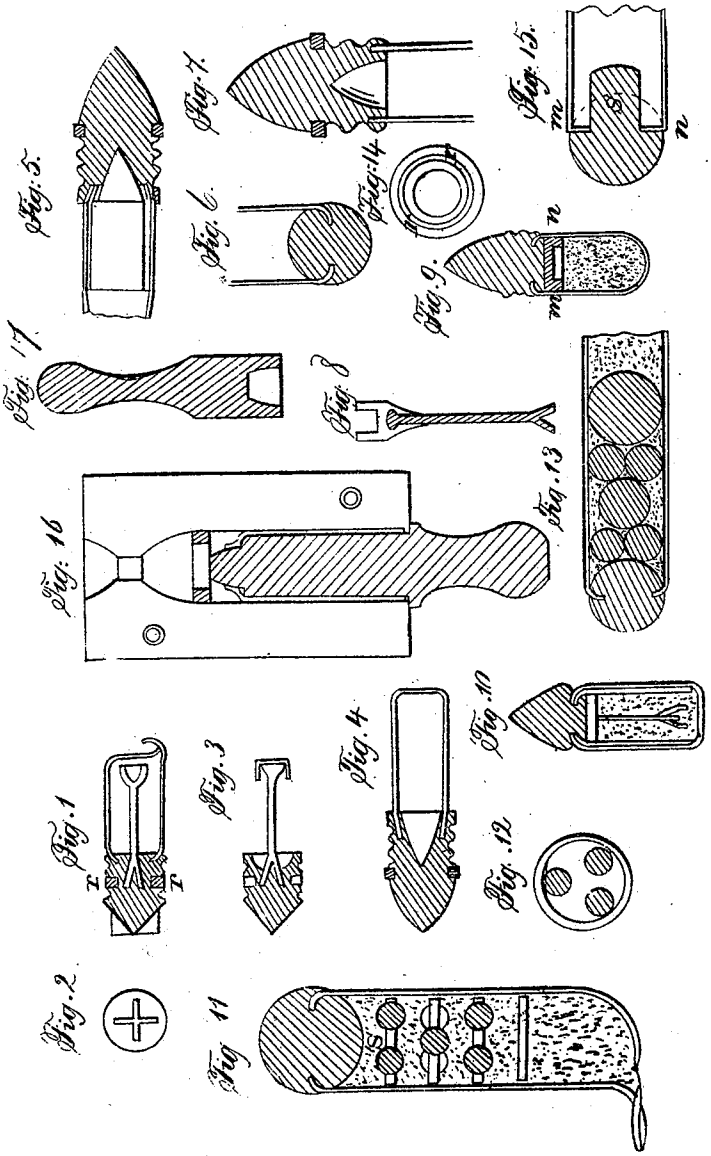
E. LINDNER.

Cartridge.

No. 17,287. Patented May 12, 1857.



UNITED STATES PATENT OFFICE.

EDWARD LINDNER, OF NEW YORK, N. Y.

IMPROVED CARTRIDGES.

Specification forming part of Letters Patent No. 17,287, dated May 12, 1857.

To all whom it may concern:

Be it known that I, EDWARD LINDNER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in the Manufacture of Cartridges; and I hereby declare that the following is a full, clear, and exact description thereof, in which—

Figures 1 and 2 represent a top view and longitudinal section through the middle of a cartridge made in my improved manner. This cartridge is calculated to be used in needle-guns or in fire-arms where the fulminating-powder is placed in a cavity within the cartridge itself, and ignited by the percussion of a needle or punch, penetrating into the barrel.

The fulminating stuff is placed in a small cup, held in the center and near the hind part of the cartridge by means of a wire, the other extremity of which is melted into and with the ball. This arrangement will allow the ignition of the powder from behind, as in any ordinary percussion-gun, and the needle is not forced to traverse the powder, which causes it to bend and break.

The paper-cylinder is firmly secured to the ball by casting the ball in the mold, when the paper with its bent border is previously placed in the form. The ball is cylindrical, but when used in magazine and repeating guns, where the cartridges are set above each other, it is important to contrive some means for preventing this explosion caused by the penetration of the point of the ball into the upper cartridge. For this purpose I give a peculiar form to the point, in terminating it into a cross-like projection, which is flush with the point. The upper cartridge may then safely be set upon the point of a ball.

r r is a small leather ring, which is equally cast in with the ball, and which serves the purpose of a barrel-cleaner, for when the ball is fired the ring will sweep the barrel in a very effective manner.

Fig. 3 is a ball and cartridge constructed on the same principle as the above described. It differs from those by having a common cap inserted into the cartridge, which is set upon a cone or nipple, the latter being arranged in the same manner as before described. The explosion of the cap is produced by punch traversing an orifice at the bottom of the barrel.

Fig. 4 is a cartridge where the leather ring projects from the cylindrical part of the ball, and is placed between the cylindrical part of the ball and the conical part thereof.

Fig. 5 shows a modification of the same principle of constructing cartridges, and consists in a double paper cylinder, a cylinder of thin pasteboard or card-paper, or any other stout and stiff paper lines the cartridge on the inside of the envelope. Its length is limited to that of the length of cartridge. The outer paper is long enough to wrap up the powder.

Fig. 6 shows the connection of the paper cartridge with a round ball.

Fig. 7 represents a Minie ball furnished with two leather rings, and having a paper cartridge attached to it.

Fig. 8 is a detail of the cup and stem intended for cartridges which are fired by the needle or punch.

Fig. 9 is a water-proof cartridge. Its construction is as follows: A metallic cylindrical shell, closed at the bottom and bent inward at the top edges, is filled with powder. The latter is covered with a circular disk, *m n*, having in its center a cavity into which the fulminate is placed. This disk is reversed, so that the fulminate be in contact with the powder and be protected on the top by the disk. This done, the whole is placed in the mold and the ball is cast onto it.

Fig. 10 is a cartridge, where the outer envelope is made of thin brass sheets and closed at the bottom. After being filled with powder, a disk is placed on the top for the purpose of protecting the powder against the action of the heat when the ball is cast to it.

Figs. 11 and 12 represent two views of a grape-shot cartridge to be fired from muskets. I manufacture these cartridges in the following manner: A round ball is melted with the paper envelope, the latter being placed in the mold previously. After the ball has cooled, the empty cartridge is so placed as to receive the filling from the bottom. Then a layer of sawdust, *s*, is first introduced. This layer is leveled and covered with a disk made of stout pasteboard. The latter is shown in Fig. 12, which represents a plan view. This pasteboard has three or more, or less, perforations, into which smaller balls or bullets are inserted, and are thus steadily kept in their intended

position. The diameter of the pasteboard disk is equal to that of the cylinder of the cartridge, forming a perfect separation or partition within the cartridge. Another layer of sawdust is then entered, and another disk containing smaller balls is placed on the top of it. These operations are repeated until the whole cartridge acquires the proper weight. The necessary quantity of powder is then put in and the cartridge is securely closed.

Fig. 13 is another grape-shot cartridge. The balls are of different sizes, and rammed together with sawdust, as most convenient; the last ball is then of the same size as the first, and both have the diameter equal to that of the cartridge itself.

Fig. 14 exhibits a Minie ball, where the paper-cylinder is incorporated with the ball by compression. The annexed figure shows the under side of the ball, where the annular recess is marked by the letter *r*. When the paper is inserted in the said recess, the whole is submitted to the action of two contracting dies.

Fig. 15 is a section through a ball of a peculiar form, which is to be fashioned into a round ball by compressing it between two circular dies. The stem *s* contains as much material as to complete the hemisphere, as shown by dotted lines. The paper is previously bent and brought to bear against the annular face *m n*.

Figs. 16 and 17 represent the manner in which I prepare the paper envelopes for the above-described cartridges. I use for that purpose a cylindrical form, made of wood, having a small cone on the top; the paper used for the cartridge is wound around it, and its edges, which pass beyond the length of the cylinder, are depressed by the action of the finger. In order to secure nicety of operation I use another form, Fig. 17, having a cavity corresponding to the conical projection on the top of the form shown in Fig. 16. This latter form is applied onto the other, and by a single turn it will give the proper bend. The paper cylinder is then placed into the mold, half of which is shown in Fig. 16.

It will be perceived that the leather ring previously alluded to is set in the mold at *x*.

The mold may be furnished with a core to give the proper cavity to the ball when constructed on the Minie principle, or when so arranged as to contain the fulminating substance, as is the case in needle-guns.

I do not claim joining two metals together while one of them is in a melted state; neither do I claim a cylindrical flange of malleable material cast as above, and described by I. B. Read, in his patent of October 28, 1856; but

What I claim as my invention, and desire to secure by Letters Patent, as a new article of manufacture, is—

A cartridge in which an annular wad and the casing to contain the powder are formed of the materials above described and secured thereto by the act of casting the ball, in the manner specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

EDWARD LINDNER.

Witnesses:
JOHN S. HOLLINGSHEAD,
A. POLLAK.