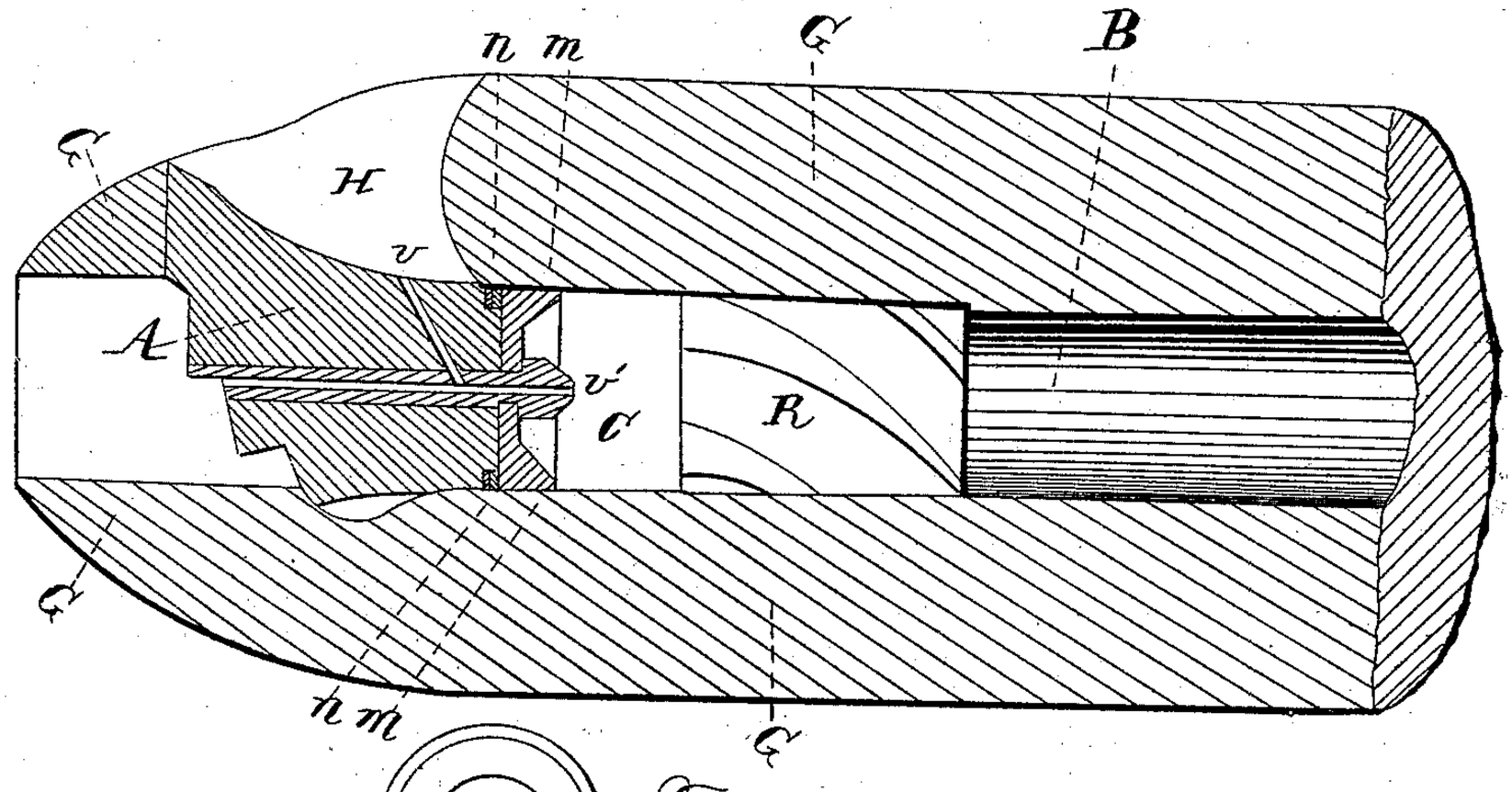
J. C. SYMMES.

Breech-Loading Ordnance.

No. 39,844. Patented Sept. 8. 1863.

Fig: 1.



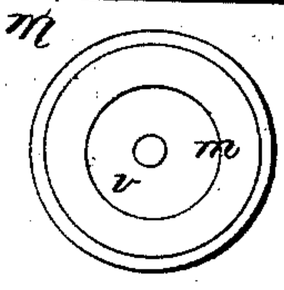
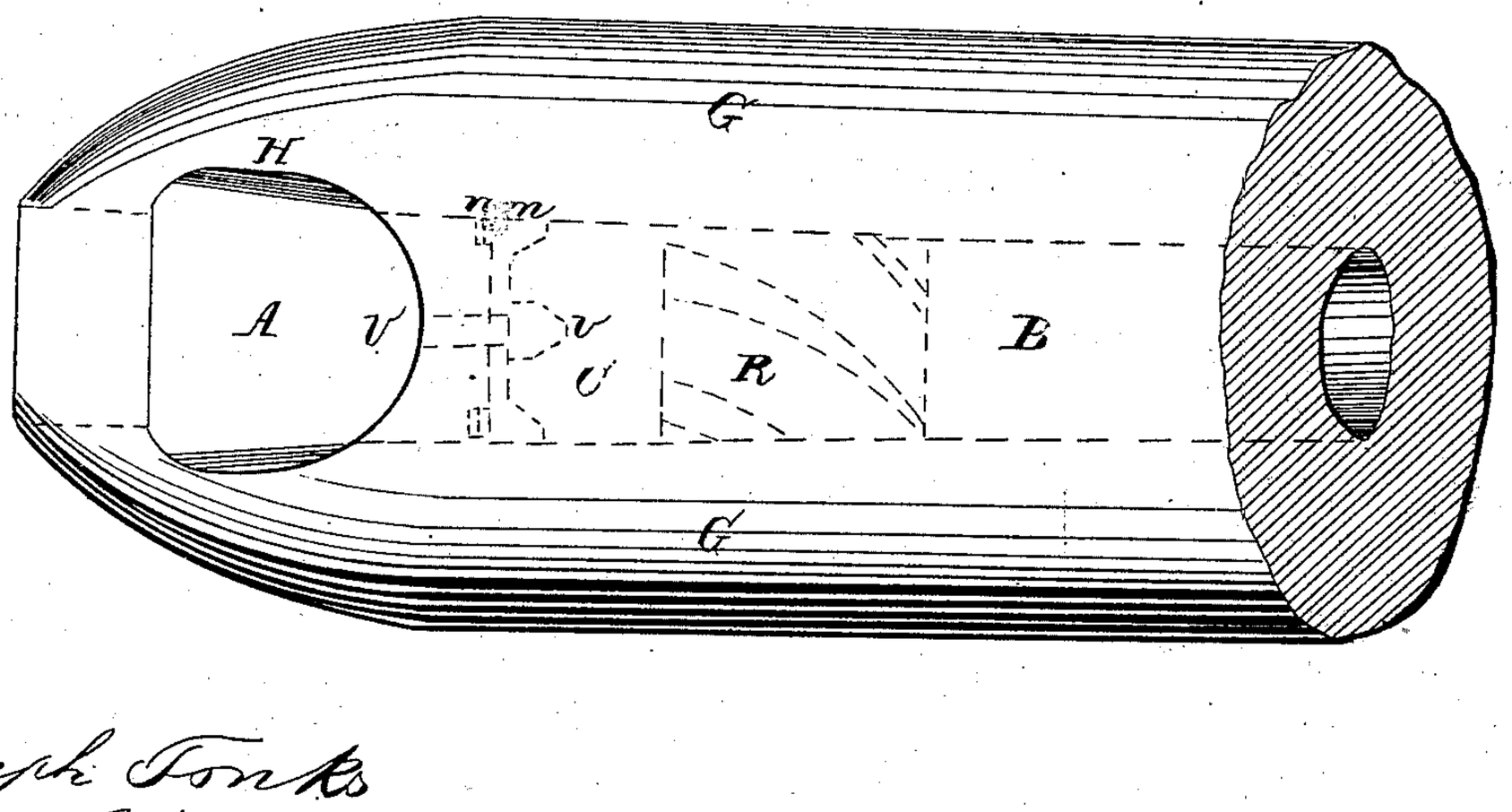


Fig: 3.

Fig: 2.



Joseph Tonks
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UNITED STATES PATENT OFFICE.

JOHN C. SYMMES, OF UNITED STATES ORDNANCE CORPS.

IMPROVEMENT IN GAS-CHECKS FOR BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **39,844**, dated September 8, 1863; antedated December 25, 1862.

To all whom it may concern:

Be it known that I, JNO. CLEVES SYMMES, of the Ordnance Corps, have invented certain improvements in the method of packing joints against the extrusion of powder-gas in fire-arms, by means of india-rubber, gutta-percha, or other like gums; and I hereby declare the following to be a true and exact description of the same, reference being had to the drawings and model accompanying this specification.

This invention consists, first, in combining the gum with an incombustible powder before vulcanization; and, secondly, in molding it into a shape resembling a cup or a saucer, vulcanizing it, and attaching it with base to the breech, and using it in the gun as a gas-choke, without the covering from the fire, as in N. S. Clements's patent of May, 1856.

This invention has for its object, first, the greater simplicity of parts and cheapness of construction; and, second, the superiority of the mechanical arrangement. The reasons for the first are evident at a glance. The reasons for the second are somewhat as follows: The hinge-pin (see model) may be nearer the barrel. In loading with imperfect cartridges, if the paper lags out of the barrel or grains of powder be in the way, this rubber or gum will wipe it up or overlie it harmlessly, and retain the gas as well. It is well established that the vent, especially in cannon, should be axial. It can hardly be so in Mr. Clements's arrangement. The applicability to different sorts of ammunition—the metallic cartridge-case having to be fixed axially—the cartridge may be mechanically pierced by the inner end of the vent, to insure better ignition; and the vent should always be in the breech-piece of cannon, for the purpose of spiking the gun by withdrawing the breech and removing it.

In preparing the gum I consider the size of the gun. A small arm requires the more pliability, a large one the more obduracy, to fire. I take any incombustible powder—as, for instance, the earth's talc, plaster, kaolin, black-lead, or any other that is unchanged by heat—and knead it with the plastic gum in such proportion as I want—from one of powder and eight of gum, by weight, which gives a pliable gum, to one of powder and one of gum, which makes an obdurate gum. The earthy powder acts as a partial shield against the fire, and although it permits the degradation of the gas-choke, it causes it to last six (6) times as long as without it.

To exemplify my meaning, the sketch of a breech-loading cannon is given, using the exposed rubber.

Figures 1 and 2 show the gun, and Fig. 3 is a plan of the gas-choke.

G is the gun. A is the breech. C is the chamber of the gun. H is the hole through which the breech issues and enters. V is the vent, and V′ its inner end, delivering the fire axially. N is a metallic open ring for supporting the rubber M. N and M are attached to the breech and work with it. The powder-gas, spreading from V′ in C, presses the lip of M against the sides of C and chokes the gas, while its destruction by a single fire is imperceptible.

I claim, therefore, as follows:

1. Making the gas-choke of the form and using it in the manner substantially set forth.

2. Making the gas-choke largely fire-proof, substantially as set forth.

I wish to disclaim distinctly being the original inventor of the rubber gas-choke.

JNO. CLEVES SYMMES.

Witnesses:

JOSEPH TONKS,

ALBERT F. URBAN.