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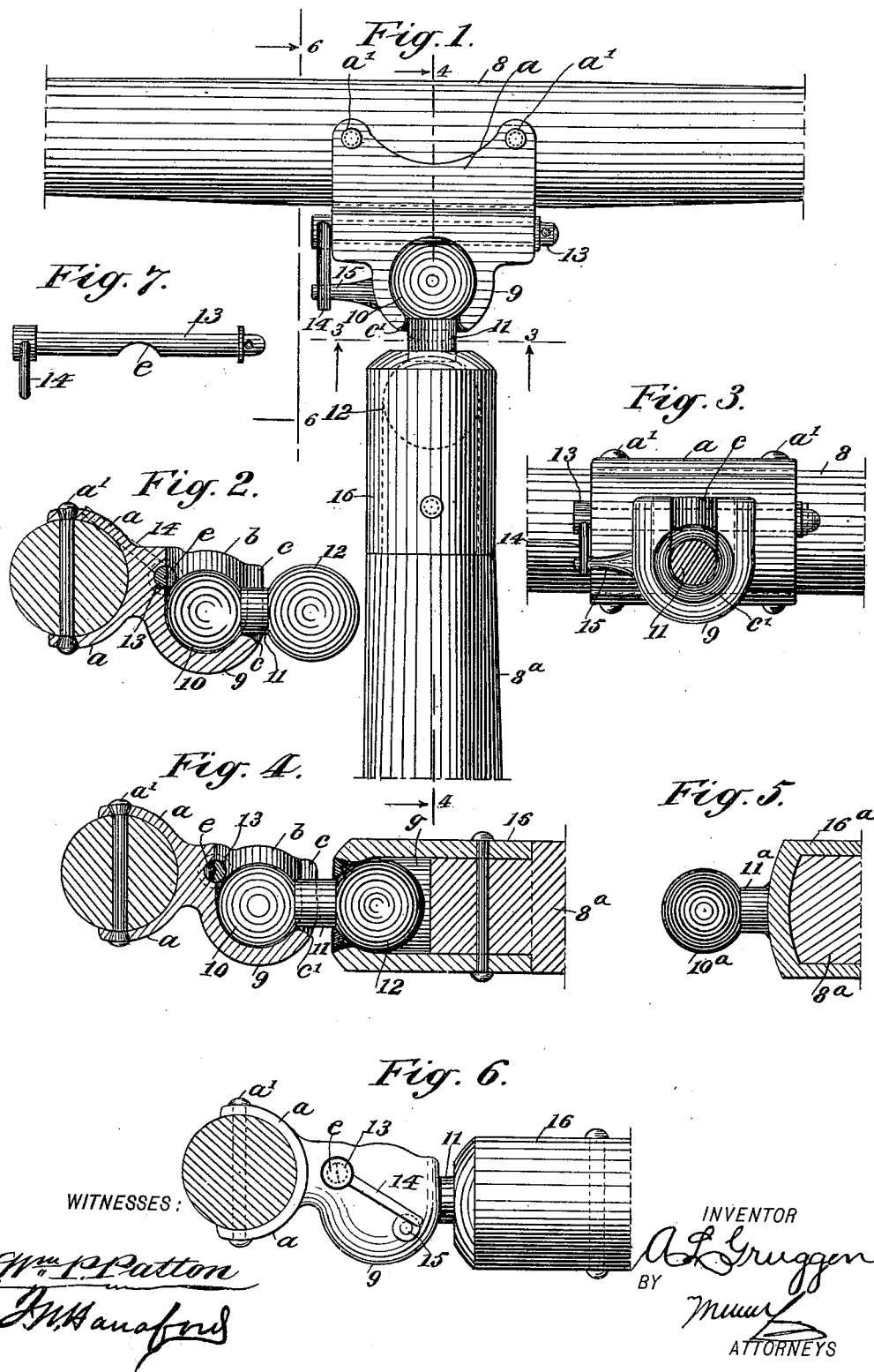
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A. L. GRUGGEN.

NECK YOKE AND TONGUE CONNECTION.

(Application filed Sept. 26, 1899.)

(No Model.)



WITNESSES:

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NECK-YOKE AND TONGUE CONNECTION.

SPECIFICATION forming part of Letters Patent No. 644,423, dated February 27, 1900.

Application filed September 26, 1899. Serial No. 731,734. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR LLOYD GRUGGEN, a subject of the Queen of Great Britain, residing at Moosomin, District of Assiniboia, Northwest Territories, in the Dominion of Canada, have invented certain new and useful Improvements in Neck-Yoke and Tongue Connections, of which the following is a full, clear, and exact description.

The object of this invention is to provide a novel, simple, and inexpensive neck-yoke and tongue connection which will be adapted to swivel in all directions, be detachable in a convenient manner, be reliable in service, and prevent accident in case of other draft appliances breaking while in use.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement applied. Fig. 2 is a transverse sectional view of a neck-yoke and of the improved connection thereon removed from the tongue. Fig. 3 is a partly-sectional rear view of the device in place on the neck-yoke, taken substantially on the line 3 3 in Fig. 1. Fig. 4 is a transverse sectional view of the improved connection, taken across the neck-yoke and longitudinally of the tongue end, substantially on the line 4 4 in Fig. 1. Fig. 5 is a sectional side view of the tip end of the tongue and a portion of the neck-yoke connection thereon of modified form. Fig. 6 is a transverse sectional view of the neck-yoke and a side view of the improved connection thereon, the section being on the line 6 6 in Fig. 1; and Fig. 7 is a detached plan view of a keeper-shaft, which is a detail of the invention.

In the drawings, 8 indicates the middle portion of a neck-yoke of any preferred construction, and 8^a the free end or tip of a vehicle pole or tongue. At the center of the neck-yoke 8 a main portion of the improved construction is secured, comprising the following details:

The body portion 9, consisting of a metal block, is rendered concave on the front side

and preferably flanged, as at *a*, thereby affording a seat for engagement of the block with the cylindrical center portion of the neck-yoke 8, whereon it is secured by the rivets or bolts *a'*, which pass through the neck-yoke body and also through the flanged portions *a* of the part 9, whereby the latter is held projected rearwardly from the middle portion of the neck-yoke.

In the portion of the block-body 9 which extends rearwardly from the neck-yoke a circularly-walled socket-chamber *b* is formed, which extends down from the upper side of the block-body a suitable distance, and preferably the bottom surface of the socket-chamber is rendered spherical cup-shaped to adapt it to afford a seat for a round head on a coupling-bar that will now be described.

The preferred form of the coupling-bar is shown in Figs. 1, 2, and 4, it consisting of two spherical balls 10 12, held spaced apart by the cylindrical neck-bar 11. A slot *c* is cut in the front wall of the block-body 9, from the upper side thereof, having sufficient width and depth to permit the free insertion of the ball 10 into the cupped cavity in the block-body 9, while the neck-bar 11 loosely occupies the slot *c*. The outer corners of the slot *c* may with advantage be rounded to permit a free swivel action of the ball and neck-bar within the block-body, as shown at *c'*.

A keeper-shaft 13 is journaled and loosely secured in aligned perforations formed oppositely in the side walls of the block-body 9, said perforations cutting into the defining-wall of the socket-chamber *b* at the forward side thereof and such a distance above the cupped bottom of the chamber as will cause the shaft 13 to lie above the forward portion of the ball 10, near its periphery, when parts of the device are assembled and adjusted as shown in Figs. 1 and 4. The body of the keeper-shaft 13 is cut away where it lies directly above the ball 10, said notch *e* being of such dimension as will afford clearance for the free introduction of the ball 10 into the chamber *b*, when the shaft 13 is rocked so as to dispose the notch above said ball, as shown in Fig. 2.

Upon one end of the keeper-shaft 13 a head is formed from which projects an arm 14 at a right angle, and said arm is so positioned

with regard to the notch *e* that when the arm is rocked forwardly and downwardly, so as to be in contact with a projection 15 on the body 9, as shown in Fig. 6, the solid portion of the shaft that is directly opposite the notch *e* will be moved so as to locate it above the ball 10, and thus keep said ball upon its seat, this adjustment being represented in Fig. 4. When the arm 14 is rocked toward and above the neck-yoke 8, as shown by dotted lines in Fig. 2, the notch *e* will lie above the ball 10 and permit the detachment of the same from the block-body 8 by simply lifting it out of the chamber.

The tip end of the vehicle-tongue 8^a is provided with a capped ferrule 16, which is closely fitted and secured upon a reduced portion thereof, and the hollow front end of the ferrule projects sufficiently in advance of the tongue end to provide a chamber *g* therein for the reception of the ball 12, as is clearly shown in Fig. 4. The front wall of the chamber *g* may be concaved, so as to conform to the surface of the ball 12, and said wall is centrally perforated of a diameter which will permit the ball 10 to pass therethrough after being passed through the bore of the ferrule.

It will be seen in Fig. 4 that the diameter of the bore of the ferrule and of the ball 12, which neatly fits therein, being somewhat larger than the aperture at the front end of said ferrule, the ball 12 is held from passing through said aperture, and thus is adapted to swivel freely in the chamber *g*, along with the neck-bar 11, whereon it is formed or secured.

When the neck-yoke 8 is coupled with the end of the tongue 8^a, as hereinbefore explained, it will be evident that the construction of parts will remain intact until the arm 14 is rocked into the position indicated by dotted lines in Fig. 2, which will allow the neck-yoke to be dropped down from the tongue, and thus free the draft-animals from the end of said tongue to be subsequently unharnessed.

If the traces of either or both horses should be broken or become accidentally detached from the vehicle, it will be obvious that the improved neck-yoke connection may be relied upon to hold the pole or tongue and the neck-yoke swivel connected in a secure manner, and as the ends of said neck-yoke are of course properly secured upon the harnesses of the horses the team of animals will remain attached to the tongue and the vehicle may be drawn from the neck-yoke, if this is necessary for the safety of the occupants of the vehicle.

In Fig. 5 I have shown a modified form of the ferrule that is secured upon the end of the tongue 8^a. In this construction a coupling-bar 11^a is formed integrally upon the front end of the ferrule 16^a and the ball 10^a is integral with or secured upon the outer end

of the coupling-bar. The ball 10^a may be readily introduced within the socket-chamber *b* if the notch *e* in the shaft 13 is disposed as shown in Fig. 2, and when so placed the ball may be loosely secured in said chamber by adjustment of the arm 14, as indicated in Fig. 4 and already described.

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

1. The combination with a neck-yoke, of a releasable tongue connection, comprising a body-piece secured on the neck-yoke, and having a socket-chamber therein, a coupling-bar, a ball on the end of said coupling-bar loosely seated in the socket-chamber, said coupling-bar extending through an open slot in the body-piece, and a locking device for the ball operative by a rockable lever, and adapted by adjustment to lock the ball loosely in the socket-chamber or release it for removal therefrom.

2. The combination with a vehicle-tongue, and a neck-yoke, of a releasable connection therefor, comprising a body-piece held upon the neck-yoke and having a socket-chamber therein, a coupling-bar extended from the tongue and having a ball thereon loosely seated in the socket-chamber, and a cross-shaft revoluble in the body-piece and adapted by adjustment to lock or release the ball in or from the socket-chamber.

3. The combination with a vehicle-tongue, and a neck-yoke, of a ferrule on the tongue, a coupling-bar extended from the ferrule, a ball on said bar, a body-piece secured upon the neck-yoke and having a socket-chamber therein, the ball on the coupling-bar loosely seating in the socket-chamber and said bar occupying a slot in an end wall of the body-piece, and a transverse keeper-shaft journaled in the body-piece so as to cross above the ball near its periphery, said shaft having a notch therein which when disposed above the ball will release it from the socket-chamber.

4. The combination with a tongue, and a neck-yoke, of a ferrule on the tongue having an apertured chamber at its end, a coupling-bar, a ball at each end of said bar, one of greater diameter than the other, the larger ball occupying the chamber of the ferrule, a body-piece secured upon the neck-yoke and having a socket-chamber therein, the projecting ball on the coupling-bar loosely occupying said socket-chamber and the coupling-bar passing through a slot in the end wall thereof, and a rockable shaft journaled in the body-piece and provided with a notch, the shaft by adjustment of the notch from or toward the ball respectively locking the ball loosely in place or releasing it.

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