

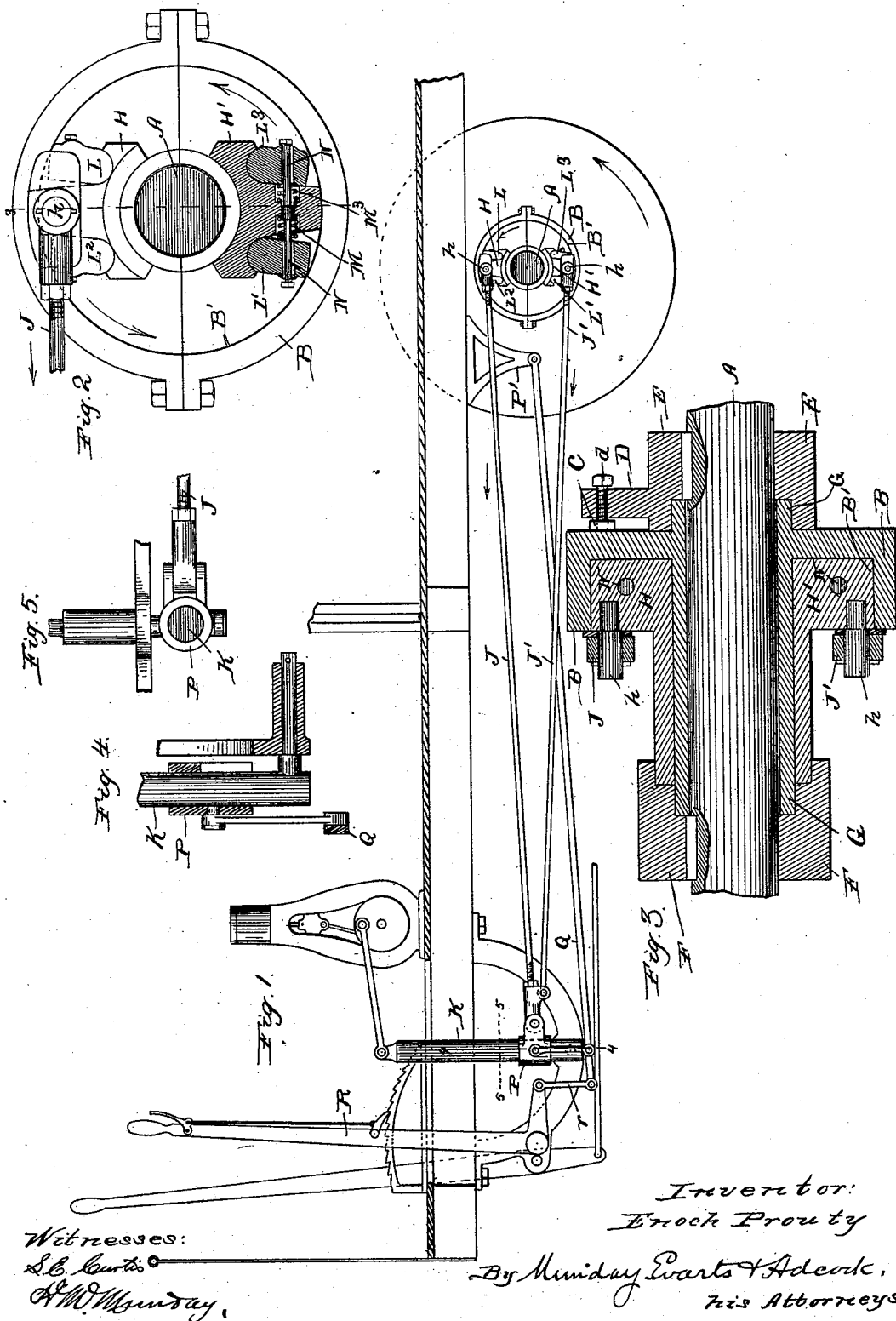
(No Model.)

E. PROUTY.

POWER TRANSMITTING MECHANISM FOR CARS.

No. 469,717.

Patented Mar. 1, 1892.



UNITED STATES PATENT OFFICE.

ENOCH PROUTY, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND EDWIN J. NOBLE, OF SAME PLACE.

POWER-TRANSMITTING MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 469,717, dated March 1, 1892.

Application filed July 17, 1891. Serial No. 399,815. (No model.)

To all whom it may concern:

Be it known that I, ENOCH PROUTY, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Power-Transmitting Mechanism for Cars, of which the following is a specification.

This invention relates to certain improvements upon the apparatus for transmitting power from a motor to the axle of street-cars heretofore invented by me and patented in Letters Patent No. 443,608, dated December 30, 1890. The principal object of that invention was to provide means whereby the driven axle could be started gradually by power from a continuously-moving motor. I find that it is highly important in an apparatus of this nature that there should be no lost motion in the operation of the clutch, especially when the transmitting devices are at a very short stroke, as when the car is being started; and it is the purpose of the present invention to provide means whereby the clutch will be made to operate positively without any slipping upon the shortest possible stroke; and also, further, a method of attaching the clutch-rods or pitmen to the transmitting-lever in such manner that the endwise movement of the axle in its bearing in the running of the car will not interfere with the operation of the transmitting devices. The first of these objects I accomplish by means of a clutch consisting of a ring secured to the axle and having its inner surface fitted to receive friction-pawls, which are at all times held out firmly against said ring by springs, so that when power is applied to the pawl it will instantly grip the frictional surface of the rim, no matter how short the stroke or movement may be, all of which will be more fully hereinafter set forth, together with certain minor features of construction pertaining to the device. The second object I accomplish by making the transmitting-lever cylindrical and the connection between the same and the pitman-rods in the form of a cylindrical sleeve, whereby the car-axle is free to move slightly endwise in either direction without bringing a strain upon the clutch, the rods, or the lever.

In the accompanying drawings, which form

a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a longitudinal vertical section of a portion of a street-car sufficient to illustrate the apparatus and its method of application. Fig. 2, upon a larger scale, is a view of the clutch, shown partly in section. Fig. 3 is a vertical section on the line 3 3 of Fig. 2. Fig. 4 is a vertical section on the line 4 4 of Fig. 1, and Fig. 5 a horizontal section on the line 5 5 of Fig. 1.

In said drawings, A represents a car-axle. B is a ring mounted on the axle and having a smooth internal face, as B', forming the frictional clutch-face. In order that this clutch-ring may have a free connection with the axle of such nature that a partial revolution of the axle in a backward direction may be permitted without causing the clutch-ring to revolve with it—as, for example, when the car settles back when standing still—and to permit of slight variations in the respective speeds of the axle and clutch-ring, as when the momentum of the car is suddenly checked, I provide that the connection between the clutch-ring and the axle shall consist of a lug on the clutch-ring, which encounters a lug on the axle. The lug on the clutch-ring is shown at C and the lug on the axle is shown at D, which latter lug has a transverse screw-bolt d, that may be screwed in or out to come in contact with the lug C when the apparatus is in operation or which may be withdrawn out of contact when it is desired to disconnect the motor from the axle, as where the cars are to be hauled upon occasion by horse-power.

As the ordinary axles in use are rough, I provide as a bearing for the clutch-ring the two shouldered sleeves E F, which are keyed to the axle, as shown at Fig. 3, and construct the ring with the bearings G G, formed of the hub of said clutch-ring. Mounted on the clutch-ring are the two oscillating blocks H H', held in place between the rim and the hub and further secured by a shoulder from the sleeve F. To these blocks, by suitable wrist-pins h, are connected the connecting-rods J J', attached at their front ends to the vibrating transmitting-lever K. Upon the blocks H H' are pivotally mounted the wedging-pawls L L'. The pivotal connection between

the blocks and said pawls in the drawings is shown to consist of a rounded socket in the block, in which rests a similarly-rounded end or base of the pawl. Each pawl is provided
 5 with a spring M, placed between the block and the pawl and tending to hold the pawl out and back against the ring with considerable force. Now it will be seen that when the vibrating lever K moves toward the axle both
 10 connecting-rods J J' will be pushed and their respective blocks H H' oscillated in opposite directions, and it will be also apparent that in the case of the block H' that its movement will cause the pawl L' to wedge between
 15 its block and the rim, causing said rim to be gripped to the block and to move with it to the extent of its oscillation, while at the same time the other pawl L moves in the opposite direction, yields upon its spring, and slides
 20 along the ring. When the connecting-rods, on the other hand, are pulled forward, the action is reversed, the pawl L' sliding and the pawl L gripping the ring, producing thus a double-acting clutch. This clutch is extremely quick and sensitive in its operation,
 25 there being practically no lost motion whatever, so far as the grip is concerned, that is produced upon the clutch-rim. Indeed, I have found that the clutch thus constructed
 30 promptly responds to so short a stroke of the connecting-rods as one-eighth of one inch. In the practical operation of transmitters of this character this feature is exceedingly important, as it enables the car to be started in a
 35 slow gradual manner while the motor is running at full speed, and avoids all jerking action, such as is produced where there is any lost motion or slip between the two parts of the clutch.
 40 In order to furnish a means for reversing the operation of the clutch to run the car backward, I sometimes duplicate the pawls by adding an extra one, as at L² L³, to each of the blocks, as shown in the drawings. Of course
 45 it will be understood that this extra pair of pawls is not in operation at the same time as the pair originally described, but only brought into operation when the motion of the car is to be reversed. A bolt N, threaded
 50 centrally to the block, is used for holding either one of the pawls of each block out of

action, as desired, while permitting the other pawl to move. By screwing this bolt in one direction or the other one or other of the pawls may be brought and held in against
 55 the block and out of contact with the rim, while its neighbor is permitted to press out against the ring, and vice versa. The forward ends of the connecting-rods J J' are hinged to the sleeve P, which slides upon the
 60 vibratory transmitting-lever K, which latter is pivoted at its lower end and is vibrated by a pitman from the crank of the engine or motor. The sleeve P is supported on the rod Q, which is attached at some distance back to the bracket P'. A link r connects the rod Q
 65 to the hand-lever R. By operating this hand-lever the sleeve P may be raised or lowered upon the vibratory lever K. The lever K is made cylindrical in cross-section and the
 70 sleeve P of the same shape, so that the latter will swivel upon the lever freely, which permits the sidewise movement of the car on its axle to take place without disturbing or cramping the mechanism.
 75

I claim—

1. The combination, with the axle A, of the ring B, having the hub G and shouldered bearings in the collars E F, said collars, the oscillating blocks H H', and the spring-held
 80 wedging pawls L L', substantially as specified.

2. The reversible clutch composed of the inner faced friction-ring and a block oscillating concentric therewith, having two opposite working wedging-pawls, combined with means
 85 for throwing one of the pawls out of position while the other is at work for reversing the operation of the clutch, said means consisting of a bolt passing through the two pawls and the block, substantially as specified.
 90

3. The combination, with the car, the motor, and the clutch operating on the axle of the car, of the vibrating transmitting-lever made cylindrical in cross-section, the cylindrical sleeve mounted to slide and turn on
 95 said lever, and the connecting-rods extending from the sleeve to the clutch, substantially as specified.

ENOCH PROUTY.

Witnesses:

H. M. MUNDAY,
 EMMA HACK.