(No Model.) 4 Sheets—Sheet 1.

H. BELL.

VELOCIPEDE FORK.

No. 443,266. Patented Dec. 23, 1890.

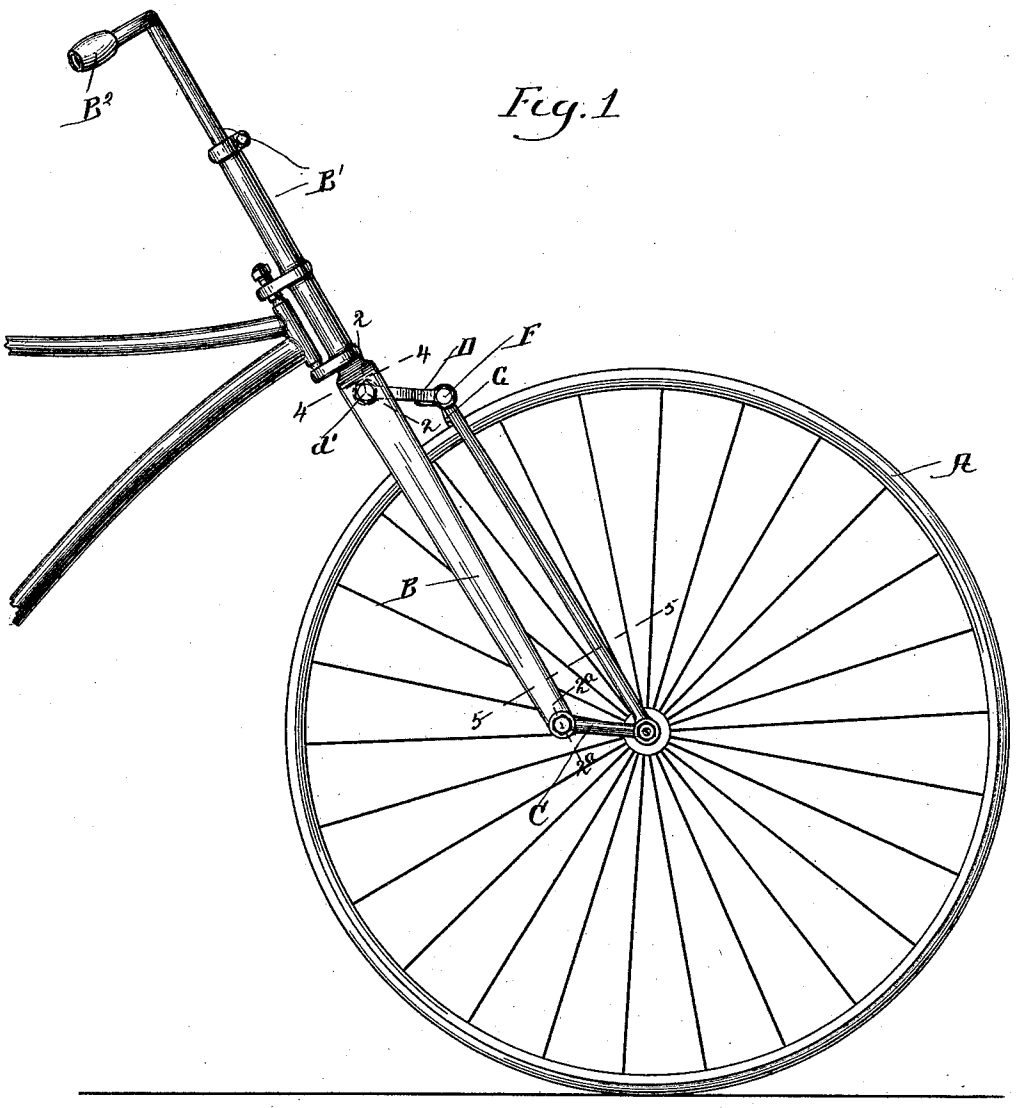


Fig. 1

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Julia Usler

Inventor:
Horace Bell
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Fig. 3

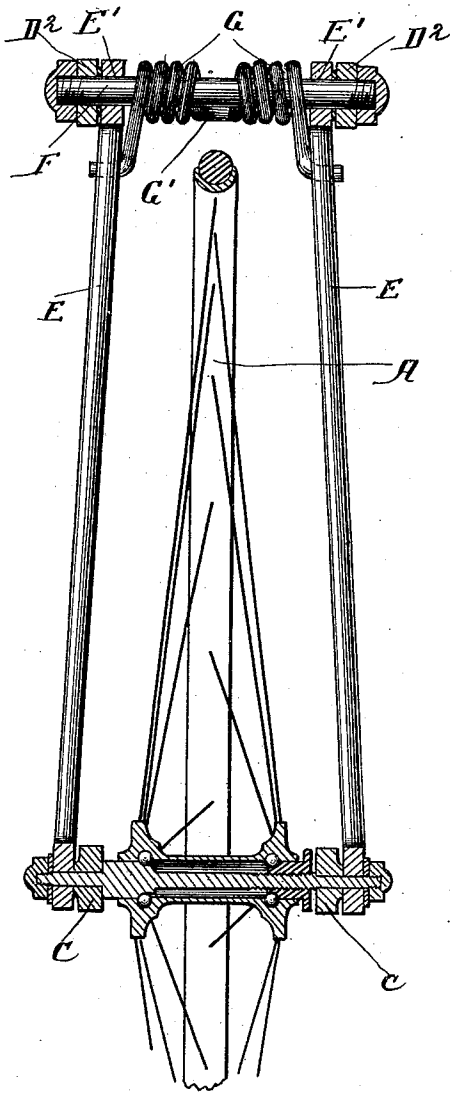
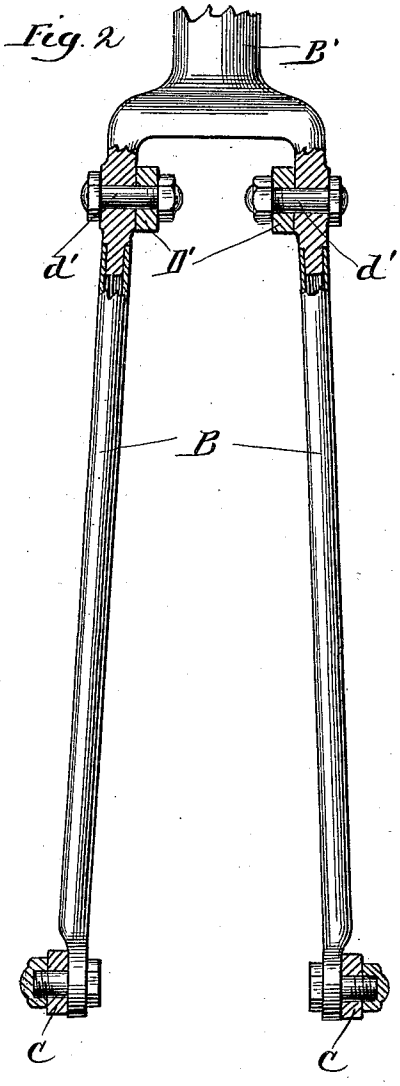


Fig. 2



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Fig. 4

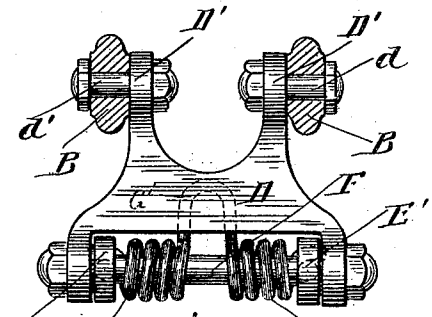
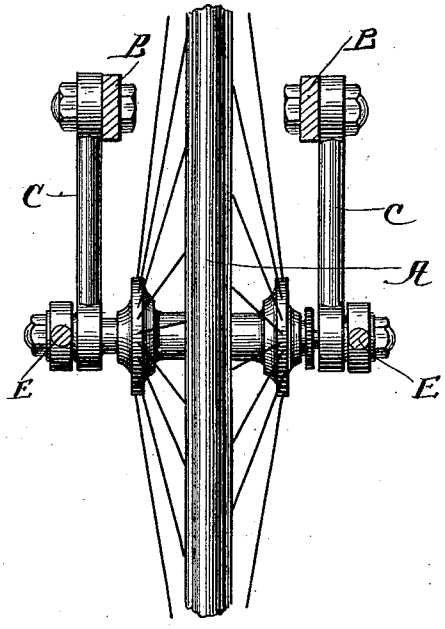


Fig. 5.



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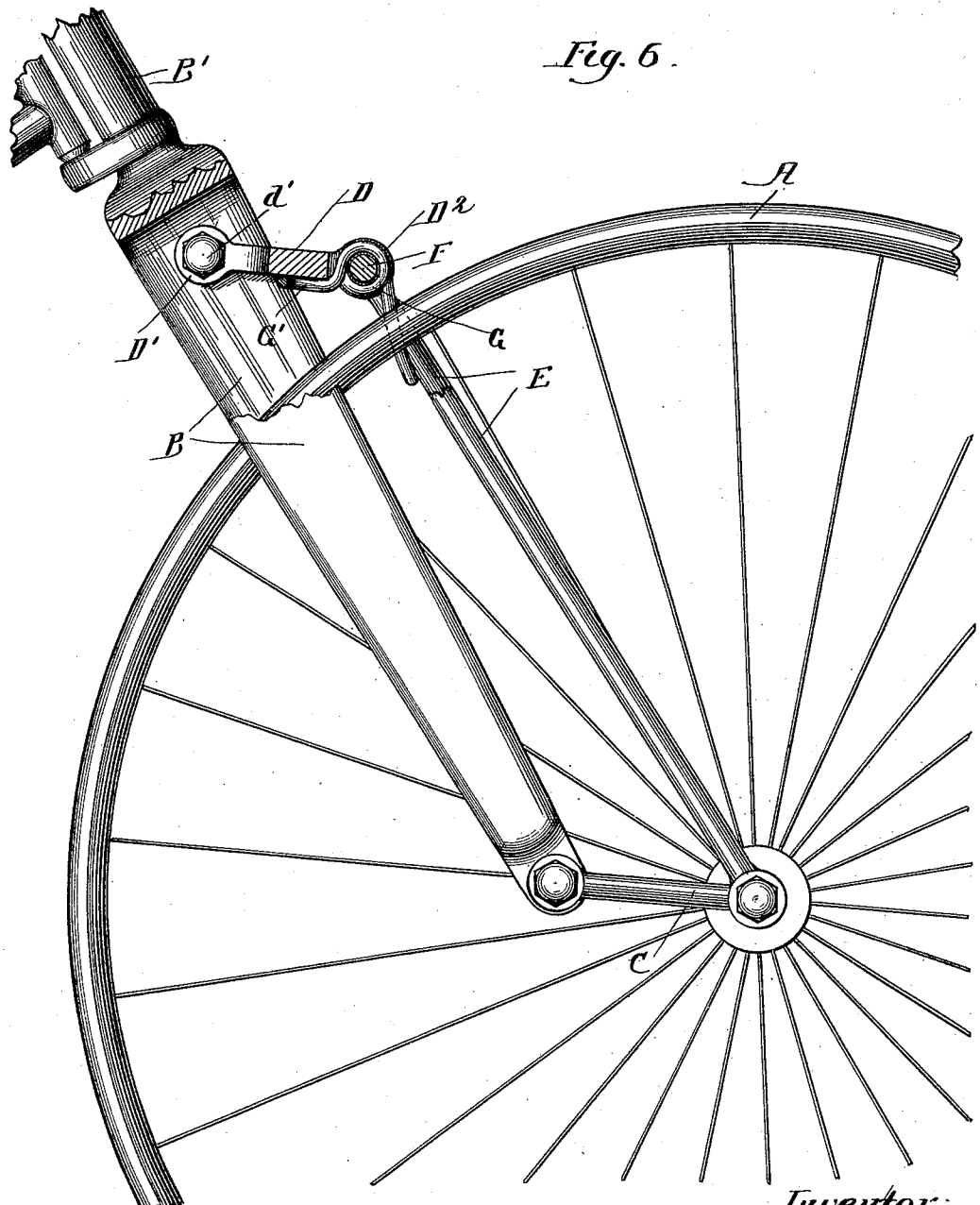
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VELOCIPEDE FORK.

No. 443,266. Patented Dec. 23, 1890.

Fig. 6.



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UNITED STATES PATENT OFFICE.

HORACE BELL, OF CHICAGO, ILLINOIS.

VELOCIPEDE-FORK.

SPECIFICATION forming part of Letters Patent No. 443,266, dated December 23, 1890.

Application filed September 22, 1890. Serial No. 365,758. (No model.)

To all whom it may concern:

Be it known that I, HORACE BELL, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in an Elastic Fork for Velocipedes, which is fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved fork especially adapted (but not restricted in its adaptation) to the front or steering wheel of a velocipede, which shall prevent the vibration caused by the roughness of the ground being communicated to the rider, and particularly from being communicated to the hands of the rider on the handle-bar.

In the drawings, Figure 1 is a side elevation of the front portion of the frame and the front wheel of the velocipede embodying my invention. Fig. 2 is a sectional front elevation of the fork and certain connected parts, section being made at the line 2 2 and at the line 2^a on Fig. 1. Fig. 3 is a detail front elevation of the links forming part of the entire elastic fork extending to the axle, the wheel being partly shown in axial section and the said links and connected parts at the upper end being shown in section through the axis of their pivot. Fig. 4 is a detail plan of the link-connection at the upper end of the fork, the fork being shown in section at the line 4 4 on Fig. 1. Fig. 5 is a detail section at the line 5 5 on Fig. 1, except as to the wheel, which is shown broken away farther from the center than the plane of said section. Fig. 6 is a similar view to Fig. 1, with part of the front fork broken away to show the spring and link-connection at the upper end of the fork.

A is the wheel which supports the elastic fork in question.

I shall use the term "elastic fork" as referring to the entire structure by means of which the wheel is connected to the steering-head, and I also apply the term "fork" to a particular part of that construction which is rigid with the steering-rod and handle-bars and most nearly resembles the ordinary stiff fork in appearance. B is this stiff fork extending from the steering-rod B′, at the upper end of which are the steering-handles B^2. The stiff fork B extends in such direction that the line of its axis in the steering-head, when the machine is carrying its ordinary weight and said head is therefore depressed somewhat, would, if produced, meet the ground about at the wheel's contact with the ground or a little in advance of that contact. This direction I deem best for easy and reliable steering for reasons which do not particularly pertain to this invention. This stiff fork terminates at the lower end not far from the horizontal plane of the axle of the wheel, and each arm of the fork is connected to the wheel-axle by a link C, which is pivoted so as to turn freely on a horizontal pivot at its connection with the lower end of the stiff fork B, and may be also, and is preferably, free to turn on the axle at its connection therewith. At the upper end of the fork, just below the junction of its side arms and their merging in the steering-head, I pivot to it the link D. This link is preferably inserted between the arms having two lugs D′ D′, which are each by separate bolts *d′* pivoted to the side bars, respectively, of the stiff fork. This link is laterally expanded at its forward end and terminates in the two lugs D^2 D^2.

E E are side bars or links, which I shall call hereinafter by the first name "side bars" for the purpose of distinguishing from the parts called "links." They are each pivoted on the axle, one at each end thereof, outside the links C, and at their upper ends they are pivoted, respectively, to the lugs D^2 D^2 of the link D, being most conveniently located on the inner side of said lugs, respectively. The pivotal connection of said side bars to the link D is effected by means of the bolt or shaft F, which is passed through the lugs D^2 D^2 and the eyes E′ at the upper ends of the side bars E, said bolt being retained after being thus inserted by nuts at each end, which may be drawn tight against the outer surface of the lugs D^2. Before, however, inserting this pivot-bolt F the spring G is placed between the eyes E′, so that the bolt in being passed into position to serve as the pivot of the parts, as stated, is passed through the coils of the spring G.

The spring G comprises two coils in opposite directions, with a loop G′ between them. The ends of the wire are stopped behind the

side bars E a little below the eyes E′, and the loop is stopped under the middle web of the link D, so that the spring tends to force apart or increase the angle between the side bars E and the link D, and by this tendency tends, as will be obvious, to force the pivot of the link to the forks away from the axle, increasing at the same time the angle between the stiff fork B and the links C at the lower end. The weight of the rider on the vehicle, tends, therefore, to coil the springs and force the pivot of the link D to the stiff fork or head down toward the wheel, and the original position of the fork when there is no weight on the machine is such as to allow for such descent without making the head or fork strike the wheel. The link D may be said to be practically pivoted to the head; but by forming it with the lugs D′ and pivoting them separately to the side bars of the fork just before their junction space between them is rendered available for the wheel in case the weight of the rider should depress the head so much as to cause the rim of the wheel to pass up between the ends of the pivot-bolts *d*′.

I claim—

1. In a velocipede, in combination with the steering-head or the steering-rod, a fork rigid therewith at the lower end striding the wheel, a pair of links connected, respectively, to the lower ends of said fork and to the axle, a link pivoted to the fork or head above the wheel, and a pair of links or side bars pivotally connected at their lower ends to the axle on the opposite side of the wheel and at their upper ends to the forward end of said upper link, and a spring coiled about the axis of one of the pivotal connections of said upper link and reacting between said link and the part to which it is pivoted at such connection to uphold the pivot of said link to the head, substantially as set forth.

2. In a velocipede, in combination with the steering head or rod, a stiff fork rigid therewith at the lower end and striding the wheel, a pair of links pivotally connected to the lower ends, respectively, of said fork and connected to the opposite ends of the axle, a link pivotally connected at one end to the stiff fork or head above the wheel, and a pair of side bars or links pivotally connected at their lower ends, respectively, to the opposite ends of the axle and at their upper ends to the forward end of said upper link, and a spring coiled about the pivot of said bars to said link and reacting between said link on the one hand and said bars, respectively, on the other hand to increase the angle between them, substantially as set forth.

In testimony whereof I have hereunto set my hand, at Chicago, Illinois, in the presence of two witnesses, this 18th day of September, A. D. 1890.

HORACE BELL.

Witnesses:
CHAS. S. BURTON,
JEAN ELLIOTT.