Alexander Buckman's Imp't in Toy Steam Engines.

No. 121,702. Fig. 1 Patented Dec. 12, 1871.

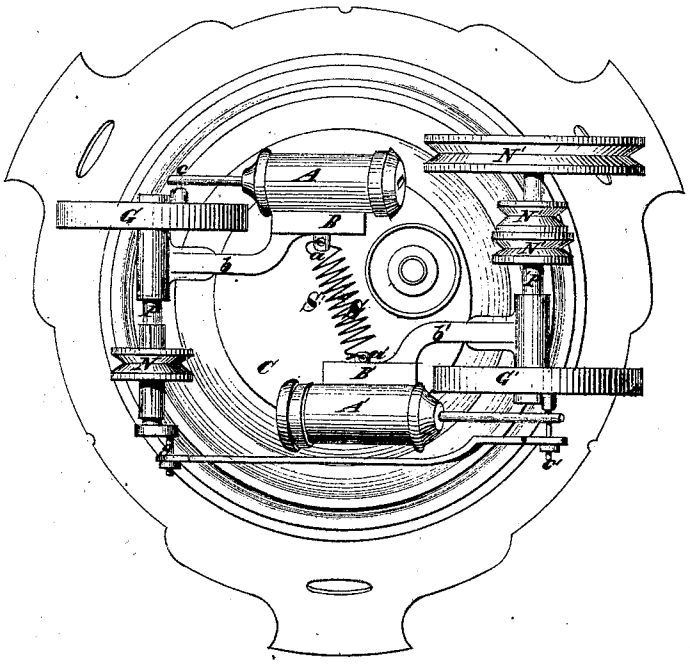
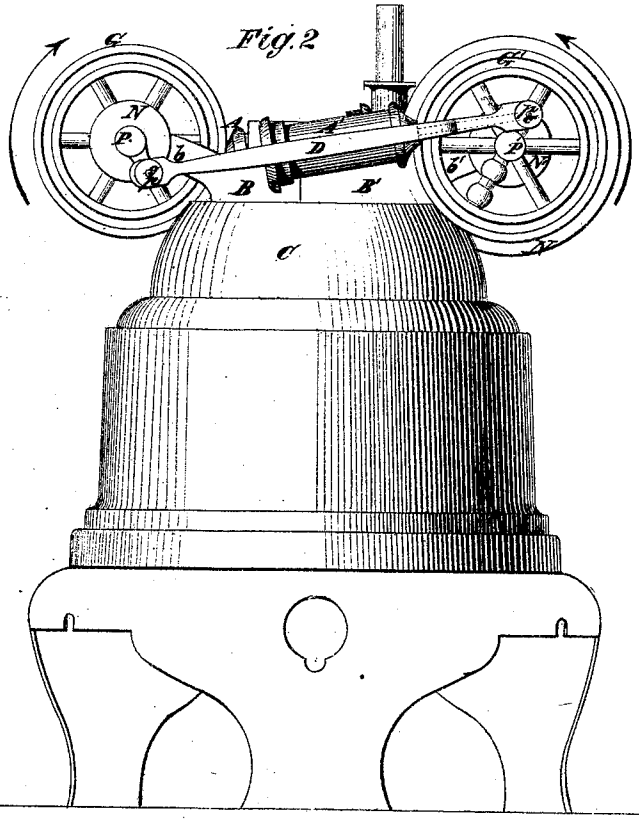


Fig. 2



Witnesses.
Fred Haynes
R. R. Rabeau

Alex Buckman

UNITED STATES PATENT OFFICE.

ALEXANDER BUCKMAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND JOHN W. HUFFINGTON, OF SAME PLACE.

IMPROVEMENT IN TOY STEAM-ENGINES.

Specification forming part of Letters Patent No. 121,702, dated December 12, 1871; antedated November 22, 1871.

To all whom it may concern:

Be it known that I, ALEXANDER BUCKMAN, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Toy Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification.

This invention consists in a certain novel arrangement relatively to each other, and system of connection, of two oscillating engines placed on the top of one boiler.

In the accompanying drawing, Figure 1 is a plan of my engines and boilers, and Fig. 2 is a side elevation of the same.

Similar letters of reference indicate corresponding parts in both figures.

A and A′ are the two cylinders, the trunnions *a a′* of which are supported in standards B *b* and B′ *b′* erected on the boiler C. The portions B B′ of the standards are made hollow to constitute the steam-chests of the engines; and for this purpose communicate with the boiler; and they are provided on the outer sides, which are next the cylinders, and which form the valve-seats thereof, with steam-ports arranged in such position as to communicate during the oscillation of the cylinders with ports in the valve-face of the cylinders and deliver steam thereinto. The valve-faces of the two cylinders are kept against the valve-seats of the standards so as to preserve a steam-tight joint by one spiral spring, S, which is secured at each end to one of the trunnions *a* and *a′* of the cylinders of the engines A A′. By this mode of connecting the cylinders of the two engines by one interjacent spring the stationary hook or standard which is necessary for the attachment of the spring in single engines of this kind is dispensed with. The shafts P P′ of the engines are supported in bearings formed in the portions *b b′* of the standards B *b* and B′ *b′*, and are provided with fly-wheels G G′, and also with pulleys N N′ of different sizes, and are rotated by the connection of the piston-rods of the two cylinders with cranks *c c′* on the fly-wheels G G′; and the two shafts are connected by a coupling-rod, one end of which receives the end of the crank *c′* of one engine, and the other receives the end of an additional crank, *g*, provided on the shaft P of the other engine, on the opposite end to its main crank *c*.

The engines thus connected have their ports so provided with "lead" as to make them produce the rotary motion of their two shafts in reverse directions, and thereby facilitate the operation of mechanical movements or other mechanism which operate reversely without the inter position of belting or gearing.

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

The arrangement of the two cylinders A A′ in reversed position, and having their trunnions connected by a single interjacent spring, S, and ports so arranged as to rotate their shafts P P′ in opposite directions, substantially as herein set forth.

ALEX. BUCKMAN.

Witnesses:
FRED. HAYNES,
R. E. RABEAU.

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