

No. 726,230.

PATENTED APR. 21, 1903.

G. H. NEWELL & J. H. DEAN.
ART OF MANUFACTURING PROJECTILES.

APPLICATION FILED JUNE 6, 1902.

NO MODEL.

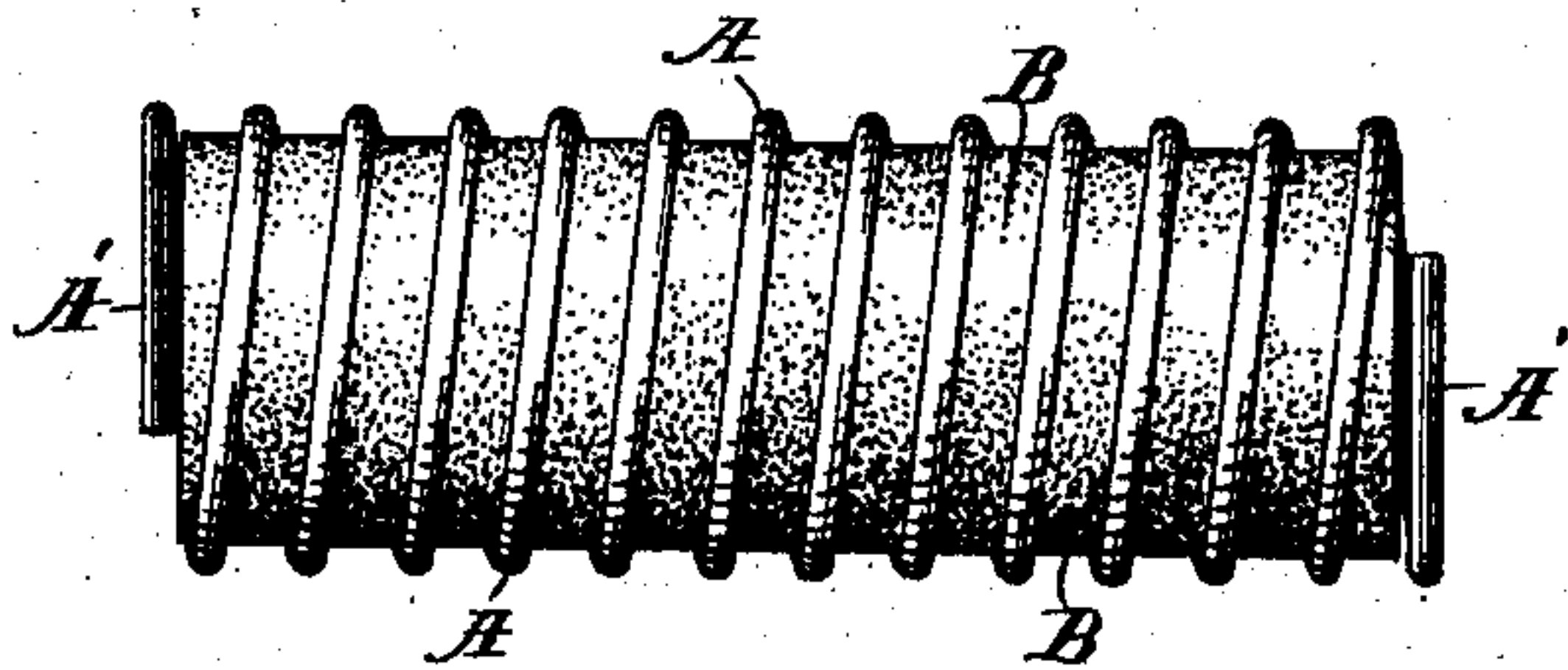


Fig. 1.

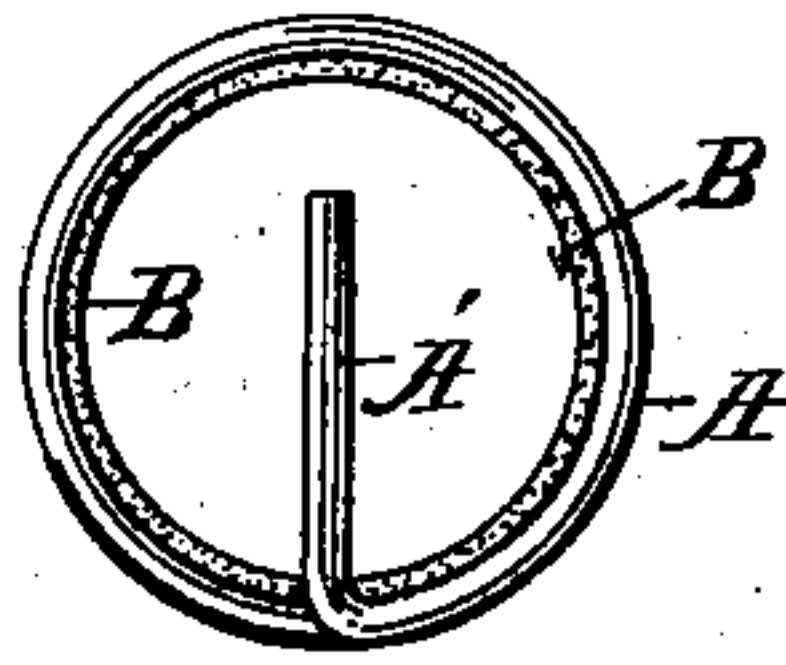


Fig. 2.

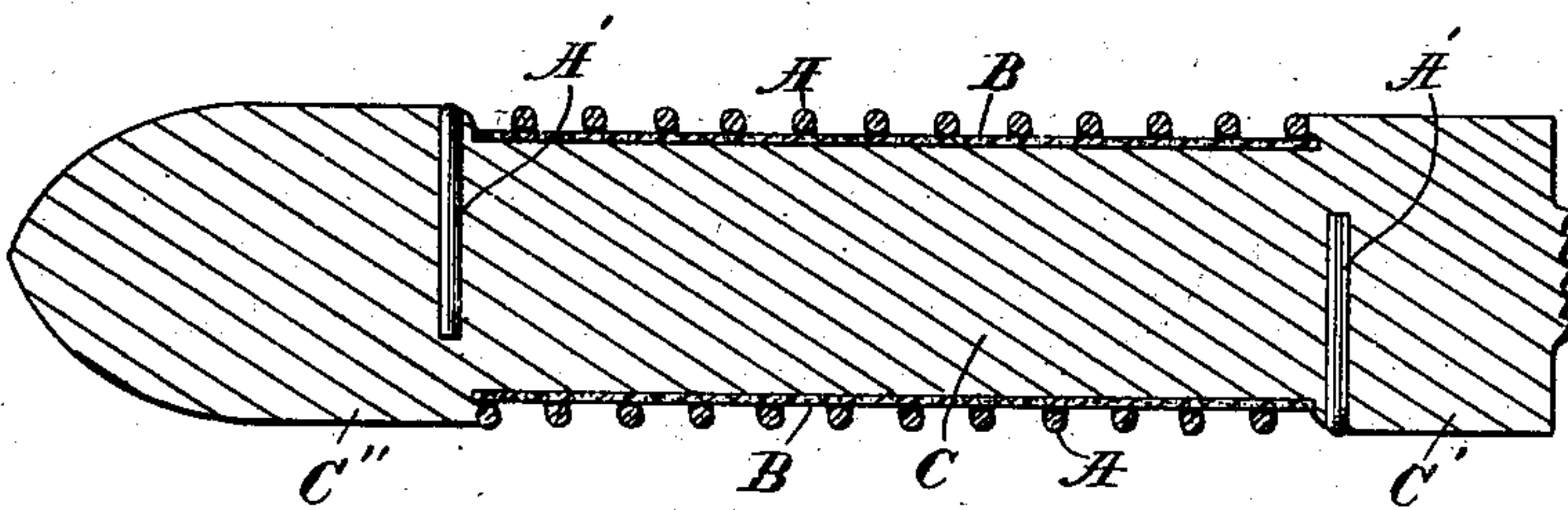


Fig. 3.

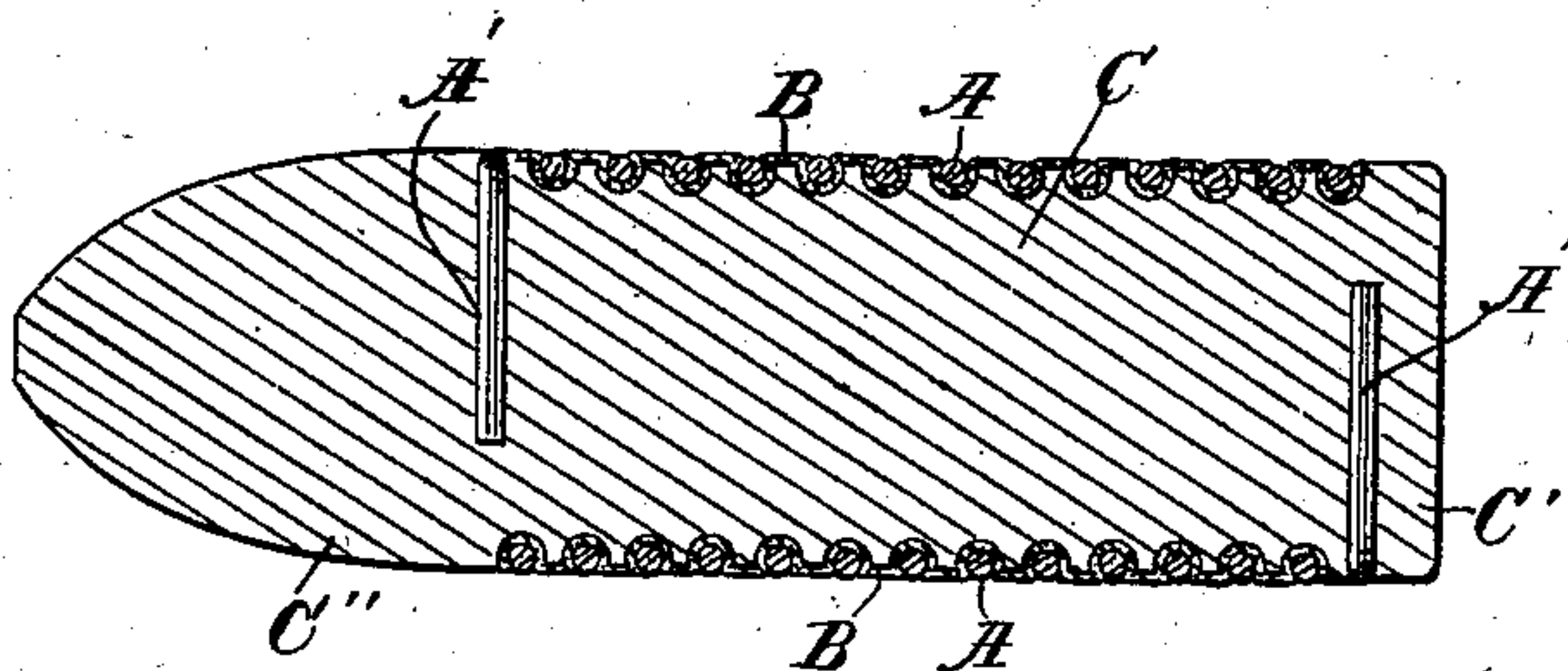


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ART OF MANUFACTURING PROJECTILES.

SPECIFICATION forming part of Letters Patent No. 726,230, dated April 21, 1903.

Application filed June 6, 1902. Serial No. 110,534. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. NEWELL and JOHN H. DEAN, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in the Art of Manufacturing Projectiles; and we 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.

Our invention relates to improvements in the art of manufacturing projectiles for small-arms, and more particularly to the method described in the patent to George H. Newell, No. 645,272, dated July 24, 1900; and its object is to provide improved means for preparing the projectiles prior to final swaging or pressing into finished form. In working the method described in said patent when using a jacket of wire it is found very difficult to insert the end of the wire into the blank and to properly secure the same in place, so that the ends will not become detached during the flight of the projectile. It is also found very difficult to place the jacket and patch material upon the blank as therein contemplated.

Our improved method consists, essentially, in first preparing the jacket or jacket and patch material of whatever character or material the same may be, then casting the blank in place within the same, (and where a wire jacket is used,) with the ends of the wire embedded within the blank, and finally swaging or pressing this structure into finished form, as will more fully appear by reference to the accompanying drawings.

For the purpose of illustration we have shown a projectile having an open coil of wire for a jacket and a tubular fabric for a patch; but our method of manufacture is equally well adapted to various other known styles of projectiles, having a soft-metal body and a jacket or jacket and patch and swaged into finished form after assembling of the blank forming the body of the projectile and the part or parts forming the covering therefor.

In the accompanying drawings, Figure 1 is a side elevation of a suitable coil of wire to

form the jacket and a suitable covering to form the patch; Fig. 2, an end view of the same; Fig. 3, the same in longitudinal section, together with the blank as it appears after casting and before swaging; and Fig. 4, the finished projectile in longitudinal section.

Like letters refer to like parts in all of the figures.

A represents a wire jacket, having the ends A' A' bent inward toward or across the axis of the coil and extending partially or wholly across the coil.

B is any suitable material to form the patch.

The material and arrangement of the jacket or patch may be varied to conform to various known constructions of projectiles, or the patch may be omitted and the wire jacket alone used, as preferred. Fig. 1 shows a wire jacket and porous patch. These are assembled as shown in Fig. 1 and are then placed in any suitable mold, and the blank C is cast within the jacket and patch by melting and pouring lead or other suitable soft metal into the mold and (when a wire jacket is used) with the ends A' A' of the wire embedded therein. The ends of the blank C' C'' are thus made larger than the middle portion of the blank, the latter being limited by the amount of space required for the jacket and patch. The structure, as shown in Fig. 3, is now placed in a suitable mold or swage and subjected to pressure by a suitable ram or follower, whereby the metal blank is caused to flow and change form, thus shaping the completed projectile, as shown in Fig. 4.

By proceeding as above described we not only effectually secure the end of the wire forming the jacket, (where a wire jacket is used,) but also avoid the use of expensive machinery, difficult to construct and operate, for forming the blanks and placing thereon the patch and jacket, as in the previous manner.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The method of manufacturing projectiles,

consisting of first preparing the jacket or other outer covering for the same, second placing this covering in a mold and casting a blank of soft metal within the covering, and third
5 swaging or pressing the structure thus formed, in a suitable mold or die to cause the metal of the blank to flow and said structure to assume the finished form.

2. The method of preparing the parts of a
10 projectile, preparatory to swaging, consisting of assembling the jacket and patch, placing the same in a suitable mold, and casting the blank by pouring melted metal into the mold, and within the jacket and patch.

15 3. The method of manufacturing projectiles consisting of forming a coil of wire; bending the ends of the wire inward, toward or across the axis of the coil; placing the coil in a suitable mold and casting a blank of soft metal
20 within the coil and projecting therefrom at

the ends and inclosing the ends of the wire; and finally swaging the blank and coil into finished form.

4. The method of manufacturing projectiles consisting of forming an open coil of wire with
25 its ends bent inward toward or across the axis of the coil; placing a tubular patch of porous material within the coil; inserting the said coil and patch in a suitable mold; casting a blank within the jacket and patch and inclosing the
30 ends of the wire; and finally shaping the whole into finished form by pressure in a suitable swage.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE H. NEWELL.

JOHN H. DEAN.

Witnesses:

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JENNIE M. SLOANE.