No. 661,252. Patented Nov. 6, 1900.

E. W. SHORTRIDGE.

TOY ENGINE.

(Application filed Mar. 24, 1900.)

(No Model.)

Fig. 1.

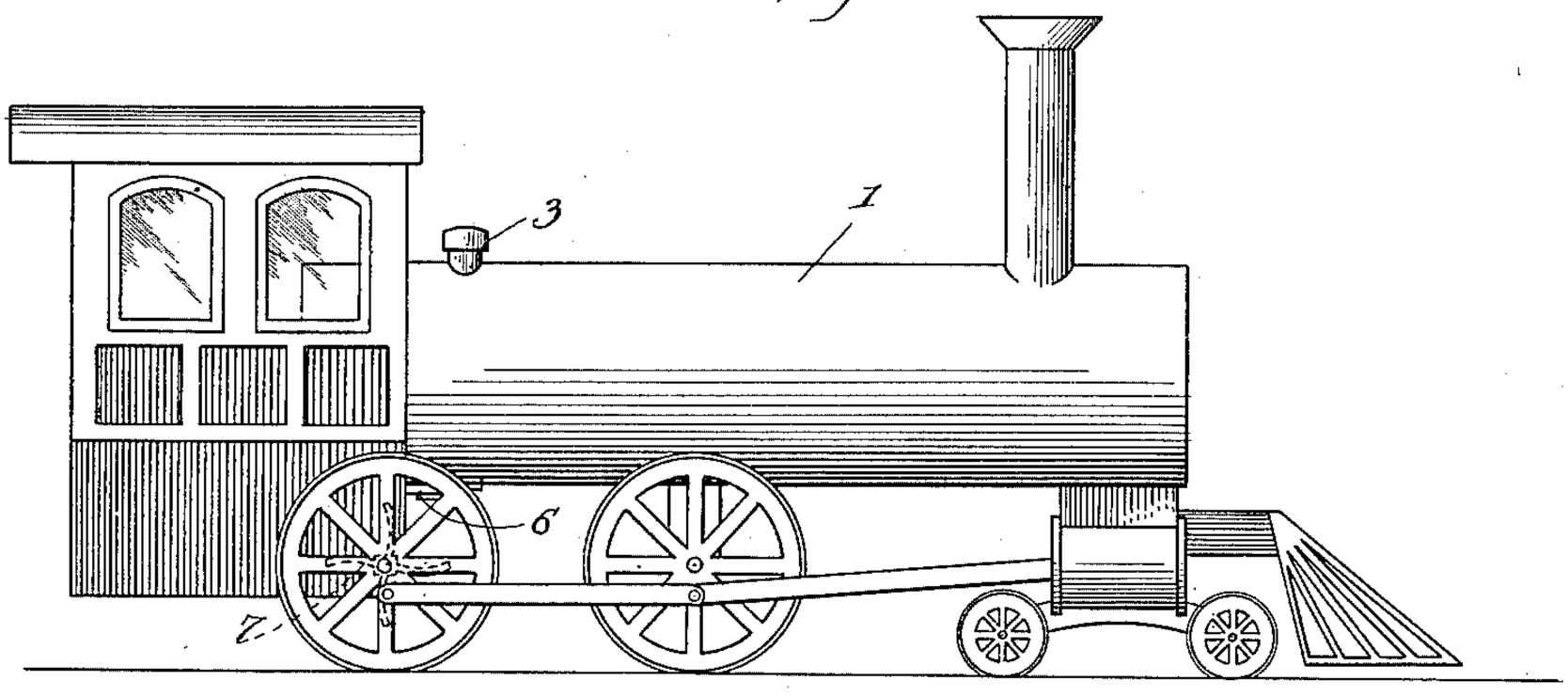


Fig. 2.

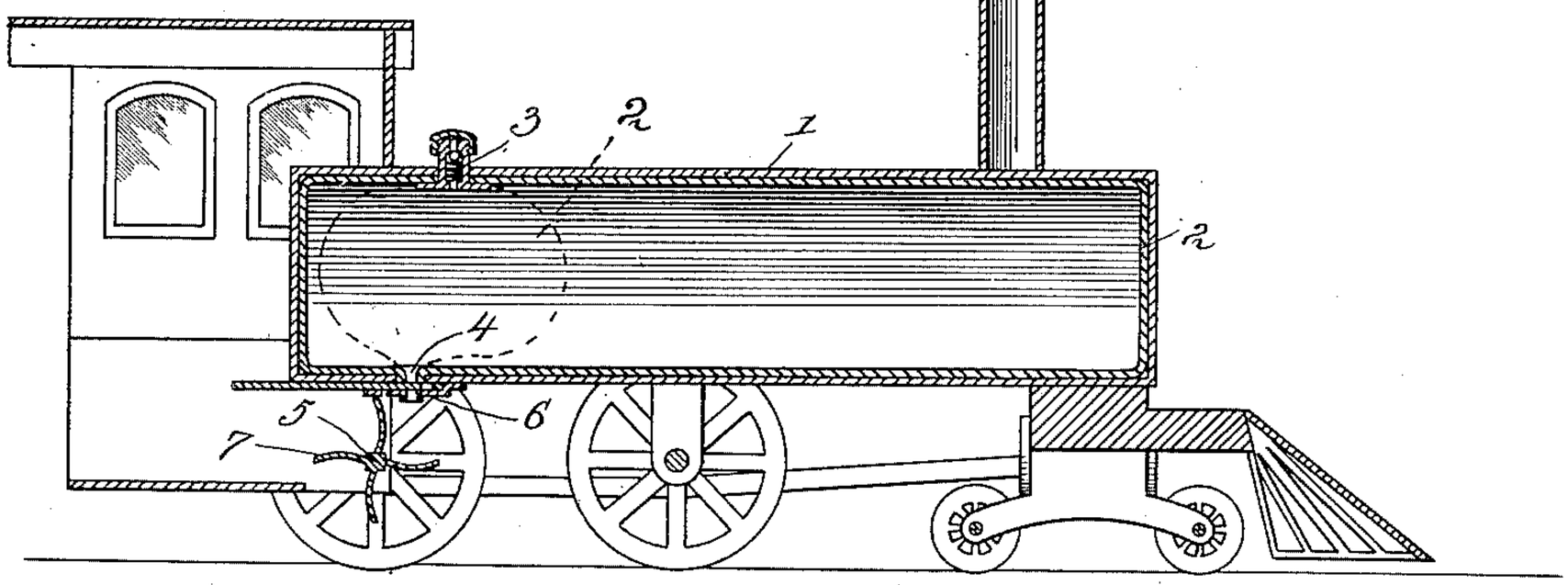


Fig. 3.

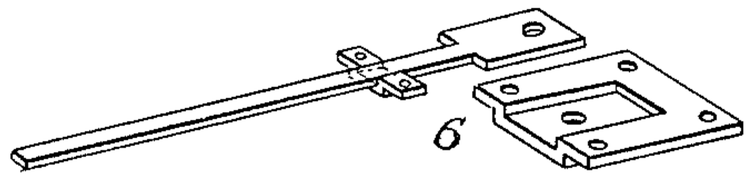
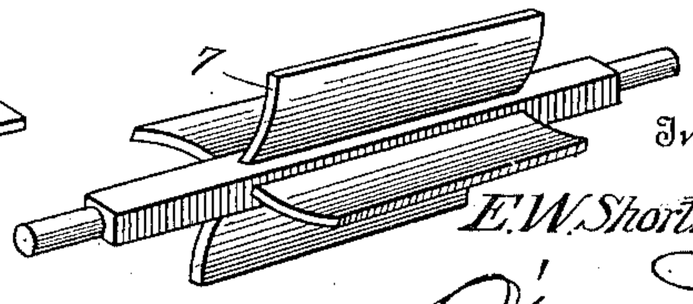


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

ERNEST W. SHORTRIDGE, OF FARNUM, WEST VIRGINIA.

TOY ENGINE.

SPECIFICATION forming part of Letters Patent No. 661,252, dated November 6, 1900.

Application filed March 24, 1900. Serial No. 10,046. (No model.)

To all whom it may concern:

Be it known that I, ERNEST W. SHORTRIDGE, a citizen of the United States, residing at Farnum, in the county of Harrison and State of West Virginia, have invented a new and useful Toy Engine, of which the following is a specification.

My invention relates to toy engines, and more particularly to that class of engines which are self-propelling from a source of power other than a spring-motor; and it has for its object to produce a device of this kind which can be provided with a suitable motor—as, for instance, compressed air—and which will be operated by said motor until its energy has been expended.

With this object in view my invention consists in an improved toy engine which is provided with a suitable air-receptacle to which air may be supplied from a suitable force-pump and from which air is permitted to escape gradually and operate a fan or other motive element connected with the axle or driving-wheels of the engine, as will be hereinafter more fully set forth.

In the accompanying drawings, in which the same reference-numerals indicate corresponding parts in each of the views in which they occur, Figure 1 is a side elevation of an engine embodying my invention. Fig. 2 is a longitudinal sectional view of the same, and Figs. 3 and 4 are detail views.

In the manufacture of toys it is very desirable that those which are self-propelling should be capable of being operated by means of a cheap motive element. As the use of the bicycle has brought the force-pump into such common use for compressing air, it is evident that the same can be utilized for storing a sufficient amount of energy within a small toy to operate the toy for a considerable length of time.

In constructing my engine I prefer to make it of the usual type, provided with cab, smoke-stack, pony-truck, pilot, &c. The boiler portion 1 of the engine is preferably formed of tin or other light material, within which is placed an air-receptacle 2—as, for instance, a short cylindrical piece of material similar to a section of a pneumatic tire of a bicycle. A suitably-valved inlet 3 is provided at any convenient portion of the engine, preferably the rear, with which connection can be made with a suitable air-compressor—as, for instance, an ordinary bicycle air-pump—which is not shown. The receptacle is further provided with an air-outlet 4, which is preferably located close to the rear axle 5, and is provided with a suitable cut-off, as a slide-throttle or stop-cock 6. The outlet is arranged in such position relatively to the axle that the air rushing out from the receptacle through the outlet will strike against the vanes 7, which are rigidly secured to the axle, causing them to revolve, and thereby propel the engine forward. By constructing the engine in this manner a sufficient quantity of air can be readily forced into the receptacle to cause the engine to run from ten to fifteen minutes.

Owing to its extreme simplicity the engine can be manufactured very cheaply, and it will not be liable to become disarranged or inoperative. By constructing the receptacle of elastic material it can be made slightly smaller than the tin casing or boiler within which it is inclosed, so that when it is filled with air it will be slightly expanded, so as to occupy the boiler completely, and when the air is escaping from the receptacle the contraction of the receptacle will force out the air to the greatest possible extent, and thereby operate the engine for the greatest possible length of time.

Instead of the fans shown in the drawings for rotating the shaft it is evident that a wheel could be secured to the axle and have its periphery provided with a series of buckets or wings, against which the escaping air would impinge and drive the engine forward. It is evident that other changes could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In a toy engine, the boiler of which is formed from thin material provided with a valved inlet and outlet, of an air-receptacle therein, formed from expansible material and pro-

vided with an inlet and an outlet, said receptacle being secured to the boiler at its inlet and outlet, of a rotary shaft beneath the engine, the ends of which are provided with wheels rigidly secured thereto, and the intermediate portion is provided with means for being engaged by the current of air from the receptacle, and means in the outlet of the receptacle for closing or opening the same, substantially as described.

ERNEST W. SHORTRIDGE.

Witnesses:
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