

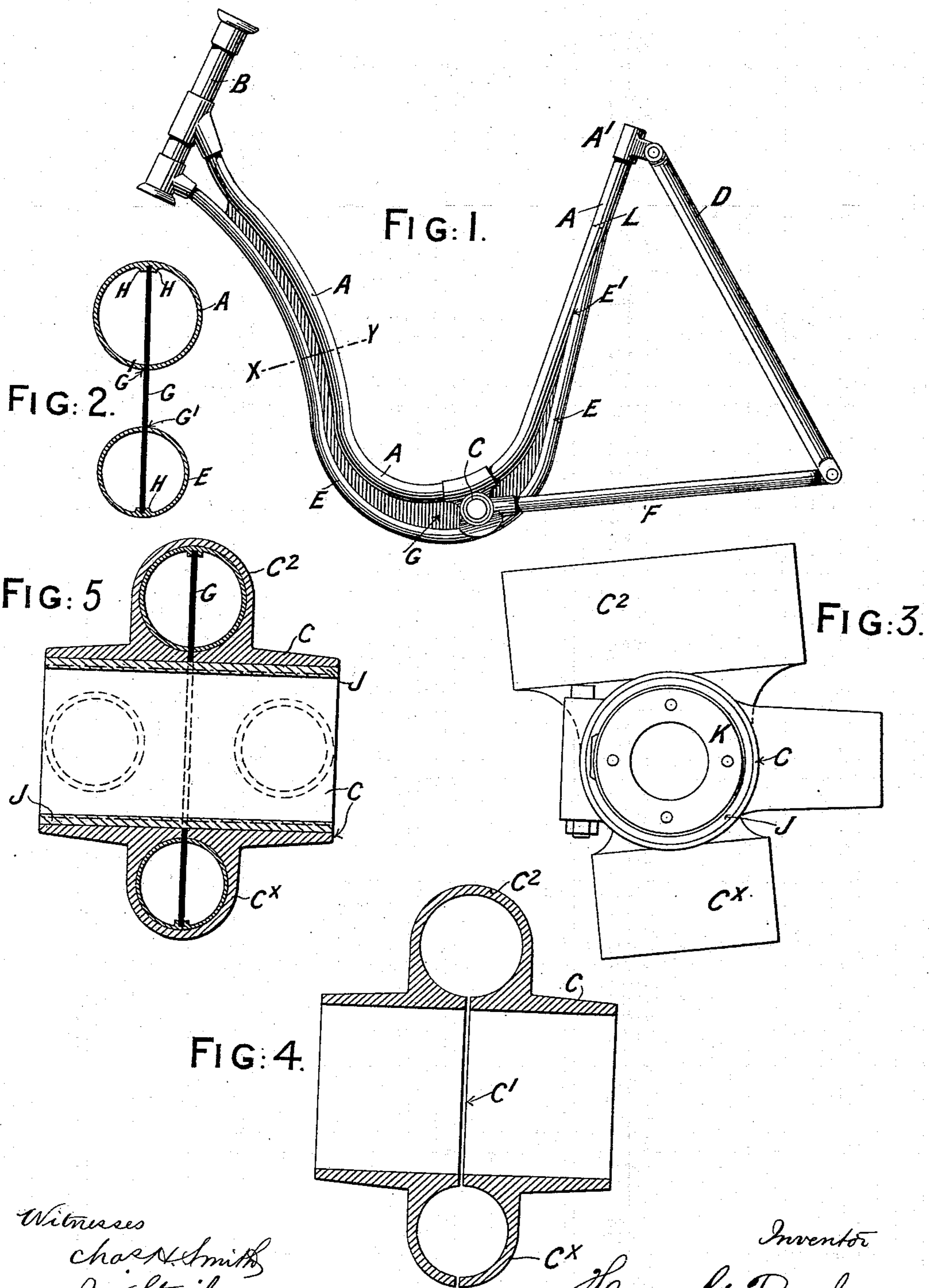
No. 612,231.

H. G. BURFORD.
FRAME FOR VELOCIPEDES.

Patented Oct. 11, 1898.

(Application filed Dec. 23, 1897.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY GEORGE BURFORD, OF LONDON, ENGLAND, ASSIGNOR TO EDWARD GODFREY BREWER, OF SAME PLACE.

FRAME FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 612,231, dated October 11, 1898.

Application filed December 23, 1897. Serial No. 663,154. (No model.) Patented in England December 5, 1896, No. 27,718.

To all whom it may concern:

Be it known that I, HENRY GEORGE BURFORD, engineer, a subject of the Queen of Great Britain, residing at Twickenham, London, in the county of Middlesex, England, have invented new and useful Frames for Velocipedes, (for which I have obtained a patent in Great Britain, No. 27,718, bearing date December 5, 1896,) of which the following is a description.

The principal object of my invention is to construct a drop-frame for velocipedes such as are now commonly used by ladies, so as to obtain more rigidity than heretofore and at the same time to retain the clearance which is so necessary when the machines are to be used by ladies. With this object in view I construct, for example, what is known as a "bent-double" ladies' frame, as I will now describe with reference to the accompanying drawings.

Figure 1 shows in side elevation a curved drop-frame suitable for bicycles. Fig. 2 is a cross-section of the frame on the line X Y of Fig. 1, the view being shown drawn to a larger scale than the latter figure. Fig. 3 is a side elevation of a bottom bracket suitable for use with my improved frame, the view showing the bracket detached and drawn to a larger scale than at Fig. 1. Figs. 4 and 5 are cross-sections, hereinafter referred to, of the bracket shown at Fig. 3.

The upper tube A of the frame, as usual in such frames, is connected to the head socket-tube B, is curved downward to receive the bottom bracket C, and is then carried up to form the vertical tube of the frame to receive the saddle-support at A' and the upper ends of the rear fork members D. The lower tube E is brazed or attached to the upper tube A—say at E'—and then passes down at a distance from the upper tube A between the lower back fork-tubes F, and is then extended upward, following approximately the curvature of the upper tube A, this lower tube being then attached to the lower part of the head-tube B.

Now according to my invention I slot the upper tube A lengthwise on its lower side and the lower tube E on its upper side. Before the tubes are connected to the other parts of

the framework—that is, while the tubes are separate—I pass a vertical metal plate G (see also Fig. 2) through the slots in the tubes, and this metal plate G is cut to exactly fit the inner opposite surfaces of the bent tubes. I then braze or otherwise connect the tubes A and E and the vertical plate G together—say at the points G' G'—and by this means a curved-web girder is formed which will be able to carry a rider of any weight without bending.

The tubes A E, Fig. 2, I generally form with grooved beadings—such, for example, as those marked H H—to receive the edges of the plate, if desired; but in all cases the edges of the plate G should be made to conform to the contour of the tubes A E and should be in contact with the walls of same.

By this construction I am enabled to produce a curved drop-frame of very light weight and greatly-increased strength, the web G occupying the space between the two tubes.

I apply the bottom bracket C to my improved frame after the latter has been constructed as above described, and to effect this I construct the said bracket, as shown in Figs. 3 and 4, divided transversely at C', Fig. 4, excepting at the part C², so that the bracket may be opened or expanded at the said division and be caused to pass onto each side of the tubes A E and web G when closed and brazed thereon, when it will assume the position shown at Figs. 1 and 5. I then cut out the part of the plate G within the tube of the bracket C, and I fit within the said tube of the bracket C a lining-tube J to connect the two parts of the divided tubular bracket, and the lining-tube J may be internally screw-threaded to receive the usual ball-cups, such as K, Fig. 3. In some cases I may entirely divide the bottom bracket by continuing the division C' through the part C², Fig. 4, and when thus constructed the bracket C is applied upon either side and brazed in position. The bottom socket C^x of the bracket C may either entirely encircle the tube, as at Fig. 5, or only partially inclose same, as at Fig. 1. By these means the web-plate G is not discontinued at any part between the tubes, and may extend from, say, the dotted line L to near the head-tube B, as shown, or the plate

G might, if desired, be brought entirely up to the head-tube B and in one continuous piece.

I claim as my invention—

- 5 1. In velocipede-frames, the combination with two curved tubes arranged one vertically above the other and approximately parallel to one another, the upper tube having a continuous lengthway slot in the lower side, 10 and internal parallel adjacent ribs between which is a continuous lengthway groove opposite the slot, and the lower tube having a continuous lengthway slot in its upper side and internal parallel adjacent ribs between 15 which is a continuous lengthway groove opposite the slot; of a centrally-arranged continuous vertical web-plate, passing through the lengthway slots in the tubes and extending into such tubes, with the edges of the vertical web-plate fitting in the grooves continuously against the inner opposite surfaces of 20 the tubes and the web-plate being brazed in position to the aforesaid tubes, and the combined parts forming together that member 25 which connects the steering-head with the rear framework, as set forth.

2. In that member of a velocipede-frame which connects the steering-head with the rear framework, the combination with two 30 curved tubes arranged one vertically above the other and approximately parallel to one another, the upper tube having a continuous lengthway slot in its lower side and the lower tube having a continuous lengthway slot in 35 its upper side; of a centrally-arranged continuous vertical web-plate, passing through the lengthway slots in the tubes and extending into such tubes, the edges of the vertical

web-plate fitting continuously against the inner opposite surfaces of the tube, and a 40 transversely-divided bottom bracket to carry the crank-shaft and bearings therefor and adapted to be fitted after the vertical web-plate is brazed in position, and an aperture 45 formed in the web-plate to render the tubular portion of the bottom bracket continuous, substantially as set forth.

3. In that member of a velocipede-frame which connects the steering-head with the rear framework, the combination with two 50 curved tubes arranged one vertically above the other and approximately parallel to one another, the upper tube having a continuous lengthway slot in its lower side and the lower tube having a continuous lengthway slot in 55 the upper side; of a centrally-arranged continuous vertical web-plate, passing through the lengthway slots in the tubes and extending into such tubes, the edges of the vertical web-plate fitting continuously against the 60 inner opposite surfaces of the tubes, each of the opposite surfaces of the tubes having a continuous grooved beading formed therein, to receive the edges of the web-plate, and a 65 transversely-divided bottom bracket to carry the crank-shaft and bearings therefor and adapted to be fitted after the vertical web-plate is brazed in position, and an aperture formed 70 in the web-plate to render the tubular portion of the bottom bracket continuous, substantially as set forth.

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Witnesses:

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