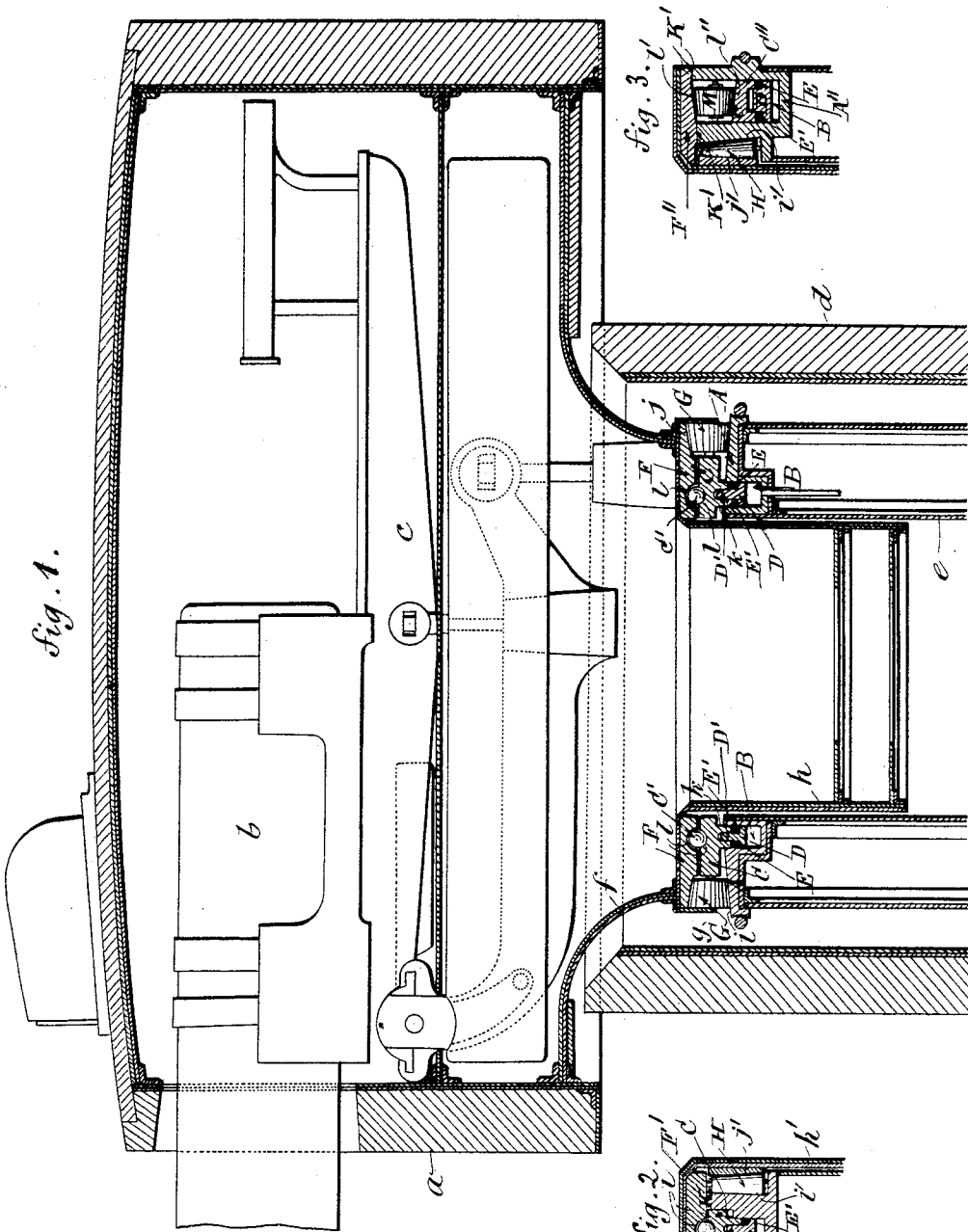


(No Model.)

J. A. DEPORT.
SUPPORT FOR ROTARY TURRETS, &c.

No. 565,608.

Patented Aug. 11, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH ALBERT DEPORT, OF PARIS, FRANCE.

SUPPORT FOR ROTARY TURRETS, &c.

SPECIFICATION forming part of Letters Patent No. 565,608, dated August 11, 1896.

Application filed January 10, 1896. Serial No. 574,983. (No model.) Patented in France May 15, 1895, No. 247,451, and in Belgium August 26, 1895, No. 117,156.

To all whom it may concern:

Be it known that I, JOSEPH ALBERT DEPORT, a citizen of the Republic of France, residing in Paris, France, have invented certain new and useful Improvements in Supports for Rotary Turrets and other Devices, of which the following is a specification.

This invention has been patented in France May 15, 1895, No. 247,451, and in Belgium August 26, 1895, No. 117,156.

This invention relates to means for supporting heavy rotary devices, and is especially adapted for use with turning armored turrets and aims to provide improved means for such uses.

According to the preferred form of the present invention as adapted for an armored turret, a base or saddle is provided formed with an annular hydraulic cylinder, in which plays a piston of the same form and having a packed or leak-tight joint. The saddle supports on its top the turret, for which it has tracks opposed to like tracks carried by the turret, and between these tracks there may be a series of conical or other antifriction rollers on which the turning of the turret may be effected. These are the ordinary tracks for carrying the turret from the saddle. In addition to these I provide auxiliary tracks or provisions by which the turret can be partly or entirely carried or guided on the piston working in said cylinder, and I provide for the movement of this piston into or out of an active position by the injection of water under pressure or of other suitable medium under pressure into the cylinder. The piston preferably has tracks opposite to like tracks carried by the turret, and between these tracks are disposed antifriction-balls or the like, by which the turning of the turret on the piston is permitted. If desired, the piston may be the usual track for the turret, and raising or lowering the piston may suffice for the adjustment of the turret or for bringing it to rest on the base or saddle. In most cases it is best to use the hydraulic piston only temporarily, and in case of need, to facilitate movement of the turret.

I will describe certain adaptations of my invention as applied to a rotary armored tur-

ret, with reference to the accompanying drawings, in which—

Figure 1 is a fragmentary vertical axial section of an armored turret, its well, supporting-column, and rotary bearing, showing the gun-carriage and gun in fragmentary elevation. Fig. 2 is a fragmentary section of the rotary bearing, showing a modification; and Fig. 3 is a similar view showing another modification.

Referring to Fig. 1, let *a* indicate an armored turret; *b*, a gun therein; *c*, the carriage for the latter; *d*, the turret-well; *e*, the supporting-column for the turret; *f*, the neck of the turret; *g*, the rotary bearings between the turret and column, and *h* the throat of the turret, projecting into the hollow interior of the column. These parts may be of any suitable or desired construction, the well and column being stationary and the turret a partially or completely rotative member carried on the column and over the well. The bearing *g* may be any suitable bearing by which the turret can be rotated on the column.

Referring to Fig. 1, I will now describe in detail the construction therein shown as the preferred embodiment of my improvement. In this construction an annular base or saddle *A* is fixed on the column *e*, and is formed with an annular cylinder *B*, extending from its top face downwardly and near its inner side, outwardly of which it has a taper-track *i*, on which is located a series of tapering or conical rollers *G*, which on their upper side carry the bottom plate *F* of the turret, which plate has a tapering or conical annular track *j* over and resting on the rollers *G*. The annular piston *D* carries an annular head *C* above the saddle *A*, the piston being preferably divided into two parts within the cylinder, the lower one being a head *D*, having an upwardly-projecting narrow flange *D'*, and the upper part being a shank *k*, having a groove receiving this flange, and into which the flange is permitted to move until arrested by the compression of two cords or rings of suitable packing material *E* and *E'*, which are located between the shank and the head of the piston and make a leak-tight joint with the adjacent walls of the cylinder.

The upper head C of the piston and the opposite face of the plate F are provided with suitable tracks for the rotation of the plate on this head, and preferably these are grooved tracks *l*, and a series of bearing-balls C' are carried between them to facilitate the turning of the plate on the head.

Ordinarily the piston will be depressed by the withdrawal of fluid from the cylinder until the head C of the piston is so low that the balls C' are out of contact with and do not sustain the turret from its plate F. As the piston is thus lowered the track *j* will be brought onto the rollers G, and there will exist a slight play or freedom between the upper track *l* and the ball C'. The turret will then be rotatively supported by the rollers G from the track *i* of the saddle, and the piston will be inactive. If one should then inject fluid under pressure into the cylinder, the piston will be lifted until the balls C' engage the tracks *l* and raise the plate F either partially or entirely above the rollers G. The turret will then rest on the circle of balls of the piston. This may be desirable when one wishes to obtain a more facile rotation of the turret, or to repair or replace any of the rollers.

In the construction shown in Fig. 2 the neck *h'* of the turret is guided by the rollers H from the fixed and substantially vertical track *i'* of the saddle A', which rollers act against the substantially vertical track *j'* on the neck, the rollers being slightly conical or tapering toward their upper ends. In this construction the saddle A' and top plate F' have reciprocal tracks or faces K on their adjacent portions on which ordinarily the plate is supported from the saddle non-rotatively, and the cylinder B' and piston C are disposed near the outer side of the saddle, their tracks *l* and bearing-balls C' being likewise disposed and of similar construction to those described with reference to Fig. 1. The piston is divided and packed in this construction as in that before described.

In ordinary times the piston C will be depressed until its bearing-balls are below the plate F', and the latter will rest non-rotatively on the faces K; but when it is desired to maneuver the turret the piston will be elevated by injecting fluid into the cylinder until the bearing-balls lift the plate sufficiently to carry it with the faces K out of contact, whereupon the turret can roll on the balls C'.

The construction shown in Fig. 3 differs from the preceding only in that the track *l'* on the plate F'' and the track *l* on the piston are tapered or coned and a series of conical rollers M are interposed between them, which rollers carry the plate when the piston is elevated and pass below it, permitting it to rest on the faces K' when the turret is to be inactive.

It will be seen that my invention provides an improved movable bearing for turning

turrets and other devices which may be used either as an auxiliary or as a main rotative bearing, and improved means for operating such bearings, and it will be understood that the invention is not limited to the particular details of construction nor to the particular adaptation or use described and shown, since it may be availed of according to such modifications or for such purposes as circumstances or the judgment of those skilled in the art may dictate without departing from the spirit of the invention.

What I claim is, in supports for rotary turrets and other devices, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. In bearings, supports and the like, upper and lower members the one rotative relatively to the other, in combination with a cylinder for containing fluid under pressure carried by one of said parts, and a piston in said cylinder movable toward the other of said parts, and bearing-tracks on said piston and the part toward which it moves engaging and serving as a bearing for the rotative part when said piston is moved outwardly from said cylinder.

2. In supports and the like, a lower member having a fixed and a movable bearing-track, in combination with a rotative member carried thereon and having corresponding tracks, said movable track when in one position free from said rotative member and when in another position engaging the latter.

3. In supports and the like, a lower member having an annular cylinder, an annular piston working in said cylinder, and an upper member rotatively carried by and rotating relatively to and on said piston.

4. In supports and other devices, an annular pressure-cylinder, in combination with an annular piston therein having two parts, the one having annular side walls fitting the walls of said cylinder, and the other having annular side walls fitting the walls of said cylinder below the first, and a soft packing material filling the confined annular space between the inner walls of said cylinder and the upper and lower parts of said piston, and transmitting the motion of one to the other within the walls of said cylinder, for making a leak-tight joint between the piston and cylinder.

5. In rotary turrets and other devices, a lower member having an annular track, and an upper member having a corresponding annular track and rotatively carried from said lower member, in combination with a second rotative bearing between said parts consisting of a movable track on the one, a corresponding track on the other, and antifriction devices between said tracks.

6. For turrets and other devices, a lower member consisting of a movable hydraulic piston having an annular track, and an upper member having a corresponding track in com-

ination with a plurality of bearing-balls between said tracks carrying the upper member rotatively on the lower member.

7. In turrets and the like, a lower member
5 having an annular ball-bearing track and an
annular roller-track, the one in its transverse
extension substantially perpendicular to the
other, and the one a laterally-guiding and
the other a vertically-lifting track, and an
10 upper member having corresponding tracks
and rotatively carried and guided by said
lower member, and antifriction-balls between
said members on one of said tracks, and anti-
friction-rollers between said members on the
15 other of said tracks.

8. For turrets and the like, a lower member having an annular hydraulic cylinder, in combination with a piston operating in said cylinder and having a bearing-track, and an upper member above said piston carried ro- 20
tatively thereon and having a bearing-track
opposite that of the latter.

In witness whereof I have hereunto signed
my name in the presence of two subscribing
witnesses.

JOSEPH ALBERT DEPORT.

Witnesses:

CLYDE SHROPSHIRE,

JULES ARMENGAUD, Jeune.