

C. H. A. F. L. ROSS.
JACKETED BULLET.
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1,059,213.

Patented Apr. 15, 1913.

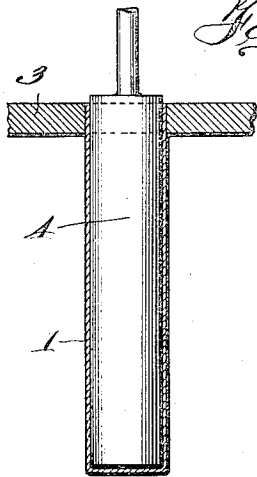


Fig. 1.

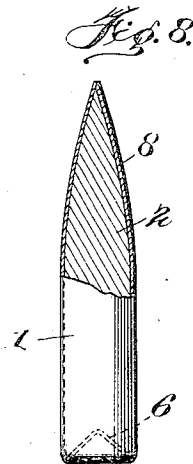


Fig. 8.

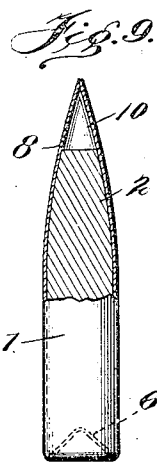


Fig. 9.

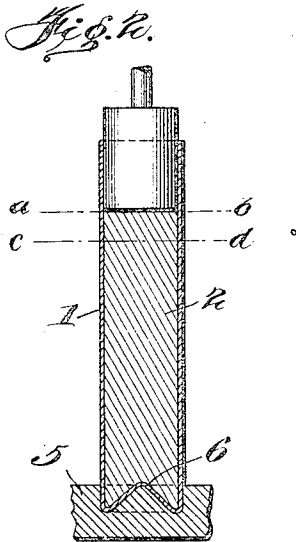


Fig. 10.

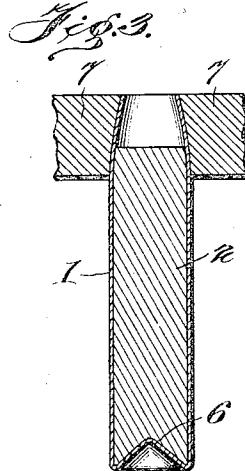


Fig. 3.

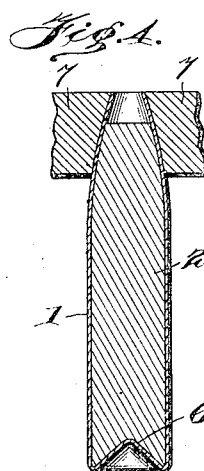


Fig. 4.

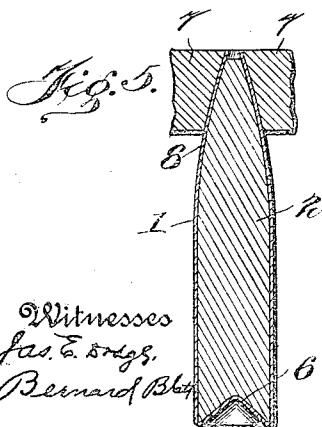


Fig. 5.

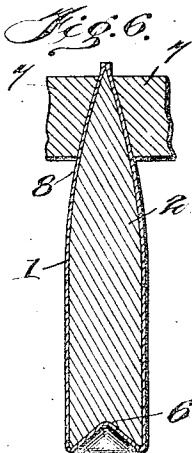


Fig. 6.

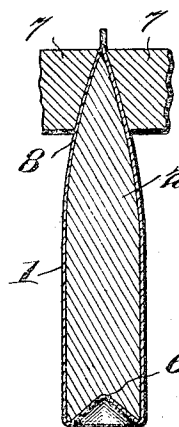


Fig. 7.

Witnesses
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UNITED STATES PATENT OFFICE.

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JACKETED BULLET.

1,059,213.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES HENRY AUGUSTUS FREDERICK LOCKHART ROSS, a subject of the King of England, residing at Balnagown Castle, county of Ross, Scotland, have invented certain new and useful Improvements in Jacketed Bullets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to jacketed bullets, and has for its object to produce a bullet in which the jacket will completely inclose the core at both ends, while at the same time, providing a tapered nose and an accurately shaped and smooth outer contour for the bullet.

To these ends the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views:—Figure 1 is a diagrammatic sectional view showing one of the steps of drawing the metal from which the jacket is made; Fig. 2 is a view similar to Fig. 1, showing the step of filling the core into the tube illustrated in Fig. 1, and also forming a concavity in the bottom of said tube; Fig. 3 is a diagrammatic view illustrating one of the steps of closing in the open end of the tube by a swaging action; Figs. 4, 5, 6 and 7 are views similar to Fig. 3 showing the successive swaging steps up to the complete closure over the core of the sharp pointed end of the bullet; Fig. 8 is an elevational view, partly in section, of a finished bullet made in accordance with my invention; and, Fig. 9 is a view similar to Fig. 8 illustrating a modified form of a completed bullet.

1 indicates any suitable metallic casing or jacket preferably of steel, cupro-nickel, or other alloy of nickel; and 2 indicates any suitable filling for the bullet, but I prefer to employ lead.

As is well known, in the metal jacketed bullets heretofore proposed, either the nose end of the bullet has been closed over the lead core, and the base end of the bullet left open, or partially open, or else the base

end of the bullet has been closed by extending the jacket thereover, and the nose end of the bullet left open. When the base end of the bullet is left open, it is further well known that unless the nose end is sufficiently strengthened, the pressure of the powder gases, which often exceeds fifteen tons to the square inch, is apt to force the core through the nose end of the bullet, while the jacket is passing along the rifling, and thereby cause what is technically known as stripping. In order to avoid this, the jacket must be made of a specific strength and thickness, and to further strengthen the jacket, the rim of its base is frequently turned inward. On the other hand, when the nose end of the bullet is left open, it is practically essential in high powered bullets to extend the jacket over the base end, for otherwise the powder gases would force the core through the nose end and cause stripping at practically every shot. Further, it is well recognized that if accurate shooting is to be had, the metal jacket must be a drawn one in order that it may accurately fit the rifling, and further, when the jacket is drawn, it is much stronger for a given weight of metal and will resist much harder usage than would be the case should the jacket be cast.

Prior to my invention, there seems to have been no method known of filling a drawn jacket with a core, and finishing a high powered accurately shaped bullet with both of its ends closed. The production of such a bullet, however, not only enables one to secure all the qualities of the present high powered bullet, but it also enables less metal to be used in the jacket for the same strength, or a greater strength to be possessed by the jacket for the same amount of metal. It further enables one to accomplish the very important result of completely filling the jacket by the metal core 2 as is illustrated in Fig. 8, or in only partially filling the jacket by said core, as is shown in Fig. 9. In the first instance, a military bullet of high penetrative power, is produced, while in the second instance, an expanding bullet for sporting purposes is produced and without any additional expense.

In order to make clear just how bullets such as those disclosed in Figs. 8 and 9, can be produced, their method of manufacture is briefly disclosed as follows:—The metal

jacket 1 is drawn through suitable dies, diagrammatically illustrated at 3, by means of a suitable plunger 4, until it is of the required dimensions. A lead core 2 is then
 5 forced into the jacket 1 and against a shaping die 5, which serves not only to cause the filling 2 to tightly fit the interior of the jacket 1, but it also causes the bottom 6 to acquire the concave shape shown, for a
 10 purpose to be described later. The open end portion of the filled jacket 1 is next subjected to a series of swaging steps by rapidly striking the same with the hammers 7 of a suitable swaging-machine until the said
 15 open end is completely closed, as is illustrated in Figs. 3 to 7. In order that the tapered portion 8 of the finished bullet may have the well known tapered contour which produces the best results in flight, the ham-
 20 mers 7 are accurately shaped to produce said contour. When the bullet is completed, it has the shape diagrammatically illustrated in Fig. 8, and its dimensions are found to be all that are desired. Both ends of the
 25 bullet being closed, it is a much stronger bullet for a given weight of metal in the jacket, than those heretofore produced, and the base of the bullet being concave, as illustrated, the powder gases act to slightly
 30 expand the same and thereupon insure a tight fit throughout the rifling. These bullets have been tested for military purposes, and have shown themselves to be all that is desired.

35 In order to determine just how much lead is necessary to fill the casing 1 after the bullet is completed, I have found it convenient to try a number of different lengths of lead
 40 plugs, and to cut open each bullet until just the right length of lead is found. Of course the amount of lead could be determined in other ways, but the method suggested, is found, satisfactory in practice.

45 Supposing the upper end of a lead plug of the proper length to make a military bullet, extends to the dotted line *a-b* in Fig. 2, then when it is desired to produce an expanding bullet such as is illustrated in Fig. 9, it is only necessary to use less lead. That
 50 is to say, if a cavity such as 10 in Fig. 9, is desired in the bullet, then the upper end of the plug in Fig. 2 might extend only to the dotted line *c-d* in said figure, while, if a cavity larger or smaller than the cavity 10
 55 is desired, a lesser or a greater quantity of lead will be used. In other words, it will be clear that by simply varying the amount of

lead forced into the jacket 1, sporting bullets with any desired cavity at their points, may be readily produced, while the cores 60 of said bullets will be completely inclosed at both ends by their jackets.

It is obvious that those skilled in the art may vary the details of construction without departing from the spirit of my invention, and therefore I do not wish to be limited to the above disclosure except as
 65 may be required by the claims.

What I claim is:

1. A sharp nose bullet provided with a 70 core and a drawn continuous metal jacket having a base portion extending completely over one end of said core and having a sharp pointed swaged portion inclosing the other
 75 end of said core, substantially as described.

2. A bullet having a sharp pointed nose portion, a core and a drawn and swaged continuous metal jacket completely inclosing
 80 said core at both ends, substantially as described.

3. A pointed bullet provided with a core, an integral drawn and swaged metal jacket closed at each end inclosing said core, and
 85 having a concave base portion, substantially as described.

4. A sharp nose bullet provided with a core; a continuous drawn and swaged metal jacket completely inclosing said core; said
 90 bullet also having a cavity between said core and jacket, substantially as described.

5. A bullet having a tapered nose portion, a core, a continuous metal jacket completely inclosing said core at both ends; and a
 95 cavity in said nose portion, substantially as described.

6. A pointed bullet provided with a core, an integral metal jacket closed at each end inclosing said core, a concave base portion, and a cavity in the end opposite the base
 100 portion, substantially as described.

7. A tapered bullet having a core, an integral drawn and swaged metal jacket completely covering said core at each end; an exterior concavity at one end, and an interior
 105 cavity at the other end, substantially as described.

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

CHARLES HENRY AUGUSTUS
 FREDERICK LOCKHART ROSS.

Witnesses:

P. WM. PATNAUDE,
 W. CAMPBELL.