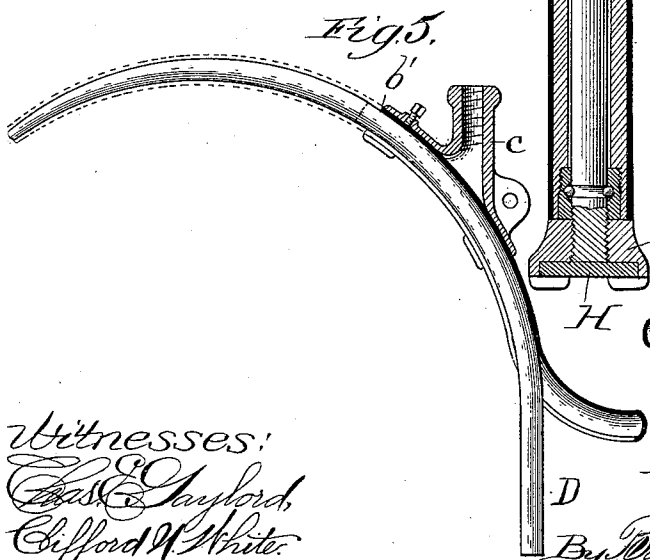
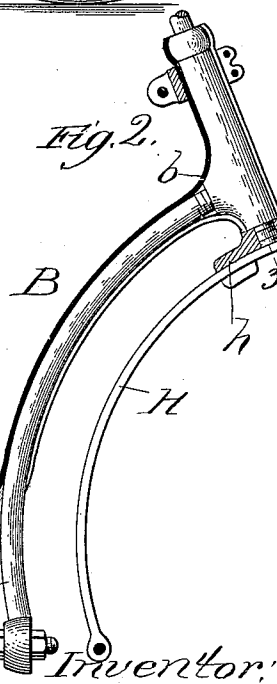
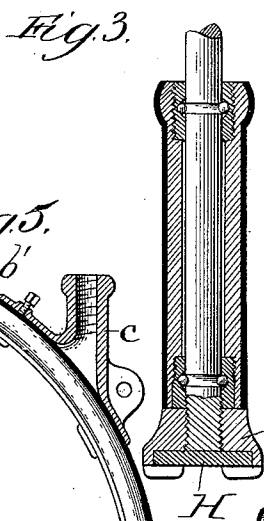
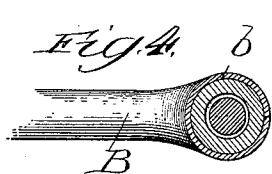
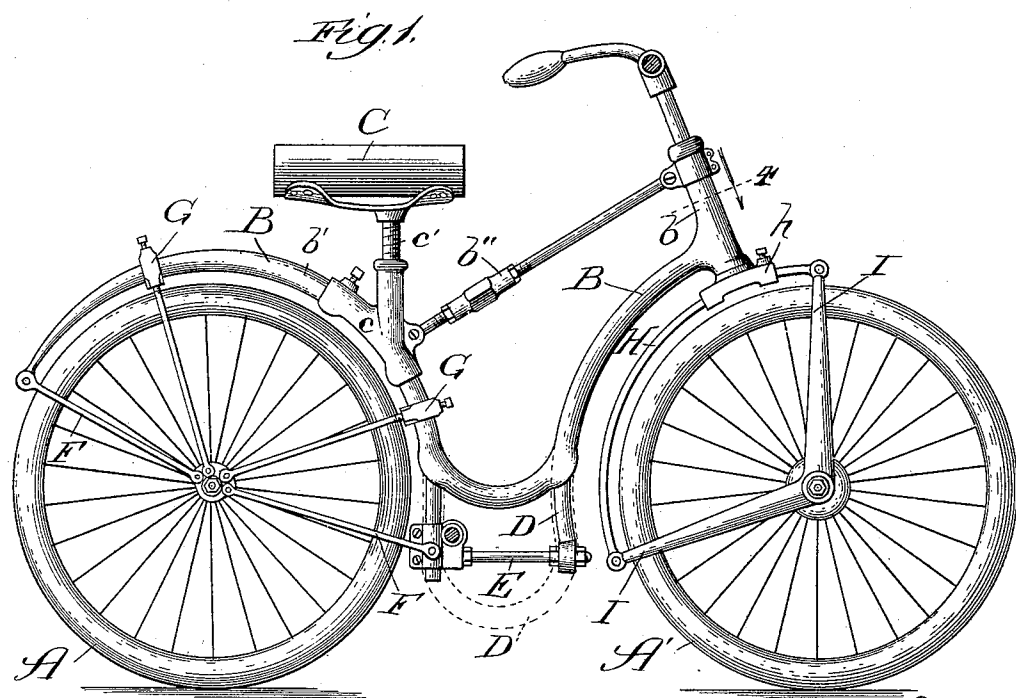


(No Model.)

W. I. BUNKER.
VELOCIPEDÉ.

No. 469,624.

Patented Feb. 23, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM I. BUNKER, OF LA GRANGE, ILLINOIS.

VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 469,624, dated February 23, 1892.

Application filed September 1, 1891. Serial No. 404,403. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM I. BUNKER, of La Grange, Cook county, Illinois, have invented a new and useful Improvement in Velocipedes, of which the following is a specification.

The object of my invention is to provide a simple, economical, and durable frame for velocipedes, particularly bicycles; and the invention consists in the features and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a bicycle provided with my improved frame; Fig. 2, an elevation of the head of the frame and spring, the outer portion of the frame being shown in section; Fig. 3, an enlarged sectional view taken in line 3 of Fig. 2; Fig. 4, an enlarged sectional view taken in line 4 of Fig. 1; and Fig. 5, a broken elevation of the rear portion of the frame, the outer casing being shown in section.

A is the rear wheel, and A' the front wheel; B, the frame; *b*, the head portion; *b'*, the rear portion thereof; *b''*, a brace-rod connecting the head and rear portions; C, the seat; *c*, an adjustable clip connecting the seat with the frame; *c'*, a screw under the seat; D, a tube or tubes connected with the frame; E, a rod connecting the tubes when two are used; F, rods connecting the tube with the rear wheel; G, sliding rods to regulate elasticity of the seat portion; H, a spring connecting the head of the frame with the front wheel; *h*, a clip connecting the handle-bar to such spring, and I bars connecting the spring with the front wheel.

In constructing my improved frame I prefer to make the head and rear portions of one piece and to have the parts adjacent to the wheels of suitable form to fit over reinforcing tubes, rods, or bars. The front tube, rod, or bar is preferably connected to the head of the frame by being screwed into the same, there being suitable screw-threads on its end and in the frame for this purpose; and the rear tube, rod, or bar is preferably connected to its part of the frame by bolts or rivets. In this way the tubes (by which I also mean rods or bars) are made rigid with the frame at their upper ends. A bolt or rod serves to connect them together at their lower ends

when two tubes are used, this connection being rigid in the sense that it has no elastic or yielding movement, but adjustable in the sense that it permits the tubes to be brought closer together or farther apart; but it may sometimes be found advisable to use only a single tube having its lower portion bent, as shown in dotted lines. In either case, whether there be only a single bent tube or two tubes connected together, the connection of the tube and frame is such that each may form a brace for the other. If additional bracing be desired, especially for gentlemen's use, a detachable rod may be used between the rear and head portions of the frame, this rod being, preferably, capable of adjustment lengthwise, as desired.

The rear portion of the frame is connected to the hub of its wheel by rods, at least one of the rods being preferably secured to the hub or wheel-center in such way that its upper end may slide on the frame, and thus, taking different positions, support the frame at different elevations as close to the wheel or as far therefrom as desired, at the same time regulating the elasticity between the frame and wheels.

In speaking of the connecting-rods as secured to the wheel-center I simply mean that they are to be secured directly or indirectly to the axle without special regard to the point at which the rods themselves terminate or part to which they are connected.

The head portion of the frame is connected to its wheel by means of a spring, rod, or bar substantially in the form of a quadrant, to which it is secured by a suitable clip or in any other convenient way. This spring (by which I also mean rod or bar) is secured to the front wheel by suitable bars extending from the hub to its respective ends, and the clip securing it to the head portion of the frame is arranged to allow the spring to slide therein, thus adjusting the elastic connection between the head portion of the frame and wheel, and a set-screw serves to hold it in any desired position. The extended end of the rear portion of the frame or tube serves as a guard for the rear wheel, and the springs supporting the head portion as a guard for the front wheel. In this way separate guards are rendered unnecessary.

The seat is preferably mounted on a screw fitting and working in a vertical portion of the clip which secures it to the frame. The screw is preferably connected with the seat at a point in advance of its center, and its office is to permit the rider to regulate the height of the seat at pleasure without dismounting and also to permit a free turning movement, so as to enable the rider to occupy different positions or look in different directions, as desired. Being reversible, the seat can be turned around at pleasure, so as to change the position of the rider with reference to the handle-bar. The seat is secured to the frame by a suitable clip held in place by a set-screw or in any other convenient way. As shown, it is secured by a clip adjustable longitudinally on the frame.

The elasticity of the rear portion of the frame supporting the weight of the occupant is regulated by rods sliding on the frame and adapted to be secured in fixed position by set-screws, these rods also serving to support the rear portion of the frame on its wheel. I prefer to use two of these rods, one connecting with the frame before the seat and the other behind it; but any number of rods may be used, and they may be secured in any other way or in any other position desired.

As already explained, I prefer to have the rear portion of the frame extend around to form a guard for the wheel, its end being connected to the hub; but this portion of the frame may in some cases be formed of the reinforcing-tube, the frame proper terminating at a point short of its connection with the wheel, or both the frame and tube may be made to extend the full distance. In other words, the frame may be made to extend clear back, the tube not doing so, or the tube to extend clear back, the frame not doing so, as desired.

As various changes may be made without departing from the spirit of my invention, it will of course be understood that I do not intend to limit myself to special forms or details of construction.

I claim—

1. In a velocipede, the combination of wheels, a frame comprising front and rear portions, the rear portion conforming to the periphery of its wheel sufficiently to form a guard therefor, and connectors uniting the frame and wheels, the connectors extending from the wheel centers, and at least one of them being longitudinally adjustable on the frame, substantially as described.

2. In a velocipede, the combination of wheels, a frame comprising front and rear portions, the rear portion conforming to the periphery of its wheel sufficiently to form a guard therefor and the front portion forming a tubular head for the handle-bar substantially at right angles to the frame, and connectors uniting the frame and wheels, the connectors extending from the wheel centers

and at least one of them being longitudinally adjustable on the frame, substantially as described.

3. In a velocipede, the combination of wheels, a frame comprising front and rear portions integral with each other, the rear portion conforming to the periphery of its wheel sufficiently to form a guard therefor and the front portion a tubular head for the handle-bar, and connectors uniting the frame and wheels, the connectors extending from the wheel-centers and at least one of them being longitudinally adjustable on the frame, substantially as described.

4. In combination with the frame of a velocipede, two tubes D D, rigidly secured to the frame, one to the rear portion and one to the front portion, and means for rigidly connecting the tubes together at their lower ends, substantially as described.

5. In a velocipede, a rod extending from the wheel center and supporting the rear portion of the frame and adjustable longitudinally thereon, and means for securing the rod in fixed position, substantially as described.

6. In a velocipede, two rods supporting the rear portion of the frame, one in front and one in rear of the seat, adjustable longitudinally on the frame, and means for securing them in fixed position, substantially as described.

7. In a velocipede, a spring secured to one of the wheels at points away from its hub and to one portion of the frame and serving as an intermediate support for the frame, the portion of the frame secured to the spring being adjustable thereon, whereby the elasticity between the frame and wheel may be regulated, substantially as described.

8. In a velocipede, the combination of a spring secured to one of the wheels by bars extending from its hub, a frame secured to the spring and adjustable thereon, and means for holding the frame in fixed position on the spring, whereby the elasticity between the frame and wheel may be regulated, substantially as described.

9. In a velocipede, a spring secured to one of the wheels by bars extending from its hub and to one portion of the frame by a clip adjustable on the spring and serving as an intermediate support for the frame and as a guard for the wheel, whereby the elasticity between the frame and wheel may be regulated, substantially as described.

10. In a velocipede, a seat mounted on a screw secured to the frame by a forked clip adjustable on a vertically-inclined portion of the frame, whereby the elevation or inclination of the seat may be regulated, substantially as described.

11. In a velocipede, the combination of a frame, a seat mounted on a screw, a forked clip connecting the seat and frame, and means for holding the clip in fixed position, the screw being secured in one portion of the clip and

supporting the seat and the other portion forming the connection with the frame, substantially as described.

12. In a velocipede, a seat mounted on a screw and secured to the frame by a clip adjustable on a vertically-inclined portion thereof, the screw being secured in a vertical por-

tion of the clip and supporting the seat from a point in advance of its center, substantially as described.

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