(No Model.)

S. TOOMEY.

AXLE FOR VEHICLES.

No. 346,001. Patented July 20, 1886.

Fig. 1.

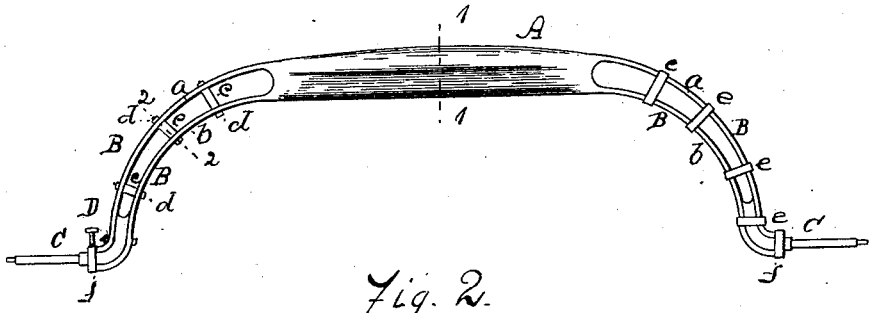


Fig. 2.

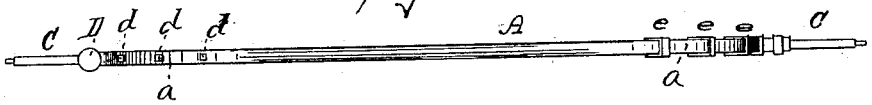


Fig. 3.

Fig. 4.

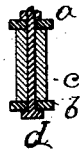
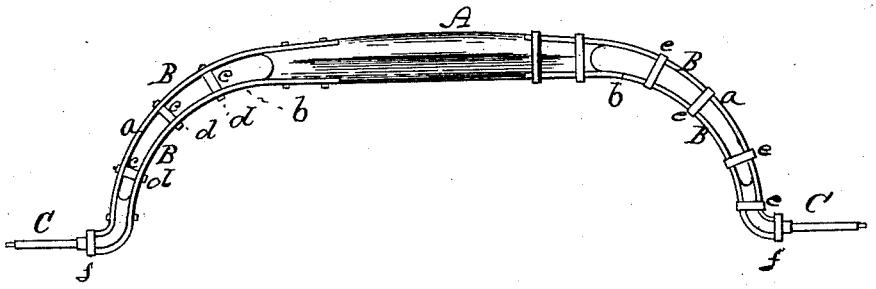


Fig. 5.



Witnesses:
A. B. Browne

Inventor,
Samuel Toomey,
By his Attorney, J. S. Brown

UNITED STATES PATENT OFFICE.

SAMUEL TOOMEY, OF CANAL DOVER, OHIO.

AXLE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 346,001, dated July 20, 1886.

Application filed March 2, 1886. Serial No. 193,797. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL TOOMEY, of Canal Dover, in the county of Tuscarawas and State of Ohio, have invented an Improved Axle for Vehicles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention consists in a bent axle formed solid in its middle raised portion and of skeleton, open, trussed construction at the bent or curved portions, substantially as hereinafter specified; also, in the specific improvements hereinafter set forth.

In the annexed drawings, Figure 1 represents a side view of a vehicle-axle constructed according to my improvements; Fig. 2, a top view of the same; Fig. 3, a cross-section of the solid part in a plane indicated by the line 1 1, Fig. 1; Fig. 4, a cross-section of the trussed part in a plane indicated by the line 2 2, Fig. 1; Fig. 5, a side view of one of the improved axles modified in construction.

Like letters designate corresponding parts in all of the figures.

The drawings represent a sulky-axle to which the improved construction is well adapted; but the invention is applicable to bent axles for other kinds of vehicles.

It being desirable to make the axles as light as practicable, and at the same time sufficiently strong and rigid, as well as cheap, I construct the middle part, A, solid and of wood. This part of the axle is made comparatively high and thin; and to give it greater rigidity with the utmost lightness, the sides are fluted in the middle, as shown fully in Fig. 3, making the cross-section approximately of the form of the numeral **8**.

I prefer to make the whole axle of one piece of wood, and to that end I form the bent trussed parts B B each of two thin strips, *a b*, continuations respectively from the upper and lower parts of the solid portion A. These strips are bent separately and trussed together when thus bent by tubular washers or spools *c c*, placed endwise between the strips and bolts *d d*, as shown in Fig. 4, or by clips, as shown at *e*, Figs. 1 and 2.

As a modification of the above-described construction, but not considered as good as that, I show the bent strips *a b* made of separate parts from the middle solid portion, A, and secured at the inner ends to the said middle portion by clips or bolts, as shown in Fig. 5, clips being shown at one end and bolts at the other end. In this modified construction the bent strips *a b* may be either of wood or of thin strips of metal, preferably steel.

The bent strips *a b* are strongly secured to the spindles C C of the axles by clips *f f*, as shown.

In the use of raised axles, as for sulkies, where the horse travels close back to the body of the vehicle, it is desirable to give as great width of space as possible under the raised part of the axle, in order that sufficient lateral room be given to the animal to travel without striking his hocks against the bent or end parts thereof. This is especially necessary for trotting-horses. I therefore form the bent or upright portions of the front axle as close to the wheels as practicable, as indicated in the drawings, and render these bent portions as upright or near a perpendicular position as may be. This construction does not allow room for the ordinary leather step on the axle. To obviate this difficulty, I form on one of the clips *f f*, by which the adjacent spindle is secured to the axle, a small raised step, D, as shown in Figs. 1 and 2. This need not be broad, and sufficient room is allowed for this construction of a step.

In Letters Patent No. 294,528, granted to me March 4, 1884, I have described and claimed a bent carriage-axle trussed throughout its length between its spindles. I disclaim such an axle in the present case.

I claim as my invention—

1. A bent axle formed solid in its middle raised portion, and in its bent portions with separate strips trussed together, substantially as and for the purpose set forth.

2. A bent axle formed of a single piece of wood, solid in its middle portion and formed in separate strips in its bent portions, continuations of the middle solid portion, and trussed together, substantially as and for the purpose herein specified.

3. A bent axle formed solid in the middle and fluted at the sides, as set forth, and trussed at the ends, as herein specified.

SAMUEL TOOMEY.

Witnesses:

JOSEPH H. HOSTETTER,

GEORGE BETSCHER.