P. E. McDONNELL.

Motive Power for Driving Street Cars.

No. 106,600. Patented Aug. 23, 1870.

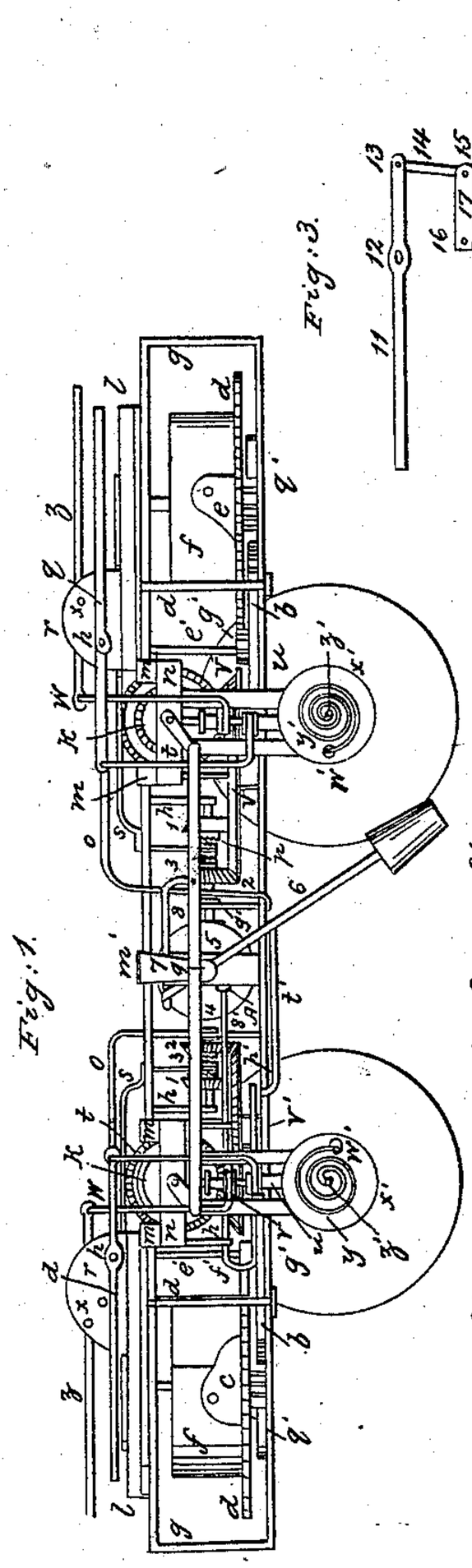

Fig. 1.

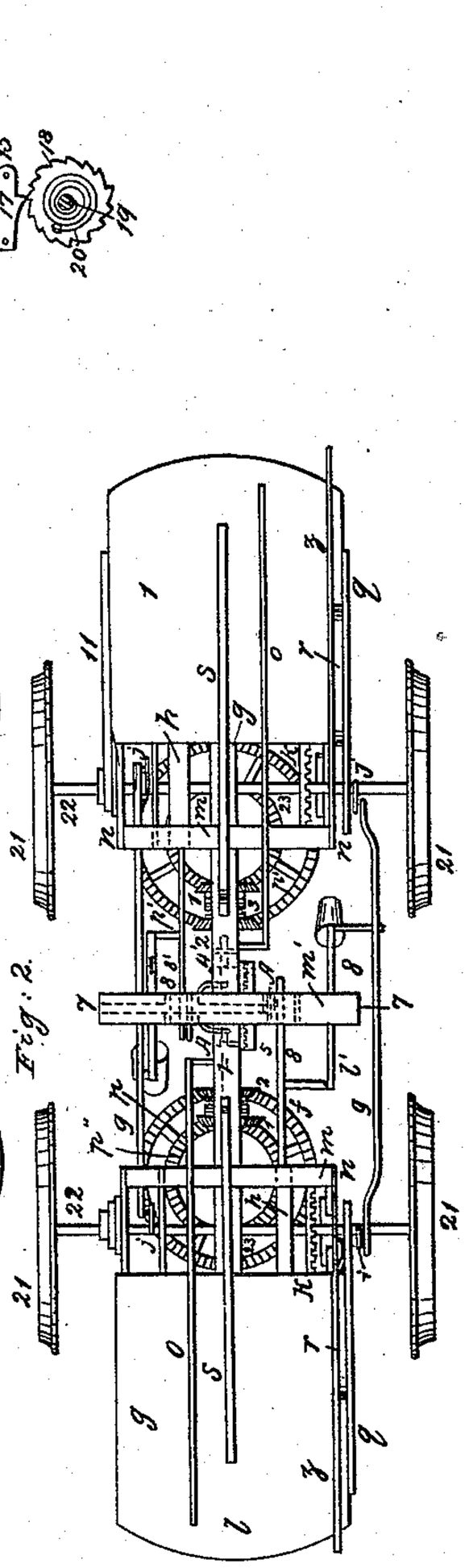

Fig. 2.

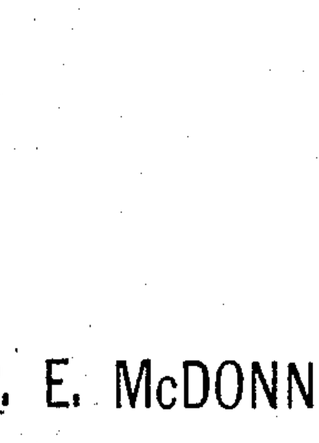

Fig. 3.

Witnesses:
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PATRICK E. McDONNELL, OF LYONS, ILLINOIS.

Letters Patent No. 106,600, *dated August* 23, 1870.

IMPROVEMENT IN MOTIVE POWER FOR DRIVING STREET-CARS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, PATRICK E. McDONNELL, of Lyons, in the county of Cook and State of Illinois, have invented a "Motive Power for Driving Street-Cars;" and I do hereby declare that the following is a full and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, and letters marked thereon, making a part of this description, in which—

Figure 1 is an elevation of my improved motive power.

Figure 2, a plan view of the same.

Figure 3, the brake attachment belonging thereto.

The present invention relates to an improved mechanism for driving cars and other land conveyances.

l represents two boxings or platforms, which are supported by an iron frame-work, *g*, and which may form the platforms of a car, or supports for the body of the car to rest upon, as any particular case may require.

Pivoted to the frame *g*, and beneath the platforms, are journals, to which the inner ends of coil springs *f* are fastened, the outer ends of the springs being fastened to bridges rigidly fastened to gear-wheels *d d*, which are fastened to the lower ends of the same journals supporting the springs. This arrangement is such that, when the springs uncoil, the said wheels will rotate and turn other gearing hereinafter mentioned.

Ordinary ratchet-wheels and pawls *q'*, being fastened to the journals of the gear *d d*, provide means for holding the springs, wound up in the usual manner.

Pinions *e' g'*, having bearings in the frame *g*, are rotated by the wheels *d*, and these pinions, in turn, carry wheels *b*, fastened to the same shafts as the pinions.

The wheels *b* drive bevel gear-wheels *p'*, by means of pinion *v'* placed below them, and fastened to the same shafts.

As shown at fig. 2, the bevel gear-wheels *p'* have attached to their arms inside bevel gear-wheels *p''*.

This arrangement is such that the double-slip gear 1 2, 1 2, may be so moved by clutches 3, figs. 1 and 2, and a lever, S, that the bevel-wheels *p'* may drive the gear 2, or the inner wheel *p''* may drive the wheel 1. This arrangement is made to give the springs a greater purchase on the gear that turn the journals of the car.

The shaft which supports the double-slip gear 1 2, 1 2, reaches from bridge-trees *m* to *m'*, and on their inner ends they are provided with ordinary bevel gear-wheels 4, which drive a bevel gear-wheel, 5, figs. 1 and 2.

The wheel 5 is provided with double segments of teeth similar to the wheel *p'*, so that clutches *s'*, operated by levers O, may throw the pinions 4 into gear with either segment on the wheel 5, and thus increase or diminish the speed which the car is to move.

The journal of wheel 5 is provided with two cranks, *g'*, which, by means of connecting-rods 8', give a reciprocating motion to outside connecting-rods 9.

The rods 9 give a rotary movement to double-toothed wheels K, by means of cranks J.

Vertical shafts *u*, placed over the journals 22 of the car, support lower and upper pinions, the upper pinion being driven by either toothed segment of wheel K, and the lower one driving a wheel, *x*, attached to springs *y'* attached to the car-journals 22, the pinions on shaft *u* being thrown in and out of gear by levers *q z*, fig. 1.

Pivoted to the central arms 7 of the central bridge-tree *m'* are weighted pendulums 6, which are used as regulators to govern the motion of the car, and which are driven by looped connecting-rods 8' *t'*, fig. 1, and short curved connecting-rods 8, same figure, pushing in opposite directions.

At fig. 3 is represented a braking device, which may be attached to the journal of the car, if desired, or reversible springs may be used, so as to overcome the inertia of starting, while at the same time the spring may brake the car.

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

The weighted pendulums 6, operated by means of looped connecting-rods 8' *t'* and curved rods 8, in combination with connecting-rods 9, wheel-clutch gear 1 2, vertical shaft *u* carrying upper and lower pinions, pinion *v'*, gear-wheels *d k p'*, wheels *x'* driving the journals 22, springs *f*, platforms *l*, the clutch-gear 1 2 being provided with suitable pinions on the inner ends of their shafts for driving the central wheel 5, which is provided with cranks for driving the looped connecting-rods 8' *t'*, as set forth.

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Witnesses:

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