(No Model.)

A. E. WALLACE.

VELOCIPEDE.

No. 299,883. Patented June 3, 1884.

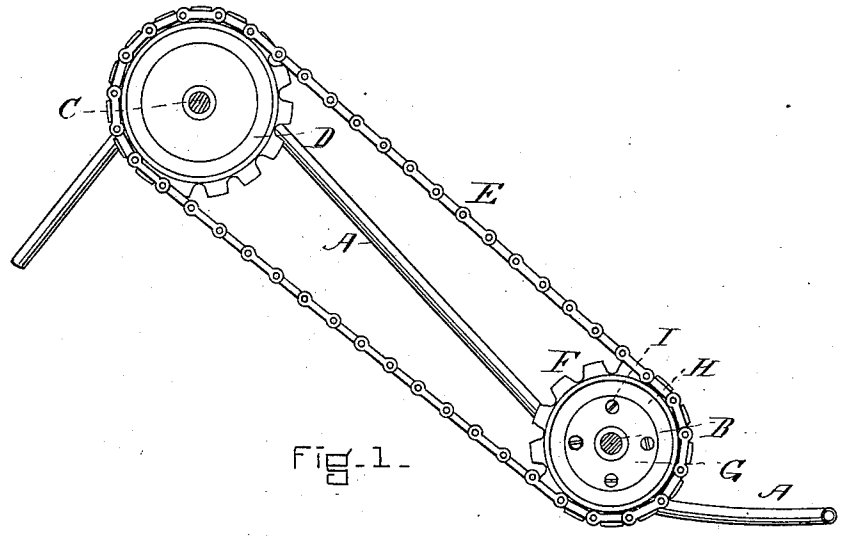


Fig. 1.

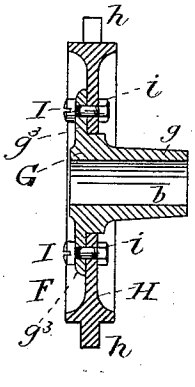
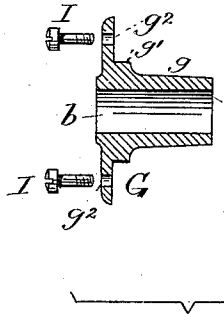


Fig. 2.



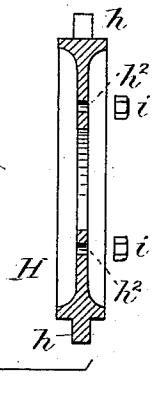


Fig. 3.

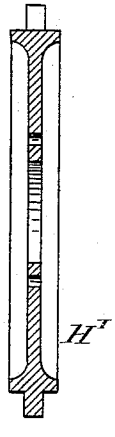


Fig. 4.

WITNESSES

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VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 299,883, dated June 3, 1884.

Application filed April 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. WALLACE, of the city and county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification.

My invention relates to that class of velocipedes known as tricycles, primarily, but is equally applicable to any other velocipede in which there is transmission of power by means of sprockets and chain, pulleys and band, or other similar mechanism connecting one shaft with another; and my improvements relate more particularly to the driving mechanism or the construction of wheels by means of which the driving-power is transmitted.

These improvements consist in certain devices and combinations, which will be herein particularly described, and which are shown in one form of application in the drawings connected herewith.

Figure 1 shows in elevation two sprocket-wheels and an endless chain connecting them and part of the frame on one side of a tricycle to which my improvements have been applied. Figs. 2, 3, and 4 show in vertical section, on a plane in right angles to that of the elevation in Fig. 1, an interchangeable compound wheel (shown at F in Fig. 1) containing my improvements in one form more in detail.

A is the tubular frame of a velocipede. B is a shaft, which may be the crank-shaft, of a tricycle. D is a sprocket-wheel fixed to said main shaft. E is an endless chain. F is an interchangeable compound sprocket-wheel upon the shaft B.

Heretofore in the construction of velocipedes sprocket-wheels have been made in the form shown at D for both shafts, and consisting of an integral piece of metal from shaft to chain, and have been made of various sizes and shapes. In the construction of velocipedes containing such driving mechanism, it has been found desirable sometimes to "gear up" the machine and sometimes to "gear down" by varying the relative size of the sprocket-wheels. To "gear even," wheels of the same size have been placed upon the shafts. To gear down, a smaller is placed on the driving-shaft or a larger one on the driven shaft, and to gear up, a larger wheel has been placed on the driving-shaft or a smaller one on the driven shaft. It has been found desirable to change the gearing of machines already constructed, one user preferring the velocipede geared even, another preferring it geared down or geared up; or the same user preferring for racing or for short easy riding a velocipede geared up or geared even, and for long distance or rough riding preferring it geared down.

In the manufacture of velocipedes in considerable numbers, it is desirable to make the velocipedes and the parts upon as few patterns as possible, to construct them for average use, and to provide for the adaptation of single machines to the requirements of individual users with as little change and expense as possible. It is further to be noted that in a well-constructed velocipede the sprocket or similar wheels must be secured very firmly to the shafts; that on the driving-shaft, for instance, must be very tightly fitted and very securely fastened to the driving-shaft, in order to gain strength and to prevent its working loose by use. So, the sprocket-wheel once set on the shaft in the ordinary way is very difficult of removal; hence has arisen the practical demand which it is the object of my improvements to fill, and which I supply in the following manner: Instead of making the sprocket-wheel for the driving-shaft, for instance, of an integral piece of metal, as at D, I make it compound and interchangeable, as at F.

G is a nave or hub adapted to be shrunk, or keyed, or splined, or otherwise fastened to the shaft B. I preferably make it with a cylindrical projection, g, about the central hole, b, which is to receive the shaft, of considerable length, in order to give it a firm seat on the shaft.

g' is a shoulder, which may be cylindrical and concentric with the aperture b, or of any other shape, and at right angles with the inner face of the flange g^3, which latter projects radially considerably beyond the shoulder g', and contains holes g^2, for the insertion of screws or other fastening devices.

H is a removable crown, serving the complementary purpose of forming, together with the nave G, a complete sprocket-wheel, and

carries on its periphery teeth h, and has a central aperture, h', adapted to fit the shoulder g', and holes or openings h^2 to correspond with those at g^2. H and G are shown separate in Fig. 3, and together in Fig. 2, in their proper relation, and may be secured by bolts I and nuts i, or in any other suitable manner.

H′ in Fig. 4 is in all respects similar, except as to size, to H in Fig. 3, the central aperture being of the same form and size as h' in Fig. 3, and the small apertures or openings at the same relative positions as those at h^2 in Fig. 3; but it carries a greater number of teeth like those at h, because of its larger diameter. It is obvious that any number of removable crowns, like H or H′, varying in diameter, may be made and readily applied to or removed from one nave, G, making repair easy in case of breakage, and making a change of gearing possible in any machine by merely replacing a crown, H, with another, H′, and shortening or lengthening the chain E; and that in manufacturing a lot of machines they can be made complete, with the naves G on the crank-shaft and the gearing-up completed by the addition of crown and chain, to satisfy the requirements of individual purchasers. My improvements therefore secure both convenience and economy, as well as means of obtaining power or speed at will on the same machine.

It is obvious that the periphery of the crown H may bear spur-teeth for gearing, or a plain or grooved surface for a band, as well as sprockets, and still contain my improvements; also, that the form and arrangement of various other parts of the contrivance may be modified without departing from the spirit of my invention, and I do not confine myself strictly to the form shown and described.

I claim as new and of my invention—

1. A compound wheel for transmitting power, consisting in a central nave and a removable crown, essentially as set forth.

2. A nave of a wheel for transmitting power, constructed and adapted to be secured to a shaft, and to receive one or more crowns interchangeably, essentially as set forth.

3. A removable crown of a wheel for transmitting power, constructed and adapted to be secured interchangeably to and combined with a nave to connect it with a shaft, essentially as set forth.

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Witnesses:
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