

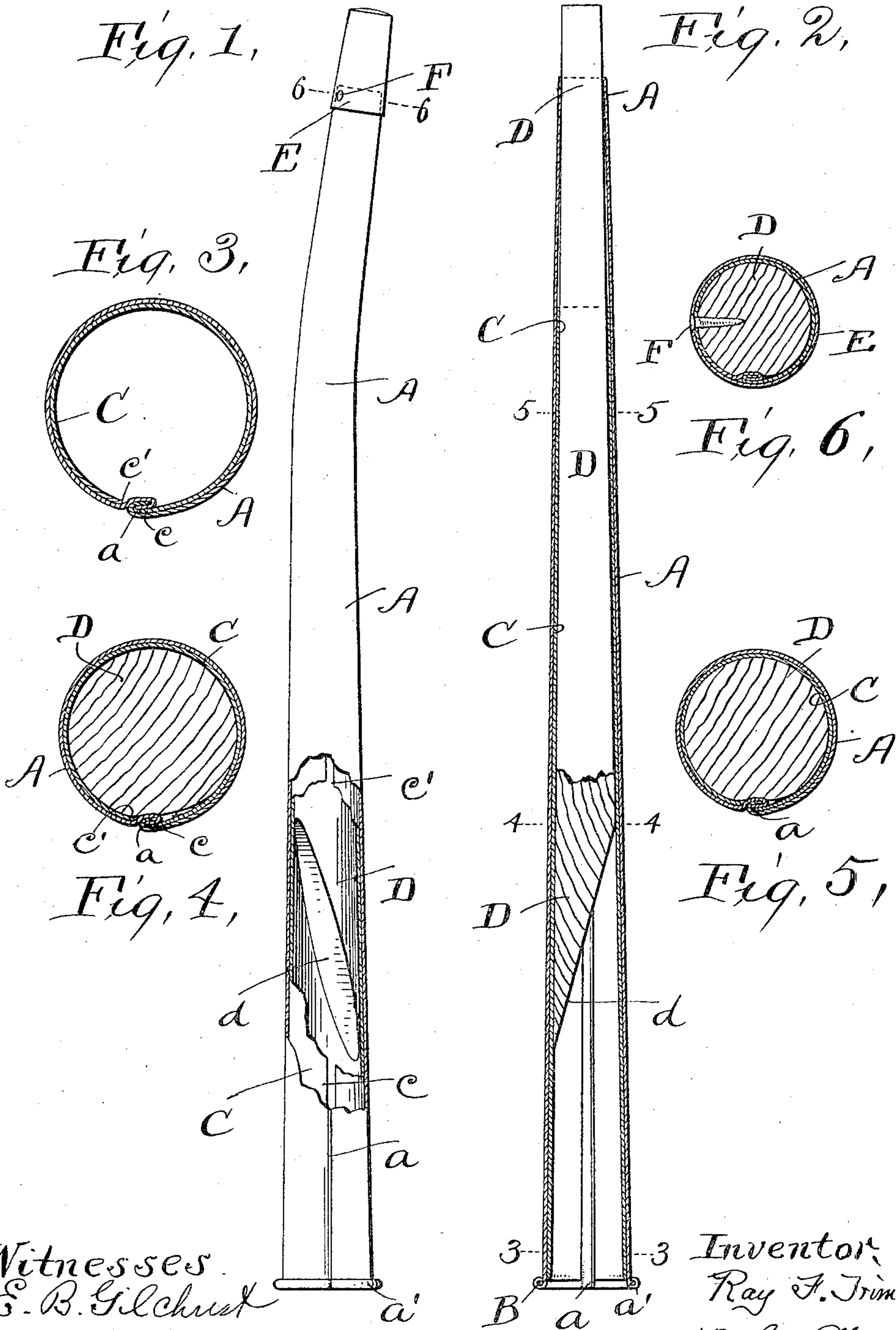
No. 682,436.

Patented Sept. 10, 1901.

R. F. TRIMMER.
SHAFT END FOR VEHICLES.

(Application filed July 20, 1901.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

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SHAFT END FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 682,436, dated September 10, 1901.

Application filed July 20, 1901. Serial No. 69,140. (No model.)

To all whom it may concern:

Be it known that I, RAY F. TRIMMER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Shaft Ends, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide a metallic shaft end which while being very cheap to construct shall be very efficient and durable in use.

Heretofore metallic shaft ends have been used; but they have been open to the disadvantage of being easily broken at the end of the vehicle-shaft. The present invention is designed to remedy this defect.

The invention consists, essentially, of a metal tube containing a wooden plug to hold it in shape, which plug at its rear end is cut off diagonally, so that the front end of the shaft being cut diagonally in a complementary manner may overlap the plug for a considerable distance, with the result that there is no circular line of division between the shaft and the plug at which the metallic end may be broken. Inasmuch, however, as the inclining of the end of the plug and shaft allows one to ride upon the other when the end is driven home, there is a tendency of the shaft end to distort or bend outward the metal of the tube, giving it an ungraceful appearance. To obviate this, I provide an interior reinforcing tubular plate, and for purposes of strength I extend this well toward the end of the tube. The invention comprehends this feature also.

The drawings clearly disclose the invention, Figure 1 being a side elevation of my shaft end broken away to disclose the interior, and Fig. 2 being a longitudinal central section thereof before final bending. Figs. 3 to 6 are cross-sections on the correspondingly numbered lines of the preceding figures.

Referring to the parts by letters, A represents the main or outer tube, which is preferably tapered, as shown. It is composed of a single piece of metal bent into shape and having its meeting edges crimped together, as shown at

a. At the larger end this tube is rolled outward, as at a' , about a reinforcing-wire B.

The interior reinforcing-plate is designated C. It lies snugly within the tube A and extends from the larger end thereof well toward the smaller end. It is held in place by having one edge c clamped within the crimp a . The other edge c' is free, lying alongside the crimp.

D represents the wooden plug. It starts at its larger end some distance within the metallic end and extends beyond the smaller end of the tube A. At its larger end this plug is cut off on an angle of considerable acuteness, leaving the long inclined surface d .

Over the smaller end of the plug D fits the ferrule E. This ferrule also laps over the extreme end of the tube A, and a single tack or screw F passes through both the ferrule and the tube into the plug D, holding all these three parts together.

In constructing the shaft end the plug is steamed and then placed within the tube and the two together bent into the desired shape, as shown in Fig. 1. The ferrule is then put in place and the shaft end enameled, giving it a very neat appearance.

The metallic shaft end in the above-described condition is supplied to the market. In applying it the end of the shaft is cut off diagonally corresponding to the incline d , and then the shaft end may be driven tightly thereonto. The reinforce C is efficient in preventing the shaft sliding along the incline and denting or disfiguring the metallic surface A, while it allows the necessary force to be applied to obtain a very snug joint. As is apparent, there is no abrupt circular line of demarcation between the plug and the shaft, so there is no tendency for the shaft end to be broken off abruptly at the end of the shaft, as was heretofore the case. By curling the lower end of the shaft end outward in the bead a' not only does the shaft end have no tendency to dig into the shaft when it is driven in place, but a very neat appearance is given to it.

Having described my invention, I claim—

1. In an end piece for shafts, in combination, a tapered tube made of sheet metal whose

meeting edges are united by being crimped together, a metallic reinforcing-plate within the tube lying snugly against it and held by having one edge clamped in the crimp, and
5 a plug occupying the tube within the reinforce and having its large end cut off on an incline within the tube and the reinforce, substantially as described.

2. In an end piece for shafts, in combination, a tapered tube consisting of a piece of sheet metal having its meeting edges united by being crimped together, a reinforce-plate held in place by having one edge clamped within said crimp, the other edge being free along
15 the same, the larger end of said tube being rolled outward around a wire, and a filling-block within the tube and reinforce extending from the smaller end of the tube but hav-

ing its larger end cut off diagonally within the tube and reinforce, substantially as described. 20

3. In an end piece for vehicle-shafts, a metallic tapered tube straight for some distance from its larger end and then curved, combined with a wooden filling-plug within the
25 tube occupying both the curved and straight portions, the larger end of said plug being cut off diagonally within the straight portion of the tube, substantially as described.

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

RAY F. TRIMMER.

Witnesses:

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