(No Model.)

J. W. GRAYDON.

TAIL GUIDE FOR PROJECTILES.

No. 399,880. Patented Mar. 19, 1889.

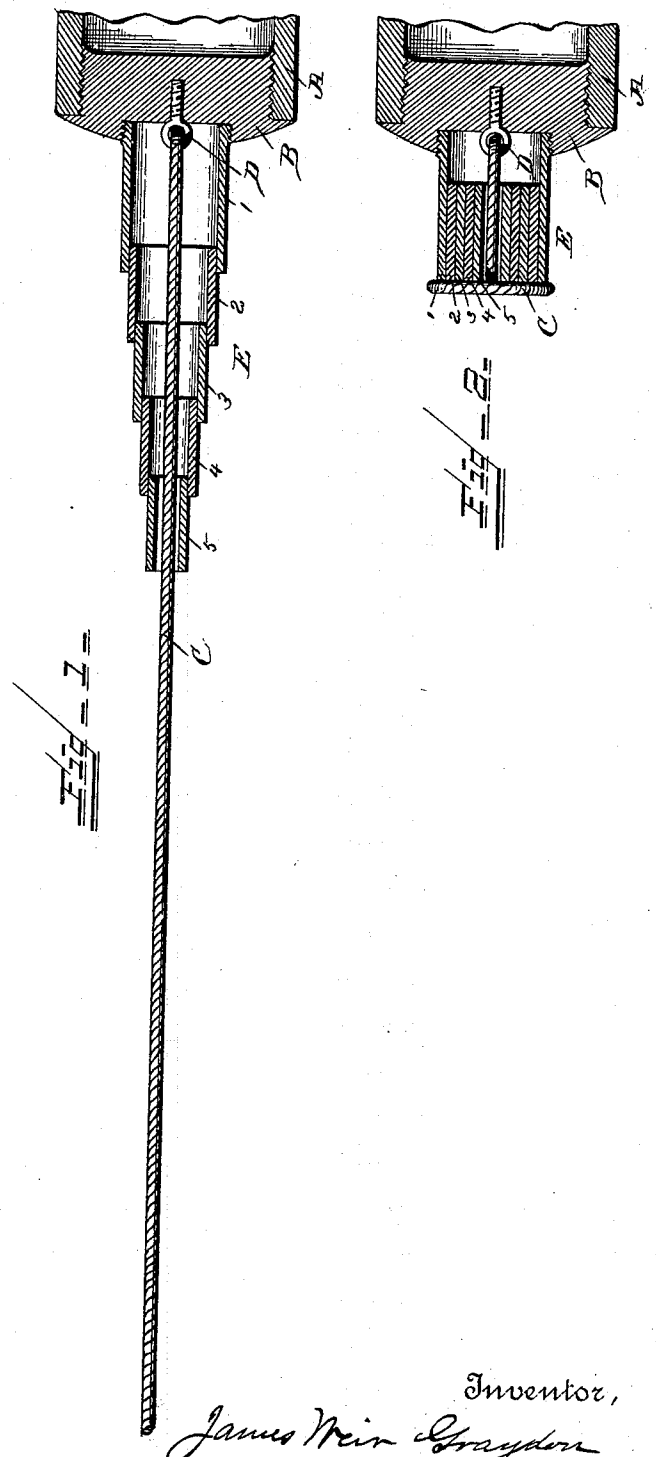


Fig. 1.

Fig. 2.

Witnesses.
Albert Speiden
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Inventor,
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UNITED STATES PATENT OFFICE.

JAMES WEIR GRAYDON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO ROBERT SOUTHWORTH LAWRENCE, OF LONDON, ENGLAND.

TAIL-GUIDE FOR PROJECTILES.

SPECIFICATION forming part of Letters Patent No. 399,880, dated March 19, 1889.

Application filed October 9, 1888. Serial No. 287,632. (No model.)

To all whom it may concern.

Be it known that I, JAMES WEIR GRAYDON, a citizen of the United States of America, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Tail-Guides for High-Explosive Shells, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a tail-guide for high-explosive shells designed to be thrown by pneumatic guns; and it has for its object to provide such a shell with a simple and effective guide that will occupy but very little space in the gun or in shipment or storage.

It is well known that an elongated shell in order to be effective must maintain a "point-on" position in its flight, for if it "tumbles" its range will be uncertain and it will be liable to fall far short of its mark. The rotary motion imparted to such a shell when fired from a rifled gun prevents it from tumbling. Pneumatic guns, however, are necessarily smooth bore, and consequently their projectiles are not given a rotary motion. Therefore, in order to adapt an elongated shell for use in a pneumatic gun it must be provided with some means for guiding it in its flight, or, in other words, for keeping it point-on. Whatever the means employed to this end regard should be had to the space the device will occupy in the gun, for as pneumatic guns are required to be of considerable length for a good range it is desirable that the guide for the shell shall occupy as little space as possible, so as not to require the gun to be made of any great additional length for its reception.

The invention will first be described in connection with the accompanying drawings and then pointed out in the claim.

Figure 1 is a view of my invention, the telescopic guide being shown in section and the flexible guide in elevation, and both represented in the positions assumed by them while the projectile is in flight. Fig. 2 is a partly-sectional view of my invention, showing the telescopic guide closed up and the flexible guide, which is in elevation, coiled upon it.

Referring to the drawings, A represents the casing of the shell, and B the screw-plug.

C represents a wire rope, one end of which is secured to a screw-ring, D, which is screwed into plug B of the shell. This rope constitutes the flexible tail-guide for the projectile, the length of which requisite to balance the projectile will of course depend on the caliber and weight of the latter and the size of the rope. It may be either of uniform size throughout its length or tapering toward its outer end.

E represents a telescopic rigid guide. This telescopic guide incloses the flexible tail-guide for a portion of its length, and thus, while acting as a guide itself, prevents the flexible tail-guide from becoming looped or tangled near the shell. It consists of a series of short metal tubes, 1 2 3 4 5, &c., telescoped one within the other in the well-known manner, the tube 1 being screwed into plug B. With this construction, when the shell is in flight, the parts will assume the positions shown in Fig. 1; but while the shell is in the gun, or while in shipment or storage, the telescopic guide will be folded up and the flexible tail-guide coiled upon it, as seen in Fig. 2.

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

The combination, with an elongated projectile for a pneumatic gun, of a flexible tail-guide secured at one end to the screw-plug of the projectile, and a telescopic rigid guide secured in the screw-plug and surrounding a portion of the flexible guide, substantially as described, and for the purposes stated.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES WEIR GRAYDON.

Witnesses:

WM. HUNTER MYERS,

CHARLES F. ROBERTS.