S. GRISPIN.

Cartridge.

No. 40,978. Patented Dec. 15, 1863.

Fig 5

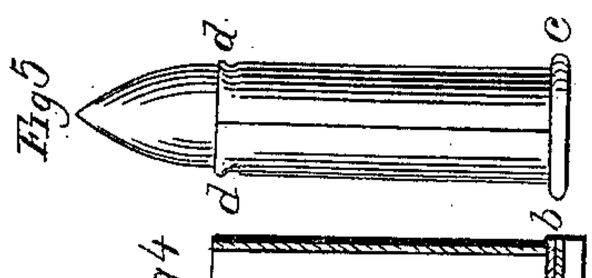

Fig 4

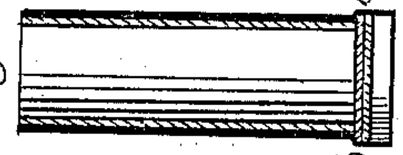

Fig 3.

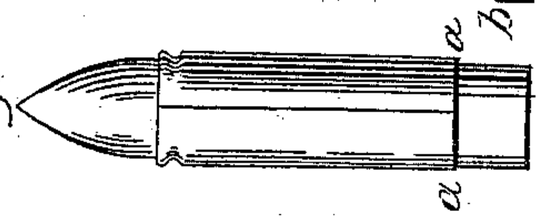

Fig 2.

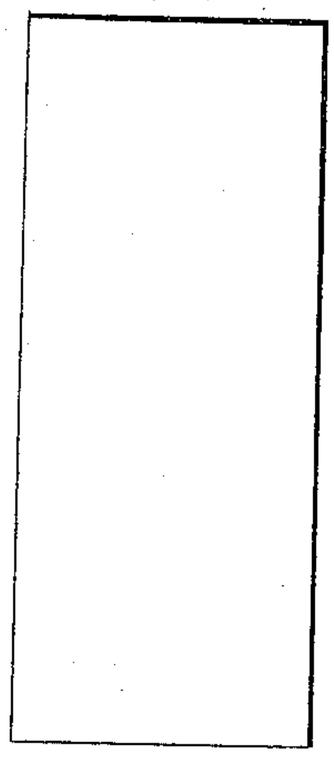

Fig 1.

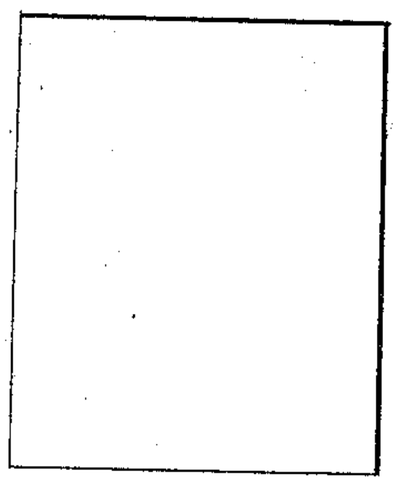

Fig 9.

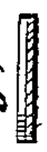

Fig 8.

Fig 7.

Fig 6.

Fig 12

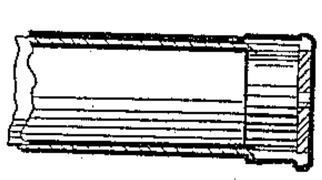

Fig 11

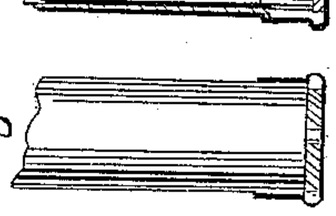

Fig 10.

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UNITED STATES PATENT OFFICE.

SILAS CRISPIN, OF NEW YORK, N. Y., ASSIGNOR TO THOMAS POULTNEY, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PRIMED METALLIC CARTRIDGES.

Specification forming part of Letters Patent No. 40,978, *dated December* 15, 1863.

To all whom it may concern:

Be it known that I, SILAS CRISPIN, of the city, county, and State of New York, have invented certain new and useful Improvements in Cartridges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which makes part of this specification, and in which—

Figure 1 represents a rectangular plane of thin metal; Fig. 2, the rectangular piece of paper which forms the inner and outer wall of the cartridge; Fig. 3, the metal and paper rolled together, the paper terminating at *a a;* Fig. 4, the cartridge formed to receive the cap and with the cap inserted. Fig. 5 shows the cartridge completed and the ball inserted; Fig. 6, the metal cap-bottom; Fig. 7, the disk of metal to cover the fulminate; Fig. 8, the finished cap; Fig. 9, a cross-section of the same; Fig. 10, a view of a primed cup or cartridge-case; Fig. 11, a section of a wrapped metal cartridge combined with this primed cup, and Fig. 12 a view of the combined paper and thin metal with a primed metallic cup.

In that class of breech-loading small-arms which use the seamless primed metallic cartridge-cases it is found that when charges of powder of different weights are used to render these arms adapted to a varying service, the explosion of the cartridge so jams the case in the chamber of the gun or breaks the cartridge-case, or the residuum of the powder, or all together, so firmly packs the case, that it is often extremely difficult (even by the use of special devices for that purpose) to withdraw the empty case; consequently the efficiency of the arm is most materially diminished.

Now, it is the object of my invention to use a primed cartridge in this class of guns that shall effect a perfect gas-check and be removed with great ease, and thus render this class of arms perfectly efficient for rapid firing under all descriptions of service to which they can be applied, and for any number of consecutive discharges desired.

My invention consists in the combination of a cartridge-case composed of thin wrapped sheet metal inclosed within a wrapping of paper, (or thin wrapped metal alone,) and a strong primed metallic cap or cup, both being united securely together.

Cut from brass or other suitable thin sheet metal, of about .002 of an inch in thickness, rectangular or trapezoidal pieces, and in length about three and one-half ($3\frac{1}{2}$) or more diameters of the bore of the gun in which the cartridge is to be used, and as wide as the cartridge is to be long before the primer is inserted, as shown in Fig. 1 of the drawings; then from United States No. 1 laboratory paper, or other suitable paper, cut of a rectangular or trapezoidal form pieces of a length sufficient to pass twice or more around the former, and about half an inch narrower than the thin metal pieces, as shown in Fig. 2. Both the metal and the paper may be cut by hand or by any suitable machinery.

The paper and thin sheet metal are now rolled together on a former, so that the metal shall have both an internal and an external lining of paper, the lining terminating at the line *a a*, Fig. 3.

The cylinder thus formed is placed in a proper die in a lathe, where it is rapidly rotated, and a proper tool inserted and pressed against the metal portion of the case below the paper until the thin metal portion is spun out to the diameter required to receive the cap containing the priming, as shown at the line *b b* of Fig. 4.

The finished cap, charged with a proper fulminate or percussion-powder, is now inserted into the enlarged portion of the cylinder, and, while it rests against the shoulder *b b* of the case, the bottom edges are turned down upon it, as at *c*, Fig. 5, and the cartridge is ready to receive the charge of powder and ball, the latter being secured to the cartridge by having a groove round its base, into which the case is crimped by a choke-string or crimping-machine, as shown at the line *d d*, Fig. 5, and as in the patented cartridge of S. Crispin.

Instead of inserting a prepared primer, like Fig. 8, into the enlarged portion *b b* of cylinder, Fig. 4, as above described, the fulminate or percussion-powder may be directly inserted on the interior of the enlarged portion *b b*. A plain disk of metal may then be inserted, and the lower extremity of the cartridge-case may be folded or bent up against the disk; or the

metallic disk may be dispensed with, and the lower extremity may be bent up so as itself to form the bottom of the complete primed cartridge.

This improved form of cartridge may be also adapted, if desired, for needle-guns by inserting the fulminate in the center of the disk at the bottom of the cartridge.

The primed caps are made heavy and of a form and diameter to suit the bottom of the case to which they are to be securely attached.

These caps are made in the usual manner. A cup, Fig. 6, receives the fulminate, which is secured by a covering-disk like Fig. 7, when the edges of the cup, Fig. 6, are slightly crimped upon the edges of the disk to hold it in place.

When thin sheet metal alone is rolled to form the cartridge, it is cut of a length of about three and one-half ($3\frac{1}{2}$) or more diameters, and formed into a cylinder, as above described, for the metal and paper cartridge, placed in the lathe, and the proper enlargement of the base spun out, as in the combined paper and metal cartridge, to secure the fulminating-disks when its edges are turned and pressed upon the disk to hold it in place.

It is obvious that either cartridge may be combined with a cup-primer, the form of which is well known, as shown in Fig. 10, and secure the bottom end of the wrapped metal, as shown in Fig. 3, whether alone, as in Fig. 11, or inclosed in paper, as in Fig. 12, to the bottom *c c*, Figs. 10 and 11, of the cup, inside or outside and fasten it by solder or otherwise.

It is manifest that when fired this primed expanding cartridge can be at once easily removed from the chamber of the breech-loader, while in the act of firing it will necessarily be expanded into a perfect contact with the walls of the chamber, and perfectly pack the joint of the breech-loader, and thus form a perfect gas-check.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a thin wrapped metal and paper cartridge-case with a primer, so securely fastened together as to form a primed expanding wrapped metal and paper cartridge, substantially as above described.

2. The combination of a thin wrapped metal cartridge-case and a primer, so securely fastened together as to constitute a primed expanding wrapped metal cartridge, substantially as described.

In testimony whereof I have subscribed my name.

SILAS CRISPIN.

Witnesses:

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CHAS. I. MCGOWAN.