2 Sheets—Sheet 1.

H. MERRILL.

STEAM CAR.

No. 186,146. Patented Jan. 9, 1877.

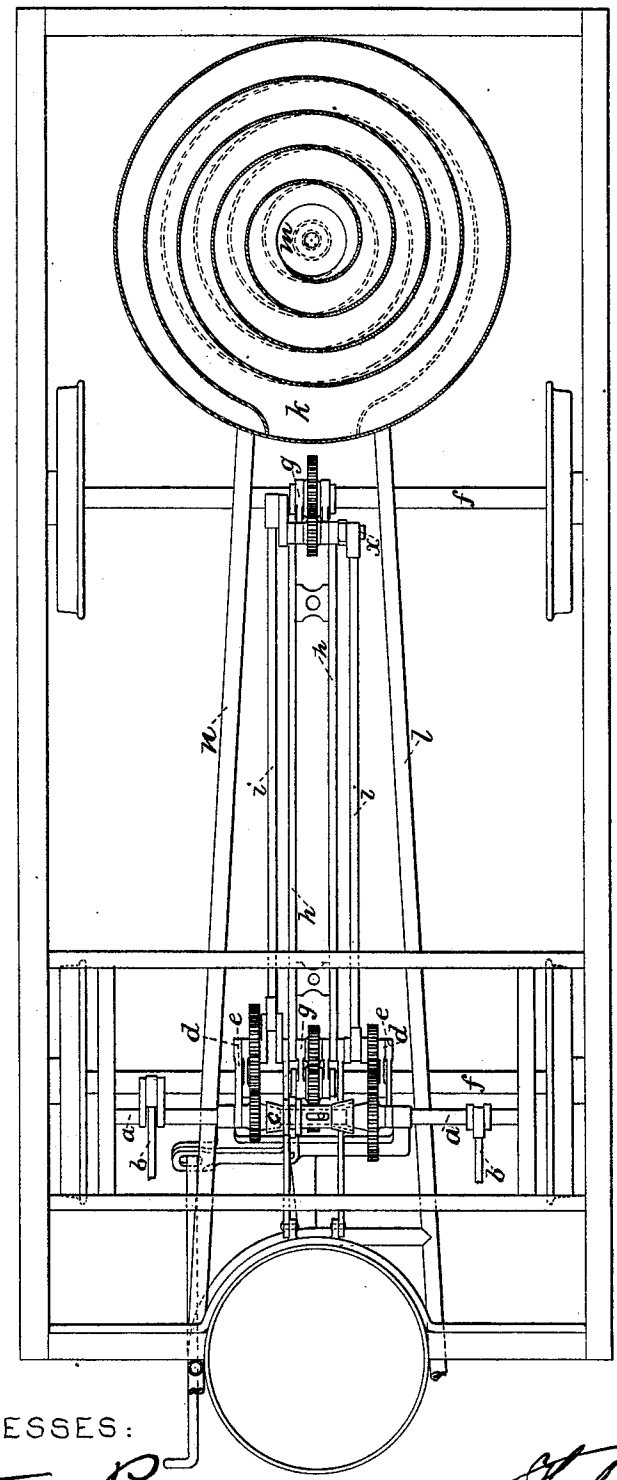

FIG. 1.

WITNESSES:

Walter Peel.

Wm. Lemuel Hall.

Helen C. Merrill

INVENTOR.

2 Sheets—Sheet 2.

H. MERRILL.

STEAM CAR.

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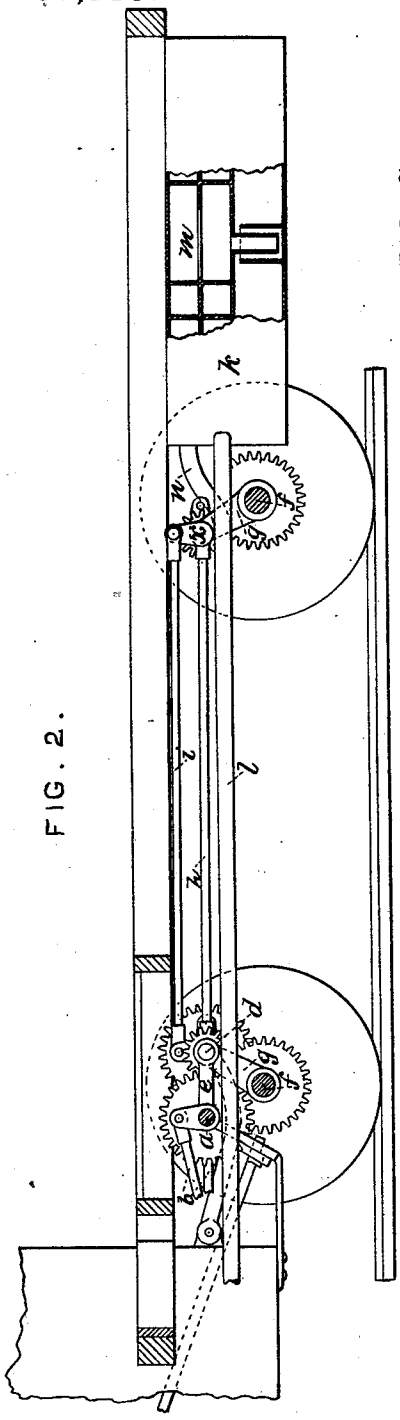

FIG. 2.

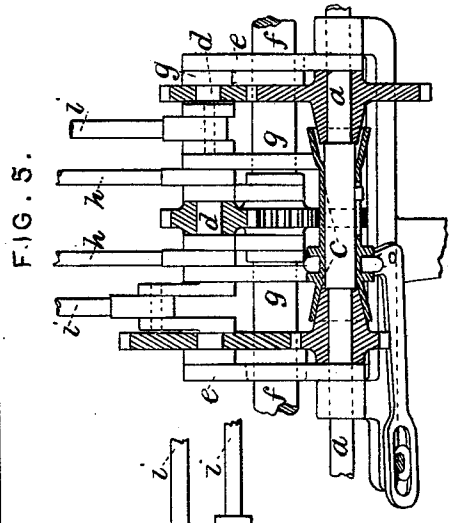

FIG. 5.

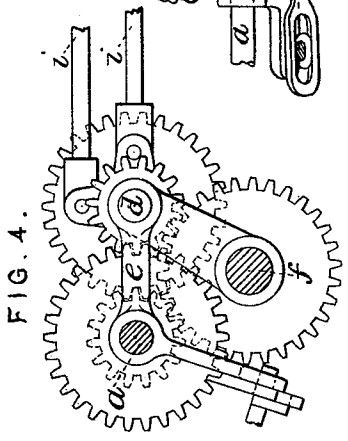

FIG. 4.

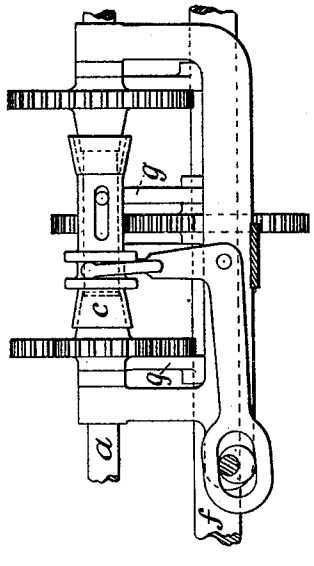

FIG. 3.

WITNESSES:

Walter Pell

Wm. Lemuel Hall.

Helen Merrill

INVENTOR.

UNITED STATES PATENT OFFICE.

HELEM MERRILL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STEAM-CARS.

Specification forming part of Letters Patent No. **186,146**, dated January 9, 1877; application filed December 20, 1876.

To all whom it may concern:

Be it known that I, HELEM MERRILL, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Steam-Cars, of which the following is a specification:

The said invention relates to cars propelled by steam or other similar power; and it consists in bracing the shaft that carries the speed-gears by radius-bars from the engine-shaft that also carries a clutch, so that whatever speed-gear may be used the gearing will not be disconnected. It also consists in carrying the gear-shafts on radius-bars from the axle, so that they will not be disconnected by the motion consequent upon the elasticity of the bearing-springs of the car.

To enable others skilled in the arts to which it appertains to make and use my invention, I will proceed to describe its construction and operation with reference to the drawing.

Figure 1 is a plan of the frame of an ordinary street-car with the body and other parts removed to show the application of the said invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detached view of the engine and clutch-shaft with the parts connected therewith. Fig. 4 is an end elevation of the engine and clutch-shaft, the gearing or counter shaft, and the axle at the corresponding end of the car; and Fig. 5 is a plan, and partial section, of the parts shown in Fig. 4.

The engine-shaft *a* may obtain its rotary motion, in the usual manner, from an air or steam-engine by the connecting-rods *b*. The clutch *c* has a friction-cone at each end, and revolves with the engine-shaft. It may be worked by a bell-crank and eccentric, as shown in the drawing, or in any other convenient manner. When it is in gear with the pinion at one end, as in the drawing, the speed of the wheels is lessened in proportion to that of the engines; but, when it is shifted to gear with the wheel at the other end, the speed of the wheels is correspondingly increased; and when the clutch is left between the wheel and the pinion, so that it binds upon neither of them, the engine-shaft revolves loosely on the hubs of both the wheel and the pinion, and there is no motion transmitted to the axles. When either the wheel or the pinion is caused to revolve by the clutch it communicates the motion to the counter-shaft *d* by means of the gearing, and the disconnection of the gearing is prevented by the radius-bars *e*, which permit the shaft *d* to rise or fall, relatively to the engine-shaft, without alteration of the distance between them.

The counter-shafts *d* and *x*, that carry the gearing by which the power is transmitted to the axles *f*, are carried on the axles by the radius-bars *g*, which prevent their separation, and the disconnection of the gearing; and the shafts *d* and *x* are further held together by the frame *h*, and are rotated together by the connecting-rods *i*, that take hold of their respective cranks.

The exhaust steam from the engines reaches the condenser *k*, which is placed at the end of the car opposite to that upon which the boiler is placed by means of the exhaust-pipe *l*. The object of placing the exhaust and boiler upon opposite ends of the car is to make one balance the other, and preserve the equilibrium of the car.

I claim as my invention—

1. The combination of the engine-shaft *a*, the clutch *c* and its speed-gears, the counter-shaft *d*, and the radius-bars *e*, substantially as described.

2. The radius-bars *g* and the connecting-frame *h*, by which the counter-shafts are carried on the axles, in the manner and for the purpose described.

HELEM MERRILL.

Witnesses:

WALTER PELL,

WM. KEMBLE HALL.