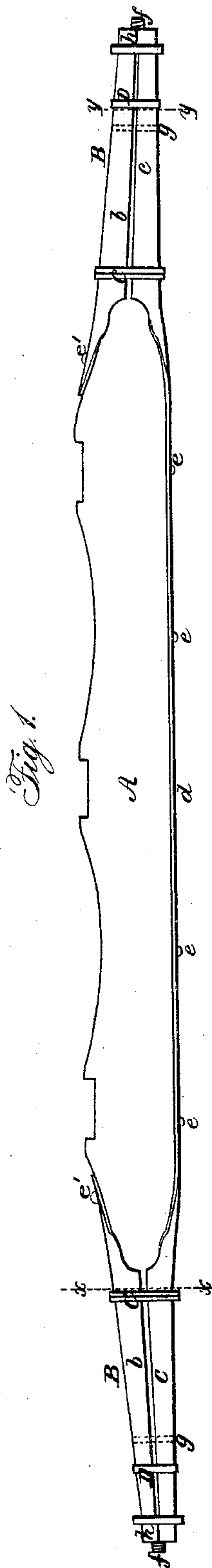


R. H. HALL.

Axle-Skein.

No. 34,361.

Patented Feb. 11, 1862.



*Fig. 3.*



*Fig. 2.*



Witnesses:

*J. W. Coombs*  
*Attorney*

Inventor:

*R. H. Hall*  
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# UNITED STATES PATENT OFFICE.

R. H. HALL, OF OWEGO, NEW YORK.

## IMPROVEMENT IN AXLES FOR WHEEL-VEHICLES.

Specification forming part of Letters Patent No. **34,361**, dated February 11, 1862.

*To all whom it may concern:*

Be it known that I, R. H. HALL, of Owego, in the county of Tioga and State of New York, have invented a new and useful Improvement in Axles for Wheel-Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a view of an axle constructed according to my invention; Figs. 2 and 3, transverse sections of the same, taken, respectively, in the lines *x x y y*.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a novel and improved mode of applying a metal covering to the arms of wooden axles, so that the same may be rendered durable and an economical axle obtained.

The arms of wooden axles have heretofore been protected by metal, cast-iron thimbles or skeins having been used, and wrought-iron plates have also been screwed to the arms to enable them to resist wear; but the plans hitherto devised have, so far as I am aware, added considerably to the weight of the axle and have failed in many respects from answering in a perfect manner.

My invention consists in forming skeins or coverings for the arms of iron plates, (boiler-plate iron I design to use,) the skeins being each formed of two parts and secured to the axle, as hereinafter described, whereby it is believed the desired object is attained.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a wooden axle, which may be constructed in the usual way and of the ordinary form, and B represents metal coverings or skeins, which are placed on the arms *a* of the axle A. These coverings or skeins are made of iron plate and boiler-plate iron, each being composed of two parts *b c*, swaged so as to form the longitudinal half of a hollow cone, the internal dimensions of which correspond to the size of the arms on which they are fitted.

The lower parts *c* of the skeins of the axle are connected by a strip *d*, all being in one piece, and the strip *d* is screwed or bolted to the under side of the axle, as shown clearly at *e* in Fig. 1. The upper parts *b* of the skeins extend but a trifle over on the axle and are secured thereto by bolts *e'*. The two parts *b c* of the skeins are not quite in contact and metal bands C D are placed on the skein of each arm, the innermost band C serving as shoulders or bearings for the inner ends of the hubs.

In the outer ends of the arms *d* of the axle metal rods *f* are fitted, one in each arm. These rods are secured in the arms by bolts *g*, and on the outer ends of the rods screw-threads are cut to receive the nuts *h*, which secure the hubs on the arms. By not having the two parts *b c* of the skeins in contact they may be fitted very snugly on the arms, and the skeins add greatly to the strength of the arms, while they are light, resist wear, and render the axle very durable.

The skeins by being struck up or swaged out of boiler-plate iron, as described, may be very quickly constructed and at a reasonable cost. They also may be applied or fitted to the arms very expeditiously and in a perfect manner; and when by reason of wear the skein and box come to fit too loosely the skein may be removed and a sufficient thickness of sheet-iron, canvas, or other material applied to the arm, so that when the skein is replaced it will be expanded to such size as to fit the box. This effect is one of the utmost importance and cannot be fully realized in any skein in which the two parts are connected, even at the outer end.

I am aware that it is common to use skeins of sheet-iron set into the arm and secured thereto by bolts and bands, and also that wrought-iron thimble-skeins have been slotted longitudinally so as to be tightened upon the arms and in measure to conform to the size and shape of the latter. I do not, therefore, desire to be understood as claiming any of the above-mentioned devices, not any in which the parts are not constructed and applied in the specific manner and with the effect which I have explained.

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

The combination, with the axle *A a*, of the upper casings *b b*, lower casing *c*, strip *d*, central threaded bolts *f f*, keys *g g*, and bands *C D*, all constructed, arranged, and applied

in the manner and for the purposes hereinbefore shown and explained.

R. H. HALL.

Witnesses:

JOSIAH RICH,  
CHARLES A. MUNGER.