

No. 648,878.

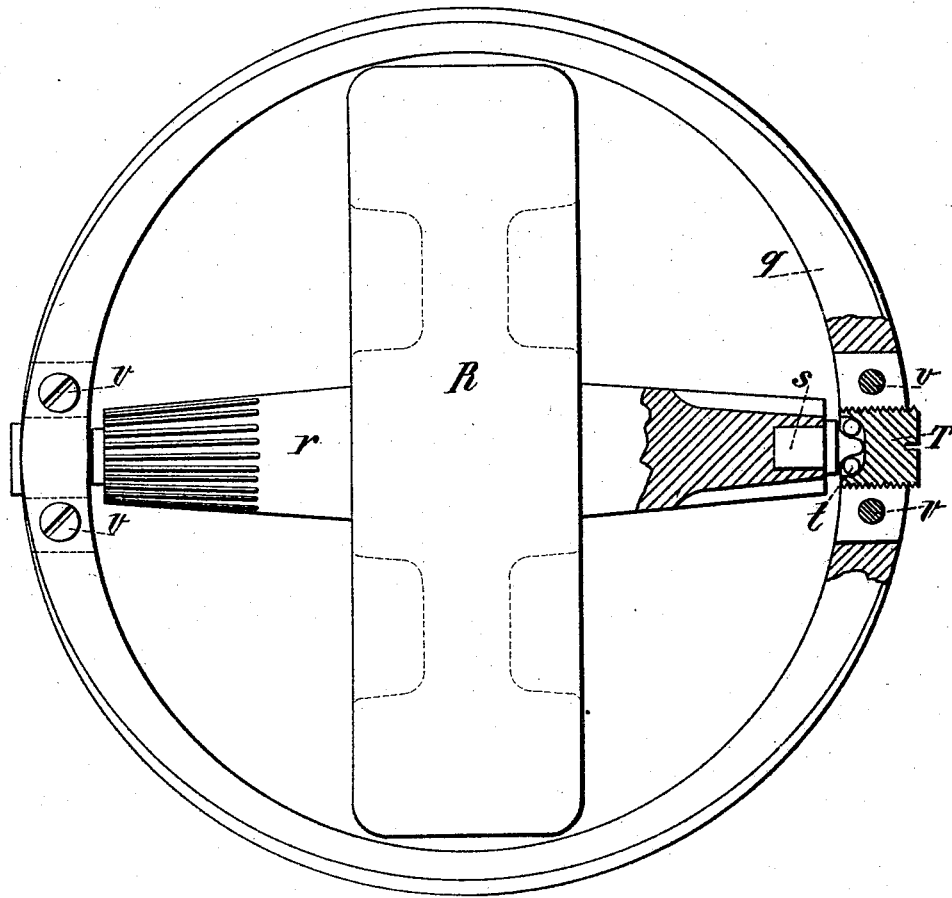
Patented May 1, 1900.

L. OBRY.

GYROSCOPE FOR TORPEDO STEERING MECHANISM.

(Application filed Dec. 20, 1898.)

(No Model.)



Witnesses.
Frederick Fischer
George H. H. H. H.

Inventor:
Ludwig Obry,
By *[Signature]* Attorney

UNITED STATES PATENT OFFICE.

LUDWIG OBRY, OF TRIEST, AUSTRIA-HUNGARY, ASSIGNOR TO WHITEHEAD
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GYROSCOPE FOR TORPEDO-STEERING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 648,878, dated May 1, 1900.

Application filed December 20, 1898. Serial No. 899,794. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG OBRY, engineer, a citizen of the Empire of Austria-Hungary, residing at Triest, Austria-Hungary, have invented certain new and useful Improvements in and Connected with Gyroscopes or Gyroscopic Steering Mechanism for Torpedoes, of which the following is a full, clear, and exact description.

10 This invention relates to steering apparatus for torpedoes as described in the specification of Obry's patent, No. 562,235, and more particularly to the gyroscope forming part of the said apparatus, but is applicable also to
15 gyroscopic mechanism for other purposes.

The accompanying drawing is partly a plan and partly a horizontal section of a gyroscope embodying my invention.

As shown by the drawing, the conical ends
20 of the axle *r* run on balls *t*, held in adjustable blocks or plugs *T*, each of the said plugs being screwed radially into the gimbal-ring *q* and having in its face a cup-shaped cavity adapted to receive the balls.

25 In order that the plugs *T* may be held fast after adjustment, the gimbal-ring *q* is slotted at the right and left of each bore, serving to receive one of the said plugs, and screws *v*

extend across the parts which have been separated by the slots, by means of which screws 30 the said parts may be drawn together after the plugs *T* have been adjusted.

By this improvement the time during which the heavy mass *R* continues to revolve, and consequently the time during which the gy- 35 roscope remains under control of its steering capacity, is much increased.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination with a gimbal-ring pro- 40 vided at diametrically-opposite points with bores, and being slotted on each side of said bores, of plugs seated in the bores, and having ball-races, a rotatable body *R* within the ring and having bearing ends projecting into 45 the cavities of the plugs forming the ball-races, balls arranged in said cavities and upon which the bearing ends of body *R* bear, and means for clamping the slotted parts of the ring and securing the plugs in position. 50

In witness whereof I have hereunto set my hand in presence of two witnesses.

LUDWIG OBRY

Witnesses:

FRANECK BUTTORO,
A. BRUNER.