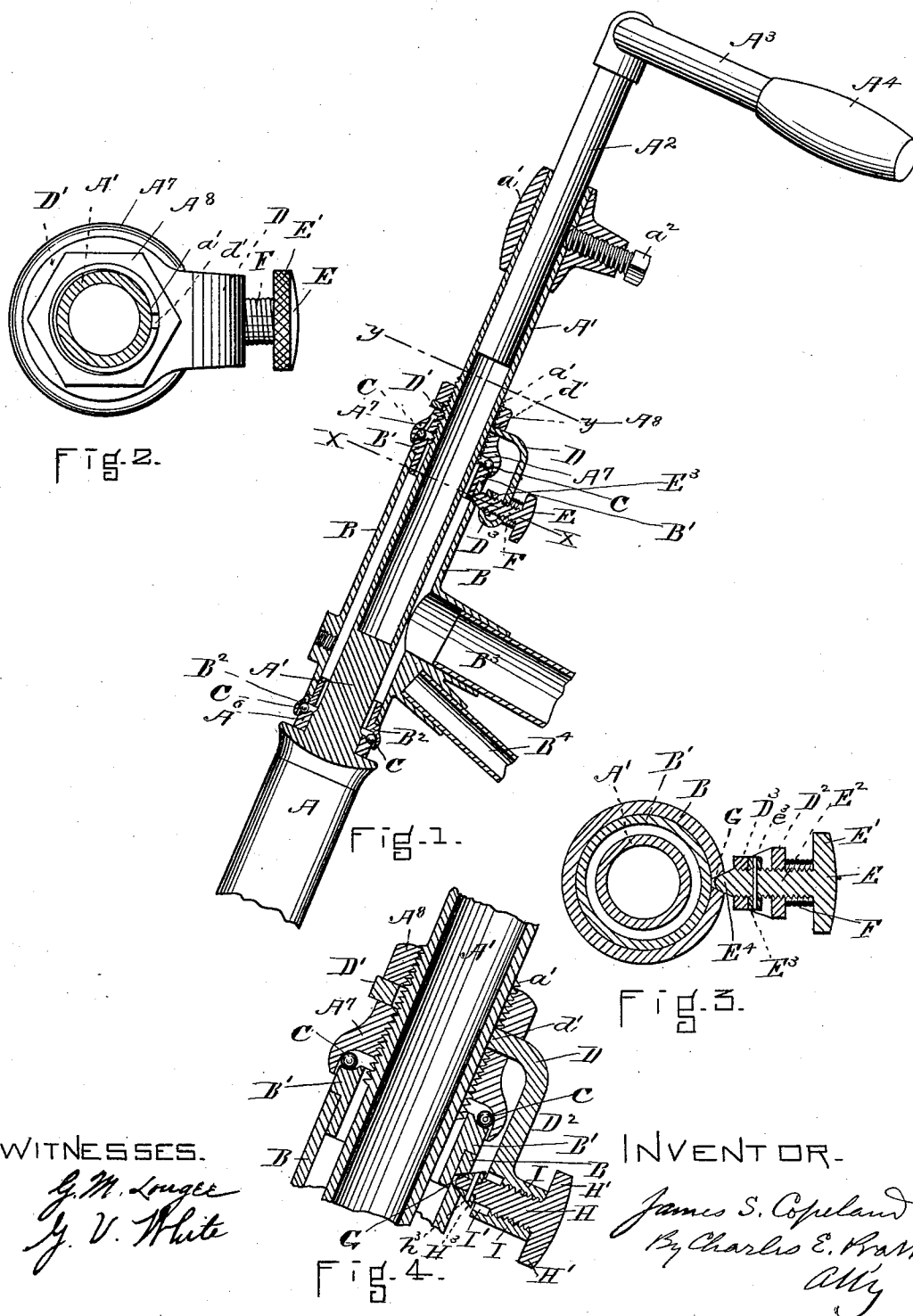


(No Model.)

J. S. COPELAND.
VELOCIPEDÉ.

No. 469,626.

Patented Feb. 23, 1892.



UNITED STATES PATENT OFFICE.

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POPE MANUFACTURING COMPANY, OF PORTLAND, MAINE.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 469,626, dated February 23, 1892.

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To all whom it may concern:

Be it known that I, JAMES S. COPELAND, of Hartford, in the county of Hartford and State of Connecticut, have invented a certain new and useful Improvement in Velocipedes, of which the following is a specification.

My present improvement is designed more especially for use in that class of velocipedes known as "Safeties" or "Safety bicycles," though it is applicable to other machines as well. These Safeties are constructed generally as single-track machines, having one wheel before the other, the forward one being a guiding-wheel and the rear one being a driving-wheel, revolving substantially in the same plane, having a comparatively long base on the ground, and being comparatively low in height. They generally have a transverse handle-bar, forming the highest part of the machine, much nearer one end than the other, connected with the guiding-wheel by means either of a steering-spindle connected rigidly with the fork, which spans the steering-wheel and passing through a socket-head connected with the frame of the machine, (as the construction is in the machine of which I show in part in the accompanying drawings,) or else of a steering-head connected rigidly with the fork which spans the guiding-wheel, and to which is secured a steering-spindle connected with the frame of the machine. In the common daily use of these machines it is desirable and even necessary frequently to leave them in a nearly-upright leaning position against the curb, fence, tree, house, or other object without the presence of a "stand," so-called, and where only some one part of the machine can impinge upon the supporting object. The machine so left or placed is insecure and liable to displacement or injury.

It is the object of my present improvement to construct the velocipede so that the rider may easily lock or secure the steering-head and the steering-spindle together, or, in other words, connect the main frame of the machine and the steering mechanism rigidly, so that the wheels must stay in the same relative position to each other, and thus render the machine once placed in position more secure and stable; also, to provide a simple effective locking device or steering-clamp for this pur-

pose which will not injure the appearance of the machine, or render either the machine or itself easily breakable under the use of the handle-bar, and which may be securely kept from jarring into operation and endangering the rider when the velocipede is being ridden. The way in which I attain these objects by the use of my improvement in what I consider the best form of applying it is shown in the accompanying drawings, in which—

Figure 1 represents in vertical longitudinal section a part of a Safety velocipede, including parts of the main frame, steering-head, steering spindle and fork, and my improved steering-clamp devices, all connected with the handle-bar and its support, as they appear in side elevation. Fig. 2 shows parts of the same in nearly horizontal section on the broken line *y y* of Fig. 1 and other parts in top plan. Fig. 3 shows parts of the same in nearly horizontal section on the broken line *x x* of Fig. 1. Fig. 4 shows in vertical transverse section some of the same parts with a modified form of my improved locking device.

A is the steering-fork spanning the guiding-wheel of a velocipede.

A' is a steering-spindle connected rigidly with the steering-fork.

A² is the handle-bar support, A³ the transverse handle-bar, and A⁴ the steering-handle.

B is a socket steering-head rigidly connected with the reach B³ and brace B⁴ of the main frame of the velocipede. The steering-head B incloses the steering-spindle A' and has the bearing-pieces B' B² at the ends, by which, through the interposed circular rows of balls C C, it takes its bearings on the collars A⁶ A⁷ of the spindle. On the spindle A' is a screw-thread *a'*, upon which the adjustable collar A⁷ fits and is held in position ordinarily by the set-nut A⁸. As thus constructed, the spindle is free to be turned in the socket, and by consequence the steering-wheel may be turned in any direction by means of the handle-bar, or of inequalities in the surface on which the velocipede is, or of uneven balancing of the machine.

In constructing and combining my improved clamp with this machine, I form a bracket or clamp D, preferably of sheet metal, with a plate part, as D', perforated to slide over the

threaded portion of the spindle A' and which may be held in a nearly horizontal position between the collar A' and the set-nut A⁸, as shown in Fig. 1. This plate is held from turning about the axis of the spindle A', not only by the grip with which it is held between the set-nut and the collar, but also by a feather d', operating in a groove in the threaded portion a'. The bracket or clamp D is further constructed with an arm D² at right angles substantially with the plate D', which extends downward and is curved forward and upward in a nib D³. Through the arm D² and the nib D³, I put a small bolt E, having a milled head E' for the thumb and fingers, a threaded portion E², which may play in corresponding threads in either the arm or the nib, or both, and which has a stop E³, secured on it between the arm and the nib, (it may be pinned on by pin, as e³,) and the bolt E has a bearing portion E⁴, which I prefer to construct conical or rounded, which, when the locking device is operated, finds a seat in the groove or slot G made in or attached to the steering-head. About the threaded portion E³ of the bolt E, and between the arm D² and the milled head E', I place a coiled spring F, which tends to push the bolt outward from the arm.

Now the operation of this device when placed in position, as shown in the drawings and as above described, with the bracket D firmly held to the steering center and so rigidly connected with the guiding-wheel and steering mechanism, and with the bolt E of the locking device turned up so that the point E⁴ takes a firm seat in the holding-slot G in the steering-head, so as to connect the clamp rigidly with the main frame of the machine, then the operation of my improvement is to hold the machine rigidly together with the wheels in a fixed relation, and then the machine, however it be held in an upright or nearly upright position by leaning against any object at any portion, is secured against accident. When, however, the rider is ready to mount and use it or to guide it by means of the steering-handles, he turns the bolt E backward by means of the milled head E' until the collar E³ is brought against the inner face of the arm D², when the point E⁴ is out of engagement with the socket-head and the collar E³, impinging against the face of the

arm, tends to secure the bolt in that position, and the spring F tends still further to throw the head of the bolt away from the steering-head, so that by no jarring of the machine can the bolt be brought back into contact with the steering-head.

I am aware that heretofore certain devices have been introduced in the form of springs and arms, or cams and springs, to obstruct the freedom of motion between the steering-head and the steering-spindle and make a partial resistance against the tendency to throw the steering-wheel out of position by obstacles in the road, and, also, that it has been proposed to use a device or devices in the form of elastic connections between the handle-bar and the frame of the machine for a similar purpose; but none of these devices, and no other device of which I am aware, has been constructed for the purpose, or in its use would accomplish the purpose and result which I have in view—viz., to securely lock the machine in the same relative position of guiding and driving wheels when not being ridden.

It is obvious that modifications may be made in the form of applying my improvements—as, for instance, as shown in Fig. 1, the arm D² of the clamp may have a socket I internally threaded with the chamber I' on the inside, and the locking-bolt H may have on the inner end of its threaded portion a conical collar H³, which, when the bolt is turned backward from contact with the steering-head, falls into the chamber I', and by impingement against the inner face is fairly secured from jarring loose. It is obvious, also, that other modifications might be made—as, for instance, in attaching the clamp to the steering-head instead of the steering-spindle, making the clamp and locking-bolt of different form, or connecting them in different ways.

What I claim as new and of my invention is—

The combination of spindle A', steering-head B, fork A, reach B³, bracket D, with plate D', holding-arm D², nib D³, bolt E, collar E³, and spring F, constructed and combined to operate essentially as set forth.

J. S. COPELAND.

Witnesses.

DAVID J. POST,
J. M. BIRMINGHAM.