No. 893,014. PATENTED JULY 14, 1908.

O. W. RINGQVIST.

HINGE PIN FOR BREAKDOWN GUNS.

APPLICATION FILED JULY 8, 1902.

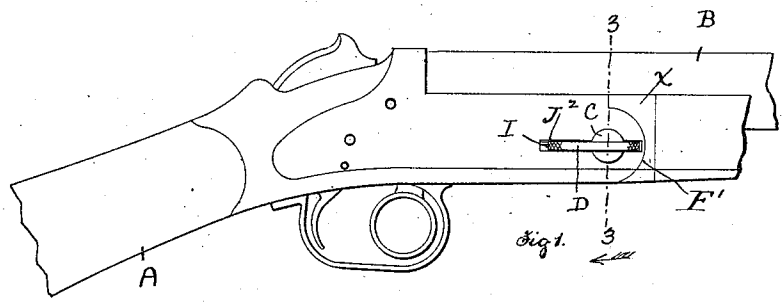


Fig 1.

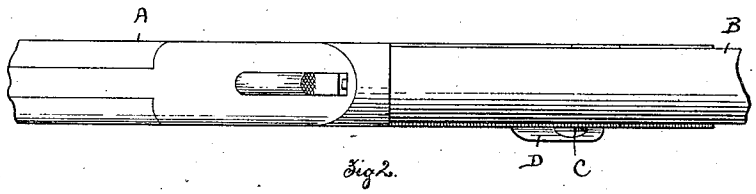


Fig 2.

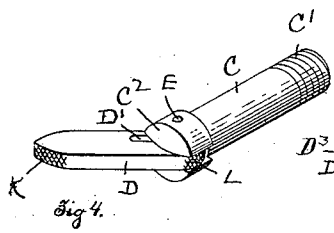


Fig 4.

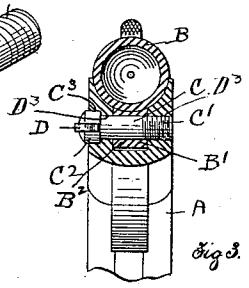


Fig 3.

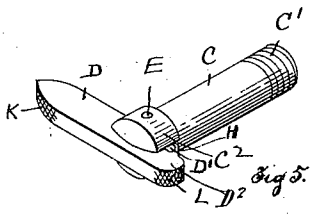
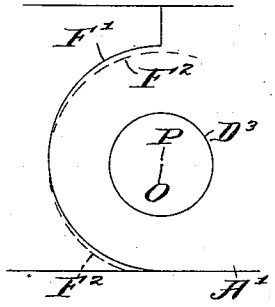


Fig 5.

Fig. 8.



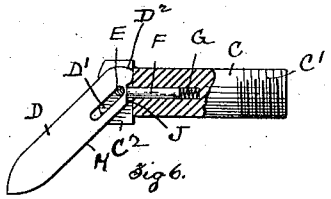


Fig 6.

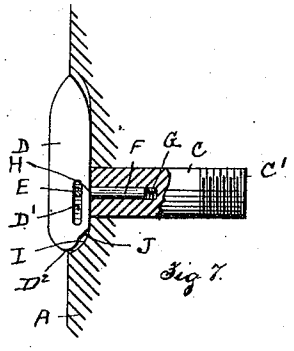


Fig 7.

Witnesses:

H. M. Rugg

Florence L. Cook.

Inventor:

Otto W. Ringqvist.

By Rufus B. Fowler

Attorney.

UNITED STATES PATENT OFFICE.

OTTO W. RINGQVIST, OF FITCHBURG, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MARY ELIZABETH JOHNSON, TRUSTEE, OF FITCHBURG, MASSACHUSETTS.

HINGE-PIN FOR BREAKDOWN GUNS.

No. 893,014. Specification of Letters Patent. Patented July 14, 1908.

Application filed July 8, 1902. Serial No. 114,739.

To all whom it may concern:

Be it known that I, OTTO W. RINGQVIST, a citizen of the United States, residing at Fitchburg, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Hinge-Pins for Breakdown Guns, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 is a side view of a portion of a break down gun, showing my improved hinge pin. Fig. 2 is a top view of the same. Fig. 3 is a section on line 3—3, Fig. 1, looking toward the rear of the gun. Figs. 4 and 5 are perspective views of my improved hinge pin. Fig. 6 is a side view of my improved hinge pin shown partly in section. Fig. 7 is a side view of the same showing the hinge pin applied to the frame of the gun, and Fig. 8 is an enlarged diagrammatic view showing the eccentricity of the joint between the frame and the forestock.

Similar reference letters and figures refer to similar parts in the different views.

My invention relates to improvements in hinge pins for break down guns and is designed to furnish means for the easy insertion and withdrawal of the hinge pin, and also to prevent the removal of the hinge pin except when the gun is broken down, and it consists in the construction and arrangement of parts as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawings A denotes the gun stock with the frame A^1 attached thereto. The barrel B is pivotally attached to the frame A^1 by the hinge pin C which passes through the holes D^3, D^3, in the frame A^1 and the hole B^1 in the rib B^2 of the gun barrel B; said gun barrel B turning on said hinge pin C when the gun is broken down. The hinge pin C is screw threaded at one end C^1 and is adapted to screw into corresponding screw threads in one of the holes D^3 in the frame A^1 of the gun. At the opposite end of the hinge pin C is a bifurcated head C^2 which is held in the recess C^3 on the opposite side of the frame from the screw threaded hole D^3. The handle D of the hinge pin C is adapted to enter the bifurcation in the head C^2 and is provided with a slot D^1 through which a pivot pin E, held in the head C^2 extends, whereby the handle D has a pivotal connection with the hinge pin C and is also adapted to receive a sliding motion in the bifurcated head C^2. A tail piece D^2 at one end of the handle D is formed to abut against the hinge pin C and limit the outward rotation of the handle C on the pivot pin E, Figs. 4 and 6. A locking pin F and spring G are provided in the hinge pin C and the locking pin F bears against the handle D opposite the pivot pin E. When the hinge pin C is in its proper position in the gun, the handle D is depressed into a recess I in which it is held by the locking pin F, Figs. 5 and 7. When the handle D is in its elevated position the pin F bears against the shoulder J and retains the pin F in that position. The ends of the handle D are knurled at K and L.

Fig. 8 is a diagrammatic view which is designed simply to show the action of the eccentric joint between the ends of the frame A^1 and the forestock x which is attached to the barrel in the ordinary manner. The solid line F^1 in Fig. 8 shows the actual joint as governed by the convex ends of the frame A^1. The concave plane of the ends of the forestock x attached to the barrel would normally follow the line F^2 as the barrel is rotated on the hinge pin and the gun is closed, but the eccentric construction of the convex ends of the frame A^1 forces forward the forestock x and with it the barrel and rib B^2 a distance equal to the difference between the solid line F^1 and the broken line F^2 which is also the difference between the centers O and P of circles corresponding to lines F^1 and F^2. This brings the hole B^1 in the rib of the barrel slightly out of alinement with the holes D^3, D^3, in the frame and hence the hinge pin is held firmly in its position. When the gun is broken down the broken line F^2, showing the normal position of the concave end of the forestock, rotates entirely below and forward of the line F^1, which is the position of the concave ends of the frame A^1, so that instead of binding there is a slight longitudinal play between the frame and the forestock x. When the gun is broken down, therefore, the hinge pin C may be readily unscrewed, but when the barrel is in the position shown in Fig. 1, the slight binding action upon the hinge pin C prevents its removal, thereby locking the hinge pin.

The method of operation of my improved hinge pin is as follows:—When the gun barrel is placed in the broken down position, the

hinge pin C is inserted in place and screwed in by means of the handle D which is placed in the position shown in Figs. 4 and 6 to serve as a lever handle for the hinge pin. When completely inserted the bifurcation in the head C^2 is in alinement with the recess I and pressure upon the knurled end K depresses the handle D to a position approximately at right angles with the hinge pin C, and into the recess I, as shown in Figs. 5 and 7. The barrel is then closed in the position shown in Fig. 1, and the eccentricity of the joint F^1 moves the hole B^1 in the rib B^2 of the barrel, which slightly binds the hinge pin C and locks it in position. In taking the gun apart, it is first broken down to prevent the binding of the hinge pin, the handle D is then swung into its outward position, as shown in Figs. 4 and 6, by pressure upon the knurled end L and the hinge pin C unscrewed by means of the handle D.

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

1. In a break down gun, a screw threaded hinge pin provided with a pivot pin in one end, a lever handle provided with a slot inclosing said pivot pin, whereby said handle is capable of both a rocking and a sliding motion on its pivotal connection, and means for limiting the outward swing of the lever handle.

2. In a break down gun, the combination with a frame and barrel hinged thereto, of a screw threaded hinge pin provided with a pivot pin at one end, a lever handle provided with a slot inclosing said pivot pin, whereby said lever handle is capable of both a rocking and sliding motion on its pivotal connection, means for applying a yielding pressure to said lever handle and means for limiting the outward swing of said lever handle, substantially as described.

3. In a break down gun, the combination with a frame having a hole therein to receive a hinge pin and provided at its outer surface with a recess extending diametrically across said hole, of a screw threaded hinge pin held in the frame, a lever handle having a pivotal connection with one end of said hinge pin and adapted to lie in its normal position in said recess, whereby the handle is locked against turning, said handle having a slot inclosing the pivot, whereby it is capable of both a sliding and rocking motion on its pivotal connection with said hinge pin and means for limiting the outward swing of said lever handle, substantially as described.

4. The combination with the frame of a break down gun, having a hole therein to receive a hinge pin and provided on its outer surface with a recess diametrically across said hole, of a hinge pin adapted to enter the hole in the frame, a slotted handle having a pivotal connection with said hinge pin and capable of both rocking and sliding on said pivotal connection, means for applying a yielding pressure to said slotted handle, and means for limiting the outward swing of said handle, substantially as described.

5. A hinge-pin for break-down guns comprising a pin proper having a screw thread at one end and a bifurcated head at the other, a handle provided with a slot located at or near one end thereof, and extending substantially parallel with the edges of the handle, the handle fitted in the bifurcated head and retained therein by a pin which passes through the slot, and a spring actuated pin fitted to a bore formed in the hinge-pin proper, and bearing at all times upon some portion of the handle immediately opposite the pivot pin.

6. A hinge-pin comprising a pin proper threaded at one end and provided with a bifurcated head at the opposite end, a handle having a slot and sliding pivotal connection in the bifurcated portion of the head, said handle provided with a tail-piece and shoulder adjacent thereto, and a spring actuated locking pin which has a sliding connection in the bore formed in the axial center of the pin proper, and bearing outwardly at all times upon some portion of the handle adjacent to the inner edge of the elongated slot, whereby to retain the handle yieldingly in position.

7. The combination with the frame of a break-down gun having a hole therein for the reception of a hinge pin and provided with an elongated recess in its outer surface which extends parallel or approximately parallel with the length of the frame and crosses the hole for the hinge-pin, of a hinge pin adapted to be inserted in the hole, and provided with a bifurcated or slotted head which alines with and forms a continuation of the recess when the hinge pin is inserted in the hole to its fullest extent, and a handle having sliding pivotal connection within the slotted or bifurcated portion of the head, and adapted when the screw is in its normal position to be swung into the recess in the frame of the gun whereby to lock the hinge-pin against turning.

8. The combination with the frame of a break down gun, of a barrel provided with a rib, holes in said frame and in said rib, a hinge pin inserted in said holes, and means for moving the hole in said rib out of alinement with the holes in the frame when the barrel is swung into the firing position.

9. The combination with the frame of a break down gun, of a barrel provided with a rib, holes in said frame and a single hole in said rib, and means for moving said rib laterally when the barrel passes from its break down to its firing position.

10. The combination with the frame of a break down gun, of a barrel provided with a rib, holes in said frame and a single hole in said rib, said holes being concentric when said barrel is broken down, and a joint be-

tween said rib and said frame which is slightly eccentric to said holes in the frame.

11. The combination with the frame of a break down gun, of a barrel provided with a rib, holes in said frame and in said rib, a hinge pin inserted in said holes, a forestock attached to said barrel, an eccentric joint between said frame and said forestock, whereby the holes in said rib and the hole in said barrel are brought slightly out of alinement when said barrel is in the firing position.

12. The combination with the frame of a break down gun, of a barrel provided with a rib, a hinge pin connecting said rib and said frame, and means operated by the movement of the barrel on the hinge pin for binding the hinge pin when the barrel is in the firing position.

Dated this 27th day of June 1902.

OTTO W. RINGQVIST.

Witnesses:
M. M. SCHUERMANN,
RUFUS B. FOWLER.