

(No Model.)

2 Sheets—Sheet 1.

J. M. OLINGER.
STREET CAR MOTOR.

No. 572,817.

Patented Dec. 8, 1896.

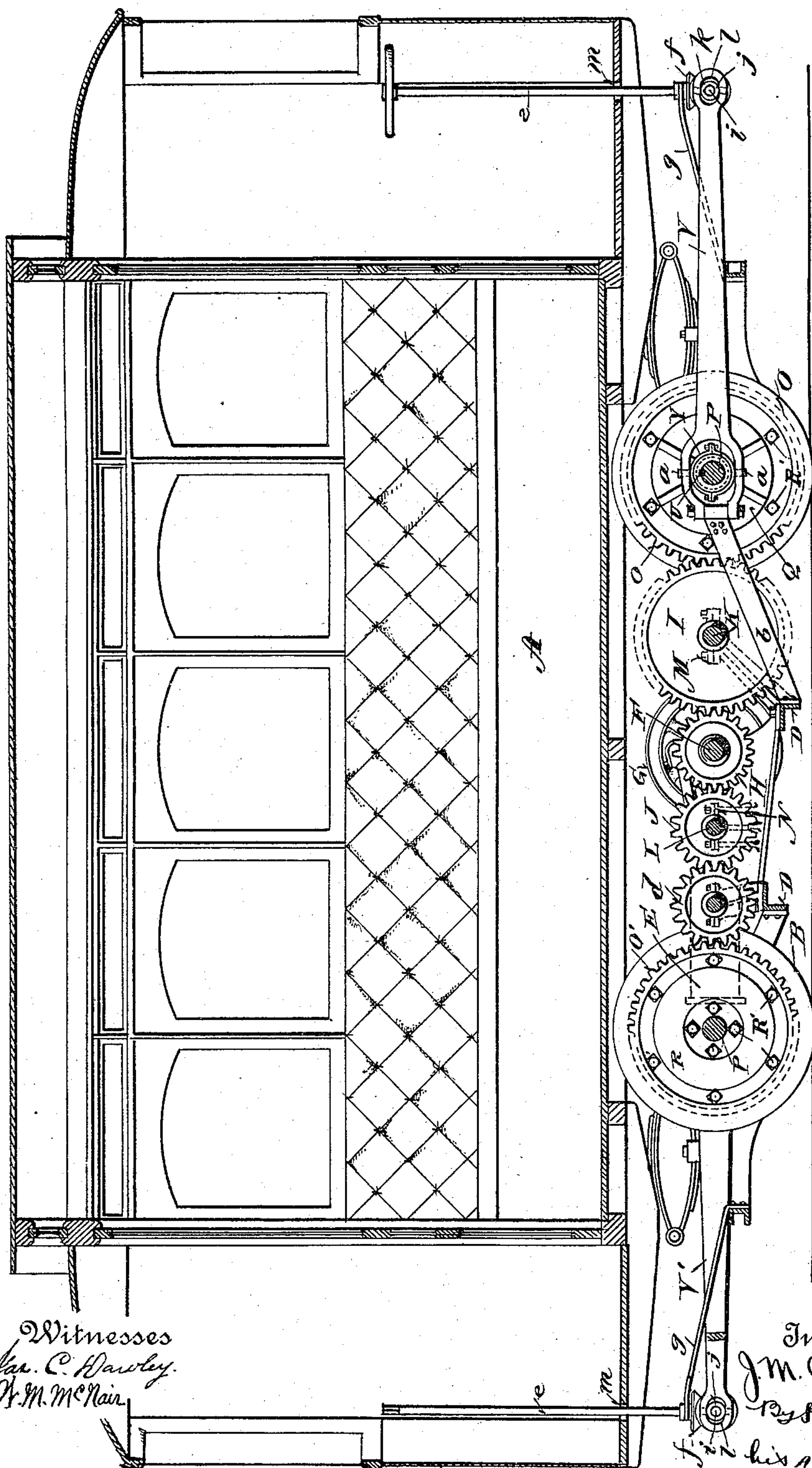


Fig. 1.

Witnesses
Jas. C. Hawley.
H. M. McNair.

Inventor
J. M. Olinger,
By H. A. Faulstich,
his ATTORNEY.

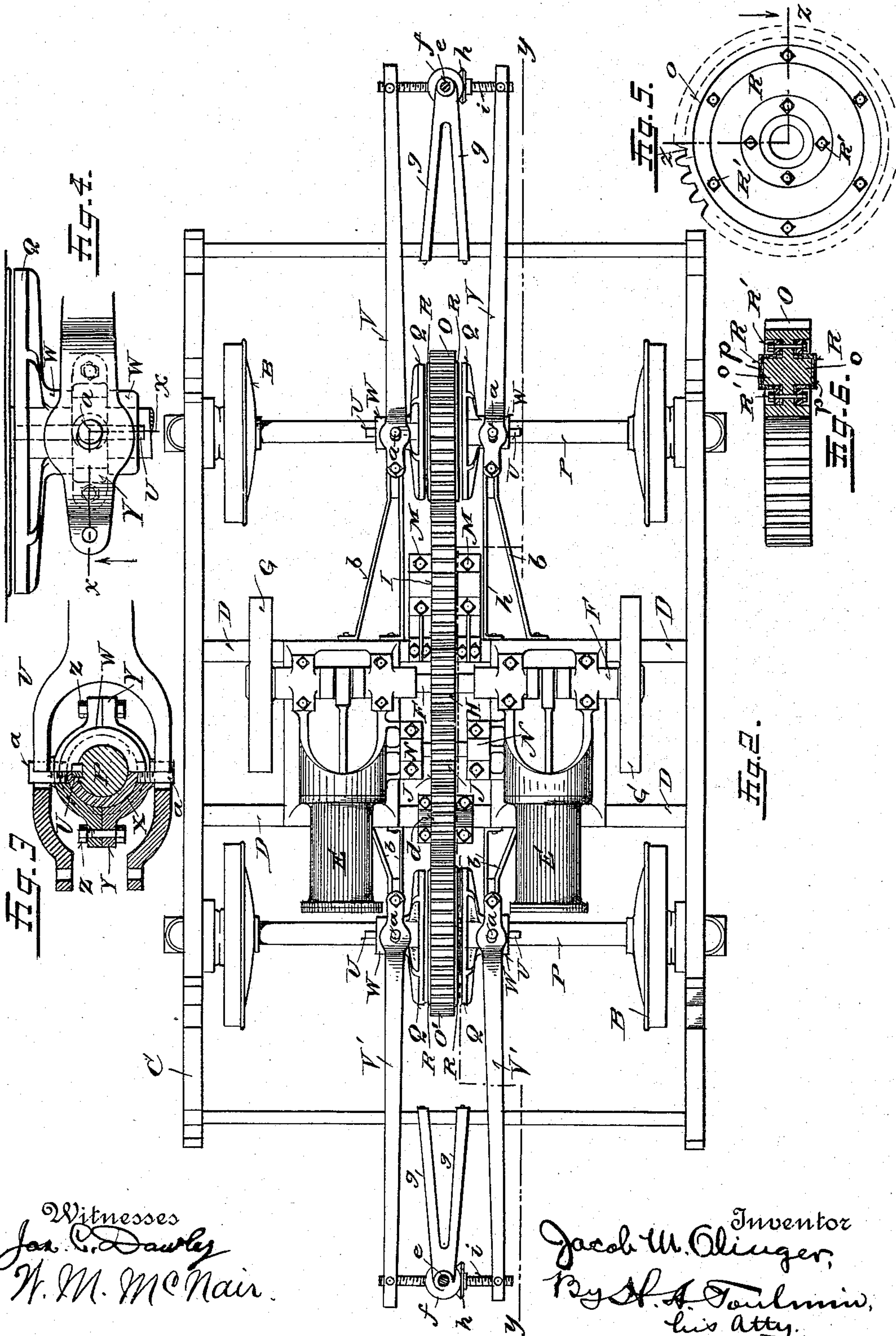
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STREET CAR MOTOR.

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Witnesses
Jas. C. Dawley
W. M. McNair.

Inventor
Jacob M. Olinger,
By H. A. Foulmer,
his Atty.

UNITED STATES PATENT OFFICE.

JACOB M. OLINGER, OF VIENNA CROSS-ROADS, OHIO.

STREET-CAR MOTOR.

SPECIFICATION forming part of Letters Patent No. 572,817, dated December 8, 1896.

Application filed February 24, 1896. Serial No. 580,350. (No model.)

To all whom it may concern:

Be it known that I, JACOB M. OLINGER, a citizen of the United States, residing at Vienna Cross-Roads, in the county of Clark and State

of Ohio, have invented certain new and useful Improvements in Street-Car Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in street-car motors.

My invention consists in transmitting power from a constantly-operating engine, such as a gas-engine, through a train of spur-gears, always in mesh, and through frictional clutches to the car-axles of a street-car or other vehicle. It also consists in mechanism for positively operating the frictional clutches longitudinally, both in and out of contact with the train of gears from either car-platform; and it further consists in details of construction hereinafter appearing and particularly pointed out in the claims.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 is a sectional elevation on the line *y y* of Fig. 2; Fig. 2, a plan view of the car-trucks and my invention applied thereto; Fig. 3, a detail view of one of the frictional-clutch-operating devices, partly in section and partly in elevation and mounted on the car-axle, the section being taken on the line *x x* of Fig. 4; Fig. 4, a plan view of the same, together with one of the frictional clutches; Fig. 5, a detail side view of one of the frictional driving-gears, showing one means of applying the frictional surface; and Fig. 6, a detail plan view of the same, partly in section.

The letter A represents a portion of the body of a street-car of the ordinary or any approved construction, and the letter B the car-wheels on axles mounted in suitable bearings in a frame C. Upon cross-beams D and attached to the frame C, I mount and securely fasten one or more gas-engines E E. These engines are adapted to rotate the shaft F in one direction. On this shaft are mounted two fly or balance wheels G and a spur driving-gear H. The fly-wheels serve the purpose of keeping the speed of the engines uniform.

The spur-gear H meshes with driven spur-gears I and J, carried by auxiliary shafts K L, mounted in suitable bearings M and N, re-

spectively, which are supported by the truck-frame. The spur-gear I also meshes with a spur-gear O, mounted on the car-axle P in a manner presently to appear.

The spur-gear O is adapted to rotate constantly on the axle P when the engines are in motion and is held in its proper position on the shaft or axle by friction-clutches Q on either side of it; but it may be held in position by any other suitable means. The frictional clutches Q are adapted to be brought into positive contact with the frictional side faces R (shown in Figs. 5 and 6) of the spur-gear O by levers V, operated by mechanism hereinafter appearing. These frictional clutches are mounted on the car-axles and are prevented from turning independently of the axle by means of a feather-key U, but which allows the frictional clutches to be moved longitudinally on the axle to and away from the spur-gear, as before mentioned.

I will now describe the mechanism for operating the levers V and how they are connected to the frictional clutches Q. Each frictional clutch has an extended hub W and in this extension a circumferential groove X. In this groove X is fitted a two-part collar Y, the parts being secured together by bolts Z. On opposite sides of said two-part collar and secured thereto in any suitable manner are projections or lugs *a*, which extend through slightly-elongated holes in each fork of the lever V. This lever is pivoted at its inner end to a support *b*, rigidly secured to the cross-beam D to allow of longitudinal movement, and at its outer end is connected to a screw-threaded device which positively operates the lever in either direction horizontally, as will hereinafter appear.

When the levers V are swung toward each other longitudinally, the frictional clutches are moved into frictional contact with the faces R of the spur-gear O, and as the clutches are prevented from rotating about the car-axle independently the car-axle is also rotated and the car moved in one direction, but as soon as the levers V are moved away from each other the frictional clutches are released from the spur-gear O and the car-axles are no longer driven. It will not be necessary to describe the driving mechanism on the other car-axle P, as it is constructed and operated in the same manner, except to state that the spur-gear O' is driven in the opposite direc-

tion by means of an additional spur-gear *d* in the train of gears. Thus it will be seen that when one set of levers *V* is operated to run the car it will move in one direction, and
 5 when the other set of levers *V'* is operated to run the car it will move in the opposite direction.

I will now refer to the means for operating these levers longitudinally to move the frictional clutches into and out of frictional contact with the driven spur-gear *O*. An upright shaft *e* at either end of the car, having a bevel-gear *f*, is supported by extensions *g*, securely bolted or otherwise secured to the
 15 car-frame. The bevel-gear *f* meshes with a corresponding gear *h* on the screw-rod *i*. The rod *i* is screw-threaded into collars *j*, which have lugs *k* cast or otherwise secured thereto. These lugs extend into the sides of elongated
 20 holes *l* in the operating-levers and constitute pivots on which the collars may turn, the elongation of the holes allowing of bringing the levers together or spreading them apart when the screw-rod *i* is operated by turning
 25 the shaft *e*. I use a wheel at the upper end of the shaft or any other suitable means for readily turning the same. The shaft extends up far enough to enable the operator on the car-platform to readily manipulate it. It
 30 will also be seen that where the shaft *e* passes up through the car-platform the hole *m* is slightly enlarged. This is for the purpose of allowing the car to have some vibration without binding on the rod or shaft *e*.

Referring again to the frictional surface on the spur-gear *O*, it will be seen that the gear has an annular projection *o* from each face. About each of these projections I fit a covering *p*, of paper or other suitable material, and
 40 bolt them to the hub of the gear, as shown at *R'* in Figs. 5 and 6. These covers when worn out may be quickly replaced by new ones and with but little expense.

My mechanism, it will be seen from the foregoing description, is located beneath the car-body, and the car-axles are connected to the main driving-shaft through a train of spur-gears of differential number and constantly in mesh, giving to the device a positive connection and at the same time prevents undue strain on the various bearings. Thus my device will wear a long time without the necessity of repairing and is not subject to breakage. In running street-cars it is
 55 very necessary to start and stop very quickly, as well as to apply the power in various degrees so as to run slower or faster, especially in crowded thoroughfares in large cities. This I have accomplished by means of my
 60 frictional clutches, which are positively operated to and away from the loosely-mounted frictional gears on the car-axles by means of levers operated from the car-platforms to cause the said frictional clutches to grip upon
 65 the frictional surfaces of the loosely-mounted spur-gears with varying pressure.

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

1. In a street-car motor, the combination 70 with a train of spur-gears receiving motion from the main driving-shaft, one gear of said train of gears being loosely mounted on one of the car-axles, of slidable friction-clutches also mounted on said car-axle and adapted 75 to rotate therewith, and having each a hub or extension with a groove extending around the same, a collar fitted in each groove with lugs or projections, a forked lever for each clutch with elongated holes in said forks 80 through which the lugs or projections extend, said levers being pivoted at their inner ends to slide said friction-clutches into and out of engagement with said loosely-mounted spur-gear, and means for operating said levers to 85 positively move them in either horizontal direction, from the car-platform.

2. In a street-car motor, the combination with the platform and the axle, of a spur-gear loosely mounted on the axle, and having a 90 friction-surface on each of its sides, a frictional clutch rotatably and slidingly mounted on the axle, one on each side of said spur gear-wheel, a lever for each friction-clutch extending forward and under the platform, 95 a right and left hand screw-threaded shaft engaging with the forward ends of said levers, a rotatable hand-shaft accessible above the platform and extending below it, a gearing connecting said hand-shaft and said screw-threaded shaft, substantially as shown and described. 100

3. In a street-car motor, a loosely-mounted spur-gear adapted to engage with one or more frictional clutches, an annular projection on 10 one or both sides of said loosely-mounted spur-gear, a covering of paper or other suitable material adapted to fit over said projection and be fastened to said gear, as shown and described. 110

4. In a street-car motor, the combination with the car-truck, a gas-engine mounted thereon, a main driving-shaft, driven thereby and having a driving-pinion secured thereto, a loosely-mounted spur-gear, with frictional 11 surfaces on its sides, on each car-axle, intermediate spur-gears of a differential number, between said driving-pinion and said loosely-mounted spur-gears respectively, and in mesh therewith, frictional clutches also mounted 12 on each car-axle and keyed thereto, levers for moving said frictional clutches into and out of frictional contact with the frictional surfaces of said loosely-mounted spur-gears, and means for operating said levers from the 12 car-platforms, as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB M. OLINGER.

Witnesses:

W. M. MCNAIR,
 JAS. C. DAWLEY.