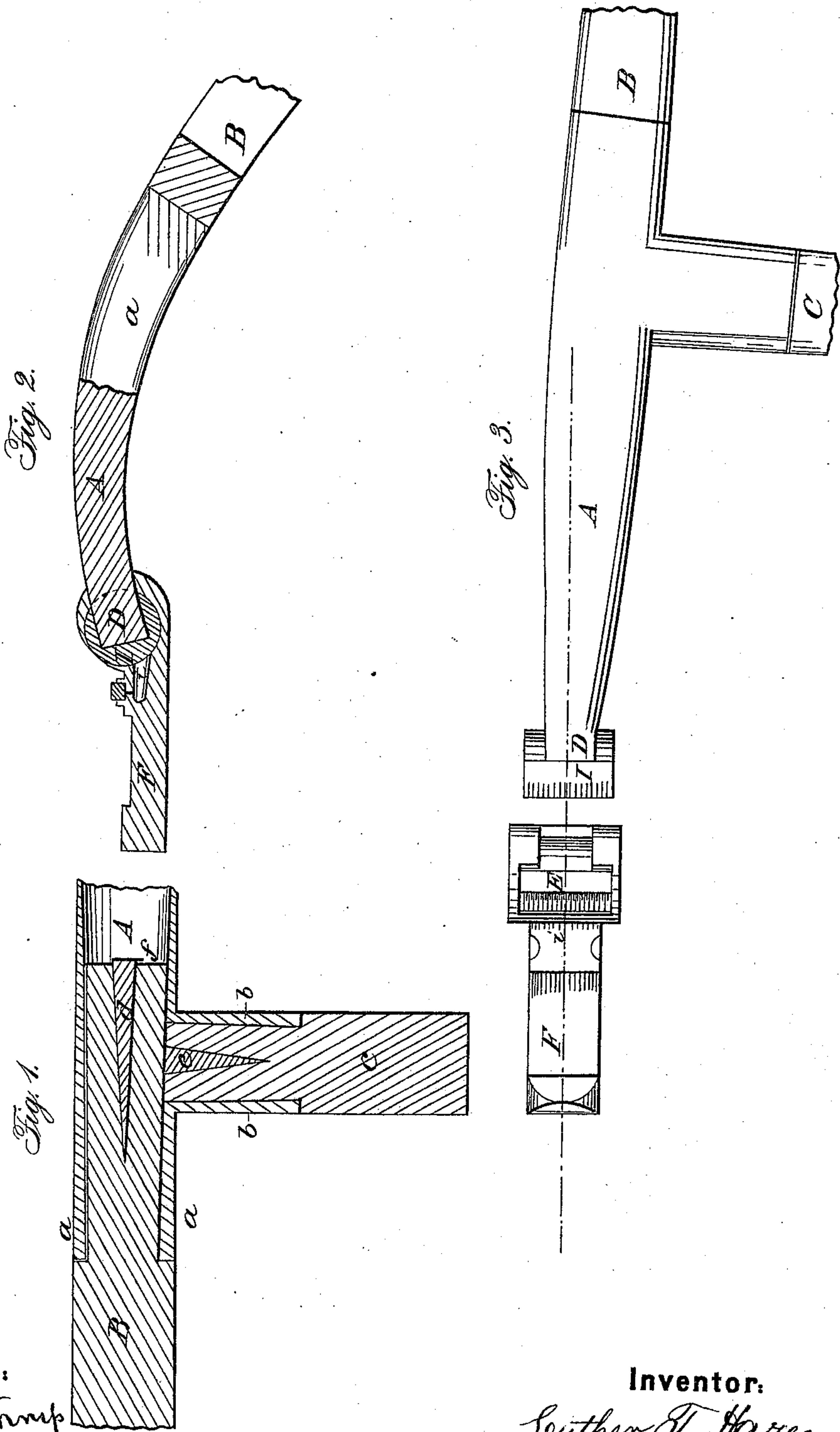


L. T. HAZEN.

Thill-Coupling.

No. 36,461.

Patented Sept. 16. 1862



Witnesses:

N. M. Northrup  
E. H. Woodruff.

Inventor:

Leather T. Hazen  
By Attorney J. B. Woodruff

# UNITED STATES PATENT OFFICE.

LUTHER T. HAZEN, OF COVENTRY, NEW YORK.

IMPROVED MODE OF SECURING CROSS-BARS AND SHAFTS TO VEHICLES, &c.

Specification forming part of Letters Patent No. 36,461, dated September 16, 1862.

*To all whom it may concern:*

Be it known that I, LUTHER T. HAZEN, of Coventry, in the county of Chenango, State of New York, have invented new and useful Improvements in Securing the Cross-Bar and Shafts or Thills to the Thill-Iron, and also the Thill-Iron to the Clip; and the following is a clear and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 represents a horizontal section of the shafts and cross-bar. Fig. 2 shows a vertical section through the joint-coupling. Fig. 3 is a view of the clip and socket thill-iron taken apart, showing the mode of detaching the thills from the vehicle.

My invention consists in the construction of thill-irons having sockets so formed as to receive the cross-bar and shafts and hold them firmly in their places, thereby dispensing altogether with bolts or rivets; also the peculiar construction of the clip, rolling socket, oil-chamber, and draft-iron, whereby the joint is lubricated and the shafts are easily detached from the vehicle.

To enable others skilled in the art to make and use my invention, I will describe it more fully, referring to the drawings and the letters of reference marked thereon.

The thill-irons A are made of malleable cast-iron, and are cored so as to form sockets *a a* and *b b*, to receive the end of the shaft or thill B and the cross-bar C, which are tenoned so as to drive in, the ends being sawed into so as to receive a wedge, *e*; and as the cross-bar is being driven up to the shoulder the wedge is forced in so as to spread the wood in the form of a dovetail, and fills the space in the socket *b b*, thereby securing it firmly without rivets or bolts. Thills are tenoned in the same manner, the sockets *a a* to receive them being

dovetailed or made larger at the rear, so that a key or wedge, *d*, being inserted in the kerf, may be driven in from the recess *f*, the under side of the thill-iron, and the coupling be made as firm as wood and iron can well be made.

The thill-iron A has at the rear end a block, D, projecting on the two sides far enough to fill endwise the opening E in the clip F. The opening E is made concave, into which is fitted the rolling socket I, the same being made so as to form a shell or matrix, into which the block D of the thill-iron is fitted and inserted or removed when the shafts are elevated to a vertical position, and cannot be taken out at any other place. The clip or cockeye F is also made of malleable cast-iron, and is cored to receive the rolling socket I, the ends being capped over or closed, so that dirt cannot get in, while the cup retains the oil which is put in the small reservoir *i* in the clip F, and keeps the socket F lubricated, so as to prevent the wear and getting loose and rattling, which is very desirable in light vehicles, and is not the case with any other that has ever come to my knowledge.

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

1. Incasing the ends of the cross-bar and shafts in the socket thill-iron and securing the same with internal wedges, in the manner as and for the purposes herein set forth.

2. The oil chamber *i* in the clip-iron F, in combination with the rolling socket I and the shaft or thill iron A, the whole being constructed and operating substantially as herein specified.

LUTHER T. HAZEN.

Witnesses:

L. F. MILES,  
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