

(No Model.)

H. M. POPE.
BICYCLE.

No. 514,382.

Patented Feb. 6, 1894.

Fig. 1.

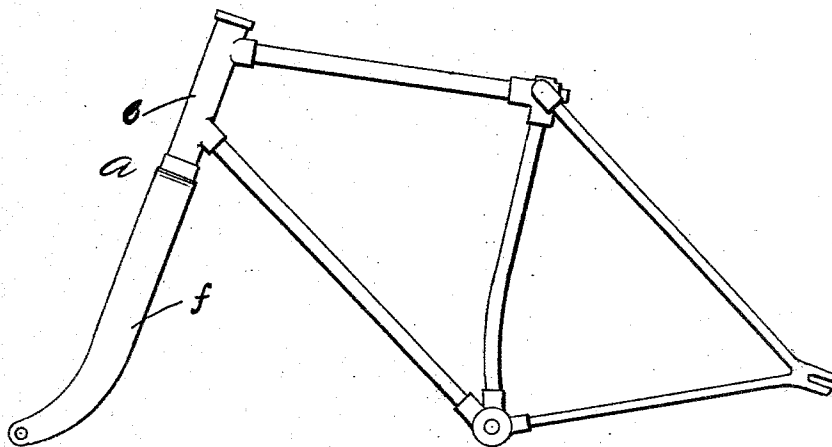


Fig. 2.

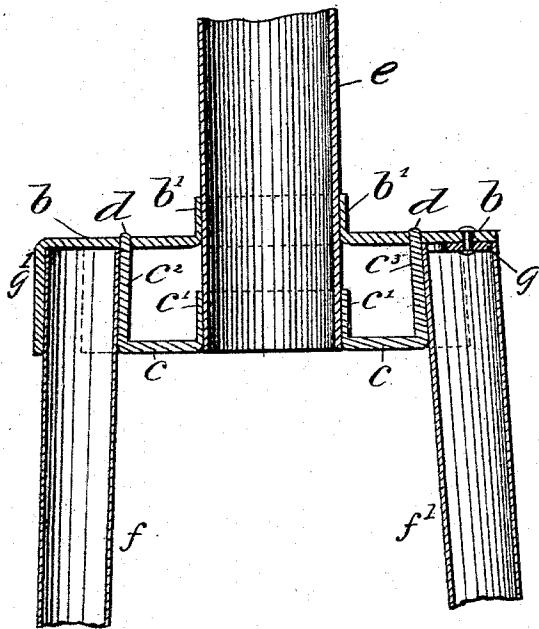


Fig. 3.

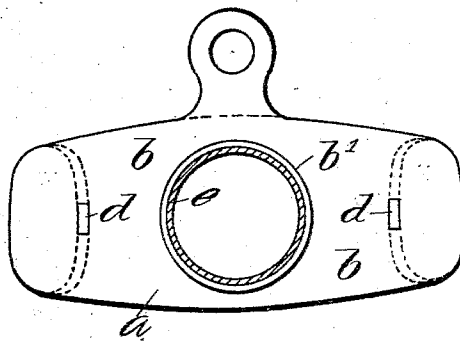
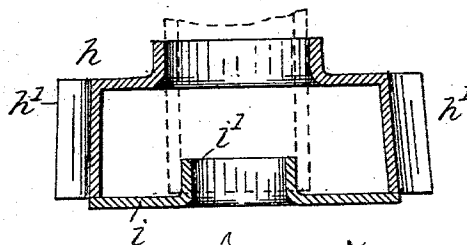


Fig. 4.



Witnesses.
Joseph Arth. Cantin.
Emory C. Whitney.

Inventor:
Harry M. Pope.
by Chas. L. Burden,
Attorney.

UNITED STATES PATENT OFFICE.

HARRY M. POPE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE POPE MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 514,382, dated February 6, 1894.

Application filed July 22, 1893. Serial No. 481,187. (No model.)

To all whom it may concern:

Be it known that I, HARRY M. POPE, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Bicycles, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to bicycles and like vehicles, and the more immediate object of the invention is to provide an improved form of fork head of the frame which shall combine lightness, strength and cheapness, and my invention is more particularly illustrated in the accompanying drawings, forming a part hereof, and described in the following description thereof, and especially set forth in the claims.

Referring to the drawings: Figure 1 is a side view of a bicycle frame. Fig. 2 is a detail view on enlarged scale in central vertical section through the front fork head; and Fig. 3 is a detail top or plan view of the fork head. Fig. 4 is a detail view in central section of a modified form of my improvement.

In the construction of a bicycle frame a common method of making the front fork has been to unite a tubular shaft with the fork sides by means of a forging or casting of solid metal of considerable thickness with an extension on the top, forming what may be termed a shank, and with extensions on the lower or opposite side that are adapted to fit into the tubular fork sides. Such a solid fork head whether forged or cast requires to be cut and formed to shape and in order to reduce weight the extensions or shanks are bored out, a saving of weight even to fractions of an ounce being of importance in order to produce as light a wheel as is possible, consistent with strength and durability of parts.

In the accompanying drawings *a* denotes the fork head, *b* the upper plate and *c* the lower plate; these plates are preferably cut or stamped from sheet metal, as steel, a tubular shank or socket *b'* being drawn and formed in the center of the upper plate and a similar shank or socket *c'* is drawn up on the lower plate and the side parts *c²*, *c³* are turned up-

ward from the lower plate forming struts having on the upper edge of each a small extension or lug *d* which serve as rivets. These rivets extend through openings in the upper plate provided therefor and are adapted to be headed over so as to firmly secure the upper and the lower plates together, and of course other means may be employed for uniting the two plates together within the purview of my invention; either or both of these plates may be constructed without the upturned center portions, which as described, form tubular shanks or sockets, said plates in such case being provided only with central openings into which the shaft is designed to be accurately fitted. The openings through the shanks *b'*, *c'* are in line with each other and receive the tubular fork shaft *e* which is firmly united to the fork head, as by brazing, at the points where the surfaces of the shaft and of the tubular extensions are in contact as shown in Fig. 2.

The struts *c²*, *c³* are curved outward and so shaped as to receive the forks which are usually oval in cross section, the edges of the struts thinning out as shown in the dotted outline of Fig. 3 of the drawings so as to present a substantially smooth and uniform surface to view on the lines of union between the parts.

The fork sides are secured to the head as by brazing although other and additional means may be employed if desired.

The struts *c²*, *c³* are of sufficient length or height to form a lateral brace for the fork sides and to give them rigidity, the method of the construction of the fork head from plates as described affording a means of easily graduating the depth of the head or distance between the top and bottom plates so as to procure by a very slight increase in weight consequent upon increase in length of the fork head, an extremely rigid support for the fork sides. This manner of uniting the tubular fork shaft to the head produces also an extremely rigid construction of the parts and combines lightness with strength.

One advantage of my improvement is found in the cheapness of construction as compared with that of any solid fork head, the latter,

if a forging, requiring not only to be shaped to general form but afterward to be fitted, as to the shanks which project into the fork shaft and into the fork sides as before described; in my improved construction where plates are used no such special shaping of the parts is required, and as complete and strong a union of the several parts of the frame is secured as in the old methods of uniting the parts together.

In order to insure a stronger support for the upper ends of the fork sides *ff'* the top plate may be provided with shoulders *gg'*, as shown in Fig. 2 of the drawings. The shoulder *g* may be composed of an oval piece of metal riveted to the under side of the top plate so as to project within the open end of the fork side and thus serve to hold the latter in place against the strut in the process of brazing, and also strengthen the parts against any strain which would tend to tip the end of the fork side out of contact with the fork head, as by a blow or by pressure inward against the lower end of the fork side. The shoulder *g'* may be formed by turning down a projection on the end of the upper plate and thus forming a sort of socket in which the end of the fork side is held.

In the modified form of fork head shown in Fig. 4 of the drawings, the upper plate *h* may have the struts *h'* formed on the downturned portion of the plate, while the lower plate *i* may have the tubular shank or socket piece *i'* adapted to fit within the lower end of the tubular shaft instead of surrounding it as in the form of device shown in Fig. 2.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a frame for a wheeled vehicle, a fork head comprising an upper plate having a tubular shank, and a lower plate having a tubular shank or socket and upturned end struts shaped to receive the fork sides, the several parts being united as by brazing, substantially as described.

2. In a bicycle frame, a fork head comprising an upper plate having a socket for the passage of a fork shaft and rivet openings and a lower plate having a tubular socket and upturned struts with projecting rivets on the upper edge whereby the plates are united, substantially as described.

3. In a bicycle frame the combination of a fork shaft, an upper fork head plate having an opening for the passage of the shaft, a lower fork head plate having a tubular socket with

which the shaft is united as by brazing, substantially as described.

4. In a bicycle frame the combination of a fork shaft, the fork head consisting of upper and lower plates with tubular sockets for the fork shaft and upturned struts on the lower plate shaped to receive the sides of the fork, and the fork sides, the several parts being united as by brazing, substantially as described.

5. In a bicycle or similar vehicle the combination with the shaft of an upper plate having a tubular shank and a lower plate having a tubular socket and upturned end struts adapted to be united to the upper plate, substantially as and for the purpose described.

6. In a bicycle or similar wheeled vehicle, a fork head composed of an upper plate having a central opening and a lower plate having a central opening, said lower plate also having upturned end struts adapted to receive the fork sides and through the central openings in said plates the shaft is to be inserted, substantially as set forth.

7. In a bicycle or similar vehicle the combination with a fork frame of a fork head comprising an upper and a lower plate each having a central opening through which openings the shaft is to be inserted, said lower plate being provided with end struts to receive the fork sides and means for uniting the two plates together, substantially as and for the purpose set forth.

8. In a bicycle or similar vehicle the combination of a fork shaft, the fork head consisting of upper and lower plates, each having a tubular shank or socket for the fork shaft and lateral struts on either plate turned toward and united to the opposite plate, a shoulder to receive the sides of the fork, and the fork side, the several parts being united as by brazing, all substantially as described.

9. In a bicycle frame, the combination of a tubular fork shaft, the fork head consisting of an upper plate having a socket for the passage of the fork shaft, and a shoulder adapted to receive the end of the fork side, and a lower plate having a tubular socket, the struts projecting between the two plates and shaped to receive the fork sides, and the fork sides, all substantially as described.

HARRY M. POPE.

Witnesses:

CHAS. L. BURDETT,
ARTHUR B. JENKINS.