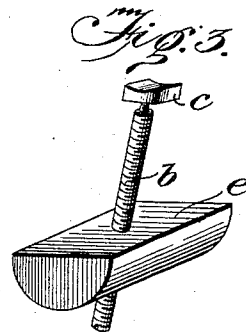
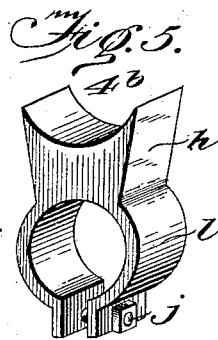
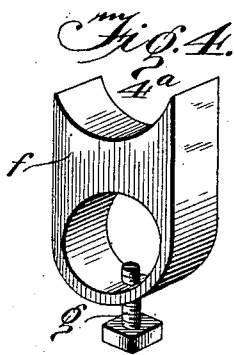
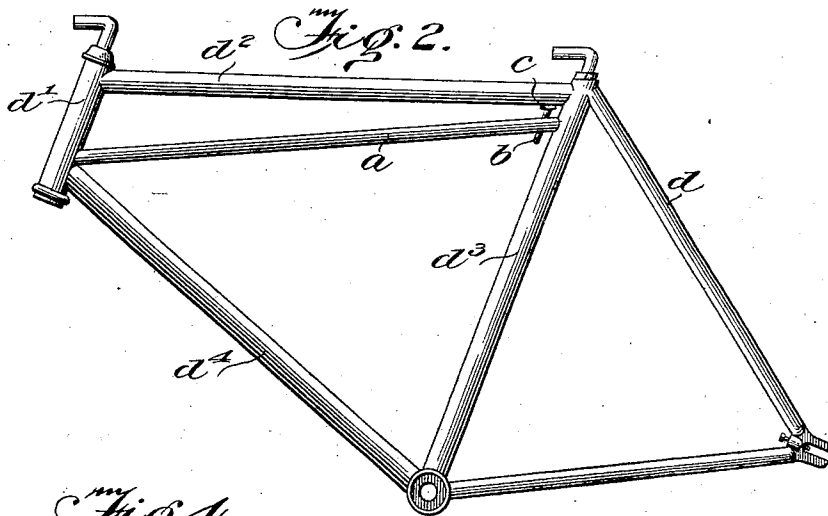
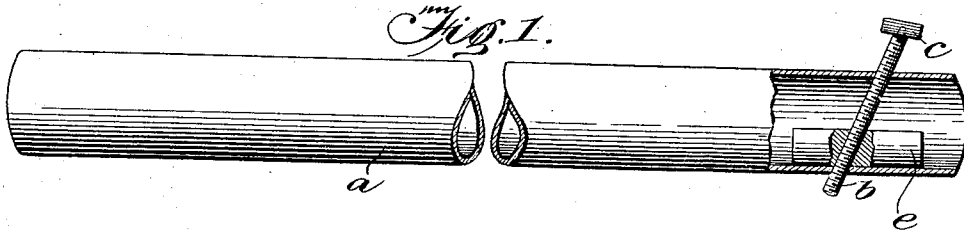


No. 879,458.

PATENTED FEB. 18, 1908.

A. L. GIRARD.
BRACE FOR BICYCLE FRAMES.
APPLICATION FILED SEPT. 16, 1907.



Witnesses:
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M. H. Nichols

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UNITED STATES PATENT OFFICE.

ARTHUR L. GIRARD, OF LINCOLN, NEBRASKA.

BRACE FOR BICYCLE-FRAMES.

No. 879,458.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed September 16, 1907. Serial No. 393,000½.

To whom it may concern:

Be it known that I, ARTHUR L. GIRARD, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Braces for Bicycle-Frames, of which the following is a specification sufficiently clear to enable those skilled in the art to which it appertains to make and use the same.

My invention relates to a brace for bicycle-frames. Its object is:—to provide a simple, rigid, inexpensive, single piece brace which may be quickly and firmly placed in position in a common bicycle frame thereby greatly increasing its strength and durability. This purpose is attained in my invention by certain novel construction and combination of parts and materials which will be hereinafter described and claimed.

My invention is illustrated in the accompanying drawings.

Figure 1, is a side elevation view of my brace, shown broken as to length, otherwise of full size. Fig. 2, is a side elevation view of a bicycle-frame with my brace inserted and set firmly in position. Fig. 3, is a perspective view of the adjusting screw with its lug and cap. Fig. 4, is a perspective view showing modifications of fastening in the form of a wedge with a set screw for holding in position. Fig. 5 is a perspective view showing modification of fastening in form of a wedge with a pinch bolt for holding in position.

Similar letters refer to similar parts in the several views.

My brace piece, "a" in Fig. 1, I make of a single piece of bicycle tubing, preferably, though it may be made of any suitable material, and solid, or in other form than tubular as may be desired, which brace-piece I make of the greatest length which may be inserted freely in the bicycle-frame between the junction of "d¹" and "d⁴" on one end, and "d²" and "d³" (Fig. 2) at the other end. I make lips on each end of the brace-piece to fit about the bicycle-frame when solidly forced into the position shown in Fig. 2, and as shown in each end of the brace piece in Fig. 1. To make my brace-piece solid and immovable in the bicycle-frame I use either the principle of the screw, or the wedge to press down the end of the brace-piece "a"

tightly against the seat post mast, "d³" in Fig. 2, of the bicycle-frame.

I recommend the screw, as shown at "b" in Fig. 1, for this purpose. In connection with the screw I use the metal lug, or bur, "e", Fig. 3, which I thread to match the threaded bolt "b", at such an angle as to permit the bolt to stand parallel to the seat post mast, "d³", of the bicycle frame, when in use, also so as to allow the lower part of the lug, or bur, "e", Fig. 3, to fit against the bottom of the inside of the brace-piece "a", Figs. 1, 2 and 3. The cap piece "c", Figs. 1, 2 and 3, I make with the top shaped to fit against the under side of the top-bar, "d²" Fig. 2, of the bicycle frame and the under side slightly concave to receive the end of the screw "b". I use this cap to allow a broader bearing and to prevent marring the top bar "d²", Fig. 2, though it may be entirely dispensed with without impairing the utility of my brace. In using the wedge, instead of the screw just described, I make a wedge of suitable material, the lower part forming a loop for the brace-piece, "a", Figs. 1, 2 & 3 to pass through, the upper part shaped to fit the top bar, "d²", Fig. 2, of the bicycle-frame and in the lower part of the loop or ring I insert a small set screw, "g" in 4^a, Fig. 4, for the purpose of holding the wedge in place when it has been driven tightly between the top bar, "d²" and the brace-piece "a" in Fig. 2.

I effect the same purpose by using a clasp and pinch-bolt "i & j", 4^a, Fig. 4, instead of the set-screw and ring.

In using my brace I withdraw the screw "b" until its upper end is even with the top of the tube "a", I then place the other end of my brace against the bicycle frame at the junction of "d²" and "d⁴", and the other end of the brace against the bicycle frame at the junction of "d² & d³" (all Fig. 2) pressing down that end firmly against "d³", the seat post mast. I then screw the bolt "b" which passes through the brace-piece "a" and the lug, "e" inside the brace piece until the screw strikes the cap "c" pressing against the top bar "d²" until the brace is solid against the frame.

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

1. The combination of a bicycle frame with a rigid removable brace piece, each end

of the bracepiece being made with projecting lips; with means for transmitting pressure from the top bar of the bicycle frame to the brace piece to forcibly hold and lock the latter in position against the seat post.

5 2. The combination of a bicycle-frame with a rigid, removable, brace-piece, the ends of the brace-piece being made with project-

ing lips and one end of the brace piece being provided with a transverse set-screw and lug. 10

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

ARTHUR L. GIRARD.

Witnesses:

L. A. RICKETTS,

A. C. KORF.