

(No Model.)

F. SWEETLAND.
BICYCLE FORK.

No. 475,633.

Patented May 24, 1892.

Fig. 1.

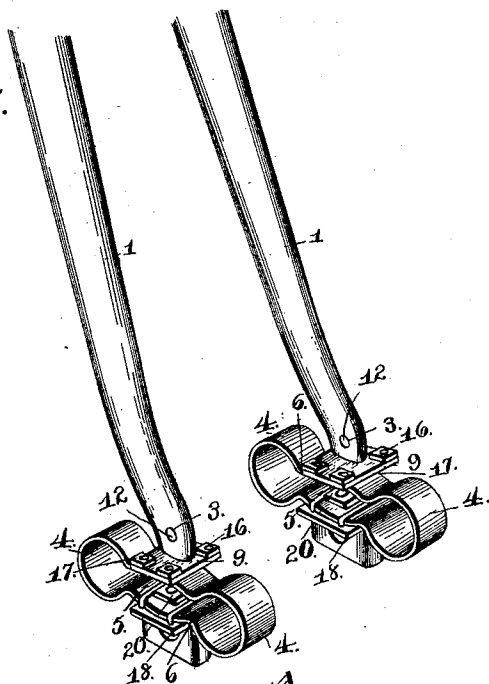


Fig. 2.

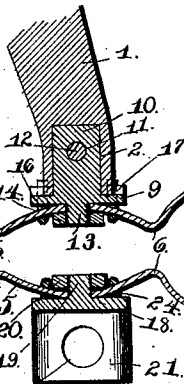


Fig. 3.

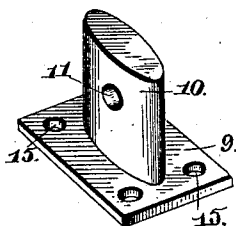


Fig. 4.

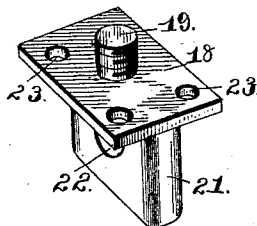
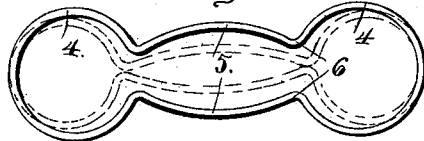


Fig. 5.



Witnesses

Chas. G. Ford.
W. S. Duwall.

Inventor

Frank Sweetland

By *h r s.* Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

FRANK SWEETLAND, OF ANGOLA, NEW YORK.

BICYCLE-FORK.

SPECIFICATION forming part of Letters Patent No. 475,633, dated May 24, 1892.

Application filed January 18, 1892. Serial No. 418,485. (No model.)

To all whom it may concern:

Be it known that I, FRANK SWEETLAND, a citizen of the United States, residing at Angola, in the county of Erie and State of New York, have invented a new and useful Bicycle-Fork, of which the following is a specification.

This invention relates to improvements in bicycle-forks, and has special reference to that class thereof known as "spring forks."

The objects of my invention are to provide a spring adapted to be interposed between the lower ends of the forks and the axle, the shape of the spring being such as to lessen the jar upon the handle-bars and entire frame and to avoid the sudden jar so common in spring-fork frames, caused by the descent of the wheel into deep gullies and a sudden and total collapsing of the spring.

A further object of the invention is to provide a cheap and convenient means for securing the spring to the fork and axle.

With these objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of the front fork of a Safety bicycle, the same being provided with a spring constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view through the spring, the lower portion of the fork, and axle-block. Fig. 3 is a detail in perspective of the fork-block. Fig. 4 is a similar view of the axle-block. Fig. 5 is an elevation of the spring in detail, the same being shown by dotted lines as collapsed.

Like numerals of reference indicate like parts in all the figures of the drawings.

In employing the spring hereinafter described the same may be applied to the two front tines or the rear tines of the forks, as may be desired, though I have herein shown it as applied merely to the former. These forks may be either curved or straight or given any other desired outline, the only essential being that their lower ends be vertically disposed.

1 designates the forks, and in the lower ends of the same cavities 2 are formed, said cavities being preferably elliptical in cross-section. The forks are transversely perforated

at 3, said perforations traversing the cavities. The springs, when viewed in elevation, resemble the well-known dumb-bell, in that each consists of curved ends 4 and intermediate bowed connecting portions 5, which at their juncture with the portions 4 converge toward each other at the points 6. Each spring is provided at its portions 5 with a central perforation 7 and at opposite sides thereof with pairs of minor perforations 8. A rectangular metal block 9 is provided upon its upper side with a tenon 10, the same being elliptical in cross-section; or, in other words, being of such shape and size as to adapt it to be forced into the cavity at the lower end of a fork. The tenon is also provided with transverse perforations 11, which register with the perforation 3 of the fork, and through these aligning perforations a bolt 12 is passed. From the under side of the block there depends a threaded stud 13. The stud 13 enters the perforation 7 at the upper side of the spring, and a nut 14 serves to secure the same in position. The block 9 is provided at opposite sides of the tenon with perforations 15, which align with the opposite edges of the spring. Through these pairs of perforations inverted-U-shaped clips 16 are upwardly passed, the extremities of the clips being threaded and having applied thereto, above the blocks, ordinary taps or nuts 17. This constitutes the means for fastening the upper side of each spring to the lower extremity of the tines of the fork.

The axle-blocks 18 are provided upon their upper sides with a central stud 19, threaded, as shown, to enter the lower main perforations 7 of the springs and are secured in position by taps 20. Each axle-block is provided upon its under side with a depending tenon 21, and the same has formed therein a bearing-opening 22 for the reception of the axle. This opening may be round, square, or other shape. The block is provided with pairs of perforations 23, which align with the opposite edges of the lower side of the spring, and inverted-U-shaped clips 24 are passed downwardly through the perforations 22 and have their lower extremities provided with nuts. By these means a very secure, cheap, and efficient fastening may be constructed; but, if desired, other means may be substituted, such

other means readily suggesting themselves to those conversant with the construction of bicycles.

By the form of spring employed it will be seen that I gain all the results known as residing in the ordinary elliptical spring, and in addition I gain a further advantage. By the simple form of elliptical spring when the wheel suddenly descends a gully the opposite halves or sides would be brought suddenly together, and the result of the same would be a decided jolt, unpleasant to the rider and injurious to the bearings and connections of the various parts. By the peculiar form of spring, however, herein shown I avoid this objection, in that, as best illustrated in Fig. 5, any such jolting as would be calculated to bring the opposite halves of the spring together would first act upon the end portions 4 of the springs, bringing the bent intermediate portions 6 into contact, and after that the strain would come upon the bowed intermediate portions 5, so that no jarring of any consequence would result from the contact of the portions 6, and the sudden jolt would not be imparted to the frame of the machine or handle-bar.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a bicycle, the combination, with the axle and fork, of the interposed spring herein described, the same consisting of the opposite

end eyes or portions 4, the intermediate oppositely-bowed portion 5, and the contracted portions 6, located at the juncture of the portions 4 and 5 and of a less width than the eyes or bolts, substantially as specified.

2. In a bicycle, the combination, with the fork having the socket and transverse perforation, the fork-block having the tenon upon its upper side transversely perforated to fit the socket and provided at opposite sides of its tenon with pairs of perforations, a bolt passed through the perforations of the fork and tenon, a stud upon the under side of the block, and a nut for the same, of a spring having an opening for the reception of the stud, clips connecting the spring and block and provided with nuts, the axle-block having bearing-openings for the reception of an axle and provided upon its upper side with a stud passed through a perforation in the spring and nutted, and the clips embracing the spring and passed through perforations in the axle-block at each side of the tenon and provided with nuts, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK SWEETLAND.

Witnesses:

LAMEN W. RACE,
E. M. CLARK.