

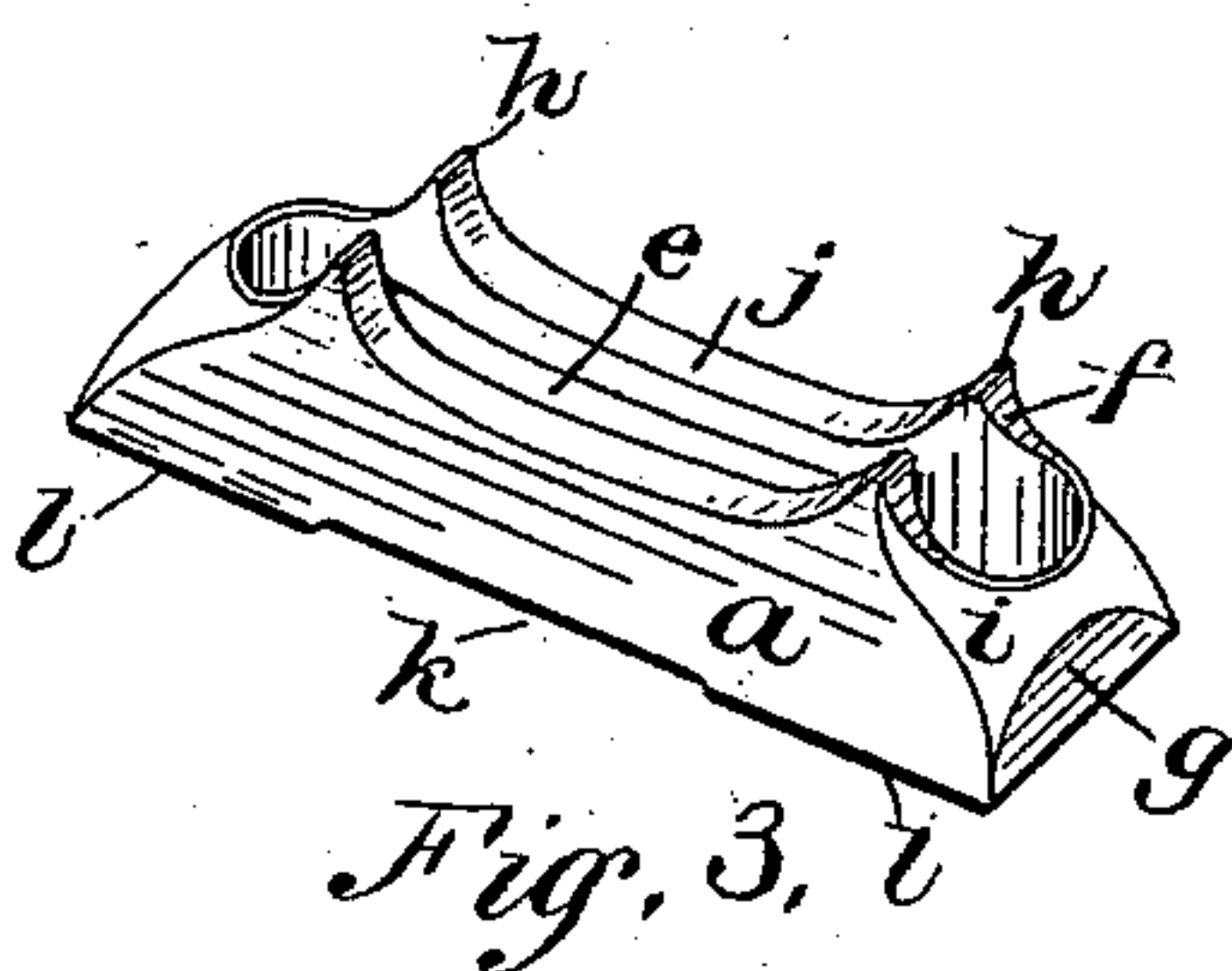
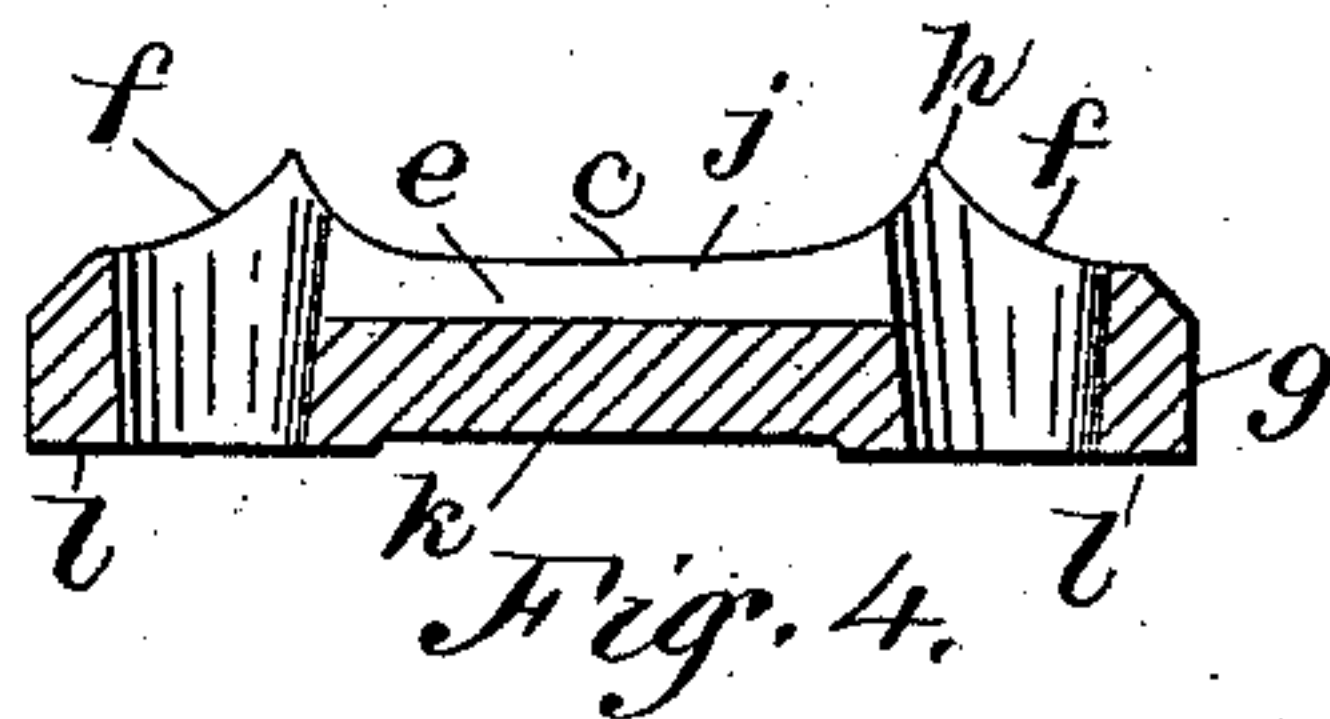
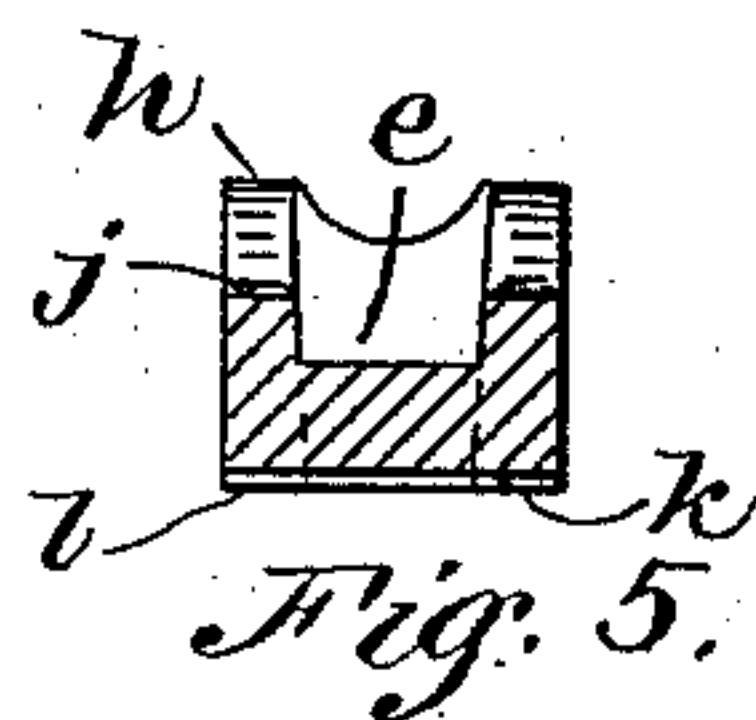
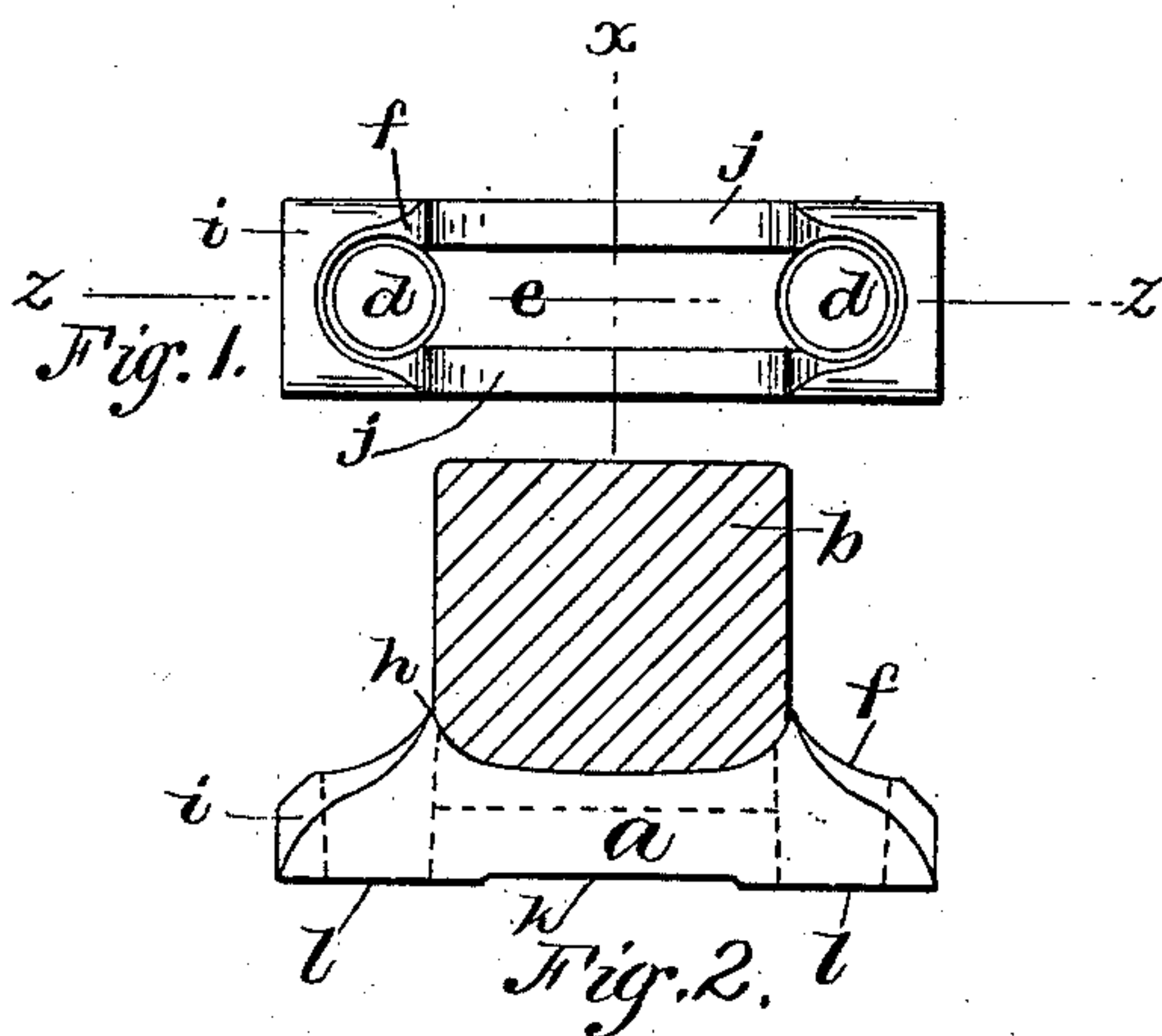
(No Model.)

H. K. PORTER.

AXLE YOKE.

No. 297,160.

Patented Apr. 22, 1884.



Witnesses:  
Geo. S. Gooding.  
Eugene J. Humphrey

Inventor:  
Henry H. Porter  
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his atty.

# UNITED STATES PATENT OFFICE.

HENRY K. PORTER, OF BOSTON, MASSACHUSETTS.

## AXLE-YOKE.

SPECIFICATION forming part of Letters Patent No. 297,160, dated April 22, 1884.

Application filed July 21, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY K. PORTER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Axle-Yokes, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

This invention relates to the yokes which are placed beneath carriage-axles, and which receive the rounded ends of the clips, which secure the axle and its wooden stock together, the yoke and clip being secured together by nuts, which are threaded upon the ends of the clip and bear against the under side of the yoke.

In the accompanying drawings, Figure 1 is a top or plan view of my improved yoke. Fig. 2 is a side elevation of my yoke, and showing the iron axle in transverse section as seated in the yoke. Fig. 3 is a perspective view of my yoke. Fig. 4 is a longitudinal vertical section taken on line  $z z$ , Fig. 1. Fig. 5 is a transverse section taken on line  $x$ , Fig. 1.

In said drawings,  $a$  is the yoke, and  $b$  is the axle, the latter being shown as with rounded lower corners. The yoke is formed with the usual clip-holes,  $d$ , and with the upper line,  $c$ , between holes  $d$  of such concave outline as to fit the lower part of axle  $b$ , as shown in Fig. 2. From the highest part of the yoke, at  $h$ , it is diminished toward end  $g$  by a downwardly-curving concave line,  $f$ , to a point slightly outside of hole  $d$ , where it intersects with the oblique finish or surface  $i$ , which divides said curved line  $f$  from the line of end  $g$ . In the upper side of the clip, and between holes  $d$ , I cut a central groove,  $e$ , leaving a rib,  $j$ , upon each side, as shown; and beneath the yoke I remove a central portion at  $k$ , so as to leave slightly projecting the nut-seats  $l$ , as shown.

I am aware that axle-yokes have been heretofore formed to fit the rounded lower side of axles, and I do not claim a yoke so formed between clip-holes  $d$ ; but such yokes were formed with a straight, level, upper line outside the axle, and with straight vertical lines

or shoulders coincident with the vertical sides of the axle, said top line of the end portion of the yoke and the vertical lines or shoulders forming a right angle or vertex, while my yoke is diminished in thickness from point  $h$  outward by a curved line,  $f$ , terminating outside of holes  $d$ , which leaves the yoke much stronger than if a right angle were formed by the intersection of the top line and a vertical line, as described. Besides, such retiring angle served as a receptacle for dirt, which was difficult to dislodge.

I am also aware that axle-yokes have been formed with a recess in the under side, which greatly weakens them, as the force exerted by the clip-nuts results in a tensile strain upon the under side of the yoke, and hence the same should be continuous across its full width; but as the strain exerted by the clip-nuts upon the upper side of the yoke is a compressive strain, the ribs  $j$  are ample to resist the same; and as the removal of the metal, which would otherwise occupy groove  $e$ , tends largely to improve the quality of the casting, as the yoke is in practical effect thereby rendered tubular, therefore the groove  $e$  will not impair the strength of the yoke while reducing its weight, and its arrangement between holes  $d$  is such that it does not in any degree disfigure the yoke. By forming the raised nut-seats  $l$  upon the under sides of the yoke of the size of the nuts on the clips, such nuts can at any time be unscrewed for purpose of repairs without marring and removing the paint beyond the seat which they occupy, as would be the case if the corners of the nuts, when in a diagonal position, rested upon the usual level surface of the yoke.

I do not claim in this application the configuration imparted to the yoke by means of the peculiar outline of the area shown at  $i$ , by which the ends of the plane of the sides or edges of the yoke are bounded by a compound curve or cyma recta, while the form of outline of the corresponding portion of the upper plane of the yoke is a double cyma recta, whose apex is at the longitudinal center of the yoke, and the upper line of end  $g$  is an arc or curve the ends of which terminate at the lower



corners of the yoke, the same constituting a design, for which I have already applied for Letters Patent.

I claim as my invention—

- 5 1. An axle - yoke having a longitudinal groove formed in the upper side thereof, between the clip-receiving holes, substantially as specified.
2. In axle-yokes formed with an upper con-

cave line or face adapted to receive and fit to the rounded portion of the axle, the upper face of that part of the yoke which extends beyond the axle formed with a descending concave line, substantially as specified.

HENRY K. PORTER.

Witnesses:

T. W. PORTER,

EUGENE HUMPHREY.