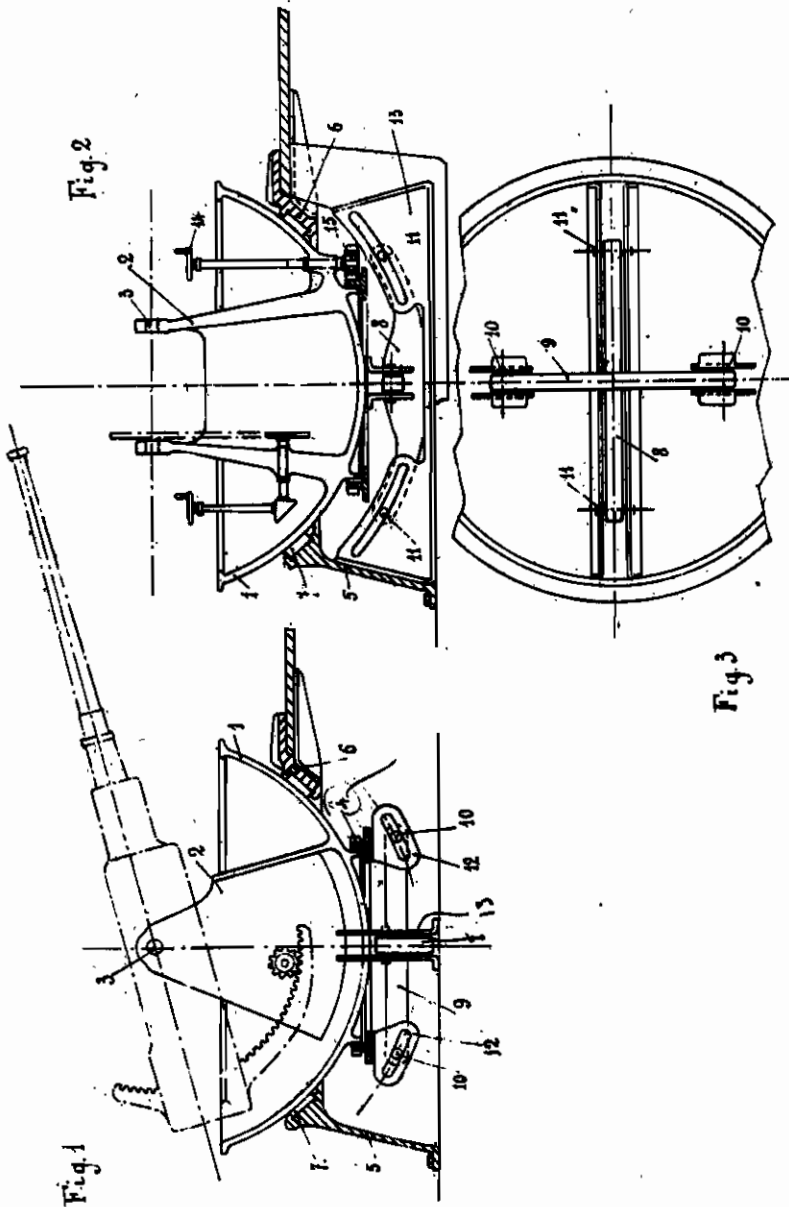


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GUN-CARRIAGE
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GUN-CARRIAGE

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The present invention relates to a gun-carriage for guns of any calibres and power, and more particularly to a gun-carriage which allows to keep the platform, carrying the gun and its serv-
ices, always horizontal and to maintain the sus-
pension center of the gun or guns, if it is ques-
tion about double, triple or quadruple laying, al-
ways upon the vertical of the whole, and that
with a minimum of loss of energy and a mini-
mum wear of the mechanical devices which pro-
vide for the horizontality of the platform.

At the same time, the gun-carriage according to the present invention allows the training and elevating movements, the first of which is obtained by means of a toothed ring fixed to the platform, and other arrangements, which will be particularly described hereinafter.

The accompanying drawings show an example of a constructional form of a gun-carriage according to the invention:

Fig. 1 shows a sectional view of a gun-carriage taken along the axis of the gun when it is in the direction of the keel.

Fig. 2 is a section orthogonal to that of Fig. 1.

Fig. 3 is a plan view of Fig. 2, in which the gun-carriage has been taken off.

In Fig. 1, 1 is a hollow, metallic and sufficiently resistant spherical calotte, to which are rigidly fixed the trunnion bearings 2. The axis of the trunnions 3, supported by said bearings 2, has to pass through the geometrical centre of the sphere, in which lies also the centre of gravity of the whole movable part, say gun and its mechanisms.

The spherical calotte is supported by a set of rollers 7, located in a base support 5, which is arranged upon the upper deck of the ship, as it is shown on the right of Figs. 1 and 2. Said set of rollers may also be located in a ring 8, which is fixed to the bridge and allows a part of the base support to be lowered under the bridge, lowering in this way the gun with respect to the upper deck.

The set of rollers 7 allows to the sphere 1 easily the rotating movements about its vertical axis, which are the prevailing ones, whilst the meridian movements, which are less large, take place with a certain friction, which, however, is easily overcome by the usual suitable motors, as it will be explained hereafter, when describing the working of the whole.

The spherical calotte 1 is provided at its lower pole with a large rotation and thrust ball bearing, about which rotates the training toothed wheel 4 and which therefore follows the sphere 1 in all

its movements, except in the rotating polar movement.

The toothed wheel 4 is prevented from rotating with respect to the ship, as it is connected to this latter by means of a rigid cross, the arms 8 and 9 of which carry at their ends two pairs of transversal pivots 10 and 11.

The pivots 11 of the arm 8 of this cross are engaged with the circular sector slot provided in the plate 13 fixed to the ship, whilst the pivots 10 of the arm 9 are engaged with the sector slots provided in the plate 12 fixed to the training toothed wheel 4.

The working of the whole is clear. As the training control wheel 14 is operated by hand, the pinion 15 is forced to rotate and, as it is engaged with the toothed wheel 4, which cannot rotate, the pinion 15 is forced to turn with the whole spherical calotte about the vertical axis of this latter and the gun will effect the desired training movement. At the same time, suitable motors (not shown in the drawing), acting tangentially upon the arms of the cross 8-9 in the planes of the respective slots, move the spherical calotte in such a way as to maintain it horizontal in the space, whilst the ship rolls and pitches.

Apart from the friction and the inertia, there do not exist components due to the firing, which are tangential to the arms of the cross 8-9; in fact, said forces pass always through the centre of suspension of the gun, which is also the centre of the sphere, and they are resolved according to the two radii of the sphere passing through the supporting ball bearing, in the plane of fire, and through the centre of the cross 8-9.

It may therefore be understood that the members for the transmission of the movement between the motors and the gun-carriage will not be stressed.

During the firing, which ensures the remaining still of the gun during its working and the long duration of the mechanical members. It may be noted that the centre of gravity of the whole connected to the sphere is beneath the centre of the sphere, which shows that, if the friction were equal to zero, the assemblage would be stable by itself, and this fact helps to reduce also the forces transmitted to said assemblage by the stabilisor motors.

The form and the constructional details, of course, may vary according to necessity, without therefore leaving the spirit of the present invention.

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