(No Model.)

J. HORN.

BICYCLE.

No. 600,643. Patented Mar. 15, 1898.

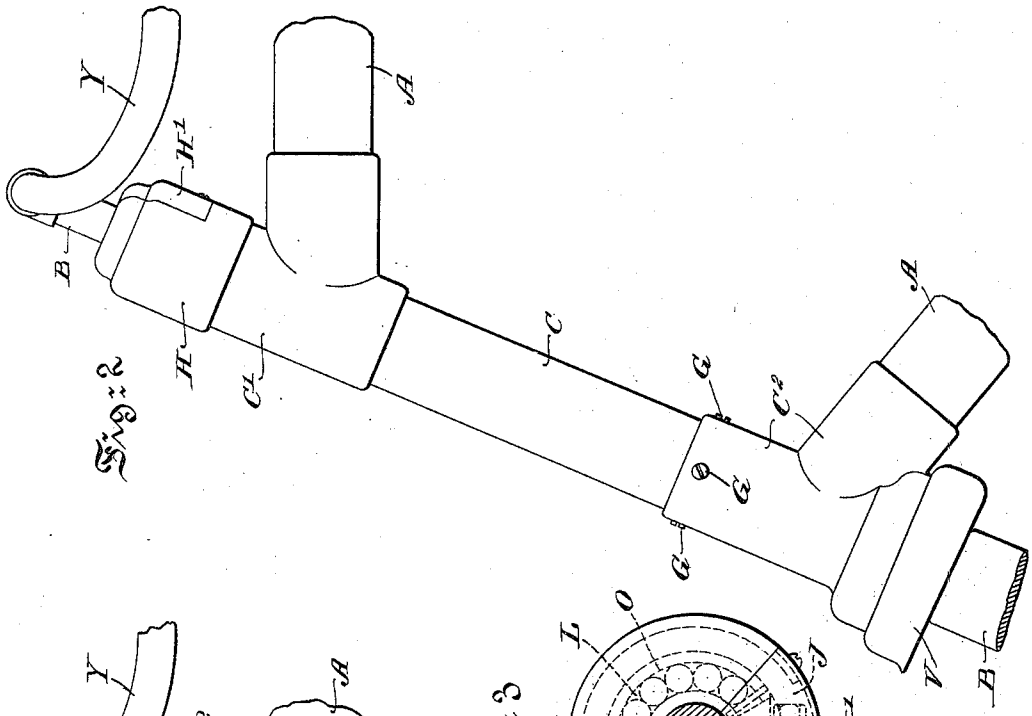


Fig. 2.

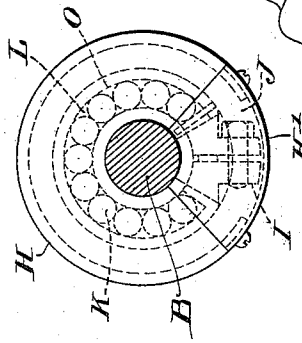


Fig. 3.

Fig. 1.

Witnesses
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BICYCLE.

SPECIFICATION forming part of Letters Patent No. 600,643, dated March 15, 1898.

Application filed March 12, 1897. Serial No. 627,108. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HORN, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Bicycles, of which the following is a specification.

My invention relates to improvements in bicycles; and the object of my invention is to furnish a device which will take up the jars or vibration of the front wheel and prevent the same from being transmitted to any appreciable or disagreeable extent to the frame of the machine and thence to the rider.

In the accompanying drawings, forming part of this specification and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a central sectional elevation through the front tube of the frame of a bicycle fitted with my improvements; Fig. 2, a side elevation of Fig. 1; and Fig. 3, a plan of Fig. 1, the handle-post being shown in section.

A is the frame of a bicycle, which does not depart from the ordinary construction of this detail in any important particular; B, the steering-bar, which is placed and turns within the front tube C of the frame and which is surrounded by a coil-spring E, the lower end of which is securely attached to a collar F, secured by screws G or otherwise to the front tube C, and the upper end of which is securely attached to a cap H, which is carried by the steering-bar B at or near its upper end.

In Fig. 1 I have shown the upper end of spring E entering cap H, and in addition I have shown a hook *d* carried by this cap, the lower end of which engages one of the coils of the spring and acts as an additional support for the spring.

I is a clamp screwed on the upper end of the steering-bar and adapted to rest in a recess J, formed in the cap H, to hold this latter in place on the steering-bar.

K are balls running in an annular groove L in cap H and bearing against the top of clamp I or against a hardened-steel washer M, carried on top of the clamp.

N are balls running in an annular groove O in the cap H and bearing against the bottom of clamp I or against a hardened-steel washer P, resting against the bottom of this clamp.

a b are pins carried by washers M P, which enter the slot *c*, formed between the ends of clamp I, and which cause these washers to turn with the clamp. The cap H is carried by the clamp I, which is fast to and turns with the steering-bar, the balls K N reducing the friction to the greatest possible extent.

The front tube C of the frame is held in place on the steering-bar solely by the spring E, and when the rider is in the saddle (not shown) that part of his weight which is transferred to the front bar C of the frame causes the front bar to be lowered and the spring E to be stretched a corresponding distance, and therefore any jars or vibrations of the front wheel are taken up by spring E before reaching the frame or rider.

In order to make a nice finish to the machine, I furnish the under part of cap H with an annular groove R, which is adapted to receive the upper end of front tube C or fitting C′, secured to the top of the tube. The groove R is of sufficient depth to permit the tube to play without it leaving it. At the lower end the tube C or the fitting C^2, into which this end of the tube is fitted, carries a hardened-steel cup S, fitted with balls T, which serve both to reduce the friction of the vertical movements of the tube C against the steering-bar B and of the rotary movements of this bar within the tube.

U is a hardened-steel washer closing the lower end of cup S; V, an inverted-cup-shaped mud-guard carried by lower end of tube C and surrounding steering-bar B.

W are screws by means of which the mud-guard, the washer, and the ball-carrying cup are held in place.

The mud-guard V is placed as close to the wheel (not shown) as is possible, and the mud or dust being thrown from the wheel at a tangent is to a great extent caught by the outside of the mud-guard, and is thereby prevented from reaching the steering-bar.

In removing the steering-bar from the front tube the clamp I is held so that it cannot turn and the steering-bar is turned until it is unscrewed from the clamp, when it may be drawn out of the front tube, the handle-bars Y be-

ing of course first removed. After the handle-bars and the steering-bar are out of the way the clamp I may be removed from cap H by removing the cover H′, which closes an opening to the interior J of the cap, and by loosening screws G the cap H, the spring E, and their connected parts may be removed from the front tube.

Having thus described my invention, I claim—

1. In a bicycle, in combination, a steering-bar, a frame the forward tube of which surrounds said steering-bar and which is provided on its interior with a collar, a collar secured to said steering-bar, a cap carried by said collar, and a spring surrounding said bar the upper end of which is carried by said cap and the lower end of which is attached to the collar secured to the inner part of said front tube, all substantially as and for the purposes set forth.

2. In a bicycle, in combination, a steering-bar, a frame the forward tube of which surrounds said steering-bar, a clamp or collar on the upper end of said steering-bar, hardened washers on the upper and lower ends of said clamp or collar, a cap surrounding said clamp or collar and the upper end of said steering-bar, balls engaging said cap and said washers, a spring surrounding said steering-bar the upper end of which is secured to said cap and the lower end to a collar attached to the inner part of said front tube, and said collar.

3. In a bicycle, in combination, a steering-bar, a frame the forward tube of which surrounds said steering-bar, a cap carried by the upper end of said steering-bar and within which said bar may turn and the lower end of which is furnished with an annular groove adapted to receive the upper end of the forward tube of said frame, a spring surrounding said steering-bar the upper end of which is carried by said cap and the lower end by a collar secured within and near the bottom of said forward tube, and said collar, all substantially as and for the purposes set forth.

4. In a bicycle, in combination, a steering-bar, a frame the front tube of which is vertically movable on said bar, a spring surrounding and one end of which is carried by said bar and the other end of which carries said frame, balls carried by the lower end of the front tube of said frame which engage said bar, and an inverted-cup-shaped mud-guard carried by the lower end of said forward tube and surrounding the lower end of said steering-bar.

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