

No. 760,269.

PATENTED MAY 17, 1904.

W. S. STELJES.  
PEDAL DRIVING APPARATUS.  
APPLICATION FILED NOV. 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

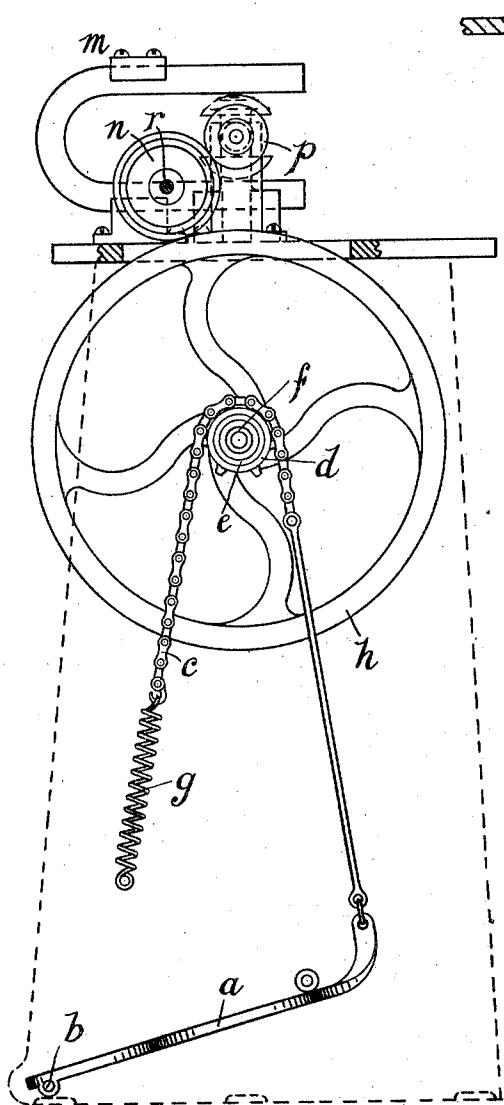


FIG. 2.

Witnesses:  
*George G. Schoenlank*  
*Thomas Kirkpatrick*

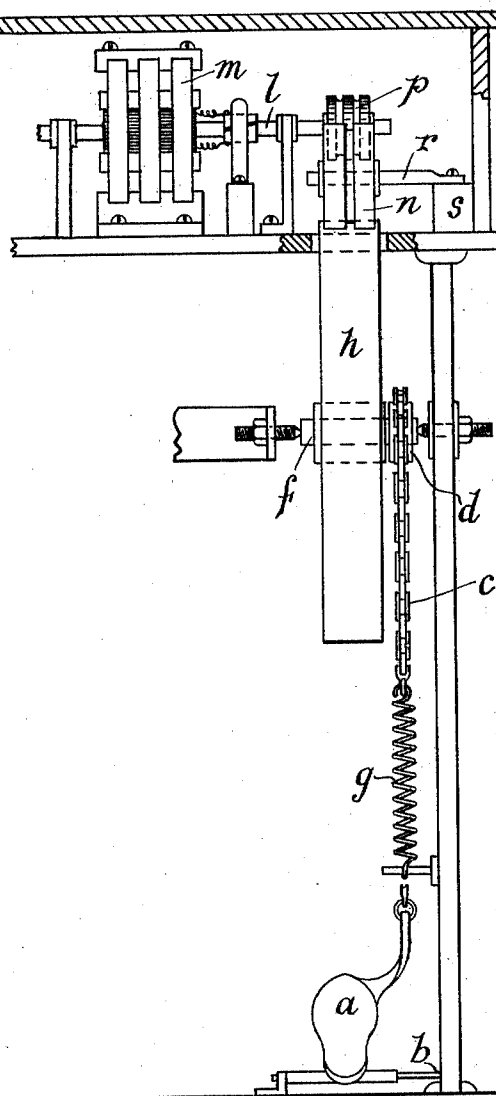


FIG. 1.

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W. S. STELJES.  
PEDAL DRIVING APPARATUS.  
APPLICATION FILED NOV. 28, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

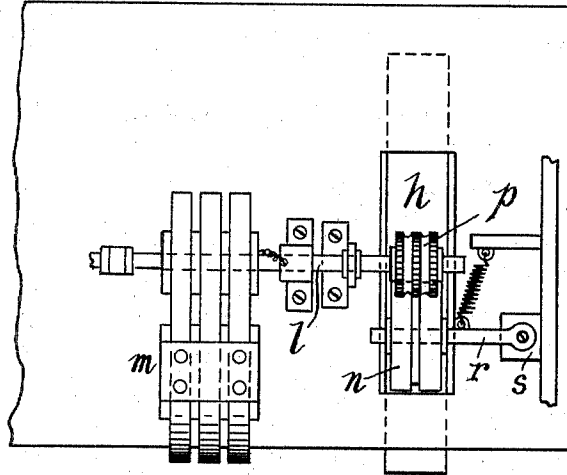


FIG. 3.

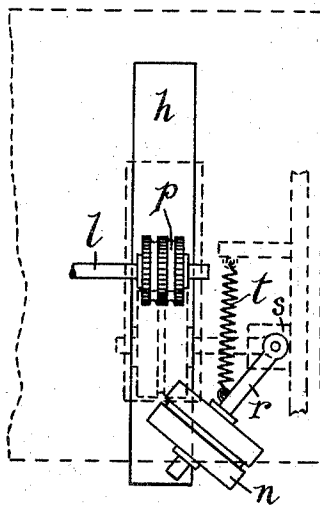


FIG. 5.

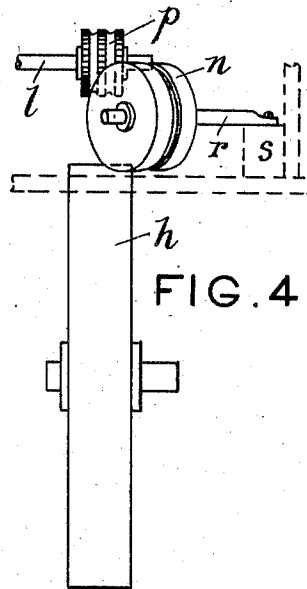


FIG. 4.

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# UNITED STATES PATENT OFFICE.

WALTER SAMUEL STELJES, OF LONDON, ENGLAND, ASSIGNOR TO THE  
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## PEDAL DRIVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 760,269, dated May 17, 1904.

Application filed November 26, 1902. Serial No. 132,897. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER SAMUEL STELJES, a subject of the King of Great Britain and Ireland, residing at London, England, have invented a new and useful Improved Pedal Driving Apparatus, of which the following is a specification.

This invention relates to pedal driving apparatus; and it consists in a combination of devices whereby the movement of the foot or feet of an operator is caused to produce the rotation of a shaft or spindle always in the one direction, without the possibility of unintentional reversal, and at a high speed without dead-points when at rest, and without the use of bands in the speed-multiplying gear, which when used are always troublesome.

The said driving apparatus is applicable to the operation of light dynamos, as in telegraph transmitting instruments, to sewing-machines, or to any form of light machinery which it is desired to drive at a high speed and in which any accidental reversal is not desired or is injurious.

It is well known that with the ordinary pedal and crank gear, particularly where only one pedal is used, the driving apparatus is apt to stop on a dead-point, and upon starting the driven spindle may be revolved accidentally in a direction of rotation not desired. Also where band-multiplying speed-gear is used much trouble is caused by the want of constant tightness of the band by their variation with the weather and their tendency to break unexpectedly or to run off. Where friction-gear of the ordinary kind is used to avoid the use of bands, much trouble is caused by the difficulty of tightening such frictional gear and its tendency to lose its grip under wear and the necessity for accuracy in the distances of the shafts. It is to avoid these various difficulties that the present driving pedal-gear has been devised.

Figure 1 is a front elevation of the gear. Fig. 2 is a side elevation of the same. Fig. 3 is a plan of the same, and Figs. 4 and 5 are an elevation and plan of the frictional gear.

$a$  is the pedal, pivoted at one end at  $b$  to

any convenient frame and attached at the other end to a chain  $c$ , passing over a sprocket-wheel  $d$ , attached to a clutch-box  $e$  of any known design, such as that used in bicycles with so-called "free" wheels, that is so adapted that it will engage with the shaft  $f$  when rotated by the downward pull of the chain  $c$ , but which permits the shaft  $f$  to revolve freely within it when overtaking the clutch-box or when the latter is reversed. The farther end of the chain  $c$  is attached by a spring  $g$  to any convenient point on the frame, the elastic recoil of the spring  $g$  serving to lift the pedal  $a$  and reverse the clutch-box  $e$  when the pressure of the foot is lifted from the pedal. Two pedals may be used instead of one with duplicate clutch-boxes and accessories, as above described, so that the pressure of both feet may be used alternately.

A comparatively heavy fly-wheel  $h$  is keyed to the first motion-shaft  $f$ , so that the momentum of the fly-wheel  $h$  when set in motion by the downward pressure of the pedal may be sufficient to carry on the rotation of the shaft  $f$ , while the pedal rises by the recoil of the spring  $g$  and until the next downward impulse of the pedal. The rim also of the fly-wheel  $h$  is used to transmit a multiplication of speed by friction to a second driven shaft  $l$ , which may be the spindle of a dynamo  $m$  or any other light machine; but such frictional transmission is effected through an intermediate wedging friction-wheel  $n$ , of larger diameter than the space between the fly-wheel  $h$  and the pulley  $p$  on the end of the shaft  $l$ . The said intermediate friction-wheel  $n$  is supported on an arm  $r$ , pivoted on a bracket  $s$ , so as to move horizontally in a plane between the fly-wheel  $h$  and the pulley  $p$ . A spring  $t$  serves to bring the intermediate wheel  $n$  into direct contact with the peripheries of the fly-wheel  $h$  and the pulley  $p$ , and it is wedged in between them, so as to give a frictional grip proportional to the resistance by the action of the fly-wheel when it revolves. Such frictional gear is also self-adjusting, irrespective of wear or the accuracy of the distances of the axes of the various shafts.

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

1. In combination, in a pedal frictional driving-gear, a driving-wheel and a driven drum, an intermediate carrying friction-wheel making contact with the peripheries thereof and of larger diameter than the space between the two; an arm supporting said carrying-wheel so that the latter is free to rotate thereon, and extending at right angles from the center of the plane of revolution of said carrying-wheel; means for the pivotal support of the outer end of the said supporting-arm, permitting said arm to move in a plane at right angles to and passing between the peripheries of the said driving-wheel and driven drum; and a spring attached to said arm and rigidly fixed at the other end, adapted to normally cause contact between the said carrying-wheel and the driving-wheel and driven drum.

2. In combination, a pivoted pedal; means for obtaining therefrom a rotation to first motion-shaft without dead-points and in one direction only; a fly-wheel on the first motion-

shaft having its periphery adapted as a frictional transmitting-surface; a drum upon a fixed second motion-shaft with a surface adapted to receive frictional transmission; an intermediate carrying-wheel with periphery adapted to frictional transmission, of larger diameter than the space between the fly-wheel and driven drum; a means of support for the said intermediate carrying-wheel, consisting of a bar forming at one end a bearing for the said intermediate wheel, and at the other end pivoted to a fixed bracket, so as to revolve in a plane at right angles to the planes of revolution of the driving-wheel and driven drum, and passing between them; and a spring torsionally connecting the said bar to a fixed bracket to determine the normal contact of the peripheries of the said intermediate, driving and driven wheels.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WALTER SAMUEL STELJES.

Witnesses:

RICHARD R. HOFFMANN,  
CHARLES CARTER.