

No. 695,955.

Patented Mar. 25, 1902.

G. W. SMITH.
BICYCLE.

(Application filed June 22, 1901.)

(No Model.)

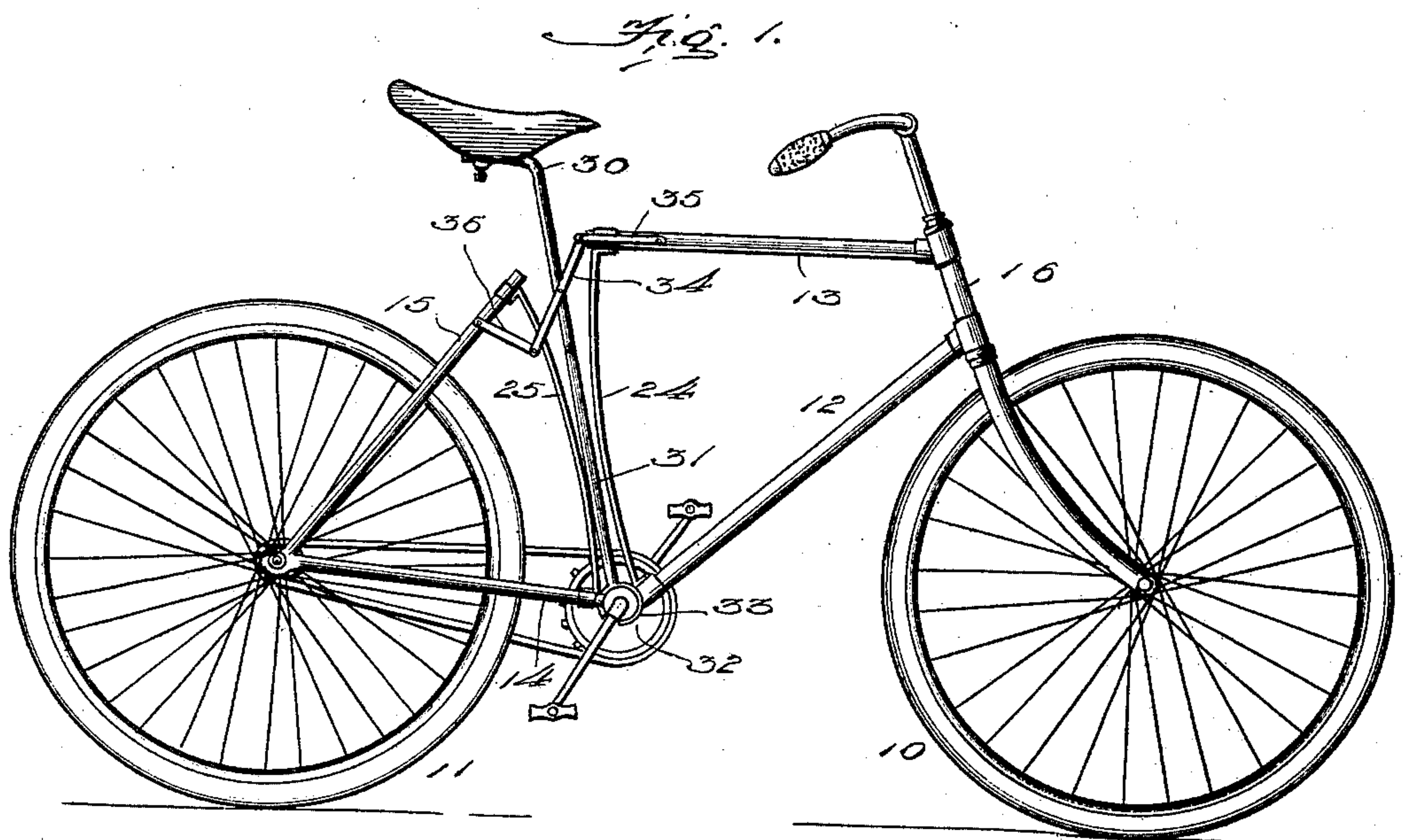


Fig. 2.

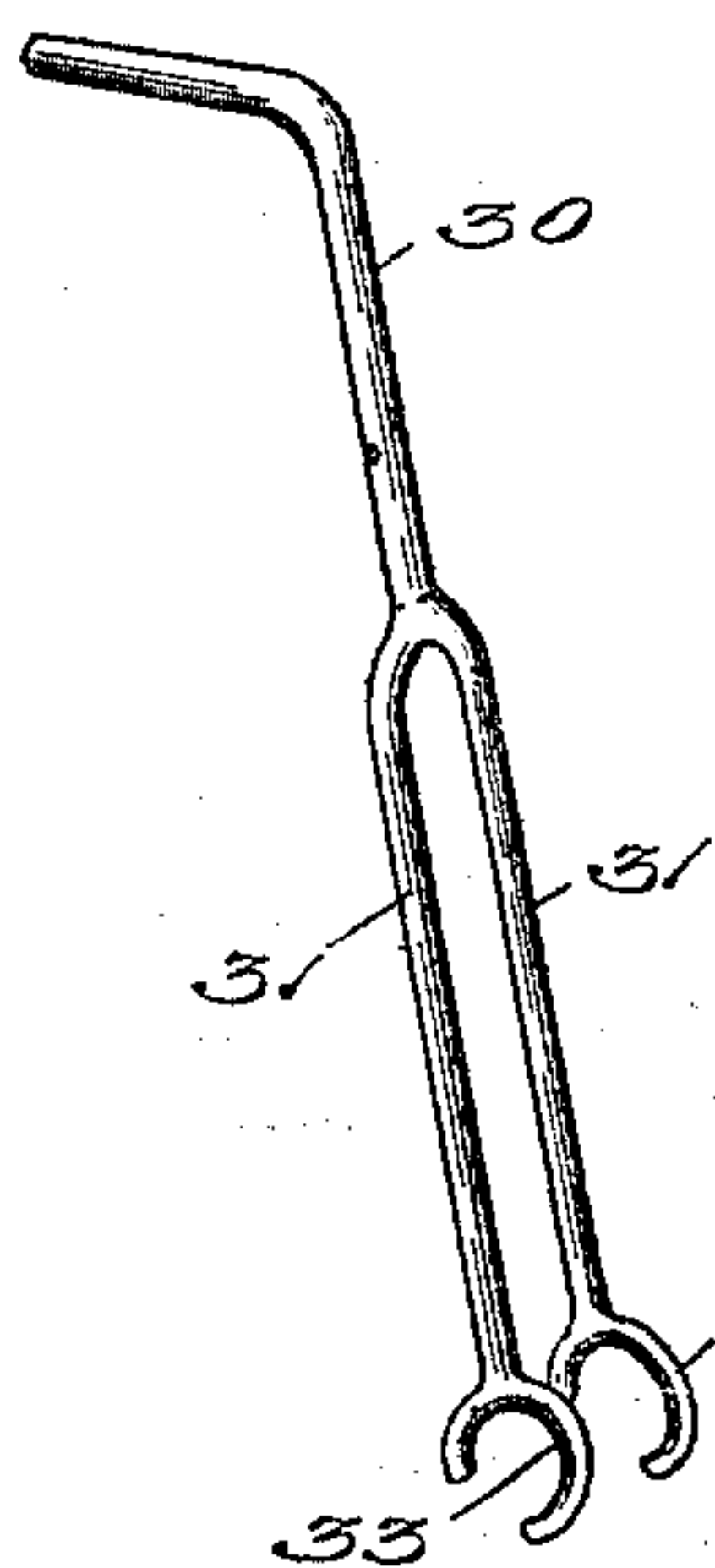


Fig. 3.

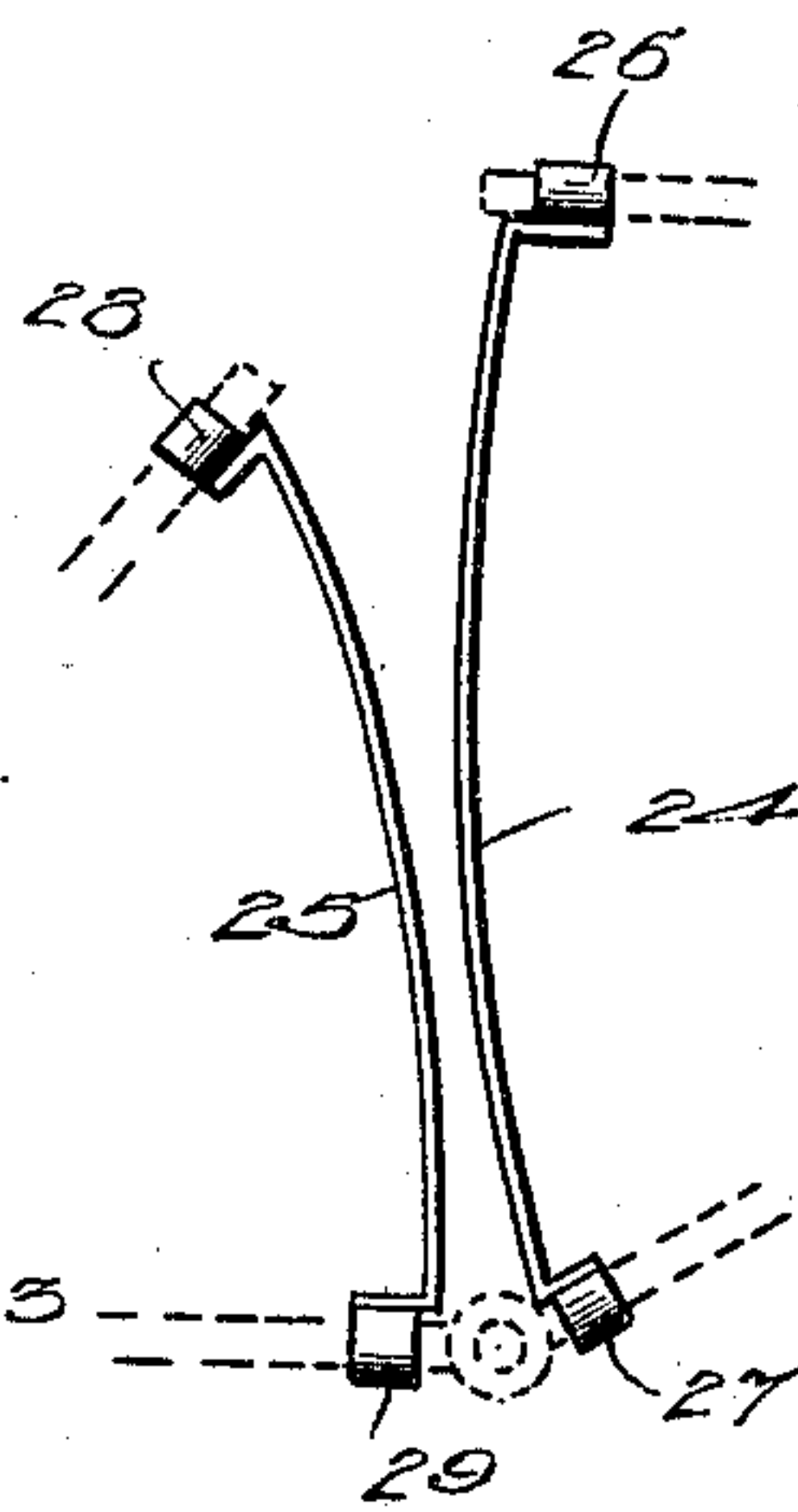


Fig. 5.

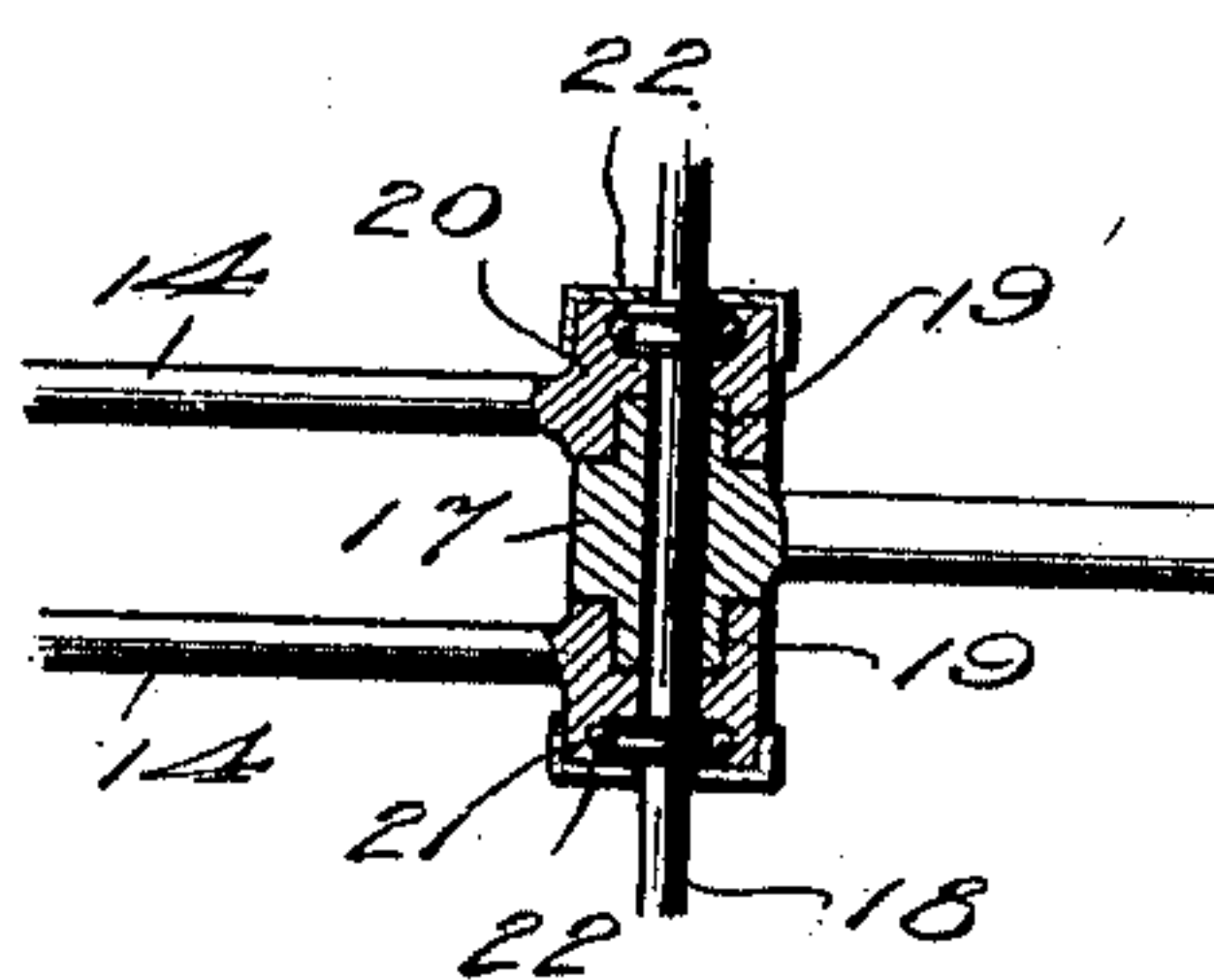
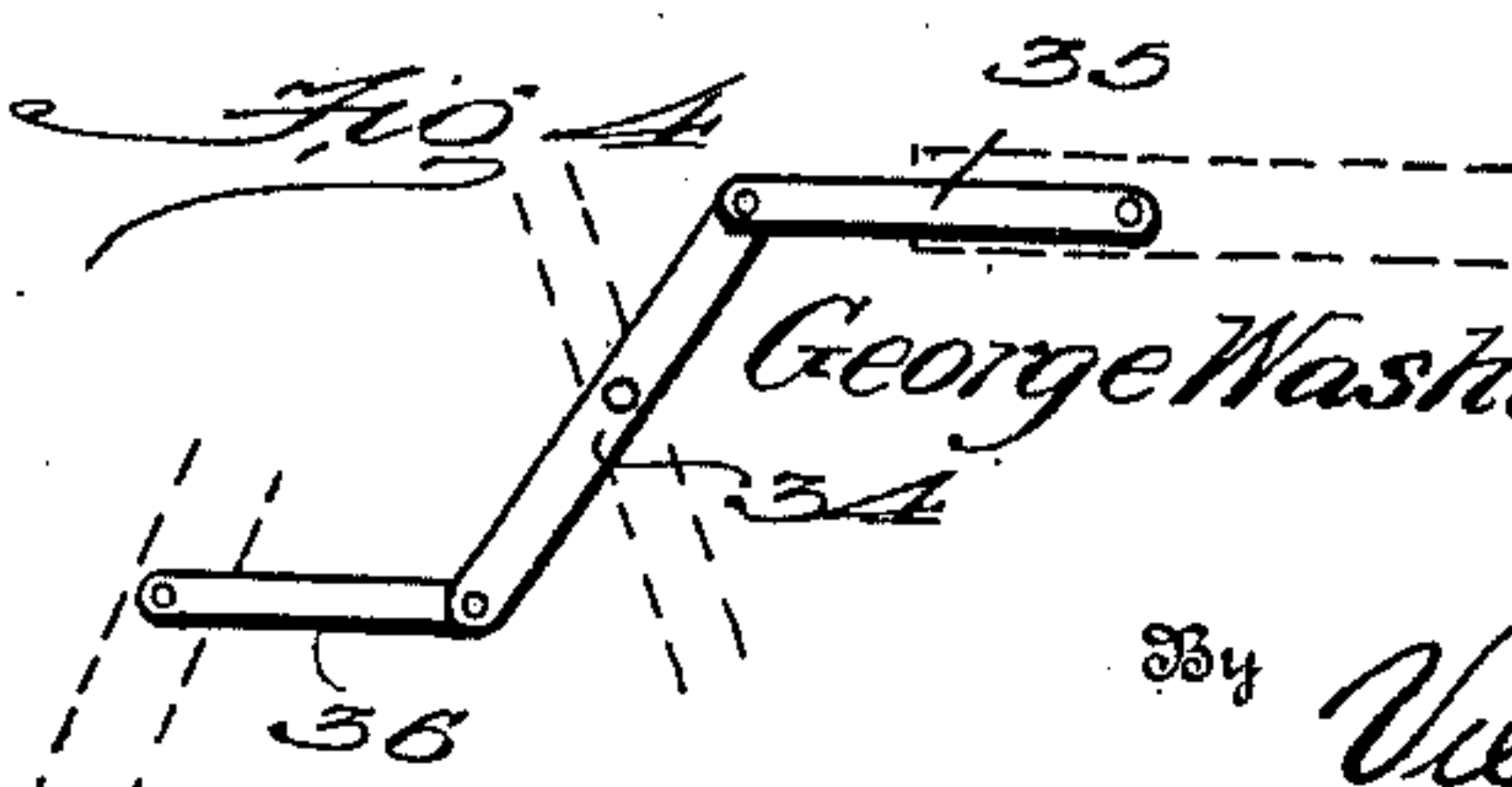


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE WASHINGTON SMITH, OF DALLAS, TEXAS.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 695,955, dated March 25, 1902.

Application filed June 22, 1901. Serial No. 65,677. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WASHINGTON SMITH, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Bicycles, of which the following is a specification.

This invention relates to bicycles; and the main object of the present invention is to provide a bicycle-frame so constructed that it is adapted to yield automatically, or, in other words, allow the wheels to yield upwardly for absorbing the jar and concussion incident to propelling the machine along rough and uneven roads, thereby doing away with the necessity of using pneumatic and puncturable tires, which are the cause of great inconvenience to riders.

With the above and other subsidiary objects in view the invention consists in the novel construction, combination, and arrangement of parts hereinafter fully described, illustrated and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a bicycle, the frame thereof being constructed in accordance with the present invention. Fig. 2 is a detail perspective view of the seat-post tube. Fig. 3 is a detail side elevation of the spring-bows, showing the adjacent portions of the frame in dotted lines. Fig. 4 is a detail side elevation, showing the arrangement of connecting-links which support the seat-post tube. Fig. 5 is a detail section through the crank-hanger in line with the crank-axle.

Like numerals of reference denote like parts in all the figures.

The bicycle to which the present improvements are applied is, in the main, of the ordinary construction, comprising the front and rear wheels 10 and 11, respectively, the diamond frame consisting of the reach-bar 12, top run 13, bottom runs 14, and rear braces 15, the reach-bar and top run being connected to the head-tube 16.

In carrying out the present invention the rear end of the reach-bar 12 is provided with a sleeve or knuckle 17, in which the crank-axle 18 is received, and said knuckle 17 is provided with oppositely-projecting tubular extensions 19, which fit into correspondingly-shaped sock-

ets in the inner adjacent surfaces of a pair of knuckles 20 on the forward ends of the bottom runs 14. By means of this arrangement the bottom runs and reach-bar 12 have a pivotal connection with each other and are adapted to turn upon the crank-axle 18 as the center. The knuckles 20 are provided with ball-bearings 21 for the crank-axle, and the ends of the knuckles 20, forming portions of the crank-hanger, are closed by means of dust-caps 22, as illustrated in Fig. 5.

The top run 13 and rear braces 15 are entirely disconnected from each other, as shown in Figs. 1 and 3, but are connected with the bottom run and reach-bar by means of spring-bows 24 and 25, the spring-bow 24 being provided at its opposite ends with clips 26 and 27, associated, respectively, with and fastened upon the rear ends of the top run and reach-bar. The spring-bow 25 is also provided with terminal clips 28 and 29, which are respectively mounted upon the forward ends of the rear braces 15 and bottom runs 14. The spring-bows are curved in reverse directions, as shown in Figs. 1 and 3, and are arranged close together, sufficient room, however, being left between the spring-bows for the seat-post tube 30. This seat-post tube has its lower end bifurcated, as shown at 31, so that the arms or branches thereof may straddle the driving sprocket-wheel 32, and the extremities of the arms 31 are provided with clips or split rings 33, which embrace the crank-hanger in the manner illustrated in Fig. 1. The seat-post tube extends upward from the crank-hanger and is interposed between the spring-bows 24 and 25, and above the point of bifurcation the seat-post tube has pivotally connected thereto a pair of links 34, arranged on opposite sides of the seat-post tube and pivotally connected thereto at points intermediate their ends.

The upper ends of the links 34 have pivotally connected therewith other links 35, which are in turn pivotally connected at their opposite ends to the top run 13, while the lower ends of the links 34 have pivotally connected therewith still other links 36, which connect pivotally at their opposite ends with the rear braces 15. The arrangement of links described serves to properly position the seat-post tube with respect to the adjacent mem-

bers of the frame and sustains the same in a position intermediate the extremities of the top run and rear braces, while at the same time the connecting-links permit the seat-post tube as a whole, together with the saddle carried thereby, to yield in a substantially vertical direction, or obversely the wheels are permitted to yield upward for absorbing the jar and concussion ordinarily imparted thereby to the machine-frame in propelling the machine over rough and uneven surfaces. In the downward movement of the seat-post tube the spring-bows bear against said tube, and the tendency is to straighten out the bows. In this way the bows offer a resistance to the downward movement of the seat-post tube and saddle and by their spring action serve to maintain the saddle and seat-post tube in an elevated position as soon as the jarring or jolting action ceases.

By means of the construction described it will be seen that I do away with the necessity of using pneumatic tires, which are subject to puncture and which are a source of considerable inconvenience and annoyance to bicycle-riders.

I do not desire to be limited to the exact details of construction hereinabove set forth and accordingly reserve the right to change, modify, or vary the construction within the scope of the appended claims.

Having thus described the invention, what

is claimed, and desired to be secured by Letters Patent, is—

1. A bicycle-frame comprising a crank-hanger, a reach-bar, top and bottom runs, rear braces, pivoted links connecting the top run and rear braces, a crank-axle pivotally connecting the reach-bar and bottom runs, a seat-post having its upper end pivotally secured to the pivoted links, and its lower end bifurcated to provide arms having clips adapted to embrace the crank-hanger.

2. A bicycle-frame comprising a reach-bar, top and bottom runs, rear braces, pivoted links connecting the top run and rear braces, a knuckle provided with tubular extensions secured to the front end of the reach-bar, knuckles provided with sockets adapted to receive the tubular extensions of the said reach-bar knuckle secured to the forward end of the bottom runs, whereby a crank-hanger is formed, a seat-post loosely mounted upon the crank-hanger, and spring-bows arranged at opposite sides of the seat-post tube and extending between the lower and upper bars of the frame.

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

GEORGE WASHINGTON SMITH.

Witnesses:

JACOB L. SMITH,
WM. H. PURDY.