(No Model.)

H. K. PORTER.

WHIFFLETREE CENTER.

No. 350,391. Patented Oct. 5, 1886.

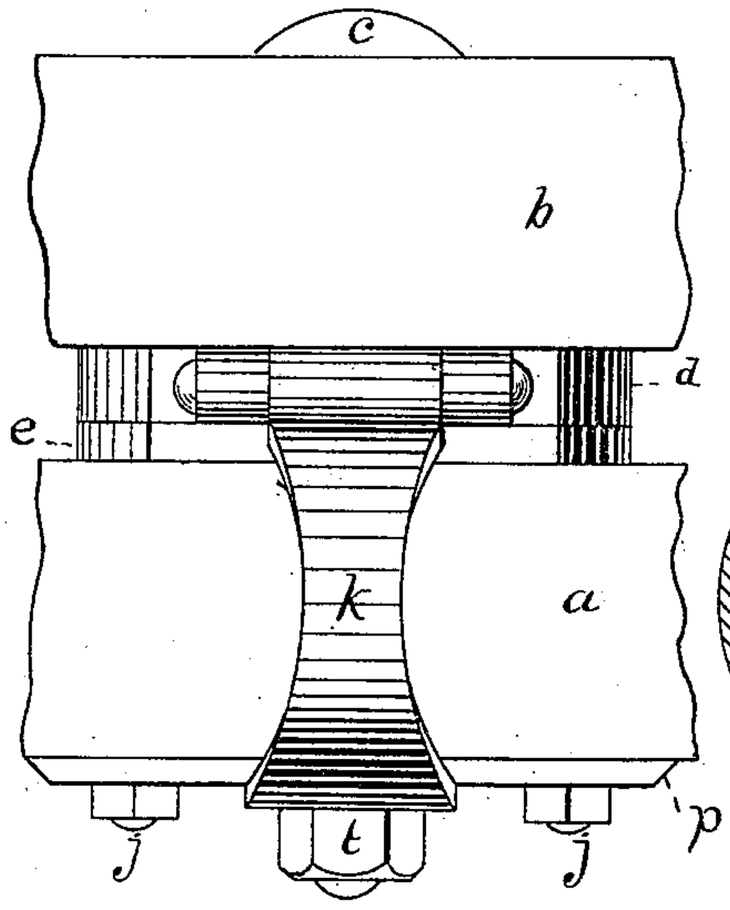

Fig. 1.

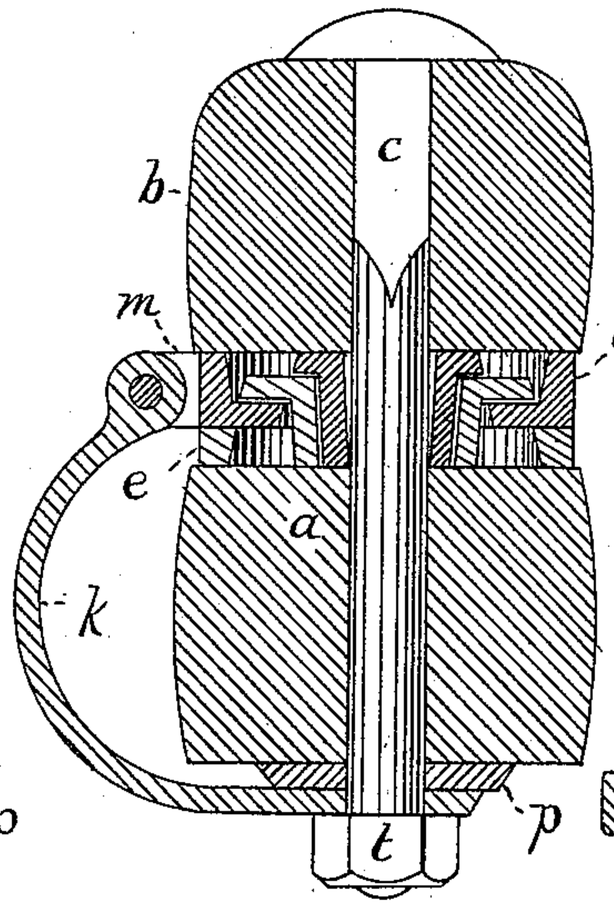

Fig. 2.

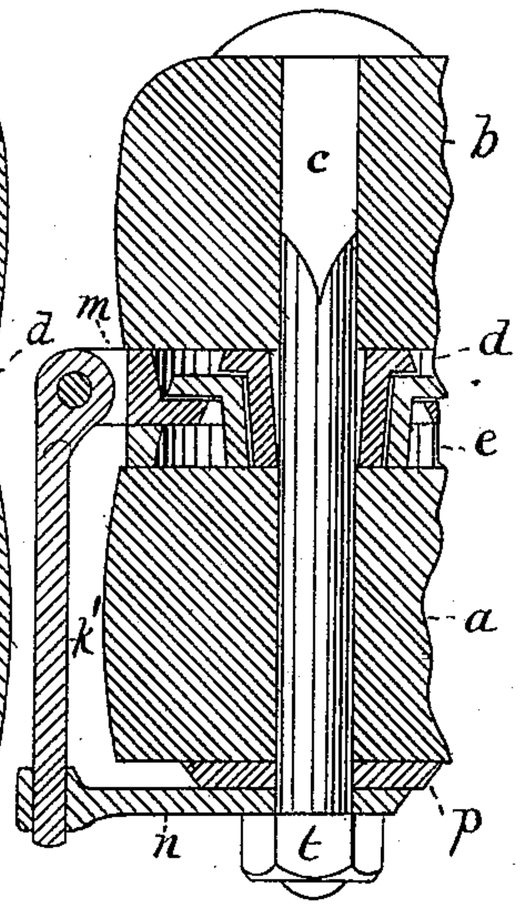

Fig. 3.

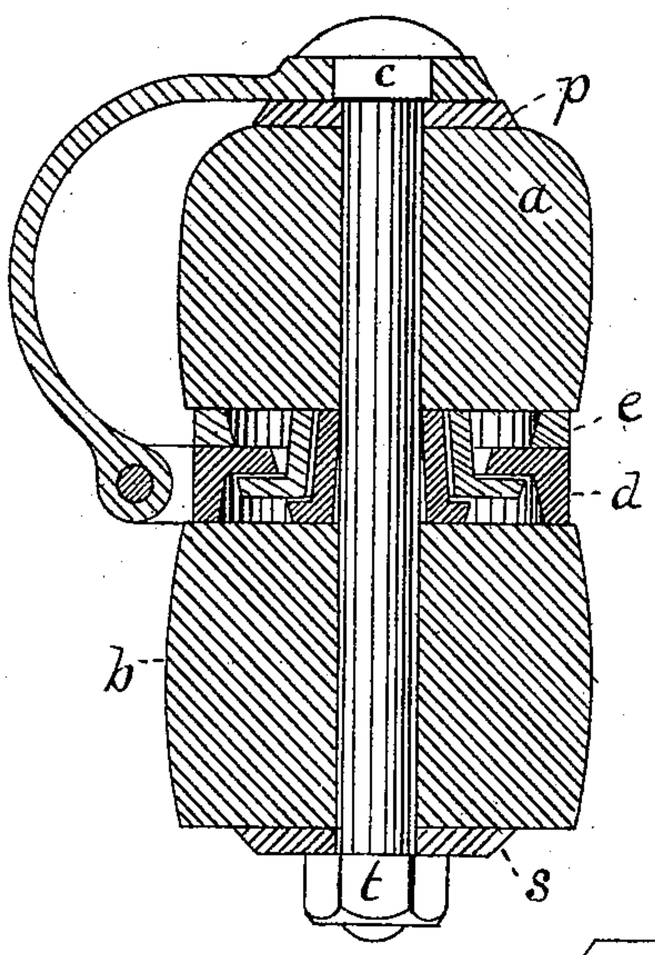

Fig. 4.

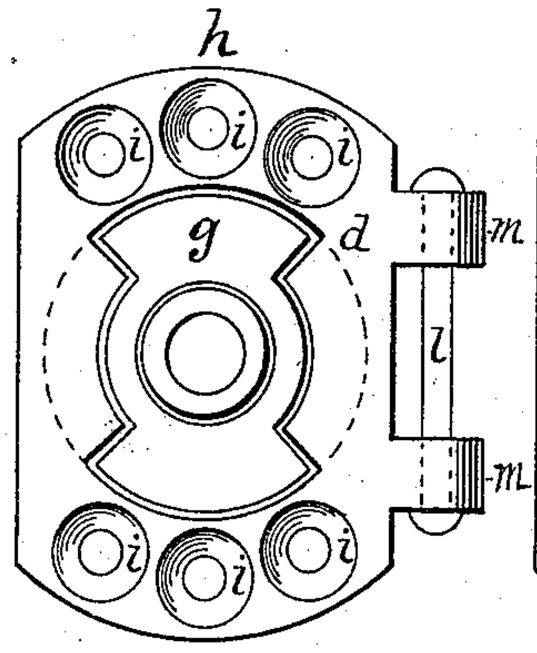

Fig. 5.

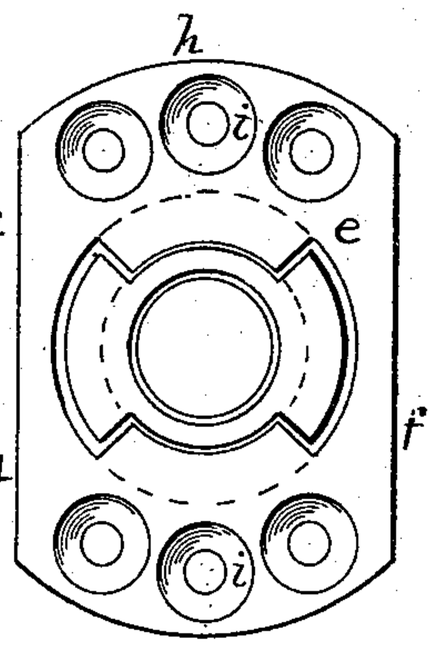

Fig. 6.

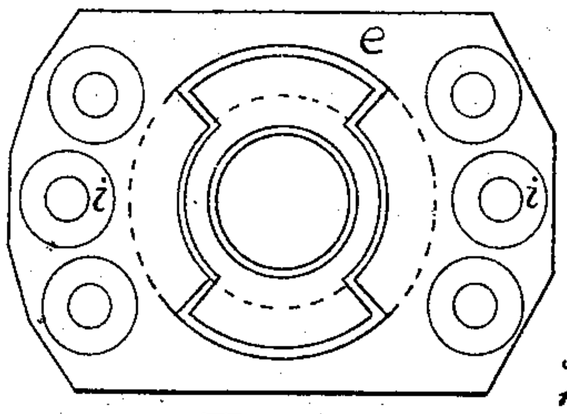

Fig. 7.

Witnesses,
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Inventor,
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per
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his attys.

UNITED STATES PATENT OFFICE.

HENRY K. PORTER, OF BOSTON, MASSACHUSETTS.

WHIFFLETREE-CENTER.

SPECIFICATION forming part of Letters Patent No. 350,391, dated October 5, 1886.

Application filed February 17, 1883. Serial No. 85,377. (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 new and useful Improvements in Whiffletree-Centers, which invention is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to the metallic center or coupling by which the whiffletree of a vehicle is pivotally connected with the cross-bar by which the force exerted by the horse is communicated to the carriage, and it will be hereinafter fully described, and specifically defined in the appended claims.

In said drawings, Figure 1 is a rear elevation showing my improved center as applied to a whiffletree and cross-bar, the two latter being shown as broken away. Fig. 2 is a transverse vertical section taken through the parts shown in Fig. 1 in the line of the axis of the pivot-bolt, which latter is shown in elevation. Fig. 3 is a view like Fig. 2, except that the pivotal bail is shown as formed in two parts instead of one, as in the previous views. Fig. 4 is a view like Figs. 2 and 3, except that the cross-bar and the coupling or center are inverted. Figs. 5 and 6 are plan views of the respective halves of my center. Fig. 7 shows modified forms or outlines of the ends of my improved center.

In said several views my present invention is shown in connection with the whiffletree-center for which Letters Patent of the United States, numbered 156,437, were issued to me on the 3d day of November, 1874, the same having been reissued October 31, 1876, as No. 7,375, and hence the center so shown need be described only so far as is requisite for a clear description of my present improvements, which latter are applicable to certain other centers not embodying the essential features claimed in my said former patent.

It is indispensable that a whiffletree-center be no wider than are the cross-bar and whiffletree—that is, from one and a half to one and three-fourths inch wide, according to the weight and size of the vehicle—and it is also requisite for the light appearance and good style of the carriage that the center shall be as short as possible, in fact, not longer than the side lines, *f*, of the centers shown in Figs. 5 and 6. Hence when the two halves are formed to be interlocked by locks arranged about the common center and by rotating one half relatively to the other, it is necessary to form a concentric cavity in the center of part *d*, as shown at *g*, Fig. 5, and if the ends *h* are cut at right angles to side lines, *f*, as has been heretofore practiced, then but four screws can be inserted in half *d*, as the line of cavity *g* would be so near the end as to render it impracticable to form screw-holes, except near the corners; and in practice it is found that with the screws arranged so near the side lines of the cross-bar and whiffletree they cannot be of the requisite size and length to properly secure the center thereto, as they tend to split the wood where they are inserted, and it is not practical to employ small bolts of proper form so near the edge of the wood. To obviate these difficulties I form the ends *h* of my centers as an arc of a circle whose radius-point is the center of the coupling or center itself, and hence the wall of cavity *g* and line *h* are parallel, whereby I am enabled to form in each end three holes, *i*, instead of two, as heretofore, and a small conical-headed bolt, *j*, Fig. 1, can be inserted in the middle hole without marring the appearance of the vehicle. By thus forming the ends of my center its appearance when in position on the carriage is not changed, its weight is not materially increased, while its wearing-surface and effective value are largely enhanced.

Another difficulty hitherto attending all kinds of pivotally-attached whiffletrees has been the gradual fracturing and twisting off of the pivotal bolt near its confining screw-nut by reason of the friction exerted upon said nut by the incessant vibration of the whiffletree when in use, this result occurring irrespective of whether said bolt was fast in the cross-bar and the whiffletree moved upon it, or whether it was fast in the whiffletree and moved in the cross-bar, as in either event a constant torsional friction was being exerted upon the nut, which was sure to destroy the bolt. To remedy this defect there is pivoted a bail, *k*, between ears *m m*, formed on part *d* of the center by a pivot, *l*, while the opposite end of said bail receives bolt *c* in either of the methods shown, to wit: In Figs. 1, 2, and 3, the latter only being my invention, the square part of the pivot-

bolt *c* locks it in whiffletree *b*, and it vibrates therewith, and as bail *k* is secured to and moves with part *d* of the center, which is secured to the whiffletree, therefore bolt *c*, its nut *t*, and the bail *k* all move with the whiffletree, a wear-plate, *p*, being interposed between the bail and cross-bar *a* and secured to the latter, while in in Fig. 4 cross-bar *a* is above whiffletree *b*, and wear-plate *p* is upon the top of the cross-bar, while the square part of bolt *c* only extends through the bail, thus causing the bolt to move with the bail, and hence whiffletree *b*, the half *d* of the center, its bail *k*, and the bolt *c* and its nut all move together, a washer, *s*, being arranged upon the lower side of the whiffletree.

Instead of forming bail *k* of a single curved piece, it may be formed in two parts, as shown in Fig. 3, where part *n* receives bolt *c* at one end, while part *k'* of the bail passes freely through the other end of part *n*, the operation and result being in all respects the same as if formed of a single piece; but this form of bail is adjusted to cross-bars of various thicknesses without necessity of bending it, as is requisite when formed of a single piece.

It will be apparent that instead of forming the ends *h* as a true arc of a circle they may, without departing from the spirit of my invention, be formed with a series of right lines, as shown at the respective ends in Fig. 7, and tangential, or nearly so, to an arc of a circle, such configuration allowing the arrangement of the screw-holes *i* in an arc of a circle with the same facility as if said ends were formed as shown in the other figures; but such end does not present so neat and finished an appearance as when formed as an arc of a circle, and enhances the labor of finishing the same.

I am aware that it is both old and common to form whiffletree-centers with a circular body with projecting ears formed thereon upon opposite sides, by which to secure them, by means of screws, to the cross-bar and whiffletree, and I make no claim thereto, my invention, in so far as it relates to the configuration of the whiffletree-center, being confined to interlocking centers in one of the halves or parts of which is a cavity, and which are secured in place by bolts or screws inserted in the body of the center, instead of in ears projecting therefrom.

I herein and hereby give notice that I have applied for Letters Patent of the United States for the new design for a whiffletree-center shown in the drawings in this application.

I claim as my invention—

1. A whiffletree-center formed in two parts, with a central passage, coincident in both, to receive the pivotal bolt *c*, in combination with the bail consisting of parts *k' n*, loosely connected together, and with one part pivotally connected to one half of the center and the other part formed with an eye or perforated end to receive said pivotal bolt *c*, substantially as specified.

2. An interlocking whiffletree-center having the parallel edges *f* and the ends *h*, formed parallel, or nearly so, with the wall of the interior cavity, whereby space is provided for the insertion of the securing bolts or screws at any desired point between said parallel edges, substantially as specified.

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Witnesses:
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