2 Sheets—Sheet 1.

T. J. MAYALL.

Revolver.

No. 37,004

Patented Nov. 25, 1862.

Fig. 2

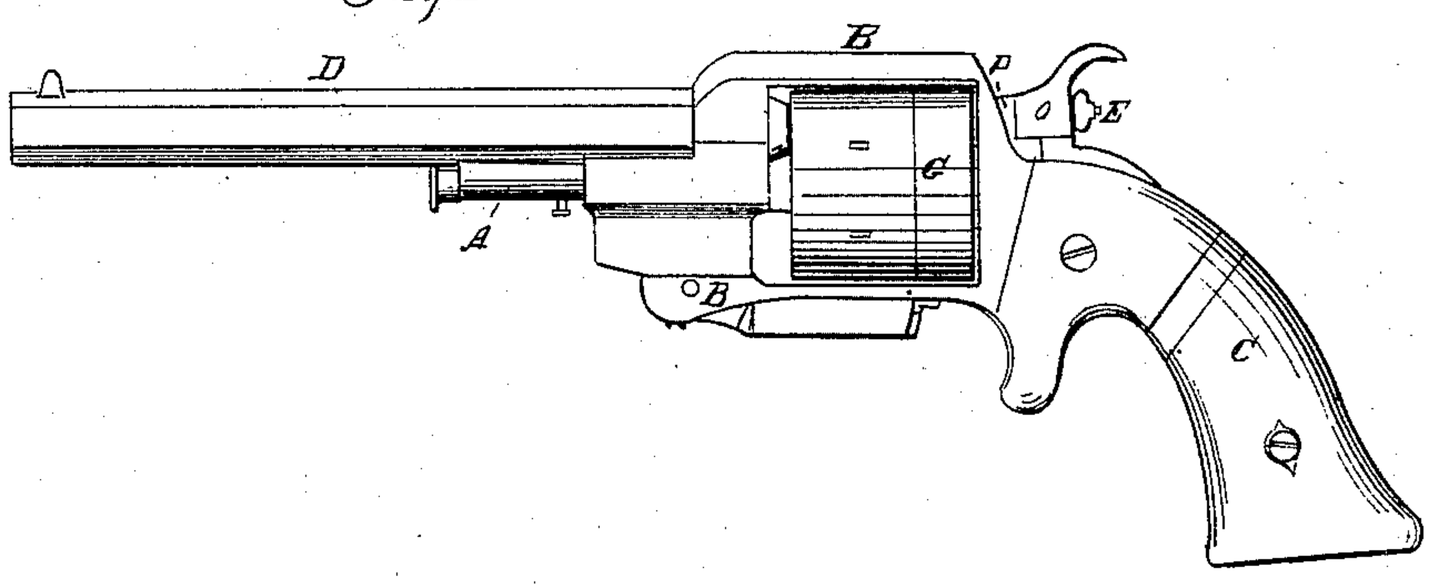


Fig. 1

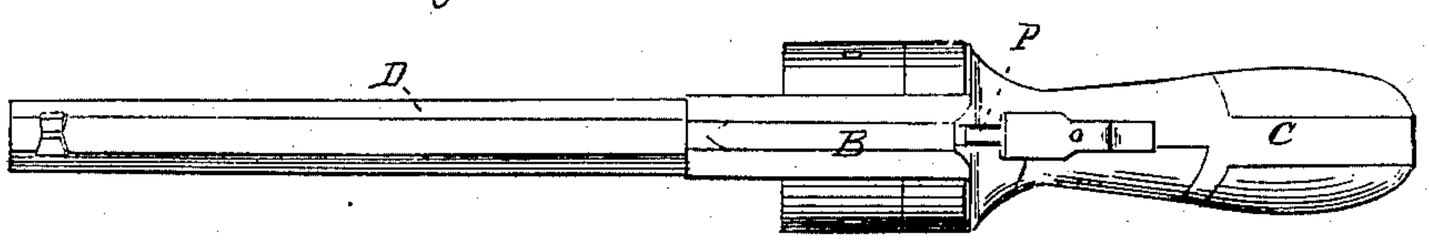


Fig. 6

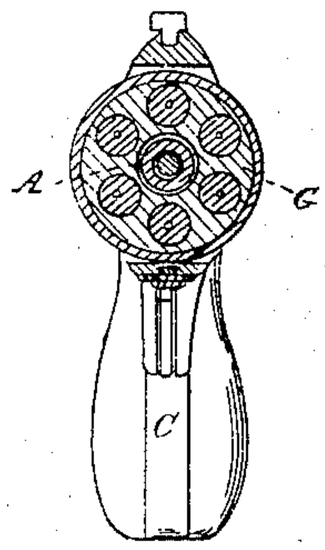


Fig. 7

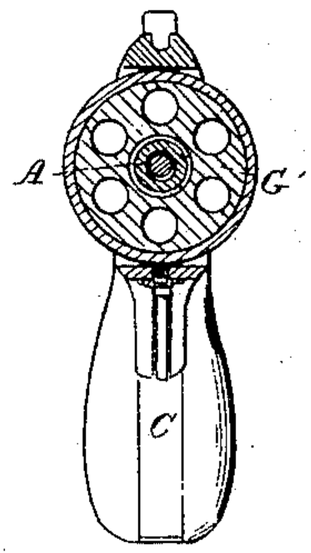
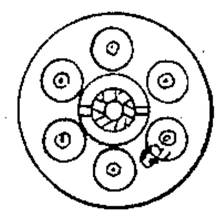


Fig. 11.



Witnesses.

Joseph Garett

Albert W Brown

Inventor.

Thos J Mayall

2 Sheets—Sheet 2.

T. J. MAYALL.

Revolver.

No. 37,004

Patented Nov. 25, 1862.

Fig. 1

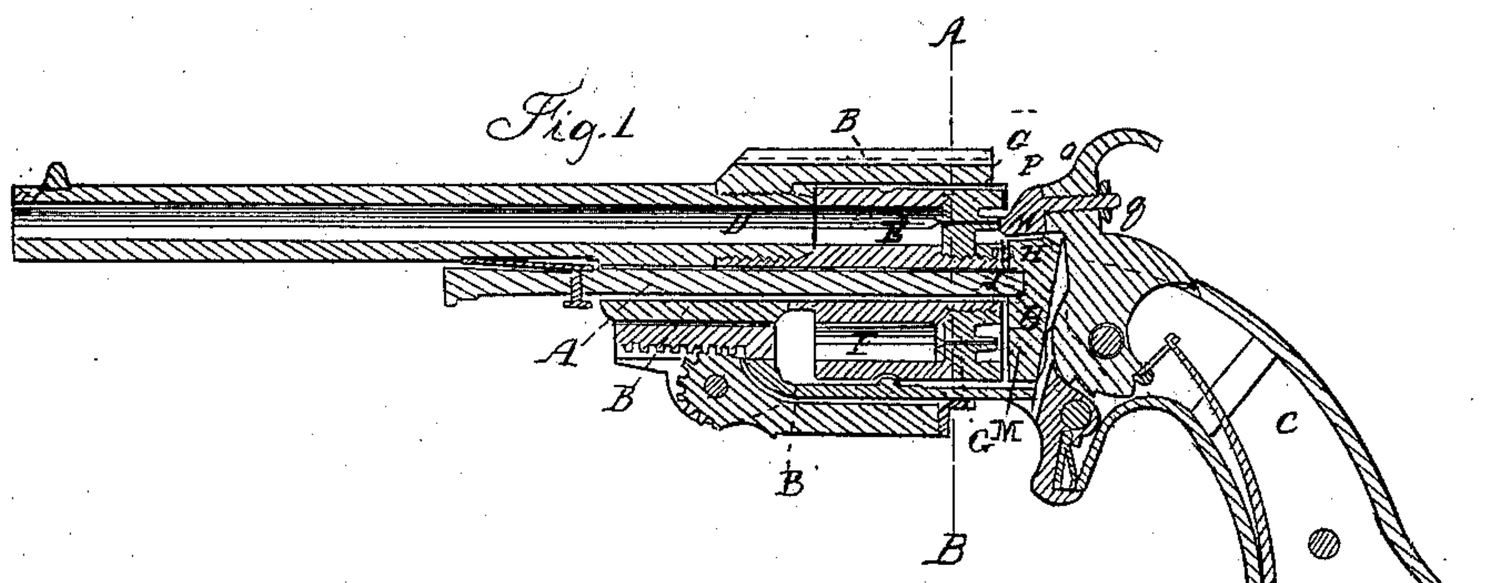


Fig. 4

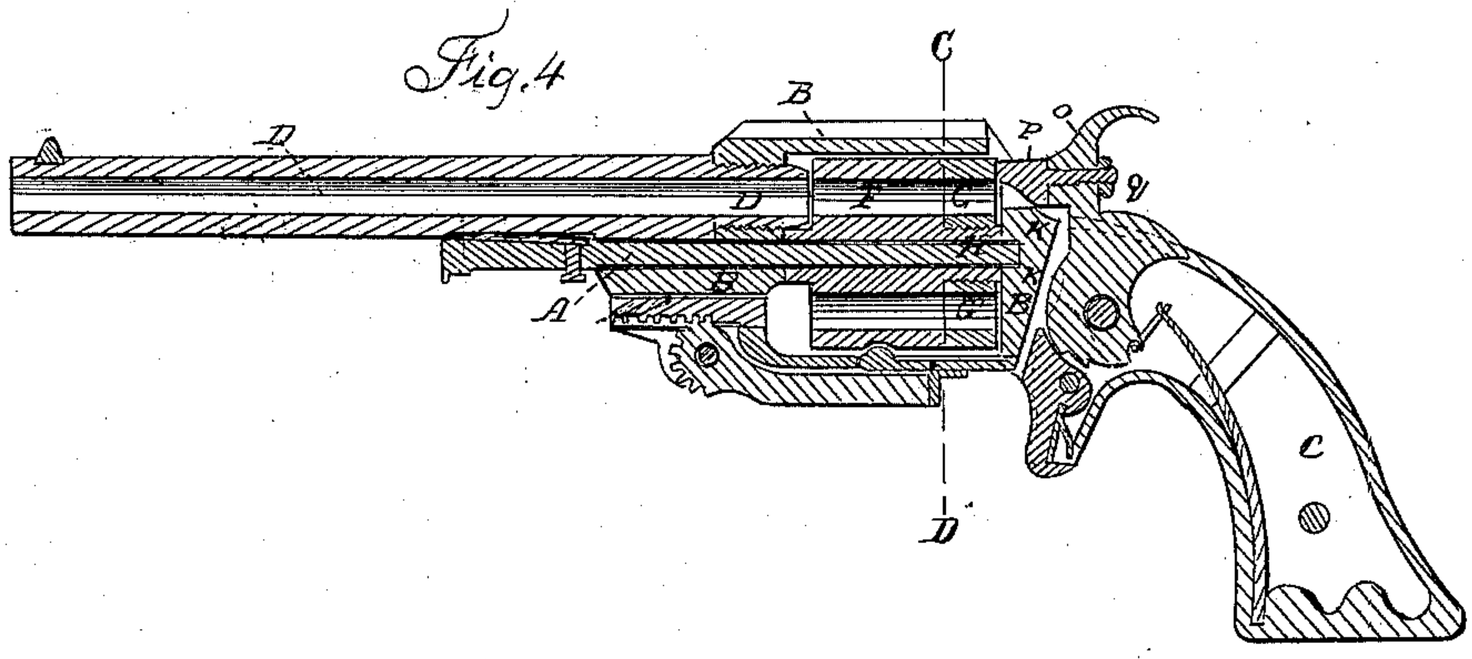


Fig. 5

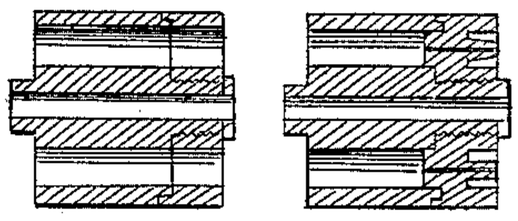


Fig. 9

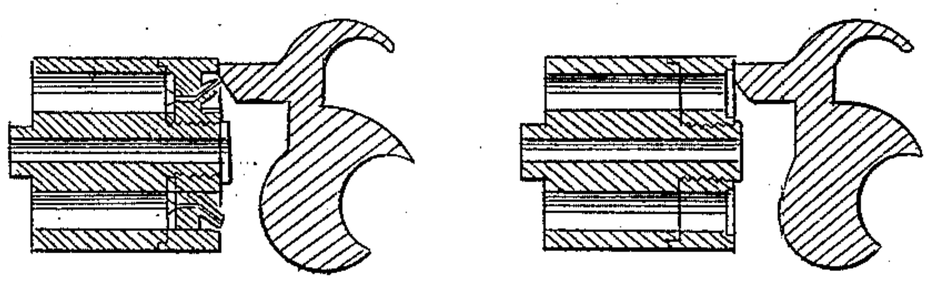
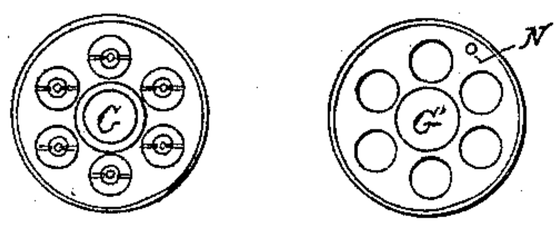
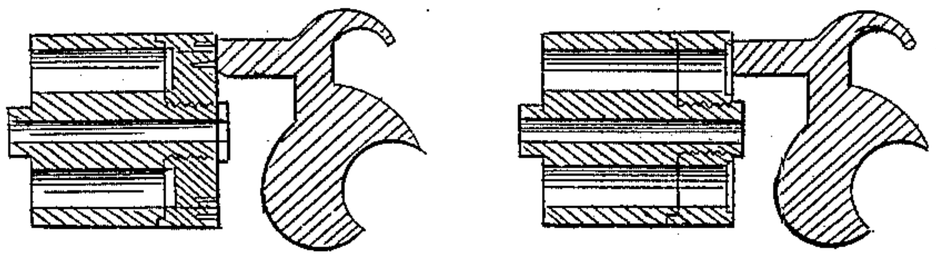


Fig. 8

Fig. 10





Witnesses.

Joseph Gavett

Albert W Brown

Inventor.

Thos J Mayall

UNITED STATES PATENT OFFICE.

THOMAS J. MAYALL, OF ROXBURY, MASSACHUSETTS.

IMPROVEMENT IN REVOLVING FIRE-ARMS.

Specification forming part of Letters Patent No. **37,004**, dated November 25, 1862.

To all whom it may concern:

Be it known that I, THOMAS J. MAYALL, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Fire-Arms; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which the same letters of reference represent like parts in the several figures.

The introduction in armies and elsewhere, often as a matter of necessity, of different kinds of fire-arms, some adapted to the use of fixed, others to the use of loose, ammunition, has frequently been the cause of much embarrassment, confusion, and consequent loss and disaster—*i. e.*, whenever the supply of either kind of ammunition being exhausted a fresh supply could not be obtained in proper time.

The object of this invention is to construct fire-arms so as to adapt them by a mere substitution or slight change in the arrangement of parts to the reception, use of, and operation in connection with different kinds of ammunition.

To illustrate this my invention, I shall now describe it as applied to the construction of revolvers adapted to the use of two kinds of ammunition—viz., to fixed or solid cartridges, and to loose powder and ball.

Figure 1 of the annexed drawings represents a full-sized top view of a revolver-pistol constructed according to this invention. Fig. 2 is a side elevation thereof; Fig. 3, a sectional elevation of the pistol, representing it adapted to the use of ordinary ammunition—*i. e.*, loose powder and ball—the breech being shown to consist of two parts, the rear part of which carries the cap-bearing nipples. Fig. 4 is another sectional view of the same pistol, but adapted to the use of fixed ammunition—*i. e.*, of cartridges in which the projectile is united or combined with a metallic case containing both powder and the fulminate necessary to ignite the powder. In this figure the breech is also shown to be composed of two parts, the rear part simply forming a continuation of the front part, both as to its inside and outside formation. Fig. 5 represents detail views in section of the sectional breeches shown in Figs. 3 and 4 detached from the pistol. Figs. 6 and 7 are sections by transverse planes according to the lines A B and C D in Figs. 3 and 4 respectively. Fig. 8 shows face views of the rear or converting parts of the breech shown in longitudinal and transverse section in Figs. 3, 4, and 6, 7. Figs. 9 and 10 are modifications in the construction of the hammer and the breech, whereby the same hammer or a permanent hammer may be used with either breech. Fig. 11 is a rear view of the breech or breech-section used for loose ammunition.

The revolver here shown is in every respect, with the exception of the breech and the hammer, similar in construction, arrangement, and operation to those heretofore in use, and as my invention relates to no part other than the breech and the hammer, I shall confine my description of the invention to the peculiarities in the construction, arrangement, and operation of the said breech and hammer.

The breech of the pistol is hung on a breech-pin, A, in a frame, B, open at its sides, the frame connecting in the usual manner the stock C with the barrel D. The breech is held in the frame in its proper position by means of the said pin, and is readily removable therefrom by its withdrawal. The breech is composed of two parts—one the front part, which is, so to say, permanent and used with either kind of ammunition, and the other the rear part, which is made to conform with the cartridge or ammunition used, and which is removable from and adjustable to the front part.

Each pistol is provided with one permanent or front breech-section and two adjustable rear parts, either of which may be used in connection with the pistol, according to the available kind of ammunition. This rear part I denominate the "converting breech-section," as by the use of the two the pistol can be readily converted from one adapted to the use of fixed ammunition into one adapted to ordinary or loose ammunition, and vice versa.

In Figs. 3, 4, 6, 7, 8, and 11 the breech, with its converting breech-sections, is shown as applied to one and the same pistol, F representing the front part, G and G′ the rear parts. The former is composed, like all or most revolving breeches, of a cylinder containing a series of chambers arranged around a common

center of rotation. The chambers are open on both ends, and are of a diameter equal to that of the base of the barrel. The rear piece of the permanent breech-section is concentrically grooved or recessed, and the front face of the converting breech-sections is provided with corresponding concentric rims to effect perfect fit of the parts.

The converting breech sections are variously formed, according to the ammunition in use. In the accompanying drawings, two kinds are shown—*i. e.*, one for loose powder and ball, the other for fixed ammunition. The former consists of a solid circular plate, L, closing and fitted to the end of the permanent breech-pin by means of a nut, H, screwed onto the projecting collar K. The plate is perforated in line with the axes of the breech-chambers, and is provided on the outside with nipples M, against which the hammer is caused to strike to explode the caps upon them. The second converting breech-section consists of series of chambers of the same diameter as and corresponding with and forming continuation of those in the permanent breech-section. These chambers are wrought in a plate loosely mounted on the collar K, which is held in its true position in relation to the permanent breech-section by a projecting stud, N, fitting into a corresponding recess in the opposite face.

The converting-piece first described required a nut to securely hold the two breech-sections together and to prevent escape of gas at their joint. The second, it will be seen, requires no additional device to unite it with permanent breech-section, as the ammunition used is of such nature as to pack the joint, rendering leakage impossible.

In cartridges of the kind last referred to the fulminate of mercury, or other explosive compound, is generally located in the rim of the metallic cartridge-case. To explode these it is necessary to strike them at the rim—*i. e.*, at or near the circumference of the chambers. In ordinary cartridges, on the other hand, or when loose powder and ball is used, and when the pistol is converted accordingly by the adaptation to it of the nipple-plate, the caps are placed in the center of each chamber, and to explode them the hammer must strike toward the center of the chamber presented. To effect this twofold action in one and the same pistol with one and the same hammer I use the following device:

The hammer I construct in two parts, the striking-piece being separate from but combined with the body of the hammer by such mechanical means as to allow of the change of position of the striker in relation to the hammer, and when properly adjusted to firmly unite the two. In the accompanying drawings this is carried into effect as follows: The striking-piece P is a flat piece of steel, the square rear edge of which fits into a vertical recess in the front part of the hammer. To the rear side of the striker is secured a screw-threaded shank, Q, which is passed through the opening in the hammer, and is provided in rear of the hammer with a nut, whereby the striker may, after adjustment, be drawn tight into its recess. The form of the striking-blade, it will be seen, is such as to project out of line of the shank-axis. The forward end of the striker may thus be made to occupy different positions in relation to the chamber in the breech by simply turning it upside down. When, therefore, the pistol is to be used with loose powder-and-ball ammunition, and to be loaded by means of a ramrod, like Colt's well known revolver, I use the permanent breech-section in combination with the nipple-bearing plate, and the striker is adjusted in the hammer, as shown in Fig. 3—*i. e.*, the projecting forward end opposite the nipple of the chamber presented; but when fixed ammunition is to be used the nipple-plate is removed, and in lieu thereof the open-chambered converting breech-section is inserted. The hammer, on the other hand, is adjusted to explode the igniting compound in the rim of the cartridge-case by first loosening the nut sufficiently to allow the striker to clear the recess in the face of the hammer. The striker is then turned upside down, fitted back again into its recess, and the nut is turned to draw the parts tightly together. The pistol will then be ready to be used with fixed ammunition, as shown in Fig. 4.

Having thus ascertained the principle of my invention and the manner in which the same is or may be carried into effect, I would here observe that my invention is susceptible of many modifications without departing from the principles above set forth. Thus in Figs. 9 and 10 a different construction of sectional breeches is shown, in connection with which a permanent hammer may be used. The nipples in both are so arranged as that the smaller ends thereof shall be located at or in the immediate vicinity of the periphery of the chambers—*i. e.*, in the same relative position to the breech as the explosive compound occupies in the breech for fixed ammunition.

Having thus fully described my invention, I shall state my claim as follows:

In fire-arms of otherwise ordinary construction and operation, the employment of changeable breeches or breech-sections adapted for reception of different kinds of ammunition, in combination with a hammer so constructed and arranged in relation to the said breeches or breech-sections as to strike, when operated, both the percussion-cap and the head of the solid cartridge in the proper position for causing the ignition of either charge used, as the case may be.

THOS. J. MAYALL.

Witnesses:
A. POLLOK,
WM. H. HARRISON.