G. W. EDDY.

WHIFFLETREE AND NECK-YOKE.

No. 176,522. Patented April 25, 1876.

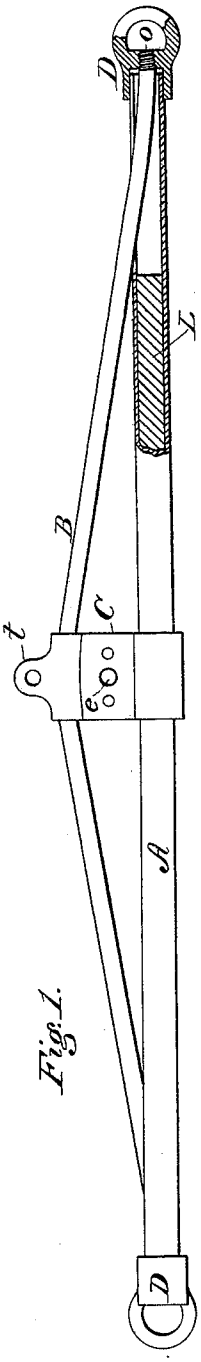

Fig. 1.

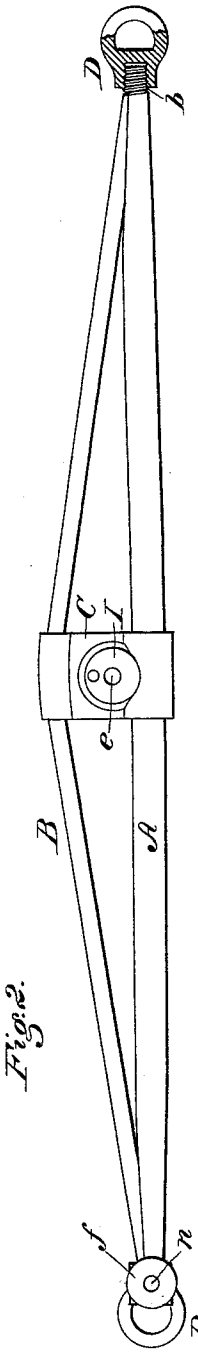

Fig. 2.

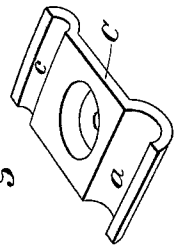

Fig. 7.

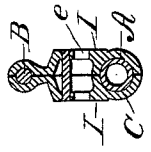

Fig. 6.

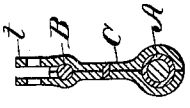

Fig. 5.

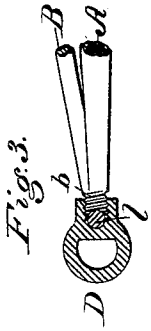

Fig. 3.

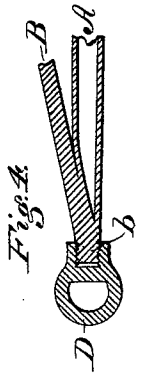

Fig. 4.

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UNITED STATES PATENT OFFICE.

GEORGE W. EDDY, OF WATERFORD, NEW YORK.

IMPROVEMENT IN WHIFFLETREES AND NECK-YOKES.

Specification forming part of Letters Patent No. **176,522**, dated April 25, 1876; application filed February 26, 1876.

To all whom it may concern:

Be it known that I, GEO. W. EDDY, of Waterford, in the county of Saratoga and State of New York, have invented certain Improvements in Whiffletrees and Neck-Yokes, of which the following is a specification:

My present invention consists in certain improvements in the construction of whiffletrees and neck-yokes, the invention relating to the details of construction, as hereinafter more fully set forth.

Figures 1 and 2 are plan views of a whiffletree embodying my invention, shown partly in section. Figs. 3, 4, 5, 6, and 7 represent portions shown more in detail.

The object of my present invention is to make whiffletrees and neck-yokes that shall be very light and strong, and which, at the same time, may be made highly ornamental, as well as durable.

In making a whiffletree on my plan, I provide a metal tube—such as the ordinary gas or water pipe—of, say, three-fourths of an inch internal diameter, and of the requisite length to form the main bar A. I then provide a corresponding metal rod of, say, three-eighths to half an inch in diameter, to form a brace-rod, B, these parts being united, preferably, as represented in Figs. 2, 3, and 4, in which the end of the brace is shown solidly united to the ends of the bar A. This is done by heating the end of the bar or tube A, then placing it in a die, and, by means of a suitably-shaped punch or die, compressing the end of the tube, and at the same time forming a groove in its back side of the proper size and form to permit the end of the brace B to fit therein, as shown in Figs. 2, 3, and 4. The parts, being thus fitted, are then welded or riveted together at each end, and their extreme ends made round, and a screw-thread, *b*, cut thereon, as shown. On each end is then fitted a screw-cap, D, which has a ring or eye formed on its outer end, to fasten the trace to. When it is desired to make a double-tree to which the single-trees are to be attached by securing the latter upon the top of the double-tree, as is usually done for carriages, I make the cap D with a flat circular surface or bearing, *f*, on its upper side, as represented at the left-hand end of Fig. 2, the single-tree resting on this flat bearing *f*, and being pivoted by a bolt passing through the hole *n*. In order to prevent cutting away the metal and weakening the end of the whiffletree, as would be the case if the bolt passed directly through the whiffletree, I form the hole *n* in the cap D in such a position that the bolt *l*, when inserted, will rest in a corresponding notch in the end of the whiffletree, as shown in Fig. 3, it also serving to prevent the cap D from turning or becoming unscrewed. When these whiffletrees are used as single-trees, the tug or trace-chain will be hooked or fastened into the eye on the end of the cap, and when they become worn on one side by use they can be given a half-turn either forward or back, according as they fit tight or loose, and thus bring the other side of the eye into use. If desired, a screw or pin may be used, the same as the bolt already described, to prevent the cap from turning; but it is not considered necessary, for the reason that, as the strain will be on the front side of the eye, there will be no tendency, or but little, of the caps to turn or work loose. To complete the whiffletree, I make a bridge, C, to unite the front bar or tube A and the brace B at their center, as shown in Figs. 1 and 2. This bridge may be made solid; but I prefer to make it of two parts, of the form shown in perspective in Fig. 7.

It will be seen that two such pieces put face to face will inclose the parts A and B, as shown in Figs. 5 and 6, and, when secured together by bolts or rivets, will form a solid support or brace between the parts A and B, thus making of the whiffletree, as a whole, a truss of the best form for resisting the strain brought to bear upon it. The bridge C also serves as a means of attachment.

In a double-tree which is to be bolted on a tongue or pole, the bridge C will be formed with a flat circular boss, I, as shown in Figs. 2 and 6, for a bearing, with a bolt-hole, *e*, at its center; and single-trees which are to be bolted on the top of double-trees will be made in the same manner, this being the style generally used on carriages and similar light draft.

In making them for farm use or other heavy work, they would, preferably, be made with the bridge C formed with a rear projection, *t*,

as shown in Figs. 1 and 5, thus forming a sort of clevis, by which the double-tree may be readily secured to a plow or similar implement, and by which, also, the single-trees may be readily attached by a bolt to the eye at the end of the caps D of the double-tree. The boss I may also be made on the bridge C in this case, the same as already described, to adapt the whiffletree for use on farm-wagons, street-cars, and the like.

In Fig. 1 I have represented a modification, which is more especially adapted for light draft. In this case the tube A may be made of lighter material—such as drawn brass tubing—and then strengthened by a wood filling, L, on the plan described in my former patent, or in any suitable manner. Instead of welding the brace to the front bar A, the latter is cut away or indented on its back side, at each end, far enough to permit the ends of the brace to rest therein, as shown at the right-hand end of Fig. 1, the ends of the brace-rod being extended beyond the end of the front bar, as shown, so that the cap D can be screwed thereon, as shown, the cap being made to fit over and inclose the end of the tube or bar A, and, when screwed up tight, bear against the end of the latter.

This modified style of the article may also be made without the wood filling, and with iron or other tubing, as may be preferred.

It is obvious that this construction, whether of the style shown in Fig. 1 or that shown in Fig. 2, is equally applicable to neck-yokes, it only being necessary to change the construction of the bridge C by providing it with a hole, or with a pendent piece of proper size to fit the end of the pole or tongue. In case the hole for the tongue be made in the bridge it should be lined with leather or similar material, to prevent wearing or defacing the pole; or, if made with a pendant to receive the end of the tongue, it should be of leather, as is customary, it being easily attached by securing it between the plates which form the bridge *c* by slightly modifying the latter for that purpose, which can readily be done by any artisan skilled in the art.

These whiffletrees are especially adapted for use on street-cars, as well as for all the ordinary purposes of the farm and heavy teamwork; and when intended for such use they will be made of ordinary wrought-iron, the caps and bridges being preferably made of malleable cast-iron.

When intended for use on carriages they need not be so strong, and by making them, as well as the neck-yokes, of lighter iron tube, suitably smoothed and polished, or of brass tubing and rods, they may be plated or gilded, and thus be rendered very ornamental in appearance, as well as exceedingly durable.

The manner of attaching the caps and the bridge also enables them to be replaced whenever broken or worn with but trifling expense or delay, as it is intended to manufacture these articles of regular sizes, with their parts interchangeable, the same as is now done with fire-arms and similar articles made by machinery.

It should be observed that when the ends of the brace are welded fast, as in Fig. 2, the bridge should be so made as to fit snugly in place, and press the brace outward, so as to draw it tight, thus holding the parts snug and firm.

When made as shown in Fig. 1 the brace may be drawn taut by screwing up the caps D. Ordinarily the front bar A will be made straight; but for very heavy work it may be better to curve it slightly, so that its center shall project slightly forward, as shown in Fig. 2.

Having thus described my invention, what I claim is—

1. A whiffletree or neck-yoke composed of the tubular bar A and the brace-rod B, secured thereto at its ends, substantially as shown and described.

2. In combination with the bar A and brace B, permanently united at their ends, the screw-cap D, constructed and applied as set forth.

3. The bridge C, composed of the two plates, provided with the grooves *a* and *c*, in combination with the bar A and brace B, substantially as described.

4. The combination of the tube A, having grooves for the brace B to fit in, with the brace B, having its ends extended beyond the ends of the tube, and the cap D, made to screw on said extended ends of the brace, and fit over and inclose the ends of the tube or bar A, substantially as shown and described.

5. The screw-cap D, provided with the ring or eye, and made reversible, as set forth.

6. In combination with the bar A and cap D, the bolt or pin *l*, arranged to fit in a notch or recess in the end of the bar, substantially as and for the purpose set forth.

GEO. W. EDDY.

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GEO. H. COLE.