



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SHIELDS FOR ORDNANCE.

Specification forming part of Letters Patent No. 40,453, dated November 3, 1863.

To all whom it may concern:

Be it known that I, P. ANDREW, of the city of Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful devices for protecting gunners in the field against infantry and cavalry, and especially against sharpshooters, the same consisting in the construction of a shield; and I hereby declare that the following is a full and sufficient description thereof, reference being had to the accompanying drawings and references marked thereon, which make part of the specification.

The shields are specially designed to protect artillery, and for field use, but are also adapted to gun-boats and other vessels, as well as to rail-cars, bridges, fortifications, and camps.

In the accompanying drawings, Figure 1 is a perspective view of the shield, exhibiting the center screw, D, to facilitate turning of the shield on the three bearing caster-wheels. *d* is capable of being used for the same purpose of moving the carriage in any direction. Fig. 2 is a perspective view of the gun and carriage. Fig. 3 is a perspective view of the gun with its guide-rails. Fig. 4 is a perspective view of the oval or funnel shape of the shield. Fig. 5 is a perspective view of the shield with a caisson attached, but without wheels, exhibiting the axles so arranged that the wheels may be attached, separated from, or fastened to the shield in a minute of time, when necessary. The caisson is attached to the shield only at the time when a charge is being made upon the artillery. Fig. 6 is a perspective view, showing one half of the inside of the shield with the gun and collar H, and the manner of attaching the gun to the collar and the collar to the shield. Fig. 7 is a perspective view of the gun and collar, with the screw I, wheel J, and guide K. Figs. 8 and 9 are perspective views of the shutter to close the port-holes.

The same letters and figures refer to the same parts in all the drawings.

A represents the gun; B, the gun-carriage; B' and C, port-holes; D, a center screw for turning the shield; E, adjusting-screws for caster-wheels; F, braces extending from one side of the shield to the other, or entirely across the frame within the shield; G', caster-wheels on which the shield turns.

H is a collar encircling the gun, the trun-

nions of which work in blocks that are attached to the port-holes. With this arrangement the gun has two pairs of trunnions, giving it a range in every direction.

H' is the shield of funnel form.

I is a screw for elevating and depressing the muzzle of the gun.

J is the screw-wheel for operating screw I.

K represents the curved guide-rails supporting the breech of the gun.

M is the wheels for transporting the gun from place to place.

*c* is a lever for the center screw; *d*, the front wheel for turning the shield; *e*, Fig. 8, is a triangular piece at the top and bottom of the shutter of the port-hole.

*f*, Fig. 1, is a short triangular brace or clamp-piece at the apex of the shield, and through which part the screw E passes.

*g g* are the rails of the gun-carriage, on which the wheels (arranged on the gun-trunnions) run; *h*, the guide-rails which hold the gun to the carriage and guide its movement on the rails; *i*, flanges on the guide-rails, holding them to the rails *g*.

*j* represents projections from the guide-rail, through which the trunnions pass.

*k* is a bolt, which passes through the projection *l*, fastening the gun-carriage to the shield and keeping the parts in position.

*l* is the projection from the front cross-rail.

*m* is the wheel or screw for raising and lowering the front or muzzle part of the gun.

*n* represents the trunnions or journals of collar H.

The form of the shield herein represented and described is denominated the "funnel-form" shield, the forward part being the funnel-shaped portion, while the widest portion is in the rear, and takes the form of a cylinder flattened on its sides, so that a diametric section of it represents the long axis of an ellipse in the vertical direction. Within or immediately behind this body part of the shield the gunners place themselves for protection during their work. Within the shield is arranged the gun on its carriage, and the whole resting on the tripodial bearings—that is to say, the gun and its carriage. The forward end of the gun is attached to the apex of the shield immediately under the muzzle, and at and to the lowest part of the port-hole, by means of a suitable flange, *l*, from the anterior

part of the gun-carriage, through which flange *l* the screw-bolt *k* passes downward into the shield, while the rear portions of said carriage rest on the curved ways for a convenient movement, and with suitable elevating and depressing screw, *m*, to get the required range of the gun.

The invention consists in the adaptation of the peculiar form of the shield to the gun and gun-carriage, to protect gunners during the working of their guns. It is specially designed for field service, and may, when desired, be constructed of two thicknesses of metal, especially when used in fortifications, where the weight would not be objectionable. The design of the shield is mainly to protect gunners from the musket and rifle balls of sharpshooters, which in the present epoch is a special point in warfare. The shield is made of boiler-iron, and sufficiently portable to answer the purpose of transportation.

A gun like those shown in Figs. 2 and 3 may be used, or the gun may be fastened into the port-hole or muzzle of the shield. For this purpose the heavy collar *H* is put around the gun, the trunnions passing through said collar. The collar also has trunnions *n*, whose axis is at right angles to the axis of the first-named trunnions, but fastened to the port-hole of the shield. By one pair of trunnions the muzzle may be elevated or depressed by the other. It may be directed or moved to the right or the left. By these devices, which move the direction of the gun, like a universal joint, toward any desired point, the shield is made to act the part of a gun-carriage, or may be made so to act. For light guns and shields this method of attachment is well adapted. Guns used in such shields should be breech-loading. The shields can be drawn by horses and placed in any desired position. The tongue or pole for drawing it is to be attached to the open end of the shield.

The port-hole covers (seen in Figs. 8 and 9) are designed to be adapted, when so required, to enter ports that may be put in the oblique or funnel part of the shield, on the one side or the other. This device is not shown in the drawings, nor is it claimed in this case, but has been described in another separate patent granted, in its application to a war-vessel's sides, and is here named in accordance with the 6th section of the act of 1836, which requires the applicant not only to explain the principle, but also to explain the several modes of the application of that principle. These covers are curved iron plates a quarter of a circle in extent, and are let into the shield in the proper place whenever a greater horizontal sweep than the port-hole proper will admit of. The shield may be rotated on the center screw, *D*, and the three bearing-points *d* and *G' G'* in any degree desired. The center

screw is passed through the middle of brace *F* having a lever, *c*, for operating it or turning it. This brace *F*, which has been described as extending across the middle of the shield near the bottom, is made fast to the sides of said shield. The screws *E E E* are like the center screw, *D*, differing from it only in having wheels at the lower end of the screws. One of these passes through brace *f*, near the apex of the shield. These wheels operate as caster-wheels, and by the help of the center screw enable the operator to turn the shield in any direction by changing the bearings from the center *D* to *d* or *G'*, using one or another of the several points as a pivot on which to move the shield, as will be obvious to any one skilled in the art, to operate the machinery. Thus any desired position of the shield may be obtained by making any one of the several legs of the tripod or the center screw a pivot-bearing.

The carriage already named and partially described is simple in its construction, consisting of two parallel horizontal rails, *g*, connected by cross-rails at each end. These, with the guide-rails, mainly constitute the carriage. The wheels for moving the cannon are placed upon the trunnions of the gun and have flanges which move on the rails *g*. The guide-rails *h* prevent the gun at the time of recoil from being thrown off the carriage. They are placed inside of and parallel with rails *g*. They have flanges *i* projecting over the upper and lower edges of the rails *g*, on which they ride or slide. The trunnions pass through projections *j* from the edge of the guide-rails at the front end. These rails are also connected together at each end by means of cross-rails. The one near the breech (Fig. 3) of the gun has journals which pass through the guide-rails. The rear cross-rail is enlarged in the center, through which the screw passes to elevate or depress the muzzle of the gun by means of wheel *m*. These several parts are not shown in detail in the drawings.

The gun-carriage is attached to the port-hole in the manner already stated. The gun-carriage is so made as to allow the gun to ride on it back and forth, is made to run out at the port, and is withdrawn at will for loading.

Having described the nature of the invention and the several modes of using the same, I would state what I claim as my invention, and which I desire to secure by Letters Patent, viz:

The elliptic funnel-shaped protecting-shield, substantially in the manner and for the purpose herein set forth.

PETER ANDREW.

Witnesses:

C. C. HARDING,  
W. F. KELLY.