

(No Model.)

W. MORTON & J. MARSHALL.
CYCLE PEDAL.

No. 560,913.

Patented May 26, 1896.

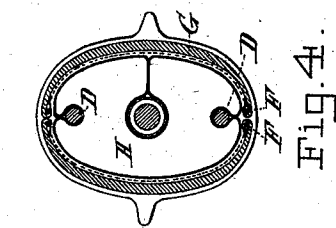


Fig. 4.

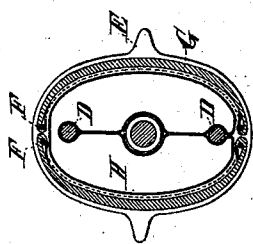


Fig. 3.

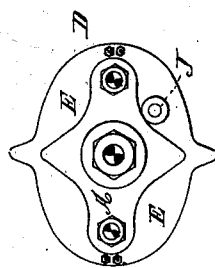


Fig. 5.

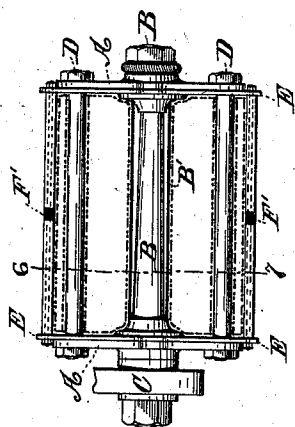


Fig. 1.

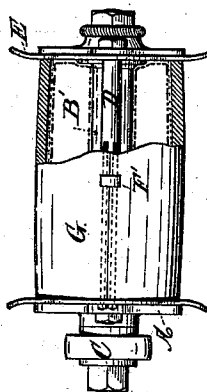


Fig. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM MORTON, OF KIRKDALE, AND JOSEPH MARSHALL, OF FORMBY,
ENGLAND.

CYCLE-PEDAL.

SPECIFICATION forming part of Letters Patent No. 560,913, dated May 26, 1896.

Application filed May 12, 1894. Serial No. 511,271. (No model.) Patented in England August 5, 1893, No. 15,079.

To all whom it may concern:

Be it known that we, WILLIAM MORTON, residing at Kirkdale, near Liverpool, and JOSEPH MARSHALL, residing at Formby, near Liverpool, in the county of Lancaster, England, subjects of the Queen of Great Britain and Ireland, have invented Improvements in Cycle-Pedals, of which the following is a specification, and for which Letters Patent were granted to us in Great Britain August 5, 1893, No. 15,079.

This invention of improvements in pedals for cycles has for its object to prevent or lessen the vibration usually imparted to the rider's feet when traveling over uneven roads. For this purpose, instead of providing the pedal with the ordinary rubber-covered bars or with plates having serrated edges to prevent the feet slipping, we provide them with pneumatic supporting portions, hereinafter called "pneumatic treads." These pneumatic treads each comprise an inflatable vessel or bag that may be surrounded by an outer non-extensible removable cover, as in a pneumatic tire, the said vessel or bag, and cover, if used, being held in position endwise on the crank-pin upon which the pedal is mounted by plates, and suitable spaces being left or formed in the vessel or bag to accommodate the central bearing-tube and the stay-bolts between the side frames, or the said vessel or bag may be folded around the said tube and bolt, against which it will be firmly held when inflated. The inflatable vessel or bag may be constructed in various forms. The outer cover is preferably made in detachable parts hinged together, the free ends being connected by pins, so that the said vessel or bag can be readily removed when desired for repairs or other purposes.

In the accompanying drawings, Figures 1 and 2 are sectional elevations at right angles to one another, showing an ordinary form of pedal-frame provided with a pneumatic tread, according to this invention, with the rubber bars removed. Fig. 3 is a cross-section on the line 6 7 of Fig. 1; Fig. 4, a similar view to Fig. 3, but with the inflatable air-bag folded in a different manner; and Fig. 5 is an end elevation of the pedal.

The pedal-frame shown comprises two

plates A A, formed with bosses, in which are incased the usual ball-bearings, which run on suitable paths formed on the crank-pin B, on which the pedal is mounted, and which is secured to the crank C. The side plates A A are kept at fixed distances apart by the tube B', which surrounds the crank-pin B, and by means of stay-bolts D D or their equivalent, such as serrated bars, as well understood.

In applying our invention to existing pedals we provide additional plates E E, which are of greater depth than the plates A usually employed, these additional plates being placed between and against the said plates A A, as shown in Figs. 1 and 2, and their ends extending sufficiently beyond the stay-bolts D D to allow of the passage therethrough of one or more (in the illustration four are shown) retaining-pins F F for holding an outer casing G firmly around the pedal and within the side plates.

H is an inflatable air-bag, preferably of india-rubber, such as is employed for the inflating-tubes of pneumatic cycle-tires. It is molded with ends or having ends cemented to the outer surface, preferably cut to about the shape they are intended to take when inflated, as shown in Figs. 3 and 4. This air-bag is so formed that when deflated it can be bent or folded over one of the bolts D in such a manner that when it is inflated the inner sides will inclose the tube B' and bolts D and come together at the parts between the bolts D and tube B', as shown in Fig. 3, or the bag may be first bent around the tube B', so that its end portions lie between this tube and the bolts D, as shown in Fig. 4.

It will thus be understood that when the air-bag is arranged between the side plates E E and within the encircling outer casing G and is inflated a complete air cushion or pad will be formed around the pedal. The bag is provided with an air-valve by means of which it can be inflated with air under pressure. This valve is arranged preferably at J, Fig. 5, and may be of any well-known form; but we prefer to employ a self-closing valve passing through one of the plates E.

The outer cover G (shown in the illustrations) is made in two pieces joined together near the bolts D by two wires F F, that pass

through the tubular selvage edges of the outer casing and into the plates E E. Midway between each plate one or more stiffening-links F' are or may be provided, through
 5 which the two wires are passed to prevent them from bending and the joining of the casing-opening when the bag is inflated, a suitable space or spaces being left in the tubular edges of the outer casings to receive
 10 the links F', as shown in Figs. 1 and 2. The outer cover can be made in one piece, the ends being joined together at one side of the pedal. In this construction the canvas lining inside the outer casing and at the middle of
 15 its length is or may be formed with a fold or bead, through which takes a rod or wire between the outer casing and the canvas, the ends of which are secured to the plates E E to prevent the casing being displaced. The
 20 ends of the casing are folded over and form a hollow selvage, which is alternately cut to have projections and recesses, into which the opposite end takes, similar to an ordinary joint or hinge, the two ends being connected
 25 together by another rod or wire, also secured at its ends to the plates E E.

In applying our invention to new pedals the plates E E are dispensed with, the side plates A A being then made sufficiently large
 30 to admit of the rounded tread.

By the construction described it will be understood that the air-bag can be quickly taken out for repairs when necessary without disturbing the fixed metal sides of the pedal by
 35 withdrawing one or both of the wires and removing the outer cover.

We do not confine ourselves to the manner in which the portions of the air-bag at oppo-

site sides of a plane passing through the axis of the tube B' and bolts D are joined to each other, as it is evident they may be made in
 40 two or more parts, which may be connected together by one or more air-passages.

Ribs or corrugations may be formed on the tread portion of the outer cover when neces-
 45 sary to prevent the foot from slipping.

What we claim is—

1. A pneumatic cycle-pedal comprising the side plates, the stay-bolts, and an inflatable vessel between the side plates and having the
 50 internal tubular spaces when inflated which incase the stay-bolts, substantially as shown and described.

2. A pneumatic cycle-pedal comprising side plates connected by stay-bolts, an inflatable
 55 air-vessel located between said side plates, and provided with internal tubular portions surrounding said stay-bolts, and a detachable outer cover surrounding said air-vessel sub-
 60 stantially as herein described.

3. A pneumatic cycle-pedal comprising side plates, connected by a central tube and stay-bolts, an inflatable bag wrapped around said
 65 central tube and stay-bolts, a non-inflatable cover surrounding said inflatable bag, and pins connecting the edges of said cover to said side plates substantially as herein described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM MORTON.
 JOSEPH MARSHALL.

Witnesses:

FREDK. STRIPLING,
 F. M. C. SCOTT.