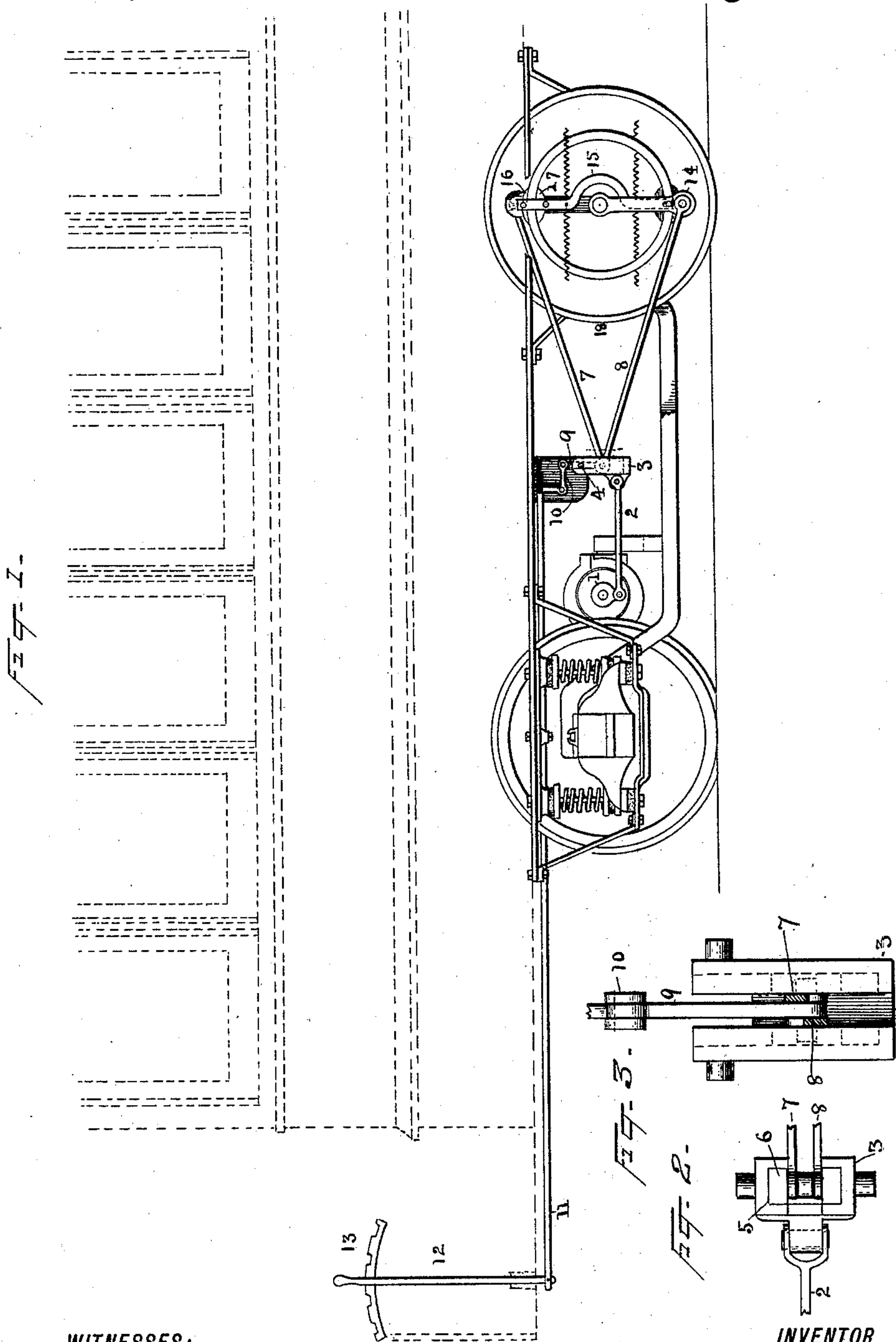


(No Model.)

J. F. OTT.  
SPEED VARYING MECHANISM.

No. 434,882.

Patented Aug. 19, 1890.



WITNESSES:

Norris A. Clark,  
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# UNITED STATES PATENT OFFICE.

JOHN F. OTT, OF ORANGE, NEW JERSEY.

## SPEED-VARYING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 434,882, dated August 19, 1890.

Application filed February 20, 1890. Serial No. 341,111. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. OTT, a citizen of the United States, residing at Orange, in the county of Essex and State of New Jersey, have invented an Improved Speed-Varying Mechanism, of which the following is a specification.

This invention constitutes an improvement on the construction shown in an application of Thomas A. Edison, Serial No. 341,108, filed February 20, 1890. In that construction the speed of the driven mechanism was varied by turning a hand-wheel, which, through sprocket-wheels and a chain, operated a screw serving to increase or decrease the effective movement of the reciprocated propelling-rods. It is found desirable to be able to accomplish any desired change in the speed by a single, direct, and positive movement, rather than by a comparatively long-continued turning of a screw; and my invention consists in means adapted to operate in this manner.

In the accompanying drawings, which illustrate my invention, Figure 1 is a side elevation of a clutch and propelling mechanism of the car described in the above application with my improvement applied thereto. Fig. 2 is a plan, and Fig. 3 a front view, of a portion of the mechanism hereinafter described.

The mechanism is shown in the drawings applied to an electric car; but it is applicable also in other situations where the motor-shaft has a continuous rotation and it is desired to change the speed of the driven mechanism without changing the speed of rotation of the motor.

1 is a motor-shaft, which is supposed to be in constant rotation. The motor is mounted in any suitable manner upon the truck or car. 2 is a pitman driven by the motor and serving to reciprocate the frame 3, which is pivoted at 4. In suitable guideways 5 in said frame is placed a sliding head and pin 6, which forms a bearing or connection for the two propelling-rods 7 8. To this head is connected a link 9, which in turn is connected to one arm of the bell-crank lever 10. From the other arm of said lever extends a rod 11 to any distant point from which it is desired to control the mechanism. At that point is

a pivoted hand-lever 12, provided with means, as rack 13, for locking the lever in any desired position. By moving the hand-lever in one direction or the other the operator can raise or lower the head 6, thus regulating the distance between the head and the dead-center 4, and hence the length of movement of rods 7 8. At their opposite ends these rods connect with arms 14 14, which are centered on an axle of the car or driven mechanism.

15 is an arm, one end of which is connected to arm 14 by means of a pin projecting therefrom and extending into a slot in arm 13. The opposite end of this arm carries two pawls or clamping-shoes 16 17—one outside and one inside of the rim of wheel 18—placed on a driving-axle, preferably midway between the car-wheels. Upon the opposite side of the wheel is an arm of the same form and connection as 15, except that its ends are reversed—that is, its shoes are diametrically opposite shoes 16 17 in Fig. 1, where the apparatus is shown with the crank of the motor at rest in its lowest position. Near one end of each arm 15 are attached two springs pulling in opposite directions and normally holding the arms in their central position—that is, in line with radial arms 14. These springs are connected to supports which may be controlled by the operator, in order to change the tension from one pair to another, in the manner set forth in the above-mentioned application, for the purpose of reversing the movement of the car.

I do not claim, broadly, as my invention a rotating shaft reciprocating a pivoted frame, which frame supports a head for propelling-rods, and means for raising or lowering said head, since I believe that to be the invention of another; but

What I do claim is—

1. The combination of a rotating shaft on a vehicle, a reciprocating pitman connected to the shaft and to a pivoted frame supporting the head or pivot-pin of the propelling-rods, a bell-crank lever, a link between the head and one arm of the bell-crank lever, and means for operating said lever, substantially as described.

2. The combination of a continuously-reciprocating pitman connected to a pivoted



frame, a movable head in said frame, to which  
are connected the propelling-rods, a bell-  
crank lever, a link extending from said head  
to one arm of the lever, and means for oper-  
5 ating said bell-crank lever from a distance,  
substantially as described.

3. The combination of a pivoted frame and  
means for reciprocating the same, a movable  
pivot-pin for the propelling-rods in said  
10 frame, and a bell-crank lever connected there-

to, whereby the effective movement of the  
propelling-rods may be varied without chang-  
ing the rate of movement of the pivoted frame,  
substantially as described.

This specification signed and witnessed this 15  
14th day of February, 1890.

JOHN F. OTT.

Witnesses:

H. F. MILLER,

EDWD. J. WALL.