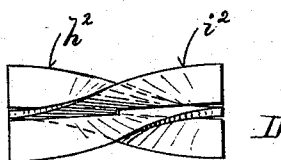
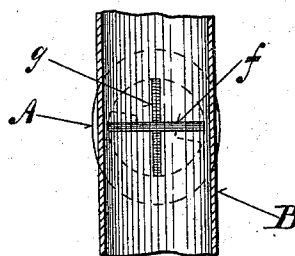
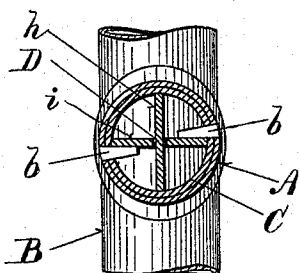
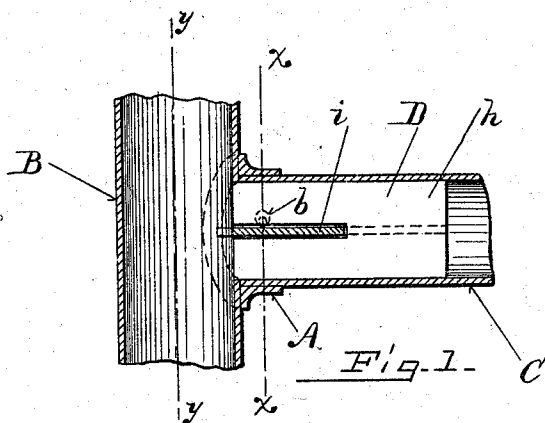


(No Model.)

A. SIDWELL.
BICYCLE FRAME.

No. 571,406.

Patented Nov. 17, 1896.



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UNITED STATES PATENT OFFICE.

ARTHUR SIDWELL, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO HIMSELF,
AND WALTER MEASURE, OF HIGHLANDVILLE, MASSACHUSETTS.

BICYCLE-FRAME.

SPECIFICATION forming part of Letters Patent No. 571,406, dated November 17, 1896.

Application filed August 13, 1894. Serial No. 520,182. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR SIDWELL, of Waltham, in the county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Bicycle-Frames, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical transverse section of the joint of a bicycle-frame; Fig. 2, a transverse section taken on line *xx* in Fig. 1; Fig. 3, a transverse section taken on line *yy* in Fig. 1 and looking from the left, and Fig. 4 a plan view showing a modification in the formation of the truss.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to devices for strengthening the connections between the tubings from which bicycle-frames are constructed, whereby tubes of much smaller gage can be employed and the danger of breaking the tube at the joint-lugs from the vibration can be in a great measure overcome.

In the drawings, A represents the joint-lug or socket of ordinary construction, which is brazed to the main frame-tube B and in which the tube C is secured by pins *b* and brazing. The tube B within that portion inclosed by the lug is provided with two slots *fg*, transecting each other at right angles.

I insert my improved truss D, by which the joint is strengthened, in the tube C. Said truss consists of two plates *h i*, of suitable width to fit tightly into said tube C. These plates are slotted centrally and longitudinally for about one-half their length and respectively astride each other, so that they are arranged at right angles, as shown in Fig. 2. The ends of these plates are projected into

the slots *fg* in the main tube B, as shown in Fig. 3. The whole is then secured together by brazing when the tube C is brazed into the lug. As it is especially desirable to lighten the frame without lessening its strength, this truss adds materially toward producing this effect, because by its use it is not necessary to extend the lug A entirely around the tube B, but it can be brazed onto one face thereof, and the truss ends extending into said tube, as described, will prevent the strain on the tube C from breaking away the lug. The tube C, moreover, would ordinarily break outside the coupling-lug. My truss strengthens it at this point and resists the strain, so that, as specified, much smaller-gaged tubing can be employed in forming the frame. The lug A is, in fact, employed by me more as ornamentation or finish to the joint than for its strengthening qualities and can be entirely omitted, as the truss brazed into the slots of the main tube and into the frame-tube C will secure the parts together without the use of the lug. In Fig. 4 the truss is shown twisted into a spiral. This construction I employ to obtain greater torsional strength, as when used in the hollow crank-shaft of a bicycle. The truss is constructed of similar plates *h² i²*, slotted or joined together in the same manner as before.

Having thus explained my invention, what I claim is—

A frame-joint comprising two tubes the end of one tube engaging the wall of the companion tube; a truss formed of two plates arranged at right angles to each other and twisted spirally, said truss being inserted in said first tube with its end projecting beyond the end thereof into slots in the wall of the companion tube and the whole secured together by brazing substantially as specified.

ARTHUR SIDWELL.

Witnesses:

K. DURFEE,
O. M. SHAW.