

(No Model.)

F. F. IDE.  
BICYCLE CONSTRUCTION.

No. 574,734.

Patented Jan. 5, 1897.

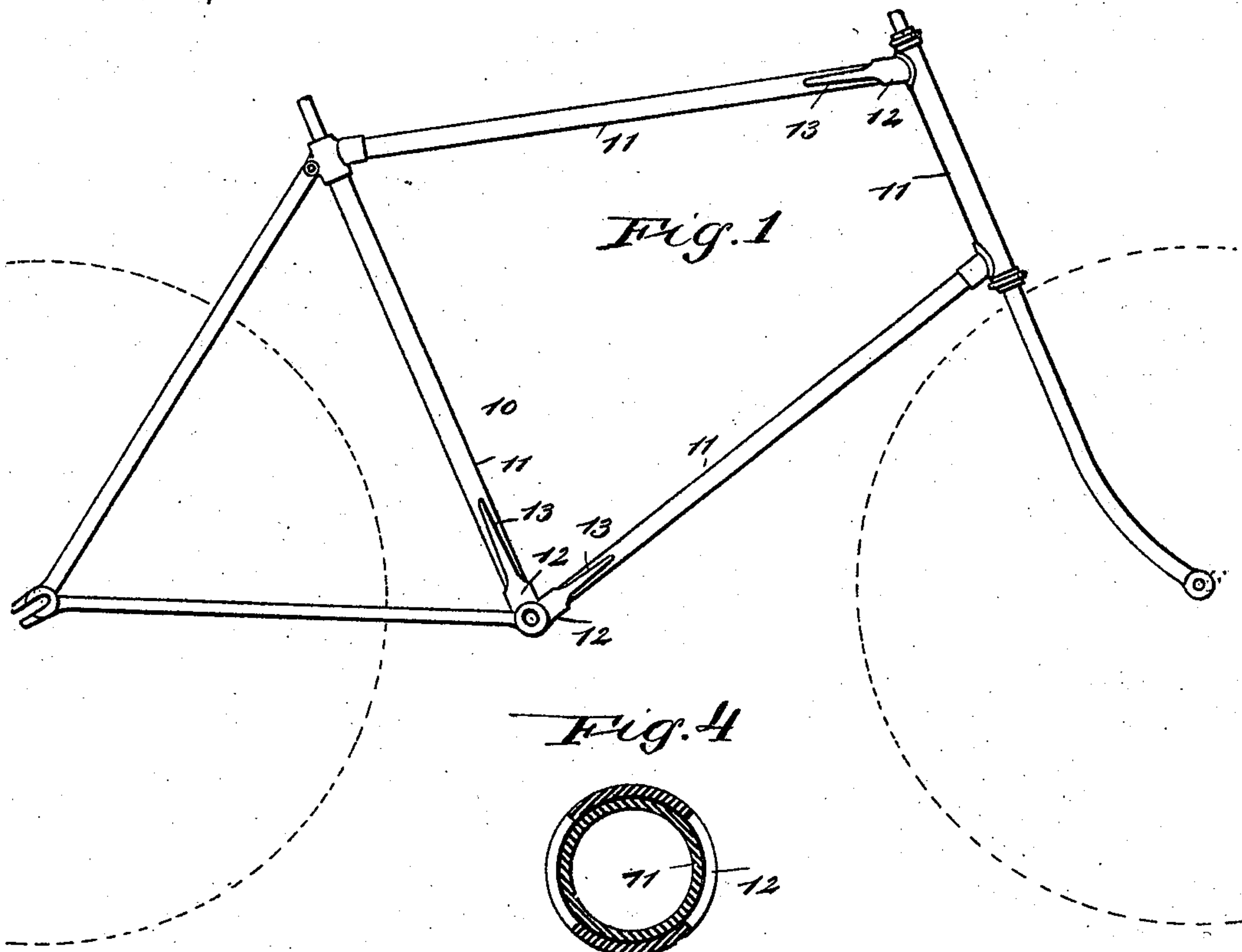


Fig. 1

Fig. 4

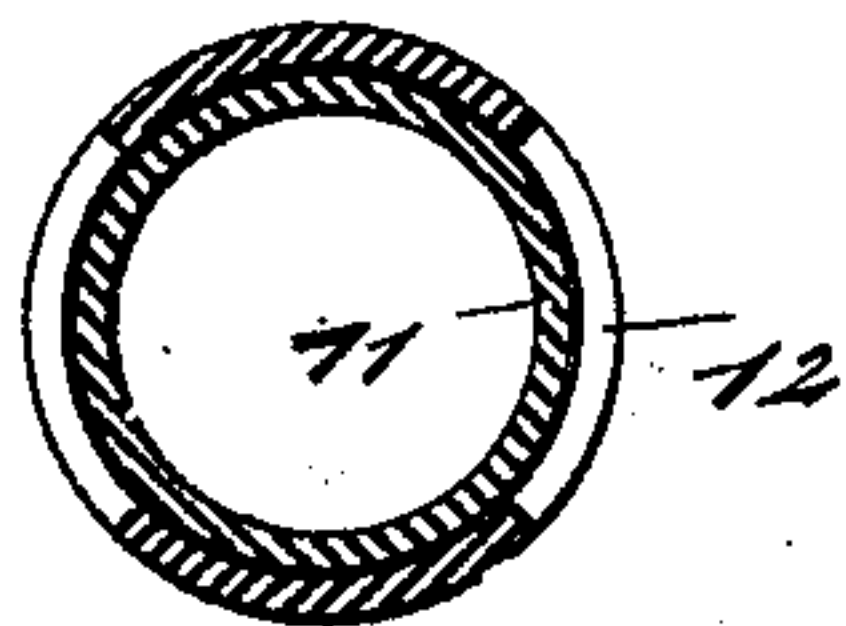


Fig. 2

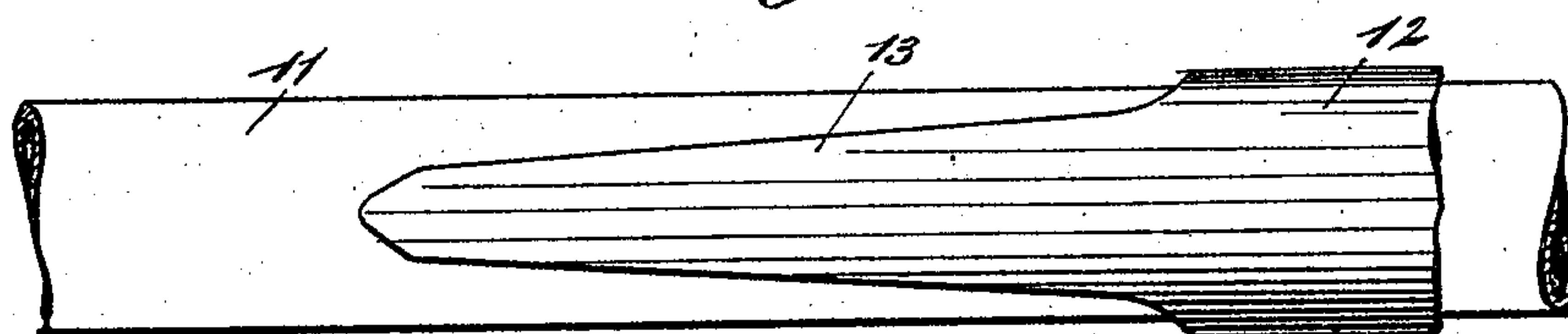
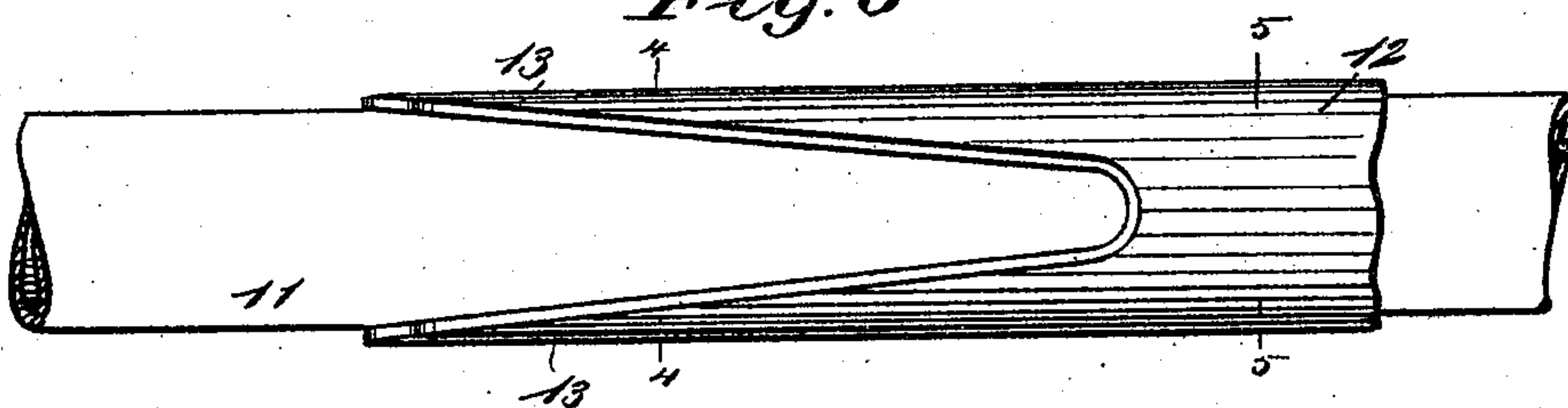


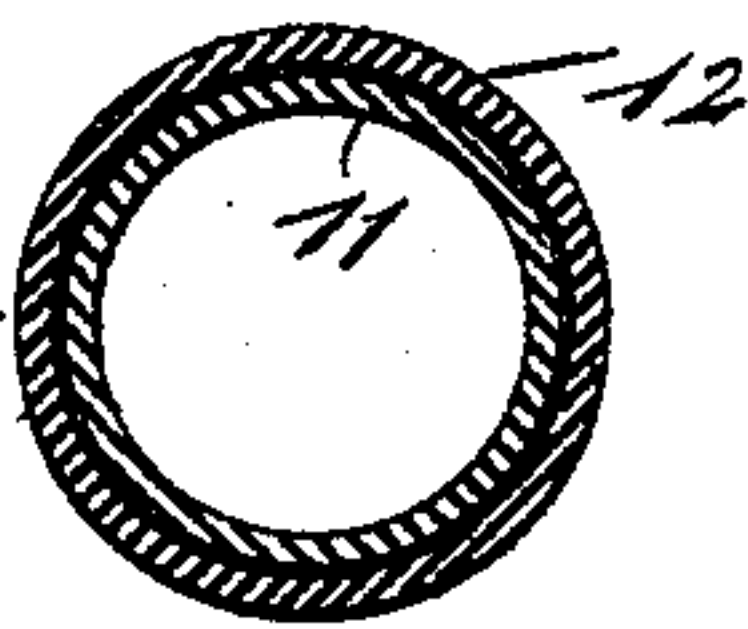
Fig. 3



WITNESSES:

John A. Berghman  
Chas. Sedgewick

Fig. 5



INVENTOR

F. F. Ide

BY

Munn & Co

ATTORNEYS.

# UNITED STATES PATENT OFFICE

FERDINAND F. IDE, OF PEORIA, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE F. F. IDE MANUFACTURING CO., OF SAME PLACE, AND FREDERICK D. OWEN, OF WASHINGTON, DISTRICT OF COLUMBIA.

## BICYCLE CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 574,734, dated January 5, 1897.

Application filed January 12, 1894. Serial No. 496,578. (No model.)

*To all whom it may concern:*

Be it known that I, FERDINAND F. IDE, of Peoria, in the county of Peoria and State of Illinois, have invented new and useful Improvements in Bicycle Construction, of which the following is a full, clear, and exact description.

In the construction of bicycles it is necessary to make the machines as light as is consistent with the requisite strength, and to this end the frames of the machines are usually constructed of tubing. Each tube is, however, of uniform thickness throughout its length, as it is not practical to make the tubes of variable thickness. It is well understood, though, that there is a much more severe strain on certain parts of the frame than on others; and the object of my invention is to produce a simple, cheap, and efficient means of strengthening these parts, so that the frame-tubes may be made very light and the heft of the machine thus greatly lessened without weakening the frame.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a bicycle-frame, showing my improved construction. Fig. 2 is an enlarged detail elevation of a portion of the frame provided with one of my reinforcing-sleeves. Fig. 3 is a detail plan of the mechanism shown in Fig. 2. Fig. 4 is a cross-section on the line 4 4 of Fig. 3, and Fig. 5 is a cross-section on the line 5 5 of Fig. 3.

The bicycle-frame 10 may be of any customary shape or construction, with the exception of my improvement to be described presently, and the tubes composing it may be made very light, light enough, in fact, to only withstand the strain at the strongest parts of the frame before my improvement is applied. The tubes 11 of the frame are fastened together in the usual way, and the parts of the frame which

are subjected to the greatest strain are strengthened by reinforcing-sleeves 12, which fit snugly on the tubes 11, and each sleeve is provided on opposite sides with elongated tongues 13, which taper gradually, as illustrated, and which may be progressively thinner toward the points.

With the present construction of bicycle-frames the position of a rider relatively to a frame is such that the line of strain on the frame is downward and forward, or at an acute angle to a vertical line. Therefore by placing the tongues on the outer sides of the frame-tubes and lengthwise thereof it is quite evident that the strain will be taken up transversely or widthwise of the tongues, thus providing the requisite strength at the desired points.

By the words "outer sides" I mean to distinguish from the top and bottom sides of the tubes.

The tongues and sleeves are brazed to the frame-tubes, the sleeves being placed in the weakest places and the tongues stretching out so as to strengthen the tubes to the necessary extent and at the same time render the reinforcing device as light as possible. These reinforcing sleeves and tongues may be applied to any necessary parts of the frame, and, while I have shown each sleeve provided with a pair of tongues, it will be understood that the sleeve may be provided with a greater or less number of tongues, or that the opposite tongues or strips may be separated, without departing from the principle of my invention.

In my improvement the edge of the socket is of "fish-mouth" outline, and by the described construction it will be seen that the line of reduction of the tube-end wall due to dressing is of such a nature that its parts are connected by portions of said tube end.

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

1. A reinforce for uniting bicycle-frame sections comprising tongues secured to one section of the frame and having their length ex-



tended from said section longitudinally of another section of the frame and brazed to the outer side thereof whereby the strain on said tongues will be transverse or widthwise thereof, substantially as specified.

2. A reinforce for uniting bicycle-frame tubes consisting of a piece secured to one member of the frame, said piece being provided with a socket portion receiving a second frame-tube and being provided with tongues which extend longitudinally of said second tube and socket, and brazed to the outer side of said tube, substantially as specified.

3. A reinforce for bicycle-frame sections comprising tongues secured to one section of the frame and having their length extended on said section longitudinally and brazed or sweated to the outer side thereof, whereby the

strain on said tongues will be transverse or widthwise thereof, substantially as specified.

4. A dressed tube-joint, made up of a tube end brazed or welded within a socket, the line of reduction of the tube-end wall due to dressing being of such a nature that its parts are connected by portions of said tube end, substantially as described.

5. A dressed tube-joint made up of a tube end brazed or welded within a socket, the edge of the socket being of fish-mouth outline and the line of reduction of the tube-end wall due to dressing being of such a nature that its parts are connected by portions of said tube end, substantially as described.

FERDINAND F. IDE.

Witnesses:

W. W. HAMMOND,  
NEWTON WYETH.