Sept. 22, 1931. C. BITTINGER 1,824,462

ORDNANCE

Original Filed April 26, 1926

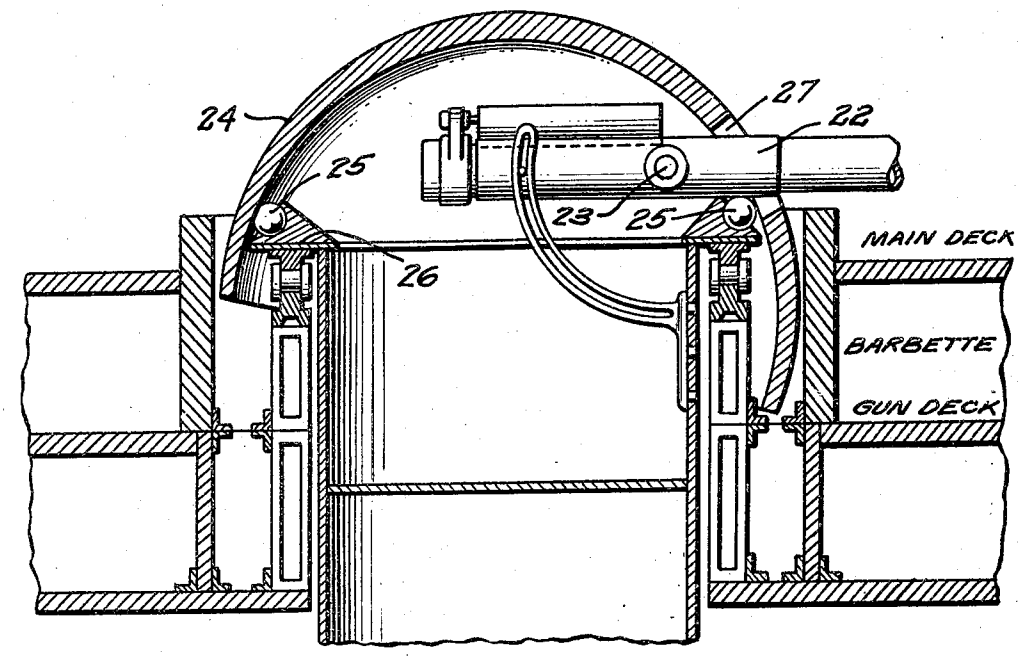


Fig. 1.

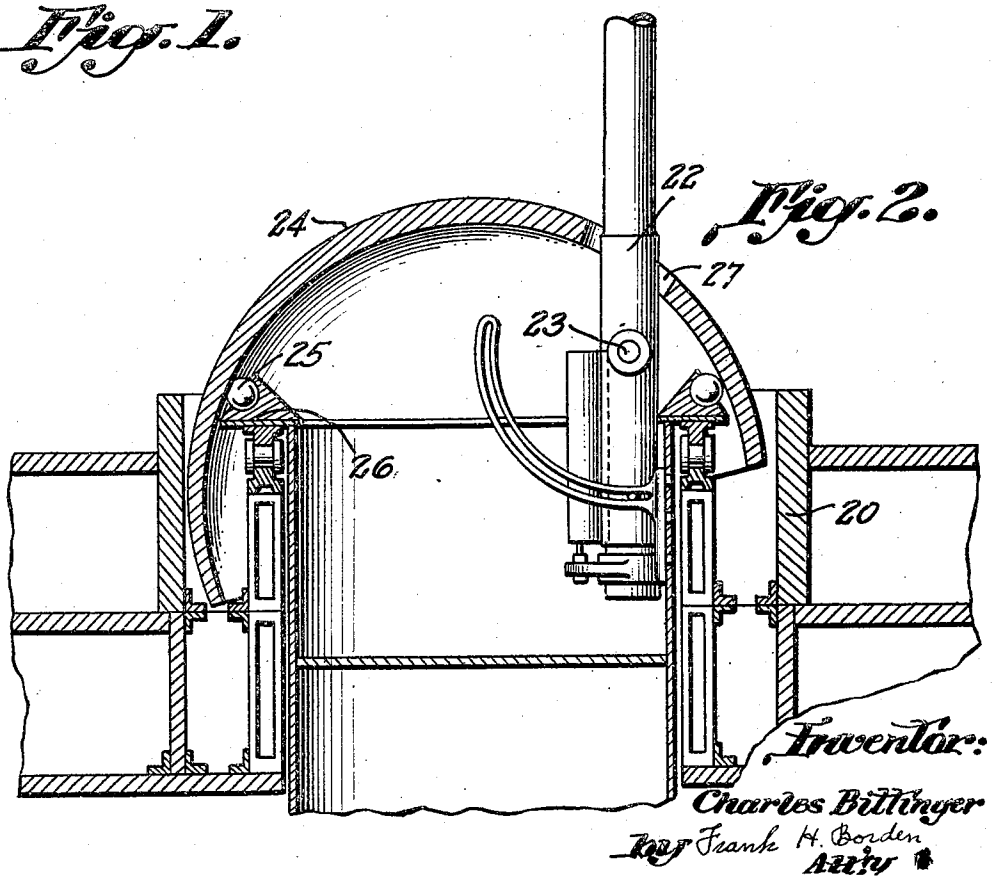


Fig. 2.

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UNITED STATES PATENT OFFICE

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ORDNANCE

Original application filed April 26, 1926, Serial No. 104,832. Divided and this application filed April 3, 1930. Serial No. 441,328.

The matter disclosed and claimed herein constitutes a division of application filed April 26, 1926, on ordnance, Ser. No. 104,832.

This invention relates to ordnance, with particular reference to anti-aircraft ordnance.

So far as known, anti-aircraft ordnance has been designed for such use only, to the exclusion of ordinary field or naval ordnance purposes. Similarly large caliber ordnance such as is used on naval vessels, for instance, has been incapable of use against aircraft, due among other factors, to the slight degree of elevation to which such ordnance is susceptible. This results not only in undue duplication of ordnance, but also in ineffective anti-aircraft measures.

Further, it has been the tendency and practice to provide as anti-aircraft ordnance devices with a high rate of fire but with an attendant decrease in bore of the rifle, and in the size and weight of the projectiles. The hope being that a cone of fire will be provided of great intensity, of such divergence that one or more of the small projectiles may strike the target air-craft. Such anti-aircraft ordnance and fire have been proven to be ineffectual.

Some of the objects of this invention are: to improve the mounting of large caliber ordnance to permit its use against aircraft without in any way reducing the offensive power of the gun when firing at ships on the surface of the water, or lowering the resistance factor of the turret in which the gun is mounted; to provide means whereby highly effective firing may be had against aircraft; and many other objects and advantages as will be apparent.

In carrying out this invention a turret or similar mount for a gun is provided, which is so arranged that aiming and firing of the gun may be had in two perpendicular planes, effective for either long range or high elevation purposes.

In the accompanying drawings:

Fig. 1 is a vertical section through a turret, of a naval vessel for instance, which turret has movement about a vertical axis and also about a horizontal axis, with the gun in its normal horizontal position,

Fig. 2 is a similar section to Fig. 1, but with the turret in a slightly different position about its horizontal axis, and with the gun shown in an elevated position for anti-aircraft fire.

In anti-aircraft fire, the vital spot of the target has always been considered to be the pilot. It has been found that expeditious results may be had by causing some collapse of the airplane structure, such as a strut, propeller, flying wires, and that such collapse is as effective as a hit on the pilot.

While, of course, there is always a chance that the present construction and firing of anti-aircraft ordnance will in isolated cases result in hits, yet there is a tremendous waste of munitions with no certainty of a hit. Frequently such projectiles as make hits, pass through wings or other innocuous places, without any appreciable damage.

This invention contemplates a reduced rate of fire if necessary, but results of high efficiency from each shot. With that portion of the invention pertaining to improvement of the mounting of large calibered ordnance, such as the 12, 14 and 16 inch guns, it will be perfectly feasible to fire either high explosive shells, the conventional shrapnel, or even gas shells, and good results should be obtainable from any of these.

For greatest effectiveness it is contemplated that projectiles would be used with large caliber ordnance which may be made available for such anti-aircraft or other fire as shown in Figs. 1 and 2, although obviously smaller rifles may be used.

Referring now to Figs. 1 and 2 of the drawings, the turret carrying a desired number of guns comprises essentially an armored mount for the guns or rifles, the muzzles of which project through gun ports therein. Within the barbette 20, means are provided such as bearings 21, for turning the turret as a whole about a vertical axis, for the azimuth citing and firing of the rifles. The slight vertical movement of the gun in the conventional turret is insufficient for vertical angled firing. To obtain such high angles the gun 22, is

mounted on trunnions 23, eccentric with the vertical axis, being rather close to the lateral edge of the turret. The armored dome 24 is mounted for rotation about a horizontal axis as well, as by means of bearings 25, carried on the turn table 26 of the turret. The dome 24 has a gun port 27 through which the gun or rifle extends and which may be made gas tight in any desired manner. In this and the other forms disclosed it requires but a slight modification of the armor surrounding the gun port to afford ample protection to the trunnions and recoil cylinders of the conventional rifle. In the form just described it will be seen that with the eccentric pivoting of the gun, a great variation in the vertical angle of the gun may be had with a minimum movement of the turret dome 24 on its horizontal axis, so that 90° elevation may be had with but perhaps 20° of movement of the dome. It will be understood that mechanisms for operating the gun and the several cooperating parts may be provided as desired.

Many changes and modifications of this invention may occur to those skilled in the art, and all such are to be considered as within the scope of the following claims, except where they may otherwise be limited. For instance land fortifications require high angled fire, unobtainable except with such turrets as those described.

I claim as my invention:

1. In a gun mount, a turret, an armored wall for the turret having a gun port, a gun extending through the port, trunnions pivotally supporting the gun, means for pivotally supporting the armor for movement relative to the trunnions on an axis eccentric to the trunnions, means for varying the relative position of the port in relation to the trunnions whereby said gun may oscillate on the trunnions through a full 90° vertically according to the relative positions of the trunnions and port.

2. In a gun mount, a turret, an inclined armored wall of the turret having a gun port, a gun extending through the port, pivotal means for supporting the gun on a horizontal axis means for pivotally supporting the armor for movement relative to the trunnions on an axis eccentric to the trunnions, means for varying the relative positions of the axis and said port whereby the axis and the port may be in substantially a horizontal plane for horizontal firing of the gun, and may be in substantially a vertical plane for vertical firing of the gun or in any adjusted position therebetween.

3. In a gun mount, a turret including an armored inclined wall, said wall having a gun port above the lower edge of said wall, a gun projecting through said port, means for supporting said gun on a horizontal axis in such position as to fire substantially horizontally, and means for effecting a change in the angular relationship of the gun and the inclined wall whereby the gun projects substantially vertically, with the inner end of the gun disposed vertically in the turret in the clearance afforded by the lower edge of the inclined wall below the port therein.

4. A gun mount including a turret having armor, the armor having a port, a gun projecting through the port, the armor and the gun being respectively oscillatable upon parallel horizontal axes, with the gun axis being disposed between the armor axis and the port whereby a minimum oscillation of the armor permits a maximum oscillation of the gun.

5. A gun mount including a turret having armor, the armor having a port of less than conventional size, a gun projecting through the port with a minimum clearance in the port, means for pivoting the gun on a horizontal axis relatively close to the port, means for oscillating the armor on an axis parallel with the gun axis but relatively remote therefrom, and arranged so that an oscillation of the armor through substantially 20° moves the port to a point substantially vertically aligned with the axis of the gun to permit a full 90° oscillation of the gun on its axis.

6. In a gun mount, a turret, an armored wall of the turret having a circular gun port, a gun extending through the port, trunnions pivotally supporting the gun within the turret means for pivotally supporting the armor for movement relative to the trunnions on an axis eccentric to the trunnions, means for varying the relative position of the port to the trunnions whereby said gun may oscillate on the trunnions through a full 90° vertically according to the relative position of the trunnions and port.

Signed at Philadelphia, county of Philadelphia, and State of Pennsylvania, this 22nd day of March, 1930.

CHARLES BITTINGER.