A. KRUPP.

CONSTRUCTION OF ORDNANCE.

No. 182,584. Patented Sept. 26, 1876.

Fig. 1.

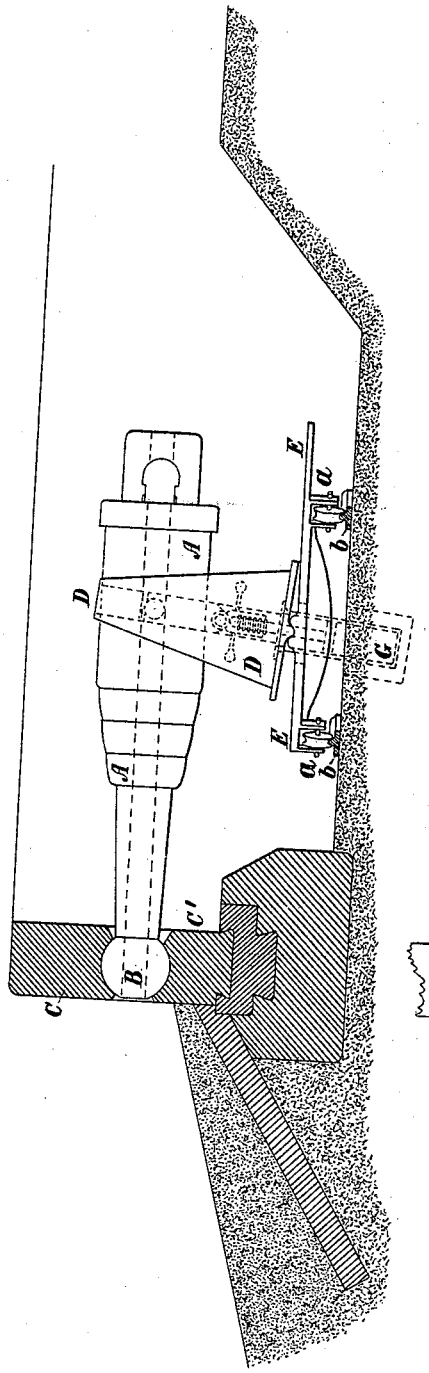
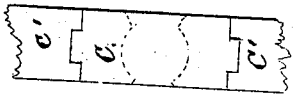


Fig. 2.



Witnesses.

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ALFRED KRUPP, OF ESSEN, PRUSSIA.

IMPROVEMENT IN CONSTRUCTION OF ORDNANCE.

Specification forming part of Letters Patent No. **182,584**, dated September 26, 1876; application filed June 23, 1876.

To all whom it may concern:

Be it known that I, ALFRED KRUPP, of Essen, Rhenish Prussia, cast-steel manufacturer, have invented certain Improvements in Ordnance and in shields, turrets, and other protecting structures, and in gun-carriages used in connection therewith, of which the following is a specification:

The object of this invention is to so fix the gun in a strong iron framing that the gun is so firmly held in its place that when it is discharged no recoil can take place. In order to carry this into effect there is formed upon the muzzle end of the gun a spherical ball that is fitted into a similar spherical socket in the iron framing. This iron framing may form part of a shield or turret, or the side plating of an armored vessel. The elevation, depression, or side range of the gun is effected by fitting the gun into a carriage or frame so constructed that it will admit of all these motions being communicated to it. The elevation may be carried out by means of mechanical apparatus—such as screws or racks—worked either by hand or steam power, or hydraulic or air cylinders may be employed for this purpose, or any other known system may be used. The horizontal range may be given by mounting the gun on a carriage that traverses on semicircular rails, and can be worked by rack and pinion or any other well-known mechanical means; or the spherical ball at the end of the gun may be fitted into a frame that is fixed upon a revolving table or platform, and thus the lateral range may be given to the gun by turning the table upon its center; or the ball of the gun may be fitted in the walls of the turret, and thus the whole may revolve together, the vertical range being given by any of the mechanical arrangements above alluded to. The sighting of the gun may be effected either by parallel sights fixed to the gun, but rising above the top edge of the shield in which the gun is fixed, or it may be carried out by reflectors.

It will be seen by this arrangement of fitting the gun in the shield that there is no embrasure through which the enemy's rifle fire may be poured, and therefore the gunners are completely secured from danger, and can work the gun with security and tranquility.

In order to protect the ball on the gun from injury from the enemy's fire, the ball may be made of steel, and that portion of the circumference which is exposed hardened and tempered, so that if struck by a shot the shot would either be broken up or deflected off; or the ball may be protected by a spherical or other shaped shield, which can be withdrawn at the time the gun is fired.

In the drawing, Figure 1 is an elevation and partial section, and Fig. 2 is a plan of the shield or protection.

A A is the gun; B, the ball attached to the muzzle end of the gun by screwing it on, or by any similar arrangement. C is the shield, which, in this case, is shown as fixed, and in this shield the ball B reposes, being free to move in order that the gun may be trained in any direction that may be required. D is the frame, in which the hinder portion of the gun is supported. This frame D rests upon the platform E working upon the wheels *a a* running on the rails *b b*, so as to enable the gun to be trained horizontally in either direction. To give the vertical range to the gun, there can be employed the screw F, (shown in dotted lines,) or by an air or hydraulic or steam cylinder, as represented at G. In order to introduce the ball B of the cannon into the cavity formed for it in the shield or protection C, it is preferable to make a removable section, *c*, sliding vertically in channels prepared for it in the principal portion C′ of the shield, as seen in the plan view of the same, Fig. 2.

I claim—

1. The spherical portion B of the cannon at or near the muzzle end, and held by and fitting and working in a corresponding socket formed in a shield, armor, or other protecting fixed or movable structure C, the said cannon being sighted and trained substantially as set forth.

2. The cannon A, with spherical formation B at or near its muzzle end, held and fulcrumed in a corresponding socket, in combination with frames D and with turn-table E or equivalent device, and with hydraulic or other cylinder G and elevating screw F, or other known elevating appliance.

3. The combination, with the cannon, of the spherical end B and protecting cap C, substantially as set forth.

ALFRED KRUPP.

Witnesses:

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ALFRED LONGSDON,
OTTO SCHNABEL.