2 Sheets—Sheet 1.

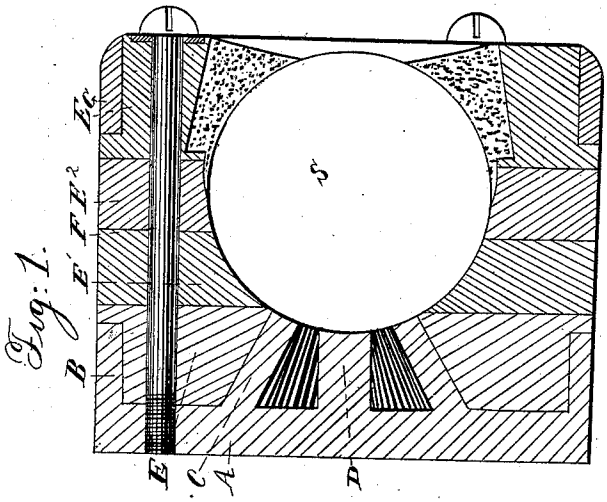
C. W. STAFFORD.

Sabot for Projectiles.

No. 39,179.

Patented July 7, 1863.

Fig: 1.



Witnesses

Octavus Knight

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2 Sheets—Sheet 2.

C. W. STAFFORD.

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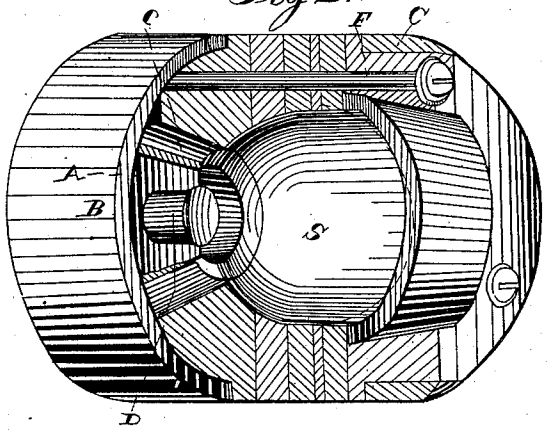
Fig: 2.



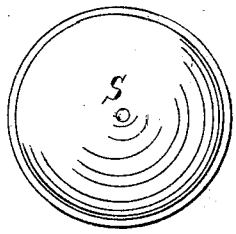


Fig: 3.

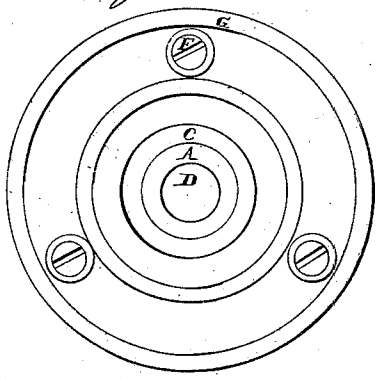
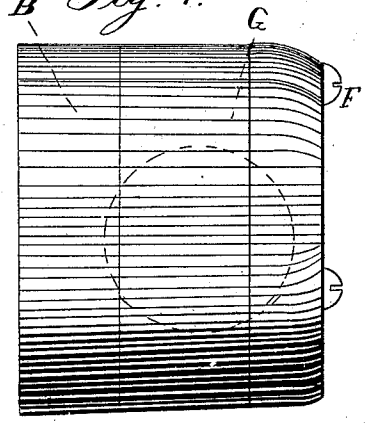


Fig: 4.



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UNITED STATES PATENT OFFICE.

CHARLES W. STAFFORD, OF BURLINGTON, IOWA.

IMPROVEMENT IN SABOTS FOR PROJECTILES.

Specification forming part of Letters Patent No. 39,179, dated July 7, 1863.

To all whom it may concern:

Be it known that I, CHARLES W. STAFFORD, of Burlington, in the county of Des Moines and State of Iowa, have invented a new and Improved Sabot for Spherical and other Sub-Caliber Projectiles; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an axial section of my improved sabot with a spherical shot placed therein and the whole ready for transportation or for placing in the gun. Fig. 2 is a sectional perspective view of the sabot with the shot separated therefrom, as in the act of firing. Fig. 3 is a front view of the sabot, and Fig. 4 is a side view.

Similar letters of reference indicate corresponding parts in the several figures.

The subject of my invention is an improved construction of sabot adapted to receive the full force of the explosion upon an area larger than that of the shot, guide the shot in an accurately central position through the bore and separate from it, by atmospheric resistance at the instant of leaving the gun or immediately after, the principal objects being to relieve the gun from undue strain, impart a high initial velocity to the projectile, relieve it from the effect of atmospheric resistance upon the sabot or casing, and give it an accuracy equal, or nearly so, to that of a full-caliber shot.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

A B C D represent a base-plate of peculiar construction, which may be cast in one piece of brass, iron, or other suitable metal. The said base-plate is formed of a disk, A, with a surrounding flange, B, a concentric conical shell, C, and a central post, D, the purposes of all which will be presently explained.

E E′ E^2 E^3 are a series of wooden rings placed one upon another in the manner shown, and connected to each other and to the metal disk A by longitudinal bolts F F.

G is a metal band, shrunk or otherwise secured on the front of the casing or sabot thus formed. The external diameter of this band corresponds exactly with that of the outer flange, B, of the base-plate.

S represents the shot. The interior of the rings E^2 and E^3 in front of the center of the shot have a diameter equal to that of the shot, to permit the insertion of the shot within the casing, and also to permit its escape therefrom in a forward direction in the act of firing, as hereinafter explained. The interior of ring E^3 is in addition expanded from the front backward, forming a dovetail cavity, in which is placed a mass, I, of plaster-of-paris or other suitable material, to secure the shot within the casing while being handled or transported from place to place. The interior of the ring E′ and the front of the conical shell C and post D form together a hemispherical cavity fitting the back of the shot.

The peripheries of the flange B and band G constitute guides, by which the sabot is held and guided in an accurately central position within the bore, and also serve to confine the wooden casing at its respective ends, so as to preserve its form and give it the necessary strength.

Operation: The base-plate, rings, and band being secured together in the manner shown, the shot S is placed in the sabot thus formed, and is there secured by the application of the plaster I. It is then ready for transportation or for placing in the gun. In loading it is inserted with the base-plate next to the charge and the open end of the sabot forward. When the gun is fired, the force of the explosion is communicated to the shot by the metallic base-plate, and the strength and peculiar form of the latter preserve it from the possibility of breakage, the conical shell C affording an abutment which cannot crush, and at the same time avoiding unnecessary weight. The instant the front of the sabot reaches the muzzle of the gun the resistance of the atmosphere, being greater against the sabot than against the shot in proportion to their respective weights, slightly retards the sabot, while the shot separates from it in a precisely longitudinal direction and pursues its course alone.

The invention, in the particular form above described, is particularly adapted for use with a spherical projectile in a smooth-bore gun. By varying the shape of the interior of the sabot it may be adapted for use with project-

iles of other form, and by the use of suitable packing rings or disks it may be adapted to be used in rifled guns.

By the use of a sub-caliber shot with a sabot of this construction the weight is greatly reduced in comparison with that of a full-caliber shot for the same diameter of bore; hence the strain upon the gun with a given charge of powder is reduced and the velocity imparted to the shot is greatly increased.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. A sabot constructed with a conical shell, C, to form an abutment between the disk A and the rear of a spherical or other shot.

2. A sabot constructed with a disk, A, flange B, conical disk C, rings E E′ E^2 E^3, and band G, substantially as described, for use in connection with a sub-caliber shot or shell.

The above specification of my improved construction of sabot for spherical and other projectiles signed this 16th day of April, 1863.

C. W. STAFFORD.

Witnesses:
OCTAVIUS KNIGHT,
CHARLES SMITH.