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GYRO WEAPONS STABILIZER

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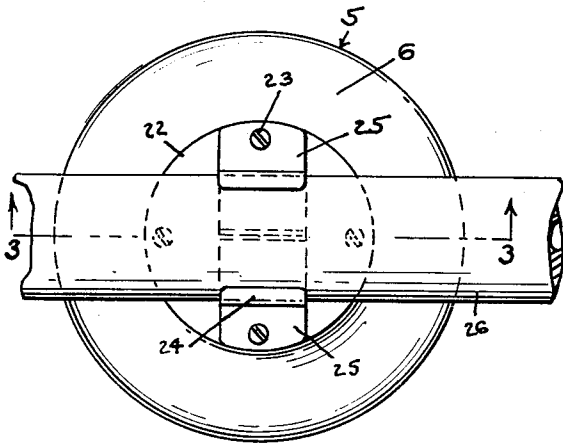


FIG. 1.

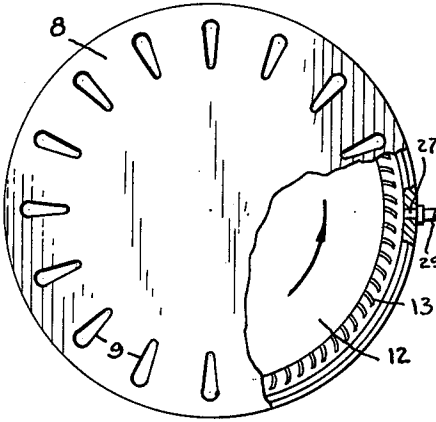


FIG. 2.

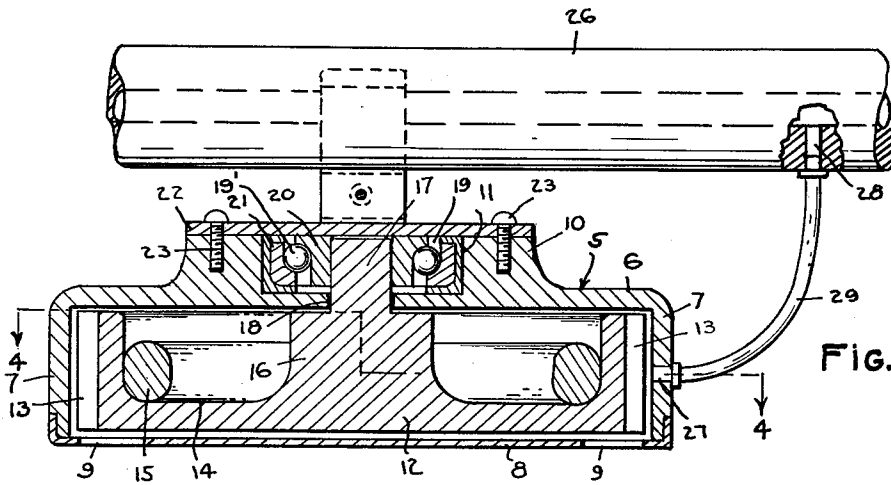


FIG. 3.

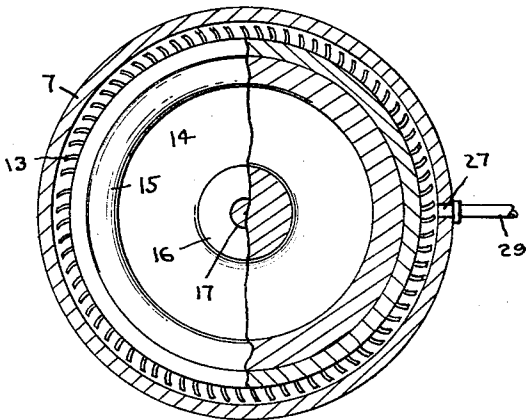


FIG. 4.

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**GYRO WEAPONS STABILIZER**  
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2 Claims. (Cl. 89-14)

This invention relates to a gyroscopic stabilizer for detachable connection with weapons or the like, such as rifles and with the stabilizer being energized and driven through the medium of an explosive gas within the barrel of the weapon.

The invention contemplates a gyroscopic stabilizer that is clipped to the barrel of a weapon and with the barrel of the weapon being apertured and provided with a tube that registers with an aperture in the stabilizer for driving a turbine in a stabilizer casing and for maintaining the barrel of the weapon in an accurate position to prevent vertical motion of the barrel when a projectile is forced therethrough and with the gases generated by the firing of the projectile functioning to spin the gyroscope in a horizontal plane and the device is particularly advantageous in a rapid fire weapon so as to maintain the barrel at an elevation and in line with a particular target area.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

FIGURE 1 is a top plan view of a gyroscope constructed in accordance with the invention, and showing the same clipped upon the barrel of a weapon,

FIGURE 2 is a bottom plan view, parts being broken away for purpose of illustration,

FIGURE 3 is a transverse section taken substantially on line 3-3 of FIGURE 1, and

FIGURE 4 is a horizontal section taken substantially on line 4-4 of FIGURE 3.

Referring specifically to the drawings, there has been illustrated a gyroscope having a casing indicated as a whole by the numeral 5. The casing is cylindrical, having a top wall 6 and circumferential side walls 7. The casing at its bottom is open and normally closed by snap-on plate 8. The plate 8, see particularly FIGURE 2 is provided with a plurality of elongated slots 9, constituting exhaust openings, for a purpose to be presently described. The top 6 axially thereof is provided with a raised lug 10 and the raised lug 10 is provided with a cylindrical recess 11.

Rotatable within the casing 5 is a gyroscopic rotor 12, the marginal portion thereof being provided with turbine blades 13. The rotor 12 is circumferentially recessed at 14 for receiving a weight producing ring 15. The ring 15 is fixed into the recess 14 in any desirable manner, such as by soldering or, if the rotor is cast, the ring will obviously be cast integral therewith. From the recess 14, the rotor is provided with an upstanding axially arranged lug 16 that is provided with a central reduced and axially arranged shaft 17, the shaft projects upwardly into the recess 11 through a cylindrical opening 18, formed in the top wall 6.

Fixedly engaged into the recess 11 is a ball bearing unit 19, having an inner raceway 20 and an outer raceway 21. The outer raceway 21 is fixed into the recess 11 by a force fit, while the inner raceway 20 has a force fit engagement with the shaft 17 and whereby the rotor is freely rotatably supported upon the bearing 19 and with the rotor being slightly spaced from the inner surface of the upper wall 6, the bottom plate 8 and the marginal wall 7

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and to rotate freely in a manner to be described. The bearing 19 is provided with the balls 19'.

The lug 10 is provided with a cover plate 22, fixed to the lug 10 by screws or bolts 23. Also fixed to the cover plate 22, by two opposite bolts 23 is a spring clip 24, formed of a pair of leg sections 25 and with the leg sections extending across the top of the cover to be engaged by the screws 23. The clip 24 constitutes the means for holding the gyroscope upon a rifle barrel or the like 26.

The circumferential wall 7 is provided with a port 27 communicating with the turbine blades 14. The port 27 is adapted to be connected to a port 28 that has been drilled into the barrel 26 of the weapon by a tube 29 and the gyroscope as illustrated is fixed beneath the weapon and held by the clip 24.

In the use of the device, the gyroscope is assembled as illustrated in FIGURE 3 and engaged with the bottom of the barrel 26 by the clip 24. The tube 29 is then connected to the ports 27 and 28. As the weapon is fired, the gas pressure within the barrel will pass through the ports 28 and 27 to impinge upon the turbine blades 13, causing the rotor to rotate at a relatively high speed. The rotation of the rotor 12 will, similar to all gyroscopes, maintain a continuous angle in accordance with the angle of the rifle or other weapon and will maintain the barrel of the rifle in an accurate position at all times in accordance with the particular target area to which the barrel has been pointed. The gyroscope will also maintain the barrel in an angular position, should the barrel be so angled and the device functions to maintain all weapons to which it is applied to an accurate degree. As the gases impinge upon the blades of the rotor, they will escape through the slots 9, or other selected openings avoiding any back pressure and permitting the rotor to freely turn.

It will be apparent from the foregoing that a very novel means has been provided to stabilize various types of weapons having a barrel for projecting a bullet or other projectile. The device is simple in construction, is strong, durable, relatively cheap to manufacture and highly effective as a stabilizing means for weapons of various types.

While the gyroscope has been primarily illustrated as controlling various types of weapons, it will be apparent, that the gyroscope may be employed in various other cases, such as ships, submarines and any other device wherein a gyroscope may be employed to maintain stability of the device.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claims.

I claim:

1. A gyroscopic stabilizer for weapons having a barrel that comprises a cylindrical housing open at its bottom and with the bottom being closed by a plate having a circular row of openings, the housing having a top and with the top being provided with a lug that is concentric with the housing, the lug being axially recessed, a ball bearing having inner and outer raceways and with the outer raceways having a force fit into the recess, a rotor disposed within the housing and with the rotor being concentric to the housing, the rotor being downwardly recessed, a weight producing ring disposed in the recess and fixed therein against movement, the recess of the rotor having a centrally arranged upstanding lug that is flush with the upper edge of the rotor, the lug having an axially arranged upwardly projecting shaft that has a force fit engagement with the inner raceway of the ball bearing, the shaft extending through a cylindrical opening in the top, a cover plate for the first named boss having a diameter substantially identical to the boss, screws for fastening the last named cover plate with respect to the boss and to

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cover the ball bearing and the upper end of the shaft, a  
spring clip fixed upon the second named cover plate and  
with the clip overlying the cover plate and secured thereto  
by opposite fastening screws of the cover plate, the said  
clip adapted to have a clipping engagement with the barrel 5  
of the weapon and whereby to mount the gyroscope be-  
low the barrel, the rotor having a circumferential row of  
turbine blades, a port formed in a side wall of the housing  
and a port formed in the barrel of the weapon that commu-  
nicates with a bore of the barrel and a tube connecting 10  
the ports whereby gaseous pressure within the barrel of the  
weapon will be directed to the turbine blades and whereby  
to spin the rotor for stabilizing the weapon.

2. Structure according to claim 1, wherein the rotor is  
integrally molded and with the rotor being relatively thick, 15

the turbine blades extending across the marginal portion of  
the rotor for its full width, the pressurized gas adapted to  
escape from the housing through the openings of the first  
named cover plate.

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