(No Model.)

T. POORE.

MOTOR.

No. 282,564. Patented Aug. 7, 1883.

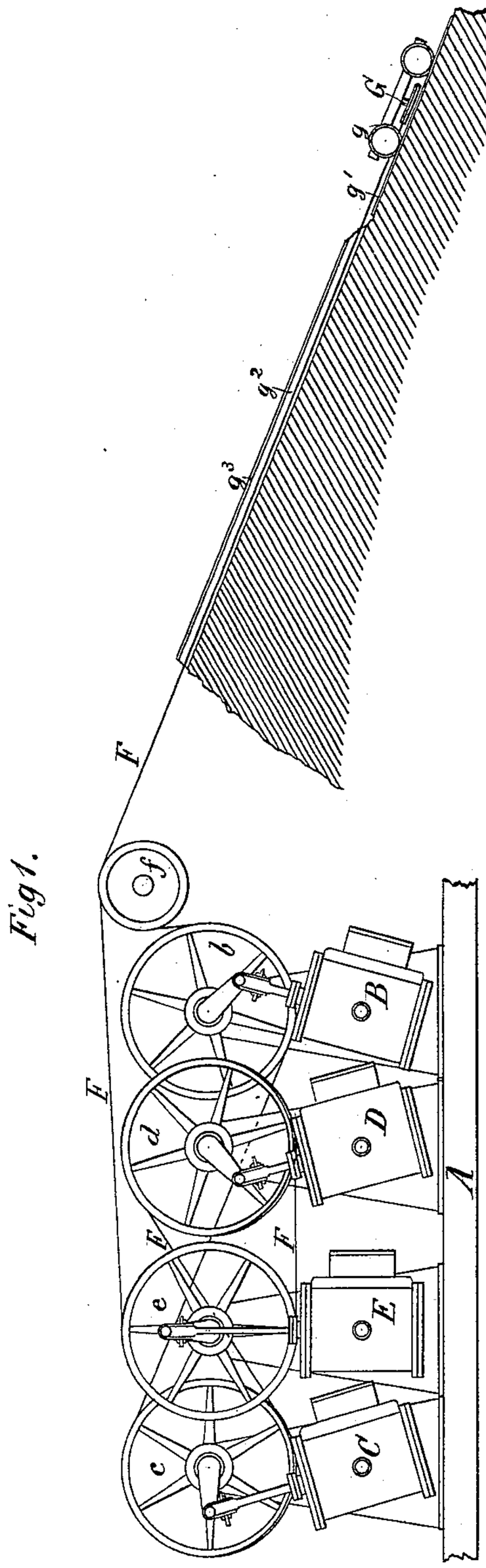

Fig 1.

Fig 2.

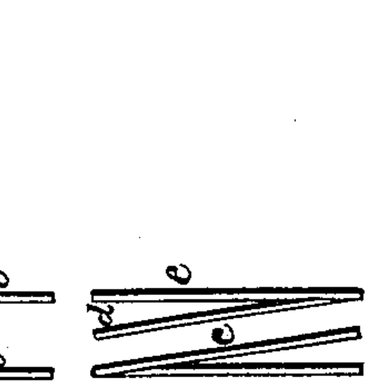

Fig 3.

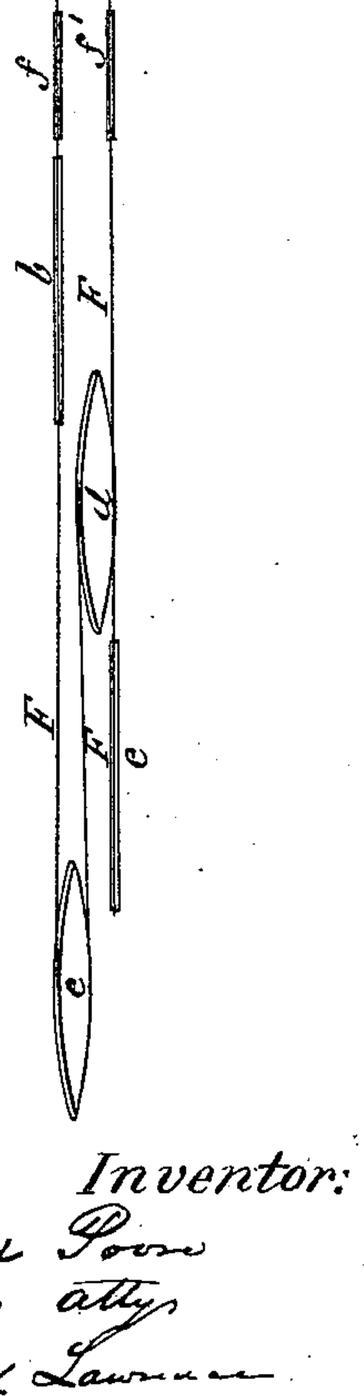

Fig 4.

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UNITED STATES PATENT OFFICE.

TOWNSEND POORE, OF SCRANTON, PENNSYLVANIA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 282,564, dated August 7, 1883.

Application filed March 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, TOWNSEND POORE, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Motor for Traction-Ropes, of which the following is a specification.

My invention relates to a motor for traction-ropes or wire cables in form of ropes for moving street and other cars; and the nature of the same consists, first, in such a motor provided with a number of sheaves, each sheave driven by a separate steam-engine, either geared or direct-acting; and, second, in such a motor wherein one sheave of a pair occupies such a position as to have a common tangent with the other sheave, and all of the sheaves receive the rope or wire cable in a proper manner, as will be hereinafter described.

The objects of my invention are, first, to obviate the inequality of friction encountered in this class of motors, where the sheaves are all driven together by one engine with the same relative speed, and where the very least difference in the diameters of the sheaves (either caused by unskillful turning or unequal wear) results in destruction of the rope or cable, as well as the machinery; and, second, to secure a perfect bearing of the wire cable or rope with an arrangement which employs single sheaves and separate engines, instead of drums having double grooves, and are part set inclined and part upright.

In the accompanying drawings, Figure 1 is an elevation of my invention, illustrating its use for elevating cars on inclined planes. Fig. 2 is a diagram of the motor proper in perspective. Fig. 3 is a diagram of the same, looking at the end of the motor and omitting the rope or wire cable in form of a rope; and Fig. 4 is a diagram of my invention as seen from above.

My invention is intended for street-cars chiefly, but its use is not limited thereto.

In the views of the drawings, A represents a suitable foundation, to which engines B C D E are attached. Each of these engines is provided with a sheave similar to either of those designated by *b*, *c*, *d*, or *e*, and this may be made heavy enough to serve as a fly-wheel. These engines may have each its own boiler, or one boiler may supply them all with steam; but otherwise they are not connected, and they work independently of one another.

An endless rope or wire cable, F, in the illustration given, passes over the sheaves *b c d e* in the following manner: From a guide-pulley, *f*, it passes downward over sheave *b*, up again to sheave *c*, downward over it, up to sheave *d*, downward over it, straight toward sheave *e*, upward over it, over another guide-pulley, *f'*, and toward a tension-pulley, G, of a weighted truck, *g*, on an inclined track, *g'*. From the tension-pulley G the rope continues to guide-pulley *f*, and between the guide-pulleys *f f'* and the tension-pulley G the rope travels in trenches g^2 between car-tracks g^3. My invention of separate sheaves driven by separate engines does not interfere with the sheaves *d c*, being inclined with respect to the sheaves *b e* to such an extent that the wire cable or rope, in passing from one to another, forms a true tangential line between each pair of sheaves, and thus, with my invention, diagonal side friction, same as with the inclined double-grooved drum, can be avoided. The engines of the respective sheaves are placed in line with the same, or similarly inclined with respect to the same. The latter I regard the cheapest method of construction and the most practical. In operating with my invention an extra engine may be kept ready for exchange in case of accident, so that repairs can be made without stopping the travel of the cars.

In my machine every engine, B, C, D, or E, is self-compensating, inasmuch as differences in the diameters of the sheaves *b c d e* will not cause the rope or wire cable to slip and damage itself and the sheave by loose wear, as is the case in machines with drums having a number of grooves which are liable to unequal wear; and while this is the case, this construction does not interfere with the sheaves *c d* being inclined with respect to those *b e*, or vice versa, so that the advancing and departing portions of the wire cable or rope will form true tangential lines to the peripheries of said sheaves, and thus the bearing of the rope and sheave will always remain central, the same as

with the double-grooved drums set inclined and upright, and the rope saved from diagonal chafing wear.

The advantages of my invention may be stated as follows: Less first cost, less wear on rope or cable, better opportunity for repairs, because the engines, being small, can be taken out one at a time and carried to the shop and repaired without stopping the cars at all, which is much better than repairing large engines in position; and if the work to be done varies, some of the engines could be detached, and thus steam would be used more economically than if a large engine were used for doing a small amount of work.

My construction and mode of employing sheaves admits of the grooved surfaces of the metal sheaves being lined with wood, rubber, or other soft material, which is hardly possible or practicable with the old plan, inasmuch as the soft lining, if used with the double-grooved drums, would be torn to pieces as soon as there was the least variation in diameter. This soft lining in the groove of my sheave would add greatly to the durability of the rope.

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

1. In a stationary traction-rope or wire-cable motor, the combination of an endless traction rope or wire cable and a number of separate motors, each motor having only its own single sheave, and over which the rope or cable passes, substantially as and for the purpose described.

2. The combination of a traction-rope and a number of singly-operated sheaves arranged to cause the rope to connect the said sheaves in true tangential lines, substantially as and for the purpose described.

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Witnesses:
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