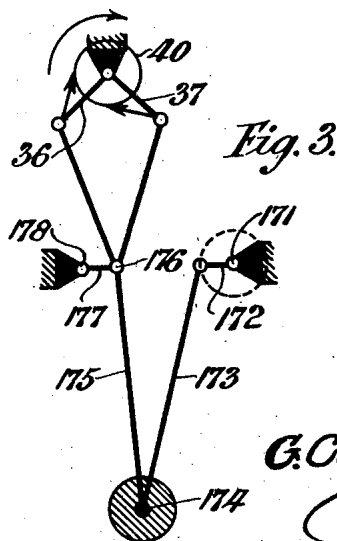
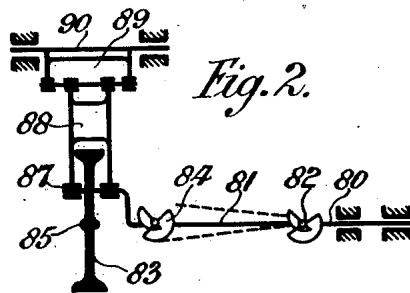
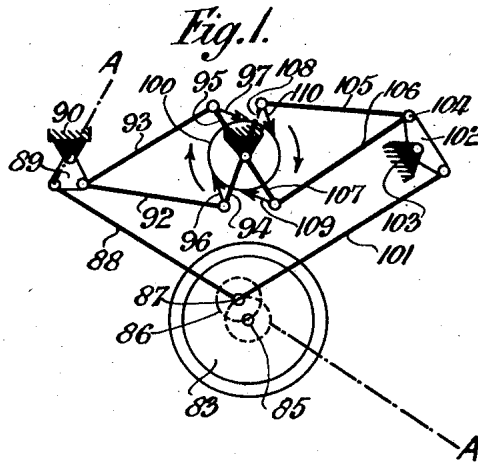
Aug 18, 1925.

1,550,505

G. CONSTANTINESCO

POWER TRANSMISSION

Original Filed March 24, 1924



Inventor  
G. Constantinesco,  
by *[Signature]*  
att'y.

## UNITED STATES PATENT OFFICE.

GEORGE CONSTANTINESCO, OF WEYBRIDGE, ENGLAND.

## POWER TRANSMISSION.

Original application filed March 24, 1924, Serial No. 701,539. Divided and this application filed April 6, 1925. Serial No. 21,106.

*To all whom it may concern:*

Be it known that I, GEORGE CONSTANTINESCO, a subject of the King of Great Britain, residing at "Carmen Sylva," Beechwood Avenue, Oatlands Park, Weybridge, in the county of Surrey, England, have invented a new and useful Improvement in Power Transmission, of which the following is a specification.

This application forms a division of U. S. application Serial No. 701,539.

In my prior specification No. 701,539, corresponding as regards part of its subject matter to my British patent specification No. 218,406, a method is described of setting up oscillations by the gyrations of an unbalanced mass set in motion by a prime mover. This mass is coupled with a second mass in such a way that the motion of the prime mover is split into two components of varying amplitude but of the same period as that of the gyrations of the first mass. One component is the motion of the centre of gravity of the two masses, the other is the motion of a unidirectional mechanism which drives a rotor, the ratio of these two components depending upon the torque on the rotor. In the absence of any such torque the motion of the centre of gravity of the masses, or such part of this motion as is relevant, is zero; if the torque is infinite, the motion is a maximum.

In some cases the second component may be divided into others having a period of twice, four times or some positive integral power of two times that of the gyrations aforesaid.

According to my present invention the two masses of my former invention are replaced by a single mass which combines the functions of both.

In the accompanying drawings, Figure 1 shows a form of the invention in which a unidirectional torque is obtained by the use of four ratchets; Figure 2 is a section along the line A—A, Figure 1, and Figure 3 shows a modification in which two ratchets only are used.

In the form of the invention shown in Figures 1 and 2, the shaft 80 of a prime mover is connected by a double Hooke's or Cardan joint 82, 81, 84, or by some other flexible coupling to the centre 85 of a fly-wheel 83, which is supported at some point

87 other than its centre by links 88 and 101. 55  
The centre 85 is thus caused to gyrate in a circle 86 about the point 87, its motion in space being circular or elliptical or approximately so. The link 88 is connected to a triangular block 89, which turns about a 60  
fixed pivot 90, and pivoted to the block are two other links 92 and 93. The opposite ends of the links 92 and 93 are pivoted to oscillating links 94 and 95, which are in 65  
turn pivoted about the axis of the rotor 100. The oscillating links 94 and 95 carry pawls 96 and 97 which act upon the rotor as shown in the drawing. The other link 101 is connected to one end of a lever 102 which turns about a fixed pivot 103. Arms 105 and 106 70  
are pivoted to the other end 104 of the lever, and these actuate arms 108, 107, and pawls 110, 109, in a manner similar to that above stated. Part of the duty of the block 89 and of the lever 102 is to give stability to 75  
the motion. The mean angle between the rods 88 and 101 is about 90 degrees. This arrangement produces almost continuous rotation of the rotor, which receives four impulses for each gyration of the wheel 83, one 80  
by each pawl, and the impulses differ in phase by about 90 degrees.

The action will be made clear by considering limiting cases of the motion. If the torque on the rotor is infinite the pin 87 is 85  
fixed in space and the whole motion consists of the gyration of the wheel 83 about the point 87 as a fixed point. If, on the contrary, the torque is zero, the motion of the point 87 is perfectly free. The wheel 90  
now rotates about its centre 85 as a fixed point in space. In intermediate cases it is evident that the motion is split between two components, one consisting in the motion of the unidirectional devices, and the other 95  
consisting in the motion of the centre of the wheel.

Figure 3 shows a similar but somewhat simpler device. The wheel or disk 174 corresponds to the wheel 83 of the previous 100  
figures, and the links 173 and 175 correspond to 101 and 88. These links are connected to links 172 and 177 pivoted respectively to fixed points 171 and 178. The links 172 and 177 give stability to the motion. Oscillating 105  
links 36 and 37 pivoted about the axis of the rotor 40 carry driving pawls and are connected to the common pivot 176 of the

links 175 and 177. The action is similar to that already described in connection with figures 1 and 2.

What I claim is:—

- 5 1. An automatic power gear in which power is transmitted from a prime mover to a shaft rotating under varying torque or speed, comprising in combination a pair of levers pivoted to fixed points, links connect-  
10 ing said levers to a common axis, a heavy wheel fixed eccentrically on the said axis, a crank on said axis, the pin of which crank is in line with the centre of the wheel, a first motion shaft, a flexible coupling connect-  
15 ing the said first motion shaft with the pin of the said crank, a rotor shaft, and uni-

directional driving devices connected to the said levers and actuating the said rotor shaft.

2. An automatic power gear as claimed in the preceding claim in which the unidirectional driving devices comprise two pairs of links, the members of each pair respectively being pivoted to the said levers, and actuating pawls which impart two impulses to the said rotor shaft at each oscillation of the lever to which they are connected.

In testimony that I claim the foregoing as my invention, I have signed my name this twentieth day of March, 1925.

GEORGE CONSTANTINESCO.