J. A. NICHOLS & J. W. LIVINGSTON.

Hinge-Joint for Breech-Loading Guns.

No. 198,670. Patented Dec. 25, 1877.

Fig. 1.

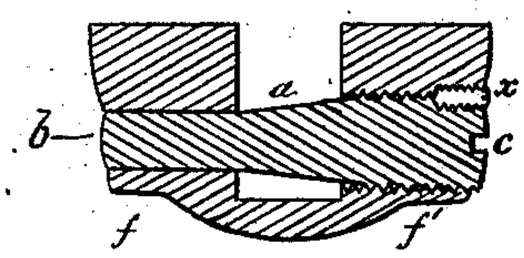


Fig. 2.

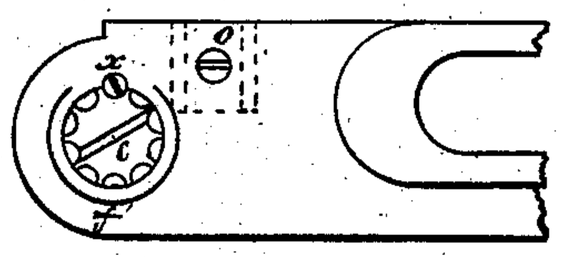


Fig. 3.

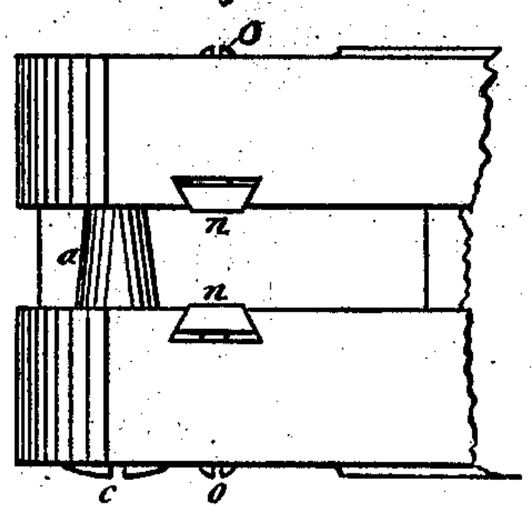
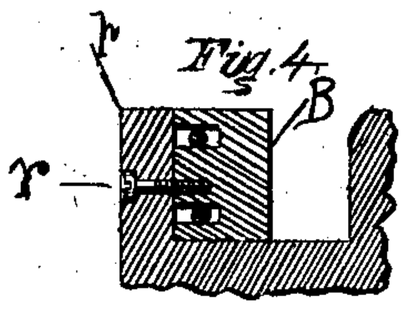


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN A. NICHOLS AND JOSEPH W. LIVINGSTON, OF SYRACUSE, N. Y.

IMPROVEMENT IN HINGE-JOINTS FOR BREECH-LOADING GUNS.

Specification forming part of Letters Patent No. **198,670,** dated December 25, 1877; application filed December 11, 1877.

To all whom it may concern:

Be it known that we, JOHN A. NICHOLS and JOSEPH W. LIVINGSTON, of Syracuse, Onondaga county, State of New York, have invented a certain Improvement in the Hinge-Pin of Breech-Loading Fire-Arms, of which the following is a specification:

A difficulty has arisen in the use of fire-arms of this character, occasioned by the wear of the hinge-pin and the recess of the lug turning thereon, so as to loosen the joint between the ends of the barrels and the recoil-plate.

Heretofore the hinge-pin has been made cylindrical, the lug that turns thereon conforming thereto, which, as they wear, loosen the parts, and to compensate for this wear many devices of adjustable blocks, &c., have been devised.

Our improvement consists in tapering the hinge-pin on its wearing-surface *a*. (See Figure 1, where it is on an exaggerated or magnified scale to clearly illustrate the device.) The two ends of the pin are made cylindrical, and of the diameter of the conical part, where they join it. A screw is cut on either end, *b* or *c*, and a nick is cut in the largest end *c*, by which it is screwed into place. This hinge-pin passes through the frame horizontally in the usual place, and screws into the frame, having the two cylindrical ends resting in corresponding holes in the frame, and the conical part in the recess between the sides, as seen in Fig. 1, where a cross-section of the frame is drawn with the pin in place. The lug on the under side of the barrels, (a well-known device, not shown in the drawings,) which forms the joint, has its seat tapered to fit the hinge-pin at *a*. Thus constructed, by screwing up the hinge-pin as the parts wear, the barrels can be set up and kept properly in place by very simple, inexpensive, and efficient means.

To properly cover the ends of the hinge-pin, we project outward a boss on the sides of the frame at *f f'*, below the ends of the pin, and flush with the upper side, furnishing an equal bearing, and inclosing the ends of the pin. The head *c* of the pin is indented all around, as seen in Fig. 2, and a screw inserted at *x* prevents its turning.

On either or both sides of the frame, within the recess, there is a wear-plate, *n*, (see Fig. 3,) inserted, that bears against the sides of the lug before named, having set-screws *o* behind them to set them up, so as to compensate for the lateral wear and make a perfect adjustment of the parts. These plates may extend around the hinge-pin forward, with dowels to hold them.

Fig. 4 is a sectional elevation of the lug affixed to the barrel. On the face of the rear lug there is a saddle or compensating-plate. (Shown in the section at B.) This fits into a groove in the lug, where it is fastened by screws passing through oblong holes in the plate. A screw, *r*, sets this plate forward, passing through the lug from the rear.

By the above construction of parts we effect a compensation for wear in all directions, keeping the parts up to place.

Having thus described our invention, we claim—

1. The projections *f f'* on the frame, in connection with and inclosing the cylindrical parts of the hinge-pin, as above described.

2. The stop-screw *x*, in combination with the taper hinge-pin, for securing the hinge-pin, as described.

3. The adjustable wear plate or plates *n* on each side of the joint of a breech-loading fire-arm, substantially as and for the purposes set forth.

4. The saddle or wear-plate B, constructed and combined with the lug, and adjusted as herein specified.

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