

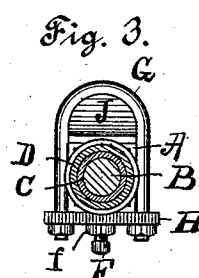
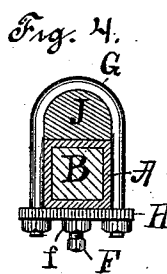
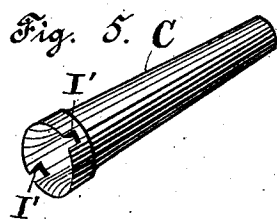
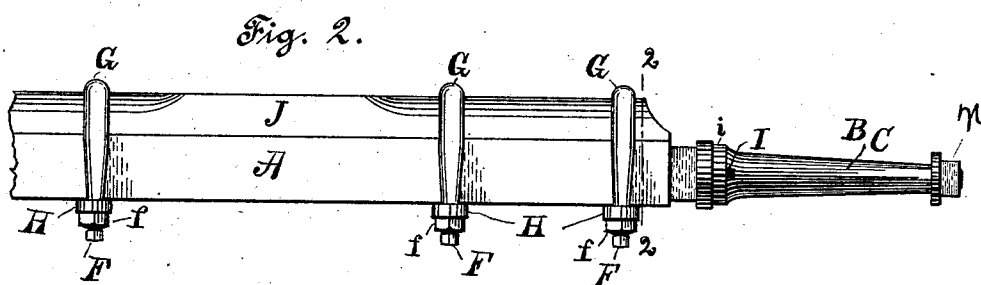
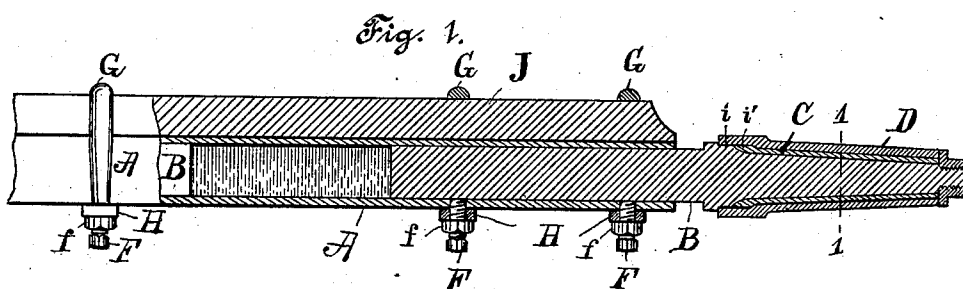
(No Model.)

J. M. BROSIUS.

VEHICLE AXLE.

No. 362,486.

Patented May 10, 1887.



Witnesses:  
A. P. Hood.  
H. A. Smith

Inventor:  
John M. Crossins.  
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Attorney.

# UNITED STATES PATENT OFFICE.

JOHN M. BROSIUS, OF ATLANTA, GEORGIA.

## VEHICLE-AXLE.

SPECIFICATION forming part of Letters Patent No. 362,486, dated May 10, 1887.

Application filed March 15, 1887. Serial No. 231,037. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. BROSIUS, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Vehicle-Axle; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to vehicle-axles, the object being to make them lighter and stronger, as well as more easily renewed when worn, and at the same time to make them easily adjustable.

The axle, as improved, consists of a hollow rectangular axle-tree made of metal, of spindles, means of fastening these spindles into the rectangular tubular axle-tree, metal spindle-casing with means of fastening it to the spindle and keeping it from turning, and an axle-box so formed as to exclude dust and any other foreign matter from the wearing parts.

In the accompanying drawings, Figure 1 is a side view, mostly in section, showing the axle-box, spindle, spindle-sleeve, means of fastening the spindle into the tubular axle-tree, and contiguous parts. Fig. 2 is a side elevation showing the axle-spindle fitted ready to receive the sleeve. The spindle is shown in Figs. 1 and 2 as being somewhat drawn out and capable of adjustment in the direction of narrowing the track. Fig. 3 is a cross-section on line 1, Fig. 1. Fig. 4 is a section on line 2, Fig. 2. Fig. 5 is a perspective view of the spindle-sleeve, showing the notches for keeping it from turning on the spindle.

In the figures, like reference-marks referring to like parts in the several views, the details of construction are as follows:

The axle-tree A is made of metal, and is rectangular in form. In it are holes for the insertion of the set-screws F, which are for the purpose of fastening the spindle B in place. The spindle B is made at one end to suit in shape and size the inside of the axle-tree A, as shown, and at the other end is round and tapering for the reception of the spindle-sleeve C. The

shoulder on the spindle, against which the inner end of the sleeve rests, is a concave fillet, on which is the lug I for the purpose of entering one of the notches I' in the sleeve C to hold it from turning on the spindle. This sleeve C is made of a taper to correspond on the outside to the inside taper of the axle-box D, and on the inside to the taper of the spindle. The lug I is not necessarily on but one side of the spindle; but the sleeve C has two notches I', in order that the sleeve may be turned half over when worn on the bottom side, thus presenting a new wearing-surface, which is a great advantage, as it is impossible to entirely stop the wear, even with the best and most approved anti-friction bearings. This sleeve C, I make to overhang the outer end of the spindle, in order that the nut N will force the sleeve firmly on the tapering part of the spindle and hold it in that position.

The axle-box D is made of any required form on the outside, and on the inside, for the greater part of its length, it is made tapering, to conform to the outside taper of the sleeve C. For the remainder of its length it is made straight or very slightly tapering, and corresponds to the large part *i* and *i'* of the spindle and the sleeve, respectively, for the purpose of making a long bearing for the exclusion of dust or foreign matter of any description.

For convenience in attaching the other parts of the vehicle, I place the extra bed J, which is made of wood, on the top of the axle-tree, and hold it in that position by the clips G. On the ends of the clips G, I place the straps H, which I also utilize for the insertion of the screws F. The screws F are kept from working out by the jam-nuts *f*. The screws F will hold the spindles firmly in the hollow axle-tree after the width of track shall have been adjusted, and prevent longitudinal movement of these spindles.

The sleeve C may be attached to any form or size of axle by merely fitting the spindle taper and inserting the lugs I, which would be a saving, as, instead of obtaining new axles complete, all that would be necessary would be to turn the sleeve C or replace the old sleeve by a new one.

I am aware that extensible axles are old, and that a sleeve covering the spindle or wheel

bearing of an axle is also old. I do not, therefore, broadly claim either of these devices.

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

5 Patent of the United States, is—

1. In a vehicle-axle, the combination of the rectangular hollow axle A, extension-spindle B, bed J, and clips G, with screw F, arranged to hold both the spindle and bed to the hollow  
10 body and allow the longitudinal adjustment of the spindles in said body, substantially as set forth.

2. In a vehicle-axle, the combination of the

rectangular hollow axle A, extension-spindle B, provided with projections I, sleeve C, having notches I', and the nut N upon the end of  
15 said spindle, serving to retain the sleeve in place upon the spindle and the axle-box upon the sleeve, substantially as specified.

In testimony whereof I affix my signature in  
20 presence of two witnesses.

J. M. BROSIUS.

Witnesses:

JOHN J. WOODSIDE,  
ALBERT A. WOOD.