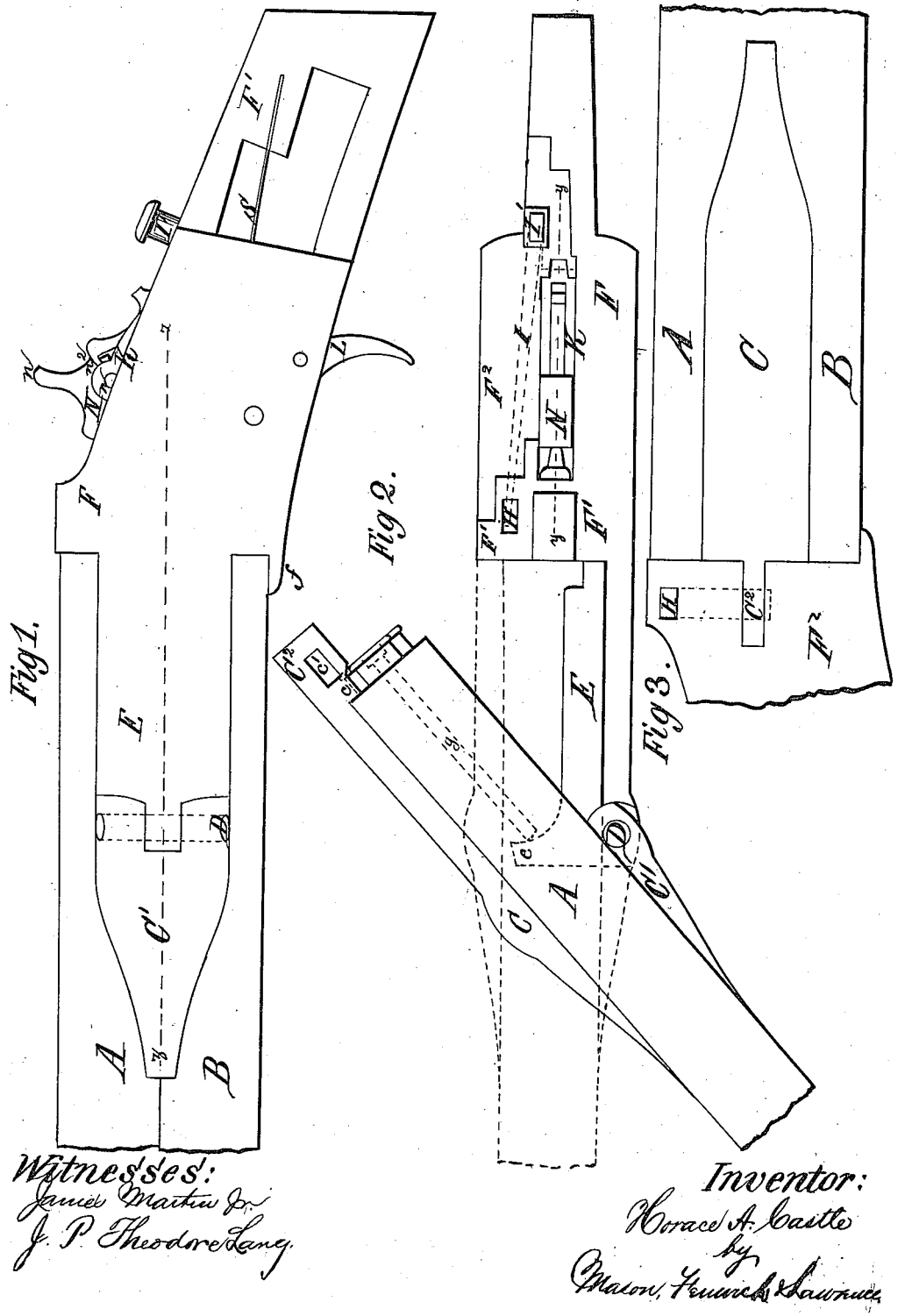
2 Sheets—Sheet 1.

H. A. CASTLE.

BREECH-LOADING FIRE-ARMS.

No. 182,557. Patented Sept. 26, 1876.



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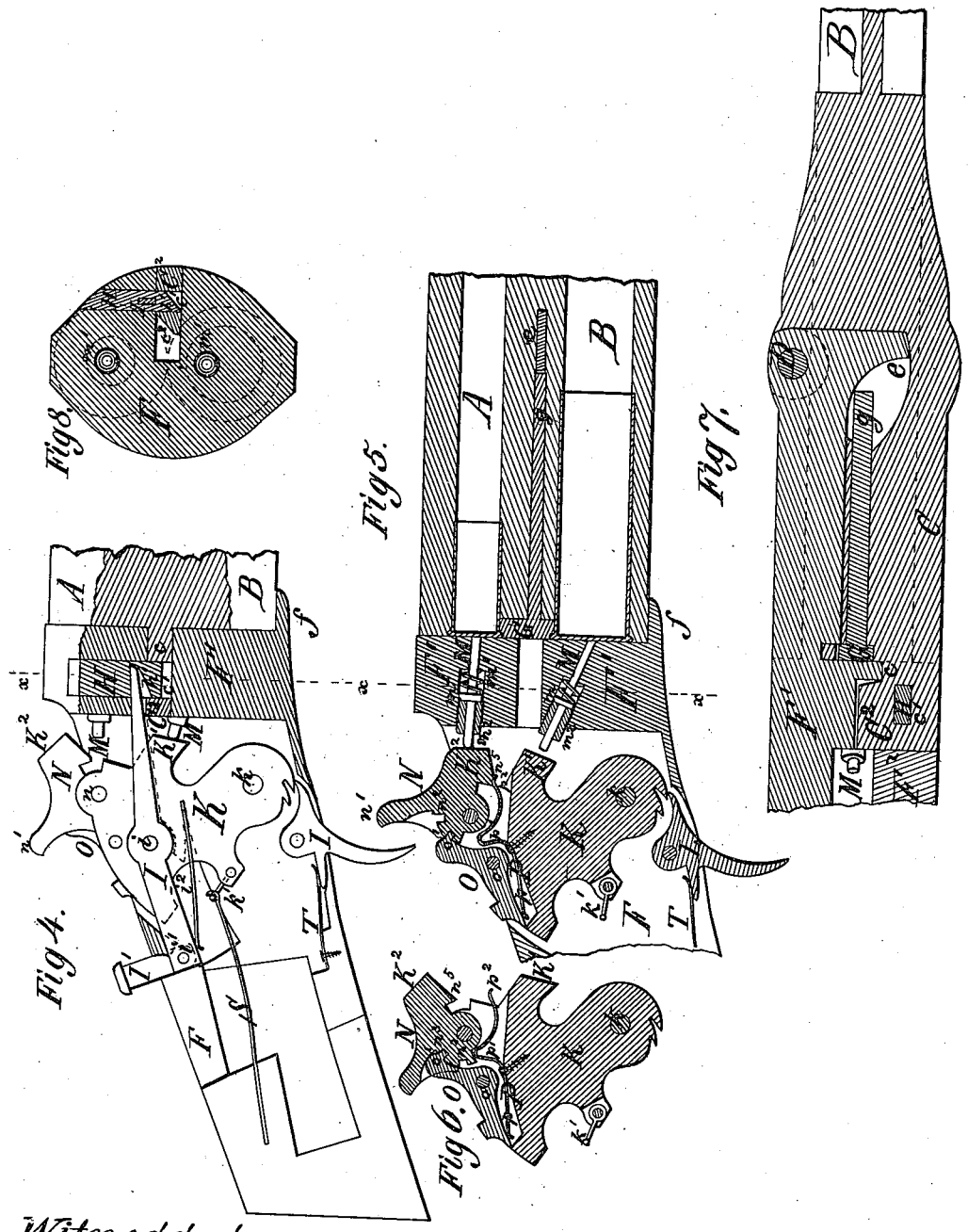

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UNITED STATES PATENT OFFICE.

HORACE A. CASTLE, OF ILION, NEW YORK.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 182,557, dated September 26, 1876; application filed May 5, 1876.

To all whom it may concern:

Be it known that I, HORACE A. CASTLE, of Ilion, in the county of Herkimer and State of New York, have invented new and useful Improvements in Fire-Arms, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my improved gun. Fig. 2 is a top view of the same, illustrating its operation. Fig. 3 is a view of the side opposite that shown in Fig. 1. Fig. 4 shows the operating parts in the breech-frame of my improved gun, the covering metal being broken away. Fig. 5 is a vertical central section in the line *y y* of Fig. 2 of a part of the breech-frame, the barrels, the hammer, retractor, and firing-pins. Fig. 6 is a vertical central section of the hammer, showing its changeable face-piece turned out of action. Fig. 7 is a horizontal central section in the line *z z* of Fig. 1 of a part of the breech-frame and barrels, illustrating the movement of the retractor. Fig. 8 is vertical transverse section in the line *x x x* of Figs. 4 and 5, through the breech, showing the mode of locking and unlocking the horizontal swinging barrels.

The nature of my invention consists in certain constructions, combinations, and arrangement of parts, as hereinafter fully described and specifically claimed, whereby an improved balanced double-barrel gun of very simple construction, great strength, and very easy of manipulation is produced.

To enable others skilled in the art to understand my invention, I will proceed to describe it.

In the accompanying drawings, A represents a rifle-barrel, and B a shot-barrel, both united near the breech by side laps or braces C C¹. The said barrels A and B are fastened one on top of the other, and are on one side provided with a vertical pivot-pin, D, by which they are united to an arm, E, of the breech-frame F. The arm E is so shaped as to form the continuation of the short brace C¹ toward the breech. The arm E and the brace C¹ are fitted together in the form of a knuckle-joint, so as to present a smooth surface when the barrels are in their normal position. Between the said barrels a retractor, consisting of a stepped head, G, and a shank, *g*, is inserted, whereby the cartridges of both barrels are removed.

The arm E is provided with a cam-heel, *e*, whereby it pushes the shank *g* of the retractor G backward, when the barrels A B are swung off the breech F¹ for reloading, as seen in Fig. 2. The brace C extends to the breech, and there terminates in a horizontal wedge, C², with a neck, *c*, in which is a vertical hole, *c*¹. The said wedge C² is fitted into the side of the breech F¹, and there secured by a vertical bolt, H, which is fitted into the said breech and thus prevents the barrels from moving. The bolt H is provided with a notch, *h*, into which the end of a lever, I, extends, which is fulcrumed at *i*, and at its other end is provided with a push-knob, I′, hinged at *i*¹. The push-knob I′ is fitted into a removable side piece, F², of the breech-frame, which also carries the fulcrum *i* and a spring, *i*², for holding the push-knob I′ up and the bolt H down, so that by removing the said side piece the lever I, the spring *i*², and the push-knob I′ are also removed; or, in other words, the locking mechanism of the barrel is removed, and the hammer K may be slipped off its pin *k*. The said side piece forms the side bearing of the hammer, and is fastened to the breech-frame in the usual manner by screws.

The bolt H has an inclined surface, *h*′, at the lower end, and the wedge C² has a corresponding inclined surface, *c*², as seen in Fig. 8, whereby the bolt H may be lifted, when the wedge C² is pressed into its place by hand. The hammer K is, as usual, provided with a spring-link, *k*′, and a trigger, L, but it has two concussion-faces for the firing-pins M of the barrels A B. One of the said concussion-faces, K¹, is rigid, and the other one, K², forms a part of a movable dog, N, pivoted to the hammer at *n*. The dog N is provided with a spur, *n*¹, for cocking the hammer, and at its back with two notches, *n*² *n*³, for steadying it in two distinct positions by means of a lever-catch, O, pivoted to the hammer at *o*. The said catch has a tooth, *o*′, fitting the notches *n*² *n*³ very accurately, so that the concussion-face K² is in a vertical position, and directly opposite the upper firing-pin M, when the tooth *o*′ of

the catch O is in the notch n^2 of the dog N, as seen in Fig. 5. When the said tooth o' is in the notch n^3, the concussion-face K is turned up and out of the way of the upper firing-pin M and the concussion-face K^1, which, in the former case, was kept at a distance from the lower firing-pin M, is now permitted to act upon the same, as Fig. 4 plainly shows.

The dog N and the catch O are kept in their positions by a spring, P, which is fastened to the hammer, and bears on the knob end of the lever I with one of its ends, *p*. The other end of the spring P is bent concentric with the lower bearing of the dog, and has two operating-surfaces, p^1 p^2, which operate alternately upon the faces n^4 n^5 of the dog N, and thereby prevent the dog and the catch from getting separated by accident.

The spring S of the hammer and the spring T of the trigger are of common construction, and need no special description.

The firing-pins M are inserted into the breech F^1, and each is provided with a shoulder, *m*, against which a spring, m^1, bears, thereby pressing it against the guide-plug m^2, which is screwed into the breech. The forward ends of the firing-pins M are kept flush with the breech-face by the spring m^1 and plugs m^2. A horizontal projection, *f*, at the lower forward end of the breech, serves as a support for the barrels when locked, and relieves the wedge C^2 from the strain of their weight.

Operation: For the purpose of loading the gun the hammer is set at half-cock, and the knob I′ is pressed down, thus causing the lever I to move the bolt H up and out of the hole c^1 in the wedge C^2, which is now unlocked. The barrels A B are now swung laterally off the breech F^1, as shown in full black lines in Fig. 2. Said movement causes the shank *g* of the retractor G to be pushed back by the eccentric surface of the cam-heel *e* of the arm E, and thereby the empty cartridges to be pushed out of the barrels A B. Fresh cartridges are now inserted and the barrels are swung back to their firing position. The wedge end C^2 of the barrel-support, being pressed into its place by this action, pushes the bolt H up by means of the inclined surfaces h^1 c^2, and being afterward moved down again into the hole c^1 by the pressure of the spring i^2 upon the lever I the gun-barrels are locked.

If the rifle-barrel A is to be used first, and the hammer is not arranged accordingly, as seen in Figs. 4 and 6, the catch-lever O is at its free end depressed, whereby the tooth o' is removed from its notch n^3. The dog N is now turned down until the tooth o' enters the notch n^2, when it is ready, as Fig. 5 represents it.

For discharging the rifle, the hammer is drawn back to the second rest, and the trigger L pulled. The hammer K in its descent strikes the upper firing-pin M with the surface K^2 without touching the lower firing-pin, because the concussion-surface K^2 leaves the rigid concussion-surface K^1 at a sufficient distance behind.

For the purpose of discharging the short barrel the tooth o^1 is in the above-described manner removed from the notch n^2, and permitted to enter the notch n^3 of the dog N, thereby throwing the concussion-surface K^2 up and out of the way of the upper firing-pin. The concussion-face K^1 is thereby enabled to move farther forward and strike the lower firing-pin M, when the shot-barrel is to be discharged.

For the purpose of illustrating my invention in the most conspicuous manner, I have shown a heavy rifle-barrel and a much lighter shot-barrel placed in the same vertical plane, and it is evident that two barrels of this description arranged horizontally, as is universally done, would, by the unequal distribution of weight right and left of the center line of the gun, give constant annoyance to the operator. The vertical arrangement of the barrels enables me to make a balanced double-barreled gun under all circumstances.

I do not, however, intend to make only guns of the above description, but I can and will adopt the vertical arrangement with guns having barrels of any description. Two shot-barrels or two rifle-barrels, for instance, either breech-loading or muzzle-loading, and arranged vertically upon the stock, offer nearly the same advantages as the special plan described.

Another advantage of my construction is this, that the operator is enabled to fire both barrels in quicker succession, on account of the fact that there will be only one sight for taking aim, and he need not make but the slightest, if any, change in his position, or that of the gun, if directly after discharging one barrel he wants to discharge the other.

The recoil of this gun has the same direction in each barrel, and the chances for missing on account of the side thrust of a barrel of the horizontal arrangement, caused by uncentrical recoil, are in my vertical arrangement entirely obviated.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A double-barrel gun, having two vertically-arranged and united barrels, which are attached to the breech or stock by means of a vertical pivot-pin, arranged on one side of the barrels, substantially as and for the purpose described.

2. In a gun with two vertically-arranged barrels, the combination of the horizontal arm E, the vertical pivot-pin D, the cam-heel *e*, and the retractor G, constructed and operating substantially as set forth.

3. In a breech-loading gun with horizontally-swinging double barrels, the combination of the breech F^1, arm E, pin D, the braces C C^1, the wedge C^2, the bolt H, the lever I, and the spring i^2, substantially as and for the purpose set forth.

4. The breech or stock for a double-barrel gun, constructed with a bottom and side supports for the barrels, and with a hinging side lug for the vertical pivot-pin of the hinge on which the barrels swing horizontally, to pass through, substantially as and for the purpose described.

5. The hammer K and K^1, slotted at its top, and having the adjustable face K^2 fitted in the slot thereof, and pivoted to the sides of the same, and provided with the dog N and spring-catch O, substantially as described.

HORACE A. CASTLE.

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