

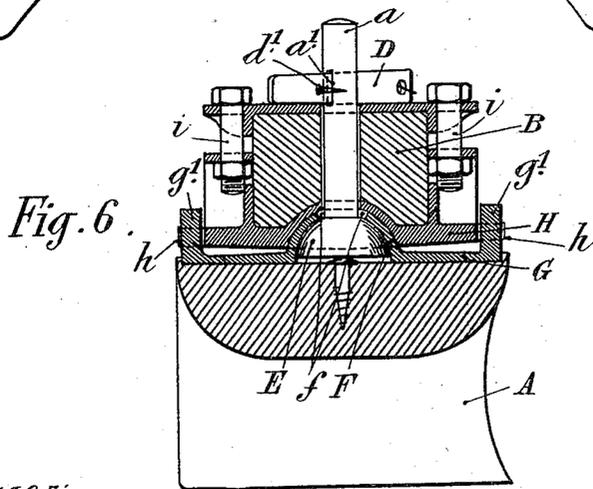
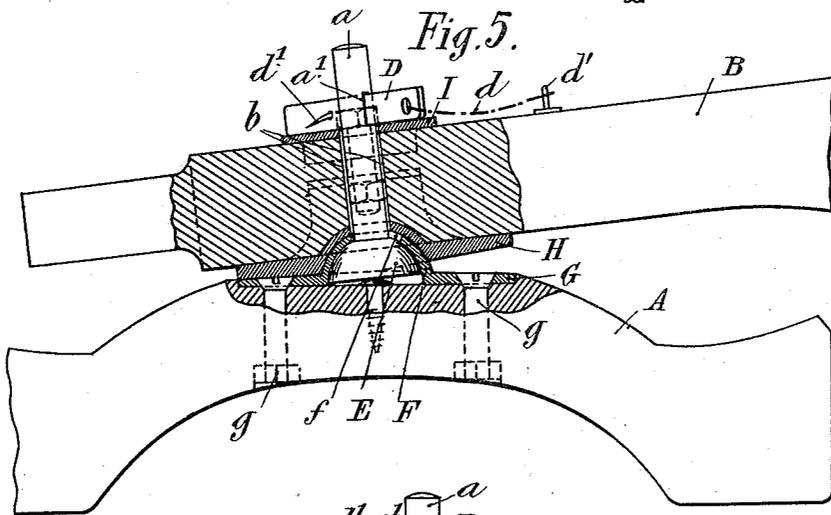
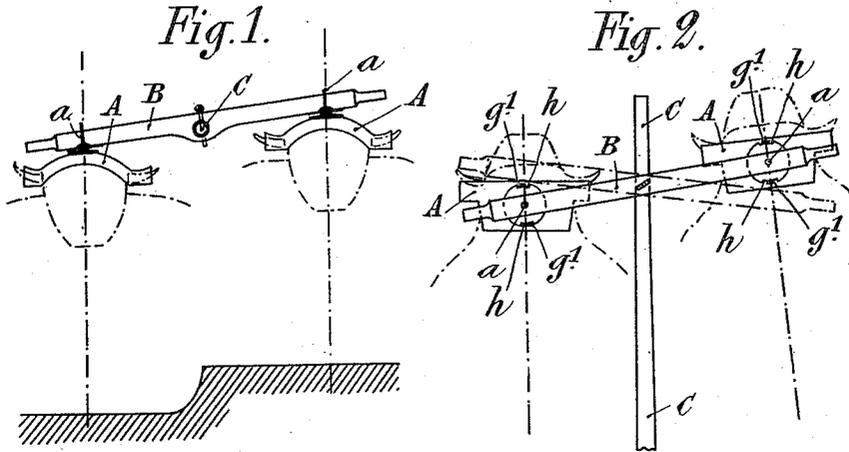
A. GUÉRINEAU.
YOKE.

APPLICATION FILED MAR. 31, 1914.

Patented June 8, 1915.

2 SHEETS—SHEET 1.

1,142,091.



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Inventor:
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by [Signature]

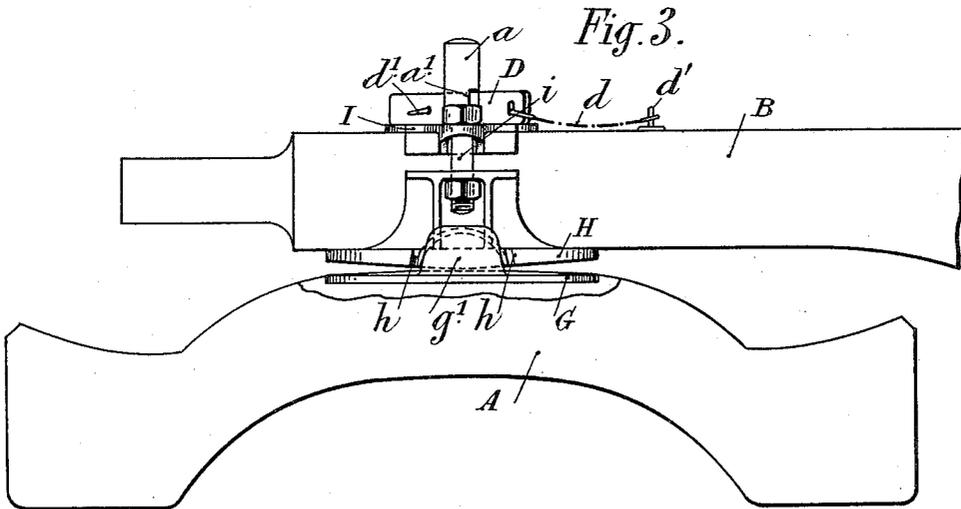
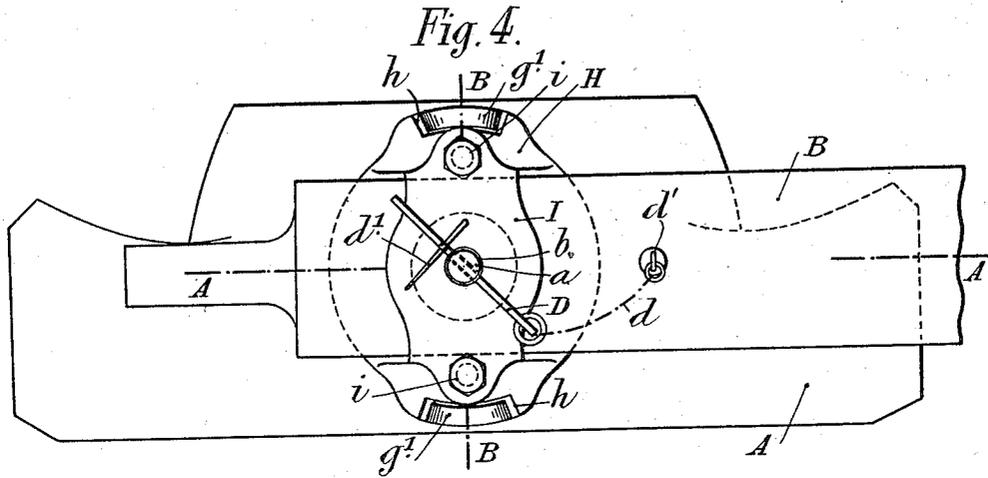
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UNITED STATES PATENT OFFICE.

ALEXIS GUÉRINEAU, OF CHOLET, MAINE-ET-LOIRE, FRANCE.

YOKE.

1,142,091.

Specification of Letters Patent.

Patented June 8, 1915.

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To all whom it may concern:

Be it known that I, ALEXIS GUÉRINEAU, citizen of the Republic of France, residing at Cholet, Maine-et-Loire, France, have invented certain new and useful Improvements in Yokes, of which the following is a specification.

My invention has for its object to provide an improved yoke for yoking beasts of burden. The yoke is particularly suitable for use in the form of a double yoke and consists essentially in being constituted by two single yokes or separate head pieces which are connected by a removable cross piece to which the draft member, such as a pole or the like is attached. The said cross piece is connected to each head piece by a pin and socket joint in such a manner as to allow of the cross piece oscillating in a horizontal direction about the said joint, and also of allowing a certain amount of rotation on each head piece about the axis of its joint.

In a preferred construction, according to my invention, the joint between the removable cross piece and each head piece, instead of being fixed to the part (head piece or cross piece) which carries it, is jointed to the said part by a hemispherical joint so that the cross piece is enabled to make in addition to its oscillation about the said joint, also a transverse oscillation by the movement of the pins in or on the complementary parts of their hemispherical joints. All the oscillatory movements of the cross piece or of the head pieces may be limited by providing stops between these elements of the yoke.

A practical embodiment of my invention is illustrated in the accompanying drawings in which:—

Figure 1 is a diagrammatic elevation of the general arrangement of the double yoke. Fig. 2 is a corresponding diagrammatic plan. Fig. 3 is an elevation of part of the removable cross piece and its mounting on one of the head pieces. Fig. 4 is a corresponding plan. Figs. 5 and 6 are sections respectively on the lines A—A and B—B of Fig. 4, Fig. 5 showing the cross piece in its position of extreme inclination toward the outside of the head piece shown in the same figure.

The complete yoke is composed of two separate head pieces A, each carrying at the center of its upper part a projecting pin a of a pin and socket joint for connection with a cross piece B, to which there is attached by the usual means a draft member such as a pole C. In the example shown it is assumed that the pin of the joint between the cross piece and the head pieces is carried by the head pieces. The socket of the joint may, as shown, be constituted by a simple cylindrical cavity b corresponding in diameter to the pin a . The cross piece B is kept on the pin a in the vertical direction by means of a key D attached to the end of a pin d^1 on the cross piece and adapted to engage in a corresponding recess a^1 in the pin a . The key itself may be held in a longitudinal direction by means of a flexible cord d , of leather or other material.

In the preferred practical construction the pins a , instead of being rigidly fixed to the head pieces A are carried by one of the elements E of a hemispherical joint E F, the other element of which is fixed to the head piece. In this construction E is a hemispherical head and F is a cavity of corresponding shape formed in a plate G fixed to the head piece, for instance, by bolts g with sunken heads. The element E of the joint E F bears preferably at its center upon a metal support, for instance the rounded head of a screw carried by the head piece for the purpose of keeping the element E in contact with the cavity F. By means of this arrangement, when the cross piece B is placed in position the key D can enter the recess a^1 without it being necessary to raise the pin a . The top of the recess F is formed with a notch f through which the pin a extends. This notch allows of a fairly easy play of the pin a in the transverse direction and a somewhat greater play in the longitudinal direction of the head piece. In all these movements in order to avoid the pin a from striking abruptly against the bottom of the notch f , the cross piece B can be provided with iron mountings such as H, each of which forms a cap at its center for the element F of the hemispherical joint, and is adapted to move along the outer surface, which is likewise hemispherical, of this element, while the lower surfaces of its

ends are suitably extended and rounded so that in rolling they shall strike against the plate G before the pin *a* shall have reached the end of the notch (Fig. 5). The iron parts H may also have notches *h* between the sides of which there extend projections *g*¹ of the plate G. In the construction shown, the iron part H is fixed by means of bolts *i* to an iron mounting I fixed on the top of the cross piece B. It is to be understood that the manner of fixing the iron mounting H may be varied at will.

It will be readily perceived that the described construction allows first of placing the yoke rapidly onto and removing the same from draft animals. In fact when the head pieces A have been attached to the animals it is sufficient in order to assemble the yoke to slip the cross piece B onto the pins *a* and insert the keys D into the recesses *a*¹. Of course care must be taken to attach the cross piece B so that the projections *g*¹ will enter the notches *h*. The yoke once placed in position affords the following advantages:—The cross piece B being capable of pivoting on the pins *a* will allow of relative oscillation of the heads of the animals in the longitudinal direction and also allow of a limited play of the heads about the geometric axis of the joint between each head piece and the cross piece. Further, since the pin *a* forms one part of a hemispherical joint the other part of which is fixed to the element carrying the said pin, the said pin *a* will be able to oscillate transversely and longitudinally in the notch *f*.

Fig. 5 shows the cross piece B in its extreme inclined position relatively to one of the head pieces A. The arrangement of the projections *g*¹ in the notches *h* of limited width serves to limit, as will be readily understood, the horizontal oscillatory movements of the cross piece B or the rotation of the head pieces relatively to the cross piece.

The diagram, Fig. 2, shows in full lines one of the extreme positions of horizontal oscillation of the cross piece and in dot and dash lines the other extreme position.

The constructional features of my improved yoke have the following practical advantages:—Each of the animals yoked therewith can move freely in various directions without the other animal being inconvenienced thereby. Thus each animal is enabled in exerting the power required of it to take up the position which it finds most suitable. The fact that vertical oscillations are possible allows of yoking animals of different heights without either animal being distressed thereby. My improved yoke allows also, for instance in plowing, of one animal walking easily on the top of the ridge while the other animal is walking

along the bottom of the furrow without the head of either animal being subjected to twisting strains. Finally the fact that my yoke is composed of a combination of two head pieces and a removable cross piece allows of fixing the head pieces upon the heads of the animals while they are in the stable, each head piece being fixed separately. The cross piece may also be removed instantaneously and the animals may be allowed to keep their head pieces on while they are resting.

In certain parts of the country a single ox is yoked to a cart by means of a yoke consisting of a single head piece terminating at each end in a wooden bar which is fixed to one of the two shafts of the cart. That kind of yoking has the same drawbacks with the single ox as those which are experienced with oxen yoked in pairs with one fixed yoke especially when the two wheels of the cart are not on the same level. Now the improved method of jointing according to my invention can be used with advantage in this case also.

What I claim is:—

1. A head yoke comprising separate head pieces, a common cross bar extending across the tops of the said head pieces, a universal joint between each head piece and said cross bar, allowing said cross bar to oscillate both in a horizontal and vertical plane relative to each head piece, and means for limiting said oscillatory movements.

2. A head yoke comprising separate head pieces, a common cross bar extending across the tops of the said head pieces, a hemispherical joint between each head piece and said cross bar, allowing said cross bar to oscillate in a horizontal and vertical plane relative to each head piece, and means for limiting said oscillatory movements.

3. A head yoke comprising separate head pieces, a common cross bar extending across the tops of the said head pieces, a pin and socket joint between each head piece and said cross bar, consisting of a pin extending through said cross bar and having a hemispherical head working in a corresponding recess in the head piece, and so arranged as to allow said cross bar to oscillate about said pins and also to tilt in a vertical plane relative to each head piece, and means for limiting the movements of said cross-bar.

4. A head yoke comprising separate head pieces, a common cross bar extending across the tops of the said head pieces, a pin and socket joint between each head piece and said cross bar, consisting of a pin extending through said cross bar and having a hemispherical head working in a corresponding recess in the head piece, and so arranged as to allow said cross bar to turn about said pins and also to tilt in a vertical plane rela-

tive to each head piece, and stops on one
of the relatively movable parts for limiting
the turning movements of said cross bar,
the said spherical recess being provided
5 with notches whereby the tilting of said
cross bar in a vertical plane is limited by
said pin striking the edges of said notch.

In testimony whereof I have affixed my
signature in presence of two witnesses.

ALEXIS GUÉRINEAU.

Witnesses:

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HENRI MORRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."