To all whom it may concern:

Be it known that I, Otto Lauber, a subject of the Emperor of Germany, and a resident of 133 Maria-Theresiastrasse, Essen-on-the-Ruhr, W., Germany, have invented certain new and useful Improvements in Transportable Guns with Protecting-Shields Offset from the Trunnions, of which the following is a specification.

The present invention relates to transportable guns with protecting-shields, and especially to those guns in which the shield is offset comparatively far from the turning axes of the gun-barrel or the upper carriage. The horizontal and the vertical turning axes of the gun-barrel and upper carriage (cradle or the like) are ordinarily situated in a plane which intersects the gun-barrel near its center of gravity. If the shield is located near this plane, the notch for the passage of the barrel and the upper carriage can be of very small dimensions; but, in fact, the shields nowadays are as a rule located near the standing-place of the serving crew—that is to say, rather near the breech of the gun-barrel—thereby affording the greatest possible protection for the serving-crow attainable without increase of the shield's dimensions, and consequently its weight, which would be disadvantageous in moving and transporting the gun. By the said arrangement of the shield, however, the parts of the barrel and the upper carriage situated in the plane of the shield describe rather large arcs during their elevation and the horizontal training. Consequently the dimensions of the notch must be greater than the corresponding dimensions of the barrel and the upper carriage, with the result that there are openings in the shield above and at the sides of the barrel and the upper carriage, through which projectiles and fragments of shells can reach the crew behind the shield.

The present invention has for its object to do away with this disadvantage incident to guns in which the protecting-shield is offset from the turning axis of the gun-barrel and the upper carriage without restricting the range of movement of the barrel and upper carriage necessary to the elevation and training of the gun. This object is attained by providing the shield with a roof-shaped aperture-blind extending forwardly toward the muzzle of the gun.

One embodiment of the invention is shown by way of illustration in the drawings forming part of this specification, in which Figure 1 is a side view of a gun embodying the invention, several parts being in section and the near wheel being removed. Fig. 2 is a top view of the same. Fig. 3 is a front view of the shield. Fig. 4 is a section on line 44, Fig. 1, seen in the direction of the arrow; and Fig. 5 is a detail view of the shield and its blind on an enlarged scale, the shield being in vertical section.

The gun-barrel A is slidably mounted in the ordinary way on the upper carriage B, which rests, by means of a vertical trunion $B'$, as in Fig. 4, in a barrel-carrier C, the horizontal trunnions $C'$ of which rest at $C$, Fig. 1, in the trunnion-bearings of the carriage-body D. The protecting-shield E is fixed to the carriage-body in any suitable way. The notch in the shield F for the passage of the upper carriage and the barrel consists of an upper and broader part E and a lower and narrower part E', Figs. 3 and 4. The upper part is of such proportions that it permits the movements of the upper carriage and the gun-barrel necessary for the vertical and horizontal adjustment. The breadth of the lower part E' corresponds to the broadest part of the gun-barrel or the upper carriage, and said lower part terminates downwardly in a broader notch for the passage of the carriage-body. Located on the side of the shield F toward the muzzle of the gun-barrel is a blind of suitable material—for instance, sheet-steel—arranged in such a manner that it closes the greater part of the notch E' against the entrance of projectiles, which, for instance, advance in the direction of the arrows in Fig. 1. For this purpose the shape of the blind G is that of a vaulted roof tapering in the direction of the muzzle of the gun-barrel and the apex-line of which is nearly parallel to the axis of the bore of the gun-barrel when said barrel is in the position of greatest depression. The rim of the blind G, resting
against the shield F, skirts the notch part E′ and reaches in the downward direction nearly the lower points of said part E′. In the direction toward the muzzle of the gun-barrel the blind projects such a distance that when the gun is unlimbered the front end of the blind is positioned nearly perpendicularly above the axis of the horizontal trunnions. The connection between the blind G and the shield F may be effected by means of hooks g′, riveted to the blind and projecting into holes g′ in the shield at the edge of the notch. In order to prevent the blind being lifted from the shield by shocks during firing and to confine angular-shaped filling-pieces H are inserted over the upper hooks. Said filling-pieces engage with openings situated in their downward legs, threaded taps in their upper hooks g′. Nuts K, screwed on said taps, keep the filling-pieces H in position.

From the foregoing specification and from the drawings (see especially Fig. 4) it will easily be seen that the notch E′ is almost completely covered by the blind G, and a reliable protection is thus obtained.

Without departing from the scope of the invention the blind could be shaped otherwise than above described and connected to the shield in another manner. It would, for instance, in many cases be sufficient if the blind had the shape of a flat vaulted plate or a平面 plate projecting as a roof from the shield in the direction of the muzzle of the barrel. Further, a jointed connection between the blind and the shield instead of the rigid connection might be employed—for instance, when the front end of the blind does not extend to the position perpendicular above the axis of the horizontal trunnions or when the gun-muzzle is to be elevated very much during the firing.

Having thus described the invention, the following is what is claimed as new therein:

1. In a gun having horizontal trunnions, the combination with the gun-mount, and the gun-barrel, of a shield mounted on the gun-mount between the trunnions and the breach of the barrel, and a blind extending from the shield to a point in proximity to the trunnions.

2. In a gun having horizontal trunnions, the combination with the gun-mount, and the gun-barrel, of a shield mounted on the gun-mount between the trunnions and the breach of the barrel, and a detachable blind extending from the shield to a point in proximity to the trunnions.

3. In a gun having horizontal trunnions, the combination with the gun-mount, and the gun-barrel, of a shield mounted on the gun-mount between the trunnions and the breach of the barrel and provided with an opening to permit the vertical and horizontal movements of the gun, and a blind extending forwardly from the shield around the opening 65 to a point around the gun where the gun’s movement is the smallest.

4. In a gun having horizontal trunnions, the combination with the gun-mount and the gun-barrel, of a shield mounted on the gun-mount between the trunnions and the breach of the barrel and provided with an opening to permit the vertical and horizontal movements of the barrel, and a blind being arched to extend around the opening and forwardly from the shield, the apex line of the arch being substantially parallel with the axis of the gun-barrel when the latter is in the position of greatest depression.

5. In a gun having horizontal trunnions, the combination with the gun-mount and the gun-barrel, of a shield mounted on the gun-mount between the trunnions and the breach of the barrel and provided with an opening to permit the vertical and horizontal movements of the barrel, and an arched blind extending forwardly from the shield around the opening to a point substantially vertically over the trunnions and decreasing in the direction of the muzzle of the barrel.

6. In a gun having horizontal trunnions, the combination with the gun-mount and the gun-barrel, of a shield mounted on the gun-mount between the trunnions and the breach of the barrel, and a blind extending from the shield to a point in proximity to the trunnions.

The foregoing specification signed at Düsseldorf, Germany, this 8th day of December, 1903.

OITTO LAUBER.

In presence of—
WILLIAM EISENWEIN,
PETER LIEBEN.

It is hereby certified that the name of the assignees in Letters Patent No. 764,477, granted July 5, 1904, upon the application of Otto Lauber, of Essen-on-the-Kuhr, Germany, for an improvement in “Transportable Guns with Protecting-Shields Offset from the Trunnions,” was erroneously written and printed “Fried. Krupp,” whereas said name should have been written and printed Fried. Krupp, Aktien-Gesellschaft; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 23d day of August, A. D., 1904.

[Seal.] E. B. MOORE,
Acting Commissioner of Patents.
It is hereby certified that the name of the assignee in Letters Patent No. 764,477, granted July 5, 1904, upon the application of Otto Lauber, of Essen-on-the-Ruhr, Germany, for an improvement in "Transportable Guns with Protecting-Shields Offset from the Trunnions," was erroneously written and printed "Fried. Krupp," whereas said name should have been written and printed Fried. Krupp, Aktiengesellschaft; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

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[seal.]

E. B. MOORE,
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