W. G. AYRES & G. WHITTAKER.

REVOLVING FIRE-ARMS.

No. 187,244. Patented Feb. 13, 1877

Fig. 1.

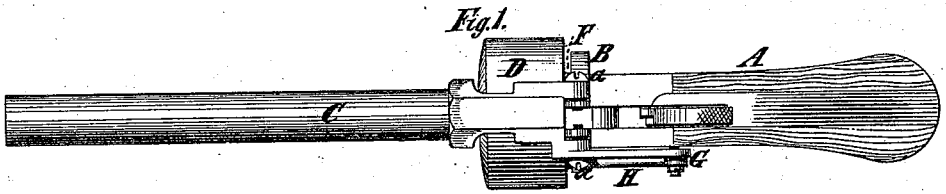


Fig. 2.

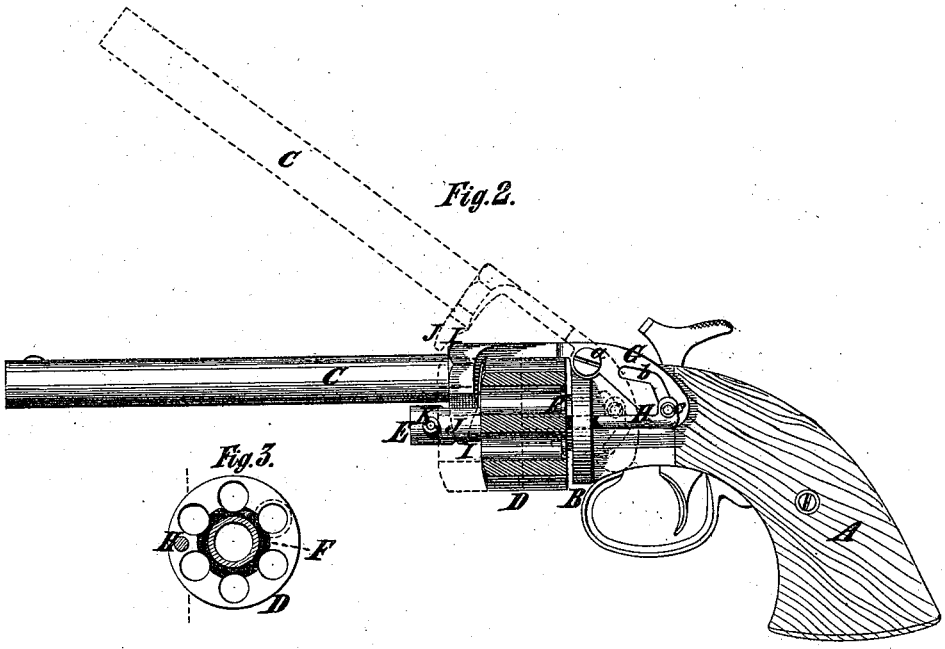
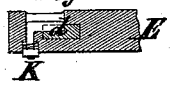


Fig. 3.

Fig. 4.



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WILLIAM G. AYRES AND GEORGE WHITTAKER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN REVOLVING FIRE-ARMS.

Specification forming part of Letters Patent No. **187,244**, dated February 13, 1877; application filed May 22, 1876.

To all whom it may concern:

Be it known that we, WILLIAM G. AYRES and GEORGE WHITTAKER, both of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Fire-Arms, of which the following is a specification:

These improvements relate to fire-arms which have a revolving cylinder containing chambers for a number of cartridges.

One of the improvements consists of the combination, in a fire-arm, of a barrel pivoted to the breech-piece or stock, so that it may be swung up or down, a revolver-cylinder, supported on a fixed center-pin extending from the breech-piece, and an extractor or griping-piece surrounding said center-pin, and incapable of movement away from the breech-piece, whereby, when the barrel is swung out of position, the cylinder may be moved forward along the fixed center-pin, to effect the simultaneous extraction of all the cartridge-shells, and when the barrel is in position is firmly supported in place, so that the fire-arm may be discharged without entailing danger upon the person holding it.

Another improvement consists in the combination, with a revolver-cylinder supported on a fixed center-pin extending from the breech-piece, and an extractor or griping-piece rotating with such cylinder, but incapable of moving away from the breech-piece, of a barrel pivoted to the breech-piece or stock, and constituting a lever for shifting the cylinder away from the said extractor or griping-piece, whereby the cartridge-shells may be simultaneously extracted from the cylinder without great effort.

Another improvement consists in the combination, with such extractor or griping-piece, pivoted barrel, and cylinder, of a rod or lever actuated by the swinging of the said barrel, and preferably a pin or slide operated by said rod or lever, and impinging against the back of the cylinder, whereby a very powerful means for moving the cylinder forward to effect the extraction of the cartridges is afforded.

Another improvement consists in the combination, with a cylinder, of an extractor or griping-piece incapable of moving away from the breech-piece, and mechanism acting upon the said extractor or griping-piece to revolve the cylinder, whereby the construction of the fire-arm is materially simplified.

Another feature consists in the combination, with a revolver-cylinder, a center-pin supporting the same, and a tongue or return piece on a swinging barrel, of a bolt actuated by a spring, and forming an automatic catch for securing the barrel in position, and an automatic guard for retaining the cylinder on the center-pin when the barrel is swung out of position for use.

Another feature consists in the combination, with a swinging barrel and a center-pin supporting the cylinder, of a spring-catch for locking the said barrel in position for use.

Another feature consists in the combination of a cylinder, a center-pin supporting the same, and a catch or guard preventing the cylinder from slipping off its center-pin.

The accompanying drawing illustrates my improvements applied to a revolver of well-known construction.

Figure 1 is a top view thereof. Fig. 2 is a side view of the same, the cylinder being shown in section, and the operation of the extractor being indicated by dotted lines. Fig. 3 is a back view of the cylinder and transverse section of the extractor, and Fig. 4 is a horizontal section of the center-pin and catch.

Similar letters of reference designate corresponding parts in all the figures.

A designates the stock of the revolver; B, the breech-piece, and C a barrel, pivoted to the breech-piece or stock, so that it may be swung up out of line with the upmost chamber of the cylinder, as indicated by dotted lines. D is a cylinder, containing a number of chambers for cartridges; and E, a center-pin, on which the cylinder is arranged so as to be free to revolve, and, when the barrel is raised, to be moved forward and backward by hand, or by any suitable means, as shown in Fig. 2.

As the mechanisms for revolving the cylinder and firing the cartridges are of well-known construction, no description of them is necessary.

F is an extractor or griping-piece, consist-

ing of a disk-shaped plate provided with a series of arc-shaped notches corresponding in number and in radius with the chambers in the cylinder D. The cylinder is countersunk at the back to fit around this extractor or griping-piece, so that the back surfaces of the two parts are flush with each other, and said parts are locked to revolve together by a pin on one fitting a recess in the other, or in any other suitable manner.

The flanges or heads of the cartridges lap over this extractor or griping-piece, and hence, when the cylinder is moved forward, the cartridges remain stationary until the cylinder is entirely freed from them, whereupon they all fall from the revolver. The said extractor or griping-piece derives an intermittent rotating movement from suitable mechanism driven by the firing mechanism, and hence revolves the cylinder. This simplifies the construction of the revolver materially. We have not represented this rotating mechanism, because we do not confine ourselves to any particular kind, and that embodied in the revolver illustrating our invention is of a well-known kind. It consists of a pair of bevel-wheels, one affixed to the extractor or griping-piece, and the other deriving an intermittent rotary movement from a ratchet-clutch connected with the hammer.

G is a rod, affixed to the barrel C in rear of its pivots *a*. It is provided with a slot, *b*, through which extends a pin or bolt, *c*, connecting it to a pin or slide, H, which is free to move longitudinally through the breech-piece, and impinges against the back of the cylinder D. When the barrel is swung up, the rod G, acting on the slide H, throws the cylinder forward sufficiently far to release the cartridge-shells. The barrel and rod G thus combined constitute a powerful lever, and render the extraction of the cartridge-shells a very easy matter.

The rod G and slide H are represented as being outside the stock of the revolver; we prefer, however, to arrange them in a slot or cavity at the side of the hammer, where they will be concealed from view.

In practice we may so construct fire-arms involving this invention that the barrel may swing down instead of up, and instead of affixing to it a rod, G, we may cause it to actuate an independent lever. The pin or slide H may also be unconnected with the rod or lever which operates it, and in such case may be returned to its normal position by a suitable spring, or by the impact of the cylinder, and may serve as the means for readjusting. An independent lever such as we have suggested may be used as a substitute for the rod H.

At or near the rear of the barrel C is a return-piece, I, the office of which, as its name indicates, is to return or readjust the cylinder into position for use after the cartridge-shells have been extracted from it. To facilitate this the return-piece has an inclined back, made slightly concave, and the cylinder has a convex front. As the barrel is adjusted to its normal position the back of the return-piece comes in contact with the front of the cylinder and pushes it back close to the breech-piece. By this means the cylinder is adjusted to its normal position without having to be separately manipulated, as in the ordinary fire-arms, which admit of longitudinal movement of the cylinder. We have represented this return-piece combined with a part of the fastening which secures the barrel in position. It is obvious, however, that it may be made an entirely separate part. The said return-piece, in this example, is formed with a tongue or projection, J, which, as the barrel C is adjusted into position, enters a mortise or slot in the center-pin E, and is secured there by a spring-catch, K, fitting into a notch or recess, *d*. This catch consists of a bent pin arranged loosely in a transverse slot or cavity in the center-pin, and having a suitable spring applied to it, so that it will automatically engage with the said notch or recess *d* in the tongue J whenever the barrel is adjusted into position. The barrel may be released by forcing inward the end of the pin K, so as to disengage it from the tongue J. When the barrel is secured in position it retains the cylinder in place, and, by obviating the necessity for any frame-work, simplifies the construction of the revolver very materially.

The catch K, as its end projects beyond the center-pin, performs the additional function of a guard to prevent the cylinder from slipping off when the barrel is swung away from it. When it is pressed inward, however, the cylinder may be removed.

Though we have shown our invention only as applied to a "revolver" pistol, it is applicable to all fire-arms having a revolving cylinder.

The advantages of the invention are, that provision is afforded for the simultaneous extraction of all the cartridge-shells in a very easy manner, and without complicating the fire-arm, so as to entail any material increase of its cost; that provision is afforded for easily returning the cylinder to position, for securely holding it so, and for preventing it from slipping off its center-pin when the barrel is swung away from it.

We do not confine ourselves to the precise style of extractor or griping-piece which is shown in the drawing, as we can use any style which is incapable of moving away from the breech-piece. Instead of using a rod and slide in connection with a swinging barrel, the barrel may be made to form a lever, which will of itself operate the cylinder.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, in a fire-arm, of a revolver-cylinder, a fixed center-pin supporting such cylinder and extending from the breech-piece, an extractor or griping-piece incapable of moving away from the breech-piece, and a barrel pivoted to the breech-piece or stock,

so that it may be swung up or down, substantially as set forth.

2. The combination, with a revolver-cylinder supported on a fixed center-pin extending from the breech-piece, and an extractor or griping-piece rotating therewith, but incapable of moving away from the breech-piece, of a barrel pivoted to the breech-piece or stock, and constituting a lever for shifting the cylinder away from the said extractor or griping-piece, substantially as set forth.

3. The combination, with an extractor or griping-piece incapable of movement away from the breech-piece, and a barrel pivoted to the breech-piece or stock, so that it may be swung up or down, of a rod or lever actuated by said barrel, and a pin or slide operated by such rod or lever, and impinging against a cylinder capable of longitudinal movement, substantially as herein set forth.

4. The combination, in a fire-arm, of a revolver-cylinder, an extractor or griping-piece rotating therewith, but incapable of moving away from the breech-piece, and mechanism operating upon the extractor or griping-piece to revolve the cylinder, substantially as set forth.

5. The combination, with a revolver-cylinder, a center-pin supporting the same, and a tongue or return-piece on a barrel pivoted to the breech-piece, so that it may be swung up or down, of a bolt actuated by a spring, and forming an automatic catch for securing the barrel in position for use, and an automatic guard for preventing the cylinder from slipping off the center-pin when the barrel is out of position for use, substantially as described.

6. The combination, in a fire-arm, of the barrel C, pivoted to the breech-piece or stock, the rod G, pin or slide H, extractor or griping piece F, revolving mechanism, return-piece I, tongue J, catch and guard K, substantially as set forth.

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