

(No Model.)

J. B. PRICE.
Pedal for Bicycles.

No. 243,346.

Patented June 21, 1881.

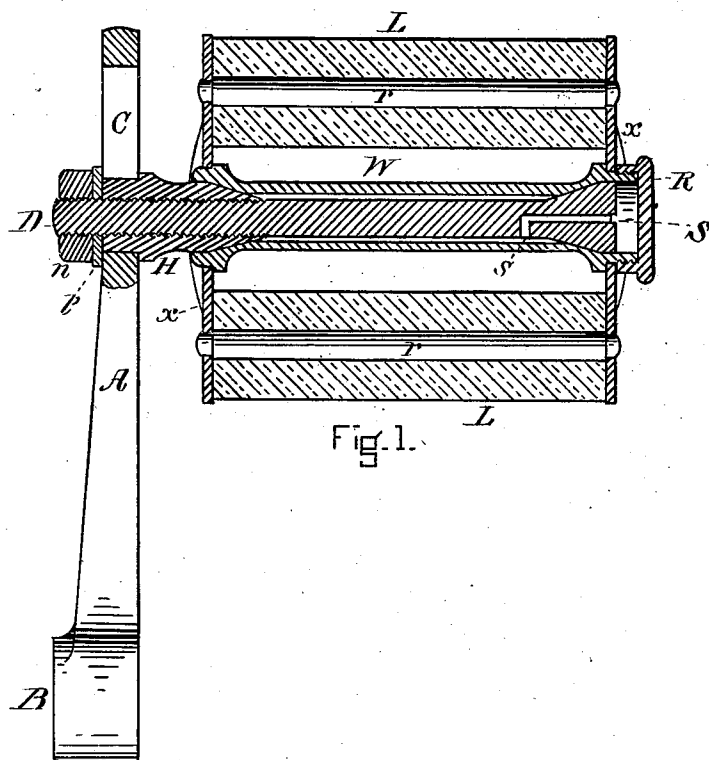


Fig. 1.

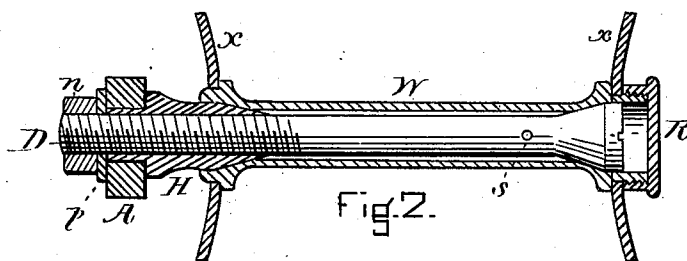


Fig. 2.

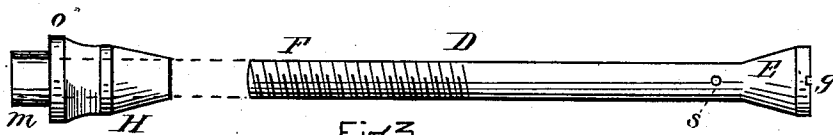


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN B. PRICE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE POPE MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS.

PEDAL FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 243,346, dated June 21, 1881.

Application filed January 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. PRICE, of the city and county of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Pedals for Bicycles and other machinery where foot-power is used, of which the following is a specification.

My invention relates to contrivances for receiving and transmitting the pressure of the foot to a crank-pin, and thereby through a crank to a driving-wheel, and more particularly to such contrivances for that purpose as are constructed with cone-bearings.

It consists in so arranging and constructing the bearing-cones with reference to the pedal-frame and the shaft or crank-pin, on which it turns, and the crank in which it is adjusted, that they shall not only be easily adjustable for wear and serve the other purposes for which pedals with cone-bearings have been heretofore constructed, but shall also operate when adjusted as fixed cones, and not subject to loosening, which, with the construction heretofore in use, is an objectionable quality, resulting in frequent binding of the cones and stopping of the free revolution of the pedal upon the pin.

The nature of my invention will be better understood from the following description, taken in connection with the drawings, in which—

Figure 1 shows, in section, a pedal in place in a crank and containing my improvements in one form. Fig. 2 shows parts of the same in a section at right angles to the other, and Fig. 3 shows my pedal-pin and loose cone apart.

A is a crank, having a boss at one end with a slot, by means of which it is attached to an axle at B, and near the other end a longitudinal slot, C, of considerable length.

D is a crank pin or rod, which may be constructed with a fixed or solid cone, E, at one end tapering toward the middle of the pin and having across the outer end a groove, *g*, suitable to receive the end of a screw-driver. The opposite end of the pin D is threaded, as at F, for a considerable distance from the end, to receive first the loose cone H, which is constructed with an internal bore or hole, threaded to correspond with and work upon the threaded

end of the pin at F. This cone H is constructed at one end with a tapering exterior corresponding with that of the fixed cone E, but intended to be placed, when in position, so that the point of the cone, were it extended, would be toward the point of the cone E, were it extended. The cone H has also a shoulder, *o*, and a flattened neck or plug, *m*, which is flat on two sides, and which is of a thickness between these two flat sides to correspond with and fit into the slot C in the crank.

W is a hollow shaft, forming a part of the pedal, and having a plain cylindrical bore throughout the principal part of its length, but with this internal bore enlarged at either end to correspond with and fit substantially the conical surfaces E and H. To this shaft W are attached flanges or wide thin bars *x x*, which form the opposite ends of the pedal, and which are connected by small rods *r r*, bearing the rubber bars L L, upon which the feet are to rest.

R is a dust-cap, with a small annular flange projecting on one side and threaded internally to screw upon a correspondingly-threaded annular flange or projection from the shaft W at the outer end of the pedal.

S s indicate respective ends of a small oil-hole or lubricating-channel, one end, at S, being in the end of the pin D which is under the dust-cap, and which may be easily reached and filled with an oiler by removing the cap R, the other end, *s*, being within the cone E, and between the latter and the cone H when in position, and serving as an outlet for the oil-duct, whereby oil may be supplied to the interior of the shaft W, and thus the bearings be lubricated.

The shaft W, the rods *r r*, the bars L L, and the plates *x x* are put together in the ordinary way to form the pedal proper. The crank-pin D is then passed through the bore in the shaft W until the concave surface E meets the hollow cavity corresponding therewith in the end of the shaft W bearing the threaded projection. The loose cone H is then screwed upon the threaded end F of the pin D, the pin being held, if necessary, by means of a screw-driver in the groove *g* until the concave surface of the cone H fits properly into the cor-

responding conical opening in the shaft W, and is adjusted with reference to the cone E, so that the pedal and its shaft W turn freely and properly upon the bearings at H and E. The plug *m* is then inserted in the slot C of the crank, in proper position, until the shoulder *o* rests against the side of the crank each side the slot. The nut *n* is then screwed tightly upon the end of the shaft D on the other side of the crank, with the intervention, as I prefer to use, of a washer, *p*, and firmly set. The pedal is then ready for use and is operated in the ordinary way.

The loose cone H is held rigidly in position, so long as the nut *n* is in place, by means of the plug or flattened part *m* and the sides of the slot C in the crank, so that it cannot by any possibility move either toward or from the cone E. When the bearing parts—that is, the conical surfaces at H and E, or the corresponding interior surfaces in the ends of the shaft W—become loose by wear, and it is desirable to adjust them, the nut *n* is removed, the pedal and pin and loose cone H removed from the crank-slot C, and the cone H is turned up on the thread at F until the bearings are properly tightened, when the nut *n* may be loosened, the dust-cap R removed, and the bearings brought nearer together and properly tightened with a screw-driver in the groove *g* by turning the pin D, the cone H being held from turning by means of the plug *m* in the slot C.

I am aware that pedals have been constructed with cone-bearings, and that one of the cones has been made adjustable heretofore; but the practice has been to make the outer cone loose or adjustable upon the pin D, and no contrivance has been used, so far as I am aware, by which it was entirely prevented from turning and causing the bearings to bind and the pedal to cease revolving upon the pin. I believe

that the inner cone has never been made adjustable, and that no contrivance has been made whereby the inner cone was held in the crank.

I have shown and described my improvements as applied to a pedal and crank-pin for a bicycle; but it is evident that the same contrivance may be used with tricycles, or in any other machinery where foot-power is used in connection with a crank-pin.

I claim as new and of my invention—

1. A loose cone, H, constructed with a bearing-surface at one end, a plug, *m*, at the other end, flattened on one or more sides, a shoulder, *o*, and an internal-threaded bore, substantially as and for the purposes set forth.

2. In combination, a crank-pin, D, fixed cone E, loose cone H, adjustable upon the pin D, and provided with a flattened plug, *m*, all arranged and adapted to operate as described.

3. In combination, a crank-pin, D, having a cone-bearing, E, and external thread, F, a fast and loose cone, H, formed so as to furnish a bearing at one end, with a threaded bore for adjustment on the crank-pin, and a shoulder, *o*, and flattened plug, *m*, together with a slot, C, nut *n*, and a hollow shaft or hub, W, all constructed and adapted substantially as shown and described.

4. As an article of manufacture, a bicycle pedal and pin constructed with the rubber bars L L, flanges *x x*, hollow shaft W, pin D, cone E, thread F, cone H, adjustable on pin D by internally-threaded bore, shoulder *o*, and flattened plug *m*, all constructed and adapted to be held by a nut, *n*, in a crank-slot, and operated therewith, essentially as herein set forth.

JOHN B. PRICE.

Witnesses:

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