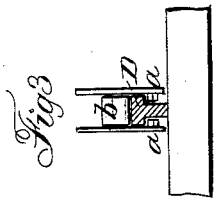
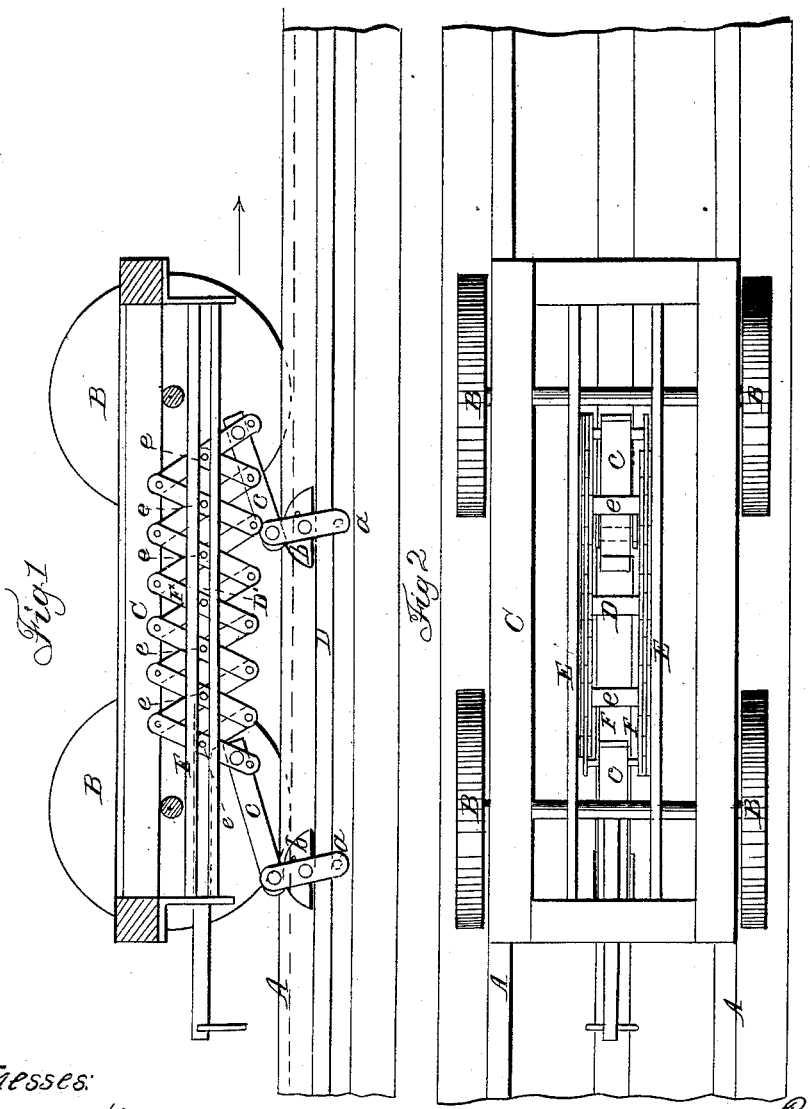
P. W. PHILLIPS.

Car Propeller.

No. 45,450. Patented Dec. 13, 1864.





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UNITED STATES PATENT OFFICE.

PHILIP WILLIAM PHILLIPS, OF BRISTOL, ENGLAND.

IMPROVED CAR-PROPELLER.

Specification forming part of Letters Patent No. **45,450**, dated December 13, 1864.

To all whom it may concern:

Be it known that I, PHILIP WILLIAM PHILLIPS, of the city of Bristol, England, have invented certain new and useful Improvements in Machinery for Propelling Vehicles on Railways, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention. Fig. 2 is a plan or top view of the same. Fig. 3 is an end elevation of one of the "travelers" detached.

Similar letters of reference indicate corresponding parts.

This invention consists in substituting for or adding to the traction of the driving-wheels of a locomotive-engine or other carriage the traction and reciprocating motion of what may be termed "travelers." These travelers are made to grip alternately a central rail or the ordinary rails of a railway-track, and by a combined chain or chains of levers, or by other suitable arrangement of machinery, are made alternately to advance and grip the rail or rails, and thus propel the vehicles attached.

Between the tracks A of the running wheels B of the vehicle C, I have placed a central rail, D, of a T-head shape, (see Fig. 3,) which is bolted firmly to the transverse sleepers. On this rail is placed an apparatus which I call a "traveler." This traveler encircles the T portion of the rail, and it is provided with suitable dogs, *a*, which grip the under portion of the rail when required. This traveler slides or rolls freely in the line of progression to which it is set, and it may consist of a shifting block, *b*, as shown in the drawings, or of any other suitable contrivance. When said traveler is moved in the opposite direction to which it is set, the dogs *a* catch or grip the rail. Wheels may be attached to the travelers to decrease friction, and each traveler is hinged to the lower end of an inclined lever or foot, *c*, as clearly shown in Fig. 1 of the drawings.

Beneath the frame-work of the locomotive-carriage, and placed horizontally and longitudinally, are guides E, similar to piston-guides of a steam engine, but stronger. They are supported by suitable brackets connected to the truck-frame. To the center of these guides, and about the center of the carriage, a combined chain of levers, F, is attached, so that on its expansion and contraction the ends of the fulcrum-pins *e* of the chain slide in the guides with guide-blocks when necessary. The center D′ of the chain of levers being fixed, one of the pins next or near to the center or on each side is attached to the piston or connecting-rod of the steam-engine or other motive power, so that each reciprocation of the piston expands or contracts the chain, thus giving a lengthened and double action to the piston-stroke backward and forward. The levers or feet *c* of the travelers are connected one to each end of the chain of levers, and as this chain expands from and contracts to the center, and the travelers only moving in the line of progression, the carriage at and during each reciprocation is impelled forward by a continuous and regulated motion. Thus in expanding the hindmost traveler grips the rail and the carriage is impelled forward by reason of such expansion, while the forward traveler runs or slides forward freely. When the piston has arrived at the end of the stroke and recedes the lever-chain is contracted, and now the foremost traveler grips the rail. The progress of the carriage continues, and the hindmost taveler slides or rolls freely and takes its position for the next stroke. By this arrangement a locomotive-engine or a carriage of any description can be made to ascend heavy grades. The driving-power is applied to the travelers, one of which is always in a position to propel the carriage, while the other recedes to take a fresh hold.

I claim as new and desire to secure by Letters Patent—

1. The combination of the travelers, with a rail or rails, applied and operating substantially as and for the purpose set forth.

2. The chain of levers attached to or acted upon by any motive power, in combination with the travelers, constructed and operating substantially as and for the purpose described.

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Witnesses:

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