

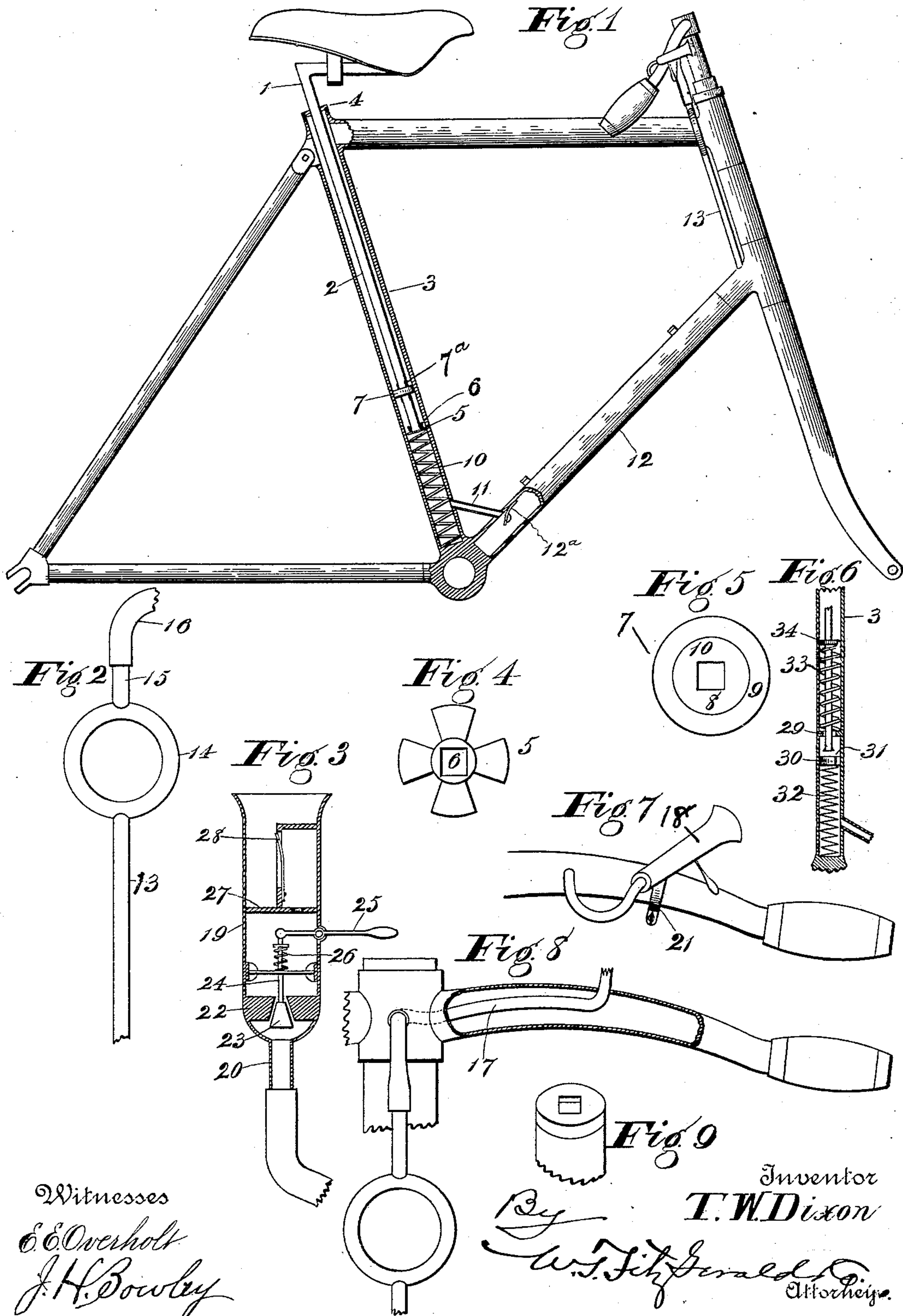
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T. W. DIXON.  
BICYCLE.

(Application filed Apr. 9, 1897.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## BICYCLE.

SPECIFICATION forming part of Letters Patent No. 632,807, dated September 12, 1899.

Application filed April 9, 1897. Serial No. 631,434. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS WILLIAM DIXON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bicycles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in bicycles, though the same will be found desirable when applied to various kinds of vehicles.

The details of my invention will be clearly set forth in the following specification and illustrated in the accompanying drawings, made a part hereof, in which—

Figure 1 is a side elevation of a bicycle-frame, partly in section. Fig. 2 is a detail showing preferred manner of extending air-pipe around part of the frame for the purpose of communicating with the handle-bars. Fig. 3 is a longitudinal section of a preferred form of whistle and valve therefor. Fig. 4 illustrates one form of base designed to receive the lower end of the seat-post. Fig. 5 is a detail plan view, on an enlarged scale, of a preferred form of piston for the lower end of the seat-post. Fig. 6 shows by longitudinal central section preferred means for providing a spring-support for the seat-post. Fig. 7 shows in side elevation a preferred means for attaching and mounting the whistle in position upon the handle-bar. Fig. 8 illustrates the connection between the whistle and the air-conveying tube. Fig. 9 is a detail perspective view of the cap employed for receiving the upper end of the seat-post.

Briefly described, it may be stated that the essential feature of value of my invention consists in providing means which will enable the rider to utilize the upward-and-downward movement of the seat upon its spring-support to force air under pressure into one of the pipes or a section thereof designed to form a reservoir and to further providing means which will render it possible that such stored air may be utilized to blow the whistle or to fill the tires.

Reference to the various details of the drawings will be made by figures, the same figure

being employed to designate the same part throughout the views.

It will be understood that my invention may be readily applied as an attachment to the bicycle as now constructed by making slight alterations in the frame thereof.

In carrying out my invention I provide the seat-post 1, which may be square, round, or other form in cross-section, as preferred. Said seat-post is substantially of the usual construction, except that the lower end or anchoring-section 2 thereof is of a greater than the usual length, said section being designed to be received by the upright section 3 of the frame and to have a free longitudinal reciprocation therein. In order that said post may be held within the central part of the section 3, I provide the threaded cap 4, having a central aperture therein corresponding in shape with and designed to snugly receive the contiguous part of the post and permit the same to have play therein, the aperture of cap 4 being sufficiently large to admit air to the compressor.

The lower end of the section 2 has attached thereto the base-plate 5, which is preferably constructed as illustrated in Fig. 4, though it will be understood that a simple disk having a sufficient number of perforations may be employed for such purpose. I prefer to form upon the upper surface of the base thus provided the seat 6 of sufficient size to securely hold the end of the post in operative combination with the base. Near the end of the post I rigidly secure the head or piston 7, (more clearly shown in Fig. 5;) or the head may be perforated sufficiently to permit the air to gradually pass through the same; but the perforations are not large enough to allow the air to escape on a sudden downward impulse being given to the post by the weight of the rider. In the present instance the head or piston 7 is perforated and has more or less the action of a valve. At a point upon the post 2 where the piston 7 is secured I form the groove 7<sup>a</sup>, which provides a restricted passage to permit the slow ingress of the air into the chamber below the piston, thereby permitting the post 2 to be elevated by the action of the spring 10 after being depressed. Said piston consists of the central metallic portion 8, having a peripheral groove designed to receive a



rubber or other form of cushion 9, the latter being designed to snugly fit within the section 3.

In the lower portion of the section 3 I locate the spring 10, and upon the upper end thereof the base 5 is designed to bear, thus placing the post and saddle mounted thereon in communication with said spring.

The lower portion of the tubular section 3 communicates by duct 11 with the reservoir 12, the end of said duct communicating with said reservoir being provided with a suitable valve, as 12<sup>a</sup>, which will prevent the recession of air after once being conveyed into the reservoir. The reservoir, it will be seen, is improvised from a part of the frame, the upper end thereof being completely closed or cut off from the contiguous section of the frame and designed to convey the air from the reservoir to the whistle.

Mounted near the handle-bars is the tube 13, the tubular ring 14, the upwardly-extending section 15, and the elbow 16, the latter being designed to enter the central section of the handle-bar and communicate, by means of the flexible tube 17, with the whistle 18.

I prefer to construct the whistle substantially as shown in Fig. 3, the same consisting of the body 19 and the receiving-orifice 20, the latter having direct connection with the outer end of the flexible tube 17. The body 19 may be attached to the handle-bar at any preferred point by means of the clamp 21, as shown in Fig. 7, said clamp being provided with a set-screw, if deemed necessary to reinforce its grasping power. It will be seen that the clamp 21 merely consists of a piece of spring metal bent upon itself to form substantially the letter U, by means of which the resiliency of the spring may ordinarily be depended upon to bind it in its adjusted position.

Within the body 19 I provide the valve-seat 22, having the outwardly-tapered central bore, as shown, and within said bore I mount the plunger 23, having the operating-stem 24 and the controlling-lever 25. It will be observed that said plunger is normally held in a closed position by the spring 26 and that when it is desired to open the valve such result will follow a proper manipulation of the lever 25, which will force said plunger inward, and thus permit the escape of the air, which will pass through the perforated disk 27 into co-operation with the reed 28.

In Fig. 6 I have illustrated a modification in the construction necessary to utilize the upward-and-downward movement of the seat-post for the purpose specified.

It will be observed by referring to Fig. 6 that I locate in the section 3 the internal radial flange or collar 29, and designed to reciprocate within said section or that portion of it immediately below said flange I locate the piston 30, which consists of a disk having a minute perforation 31. It will be understood that the perforation 31 is to be very small

indeed in order that the air below the piston cannot escape through it excepting very slowly, thus enabling the piston to utilize the air as a cushion until it all escapes backward through said perforation or is forced into the storage-reservoir provided in the frame. Designed to hold the piston 30 upward into engagement with the under side of the flange 29 is the spring 32, corresponding in function to the spring 10, as shown in Fig. 1. Resting upon the upper side of the flange 29 is the spring 33, operatively connected to the lower portion of the seat-post by means of the disk 34, which latter is provided with suitable perforations. The lower end of the seat-post is preferably slightly enlarged and is designed to rest upon the central portion of the piston or disk 30, and by this arrangement of parts it will be seen that the resiliency of the springs 32 and 33 are both utilized to give the proper mounting to the saddle. While the spring 32 will normally hold the piston 30 in contact with the lower end of the seat-post, I have for the purpose of illustration shown said piston slightly below the end of said post. As stated, both springs may be used to support the weight of the rider; but, if desired, the upper spring may be of sufficient strength to support such weight, in which case the function of the lower spring 32 will be merely to elevate the piston 30 into its normal position ready for further coöperation with the seat-post after said piston has been forced downward by said post. It will therefore be apparent that the upward-and-downward movement of the seat incident to the use of the machine will impart a more or less rapid downward-and-upward movement to the pistons 30 and 7, by means of which air will be forced into the reservoir 12 and its recession prevented by the valve 12<sup>a</sup>.

Believing that the advantages, operation, and construction of my invention are made fully apparent from the foregoing specification and the accompanying drawings, I will dispense with further reference to the details thereof.

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

1. In cycle-frames, a tubular upright section provided with a seat-post central therein, a piston near the lower end thereof, having a restricted passage therethrough, a base-plate having a socket on its upper end into which the seat-post fits, said plate having openings, a spring adapted to return said post when the same is depressed, and a reservoir for compressed air connected with said tubular section, all combined as set forth.

2. As an improvement in cycle-frames, the herein-described air-pump consisting of a seat-post having a piston secured near the lower end thereof, a perforated disk secured to the lower end of the seat-post, a spring bearing against said disk and supporting the seat-post, a reservoir for compressed air, a con-



veying-duct connecting the pump and the reservoir and means for preventing the recession of the air stored in said reservoir, all combined as set forth.

5 3. As an improvement in cycle-frames, the herein-described air-pump consisting of a seat-post having a piston near the lower end thereof and a perforated disk at its lower end, a spring supporting the seat-post, a compressed-air  
10 reservoir, a conveying-duct connecting the pump and the reservoir and a flexible tube connecting the latter with a whistle, all combined as set forth.

15 4. In cycle-frames, a seat-post having a perforated piston near its lower end, a spring located below the piston and designed to support the seat-post, a reservoir for compressed

air, an air-conveying duct leading into said reservoir and a check-valve in said reservoir closing the exit of said duct, as set forth. 20

5. In cycle-frames, an air-compressing device including a reservoir for the compressed air, an air-pipe 13 leading from said reservoir and having a tubular ring 14 surrounding a part of the frame and an extension 15, a han- 25 dle-bar through which said extension passes and means for controlling the outflow of the air, all arranged as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS WILLIAM DIXON.

Witnesses:

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ARTHUR TIPPET.