S. CRISPIN.

Gas-Check for Breech-Loading Ordnance.

No. 212,197. Patented Feb. 11, 1879.

Fig. 1.

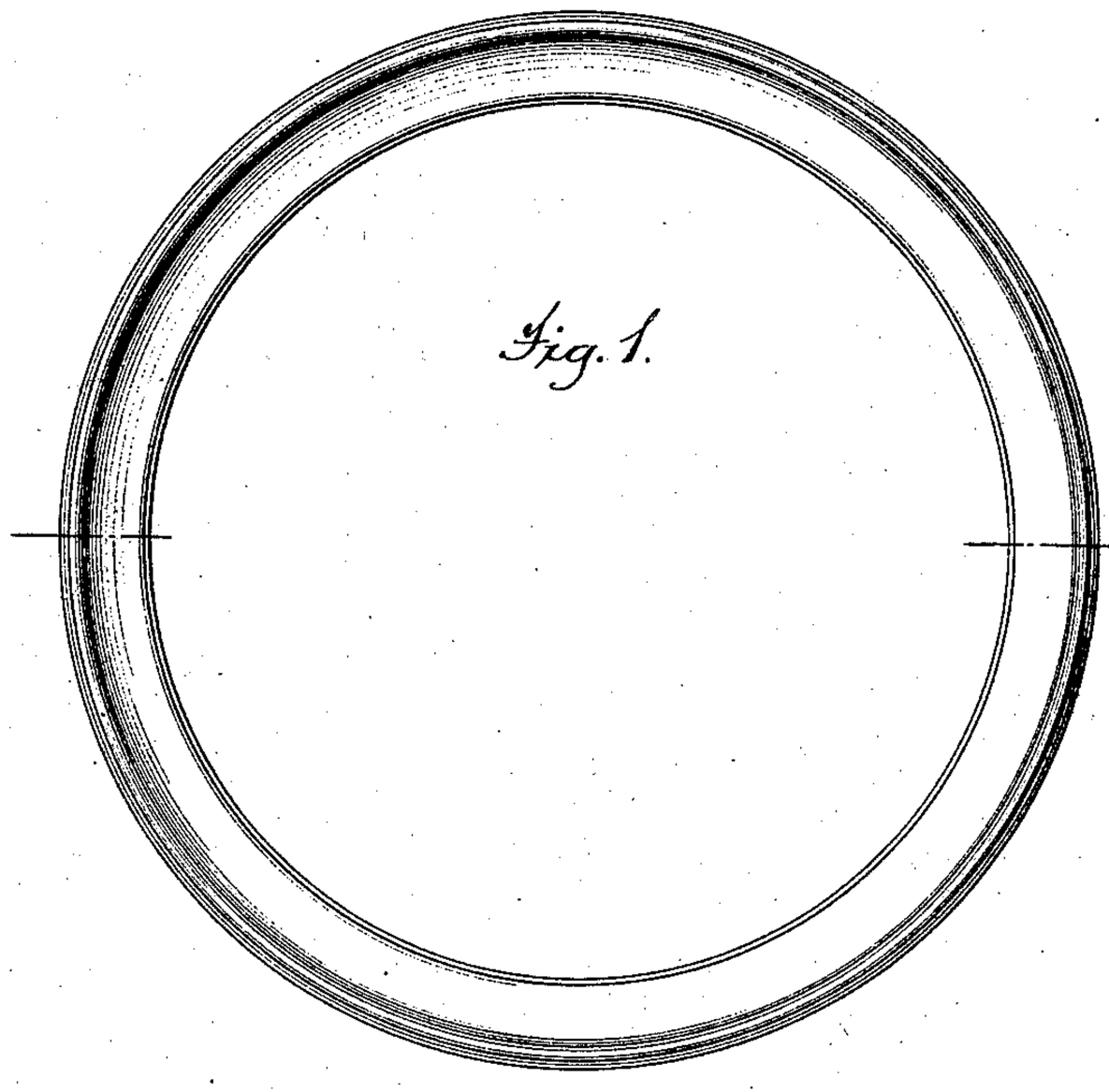


Fig. 2.

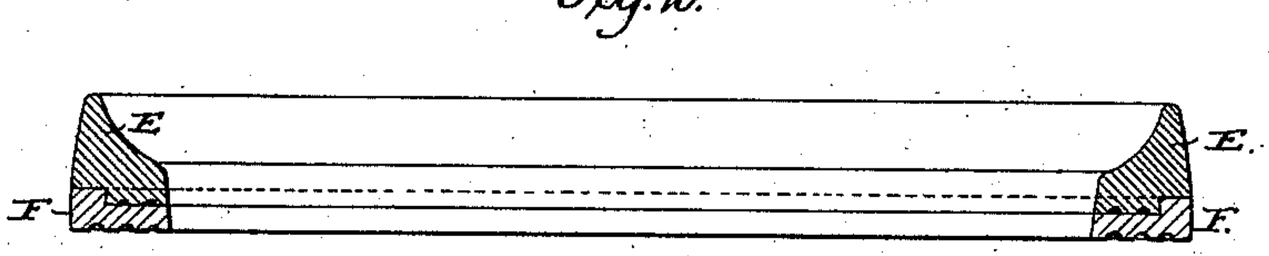
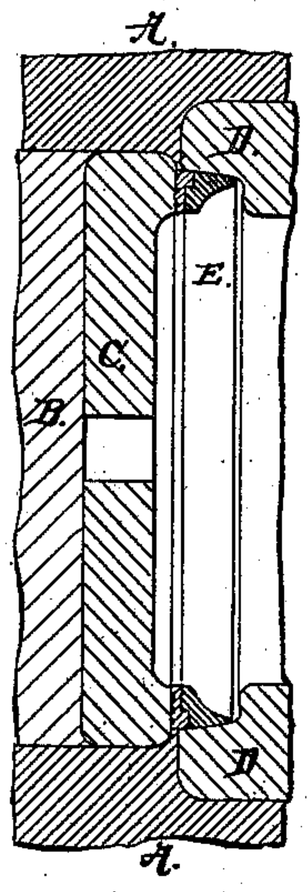


Fig. 3



Witnesses,

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UNITED STATES PATENT OFFICE.

SILAS CRISPIN, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-CHECKS FOR BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. **212,197,** dated February 11, 1879; application filed January 11, 1879.

To all whom it may concern:

Be it known that I, SILAS CRISPIN, of the city, county, and State of New York, have invented certain new and useful Improvements in Gas-Checks for Breech-Loading Ordnance; and I do hereby declare that the following is such a full, clear, and exact description of the same, reference being had to the accompanying drawings, as will enable others skilled in the art to make and use the same.

In said drawings, Figure 1 is a plan view of the rear surface of the base of my improved gas-check. Fig. 2 is a sectional elevation of the said invention, taken on the line *x x* of Fig. 1; and Fig. 3 is a sectional elevation of so much of a gun as is necessary to represent the gas-check in its relation to the various other parts.

Heretofore gas checks or rings for breech-loading ordnance have been commonly constructed of a single piece of comparatively soft and yielding material, as copper, bronze, wrought-iron, and low steel, which metal gas check or ring is susceptible of being expanded by the gases resulting from the exploded charge, so that it shall press tightly against the walls of the charge-chamber and the fermature, thus forming a perfect gas-check. In practice, such a gas-check so expands, after repeated firings, as to prevent the ready movements of the fermature in opening and closing the breech, thus impairing the efficiency of the gun.

The object of my invention is to remedy this defective operation; and the invention consists in an improved construction of a gas check or ring, by forming the same from two substances, preferably metals, having differerent physical qualities in hardness, tensile strength, compressibility, and extensibility, whereby the check or ring has the most suitable construction to form a perfect and close check at its sides with the seat in the chamber of the gun, and at the same time have its base portion of a hard and unyielding substance that will prevent any binding or sticking of the breech-fermature in moving to perform its functions.

I will now proceed to describe the mode in which my invention is carried into practical effect.

In Fig. 3, A marks the breech portion of a piece of ordnance; B, the breech-block; C, the obturator-plate, and D, the gun-body proper.

My improved gas check or ring, seated in the rear end of the bore of the gun in the usual manner, is composed of two sections, viz: the lip portion E and the base portion F. The front portion or lip E is formed out of an extensible and tough metal, such as copper, and the rear portion or base-plate F is formed out of a harder, but more elastic and incompressible, metal, as steel.

The object accomplished by this structure and disposition of material is as follows: first, the more extensible material, constituting the lip E, under the enormous pressure of the gases is forced into close contact with the gas-check seat in the bore of the gun, thus forming complete obturation at this point; second, the harder and less extensible base-plate F is pressed into close contact with the obturator-plate C, and, while preventing the escape of gas, will not, from its superior hardness, incompressibility, and elasticity, materially change its shape, and hence prevents any sticking or other obstruction to a free movement of the fermature in opening the breech after firing, a difficulty frequently occurring where the gas check or ring is composed solely of a soft and extensible material, as in former constructions.

It is obvious, especially in guns composed of such material as provides a soft gas-check seat, as copper or any of its alloys, wrought-iron or low steel, &c., that a gas-check, the lip E of which is constructed out of a material harmonizing in its physical qualities with such seats will, in repeated firings, go out with, or rather enlarge with, the seat, and thus in practice constantly form a close contact therewith, so necessary to constitute a perfect gas-check, while the harder, more elastic, and less compressible base-plate F, which finds its contact with the obturator-plate C, will so operate as to avoid the difficulties arising from the binding which results from a gas check or ring wholly formed out of a comparatively soft and yielding material.

It is apparent that the lip E and base-plate F, composed of two materials differing in their physical qualities, can be united together by

casting, screwing, or by any other mechanical means of union.

Having now fully described my invention and set forth the merits it possesses, what I claim is—

A gas check or ring having a lip composed of a soft and extensible material united to a base composed of a hard and elastic material, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SILAS CRISPIN.

Witnesses:
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