No. 757,891. PATENTED APR. 19, 1904.

I. J. DAILY.

PULLEY DRIVING MECHANISM.

APPLICATION FILED APR. 9, 1903.

NO MODEL.

Fig 1

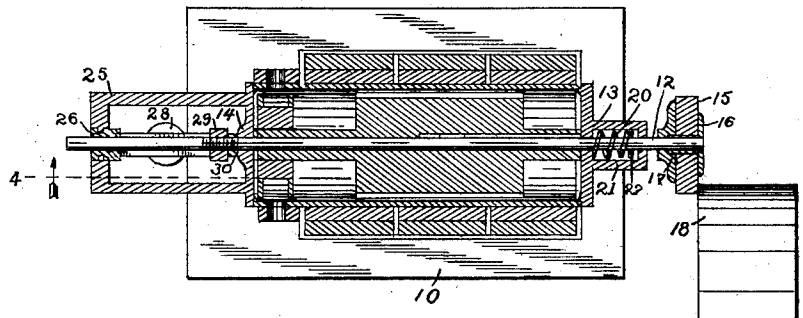


Fig 2

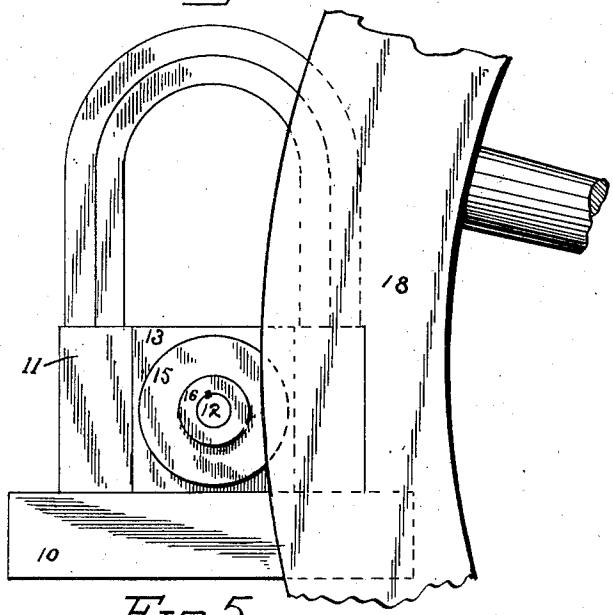


Fig 3

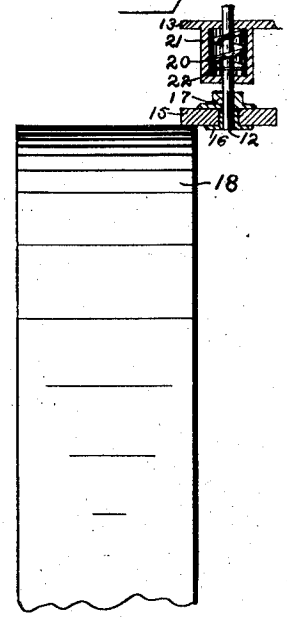


Fig 5

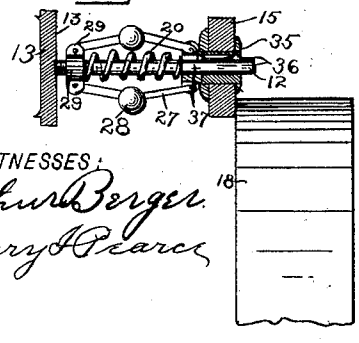
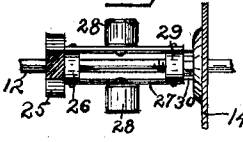


Fig 4



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No. 757,891. Patented April 19, 1904.

UNITED STATES PATENT OFFICE.

IRVIN JAY DAILY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO HENRICKS NOVELTY COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA.

PULLEY-DRIVING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 757,891, dated April 19, 1904.

Application filed April 9, 1903. Serial No. 151,771. (No model.)

To all whom it may concern:

Be it known that I, IRVIN JAY DAILY, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Pulley-Driving Mechanism; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of the invention is to provide improvements in constructions and arrangements where a pulley or driven wheel is driven by frictional contact with a driving-wheel.

One use to which this invention has been put is the driving of the shaft of a dynamo or electrical generator for supplying a current to an electric igniter for combustion-engines. In such instance the pulley on the dynamo-shaft is driven by contact with the fly-wheel of the gas-engine, and by providing a spring or similar means for constantly forcing the pulley on the dynamo-shaft toward the fly-wheel of the gas-engine and by placing the side of said pulley against the fly-wheel of the gas-engine the pulley on the dynamo-shaft will move longitudinally of the shaft under the influence of the irregularities of the contacting surface of the fly-wheel. It is immaterial whether the side of the fly-wheel or the periphery thereof engages the pulley on the dynamo-shaft, as the effect will be the same. The irregularities in the contacting surface of the fly-wheel will tend to force the pulley in a direction directly parallel or in line with the shaft on which it is mounted, so that the spring can take up such longitudinal thrusts without any injury to any part of the mechanism.

It is to be noted that the driving-wheel has not only peripheral irregularities in its movement, but also lateral irregularities. When the driven wheel is placed in contact with the side of the driving-wheel, the driven wheel is affected or moved only by the lateral irregularities of the driving-wheel and not in any manner by the peripheral irregularities thereof, as the side of the wheel will slide back and forth against the side of the driven wheel and accommodate the peripheral irregularities of the driving-wheel. On the other hand, if the driven wheel is in contact with the periphery of the driving-wheel the lateral irregularities of the driving-wheel will not affect the driven wheel, but will move back and forth across the side of the driven wheel. Consequently while the driving-wheel has irregularities in two directions the driven wheel is affected by the irregularities in only one direction. The effect of this construction so far as gas-engine dynamos are concerned is to render it needless to have the dynamo slidable or movable on its base, as is necessary in certain other constructions.

The full nature of this invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a transverse section of a dynamo on a line with the shaft and a plan view of a portion of the fly-wheel of an engine with its side in engagement with the side of the pulley of the dynamo, a part of the fly-wheel being broken away. Fig. 2 is an end elevation of the dynamo and a side elevation of the fly-wheel driving the same in the manner shown in Fig. 1, parts of the fly-wheel being broken away. Fig. 3 is a plan view of a portion of the fly-wheel and a transverse section on the line of the dynamo-shaft, a part of the fly-wheel being broken away and only the end of the dynamo which carries the pulley being shown, the periphery of the fly-wheel in this figure engaging the side of the pulley for driving the same, thus illustrating a modified form as compared with what is shown in Figs. 1 and 2. Fig. 4 is a transverse section on the line 4 4 of Fig. 1, showing especially the governor. Fig. 5 is a plan view, like the right-hand portion of Fig. 1, but of a modified form.

Referring now to the details of the construction illustrated in the drawings for the purpose of explaining the general nature of this invention, 10 is the base, upon which a dynamo 11 is rigidly mounted, although it need not be mounted rigidly thereon. The details of construction of this dynamo will not be herein

set forth, as there is nothing new or peculiar in the most of them, the construction being the same in most particulars as that shown in the patent to Garrett W. Henricks for a safety speed-limiting means, No. 675,351, dated May 28, 1901. The said Henricks patent showed a similar dynamo driven by the fly-wheel of a gas-engine engaging the periphery of the pulley on the dynamo-shaft.

As shown in the drawings herein, the dynamo-shaft 12 is mounted in the bearings 13 and 14, so as to be longitudinally movable. It is driven by a driving wheel or pulley 15, secured on one end, the body of said pulley or wheel being formed of leather held in by two metal disks 16 and 17. The side of said pulley in the form shown in Figs. 1 and 2 is placed so as to bear against the side of the fly-wheel 18, and the spiral spring 20 tends to force said pulley 15 against the fly-wheel and maintain a frictional contact therewith that will cause the fly-wheel to drive the pulley. The spring 20 is placed about the shaft 12 and within a casing 21, secured to and extending from the bearing 13. Said spring at one end bears against the bearing 13 and at the other end against the pin 22 in the shaft 12, so that said spring tends to push the shaft longitudinally toward the fly-wheel.

The speed of the dynamo-shaft or its pulley is in this construction regulated by the governor. (Shown at the left in Fig. 1 and in Fig. 4.) There a bracket 25 extends from and is secured to the bearing 14 and in its outer end has a central opening, in which a sleeve 26 is mounted, so as to be rotatable. This sleeve surrounds the shaft 12 loosely, so as to permit the longitudinal movement of the shaft through it. A pair of oppositely-placed flat springs 27 are secured to said sleeve 26 and about midway have secured to their outer surfaces the weights 28. Said springs at their other end are secured to a sleeve 29, that is screwed upon a threaded portion of the shaft 12, but may be otherwise secured to said shaft. In the form shown it is held from turning by the lock-nut 30.

Under high speed centrifugal force will cause the weights 28 to bow the springs outward and draw the sleeve 29 and the shaft 12 to the left, so as to lessen the forcibleness of the engagement between the pulley 15 and the driving-wheel 18. This will diminish the speed of the dynamo-shaft, and as the forcibleness of such contact is increased the speed will be correspondingly increased. It is immaterial what sort of governor is used, the function of the governor being to lighten the contact between the two wheels and the function of the spring being to increase the forcibleness of that contact.

While in Fig. 1 a longitudinally-movable shaft is shown with the driven wheel rigidly secured thereon, the modified form in Fig. 5 shows the reverse construction, the shaft not being longitudinally movable, but the driven wheel being movable thereon, it having a slot 35 in it through which a pin 36 in the shaft extends. The governor is there placed between the bearing 13 and the pulley. The sleeve 29 is secured on the shaft in the same way as in Fig. 1, and the springs 27 are connected with the hub of the pulley at 37 instead of as shown in Fig. 1. The spring 20 is placed about the shaft within the governor, bearing at its left-hand end against the sleeve 29. With this means of driving the pulley on the driving-shaft no other adjustable or regulative features are needed for the complete automatic operation of the device. The dynamo is rigidly secured on the base, so that no element of weakness arises from the mounting of the dynamo, and the construction is cheapened and simplified on that account. The only part of the device which receives any appreciable wear is the leather portion 15 of the pulley, and while the wear there is slight the pulley can be readily replaced.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a fly-wheel, of a pulley with its side in contact with the side of the fly-wheel, and a spring-controlled mounting for the pulley, substantially as and for the purpose set forth.

2. The combination with a fly-wheel, of a pulley with its side in contact with the rim of the fly-wheel, means for mounting said pulley to permit it to be movable toward or away from the fly-wheel on a line at a right angle to the surface of the fly-wheel with which the pulley is in engagement, a spring tending to force the pulley against the fly-wheel, and a governor for regulating the forcefulness of the contact between the pulley and the fly-wheel, substantially as set forth.

3. The combination with a fly-wheel, of an electric generator having suitable magnets and an armature within the same, a shaft carrying said armature, bearings in which said shaft is mounted, a pulley mounted on said shaft at a right angle to the shaft and with its side in contact with the rim of the fly-wheel so that the armature-shaft will extend at a right angle from the surface of the fly-wheel with which said pulley is in contact, and a spring tending to hold said pulley against the fly-wheel.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

IRVIN JAY DAILY.

Witnesses:
V. H. LOCKWOOD,
NELLIE ALLEMONG.