

E. C. BICKFORD.
Shaft-Tug Lining.

No. 196,868.

Patented Nov. 6, 1877.

Fig. 1.

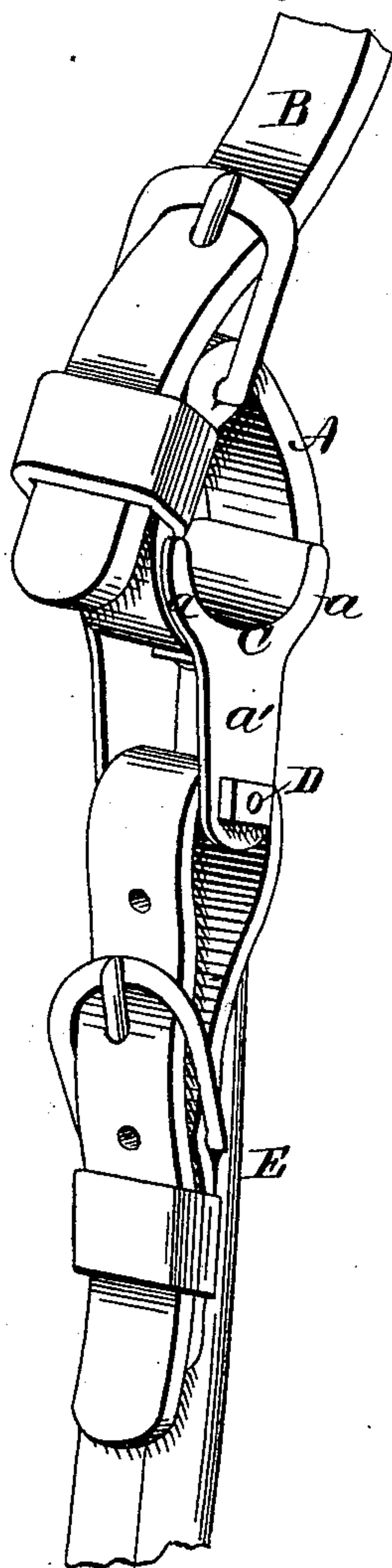
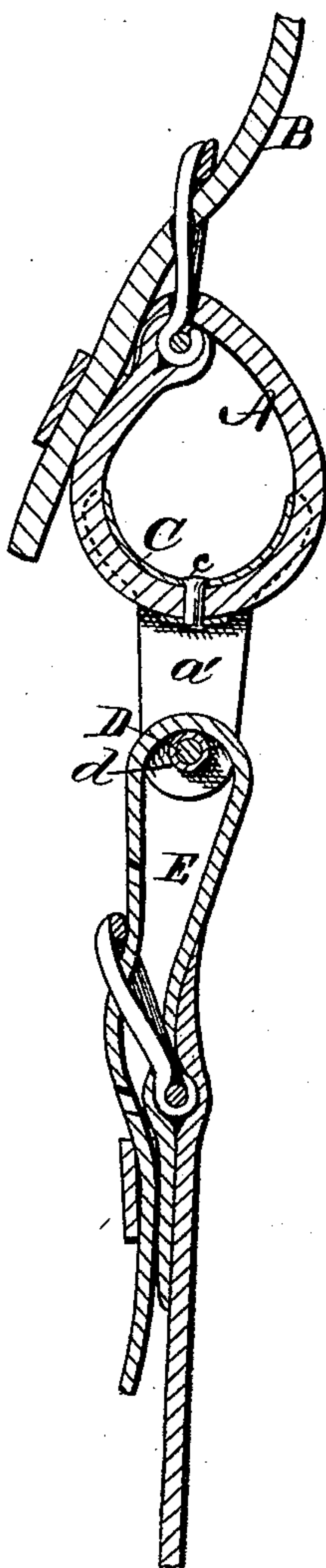


Fig. 2.



Witnesses:
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Att'y.

UNITED STATES PATENT OFFICE.

EZEKIEL C. BICKFORD, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SHAFT-TUG LININGS.

Specification forming part of Letters Patent No. **196,868**, dated November 6, 1877; application filed June 9, 1877.

To all whom it may concern:

Be it known that I, EZEKIEL C. BICKFORD, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Shaft-Tug Linings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of a construction embodying my invention, and Fig. 2 is a central sectional view of Fig. 1.

This invention relates to a metallic lining for harness-tugs having a projecting portion, to which the belly-band may be secured, as hereinafter fully described.

Referring to the drawing by letters, A represents an ordinary leather harness-tug or shaft-supporting loop, connected to the back-strap B in the ordinary manner, as shown in the drawing.

C is a metallic lining for the tug A, and may be made of any suitable metal. The lining C is made to conform to the lower interior surface of the tug A where the shaft or thill ordinarily comes in contact therewith, and its sides are turned down or formed into flanges *a*, which should fit snugly to the sides of the leather tug.

The central portions of the flanges *a* are extended downward, and form ears *a'*, the lower ends of which are connected by a bolt, D, which may be provided with an anti-friction roller, *d*, and to which the belly-band E is buckled, as plainly shown in the drawings.

The lining C is secured in place by rivets *c*, which pass through it and through the leather tug A, or, preferably, may be secured in the lining C, where it is made.

It will be seen that this construction of tug-lining not only protects the leather tug against wear from the shaft, but also furnishes a ready, easy, simple, and secure way of attaching the belly-band to the tug, and, further, that the lining may be attached to old or new harness.

I do not claim, broadly, a tug provided with a metal lining, being aware that such device is not new; but

What I do claim is—

As an article of manufacture, a semi-cylindrical metallic lining for the bottoms of shaft-tugs, said lining being provided with V-shaped end pieces, connected by cross-bars, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EZEKIEL C. BICKFORD.

Witnesses:

CHARLES W. SPARHAWK,
SAML. SPARHAWK.