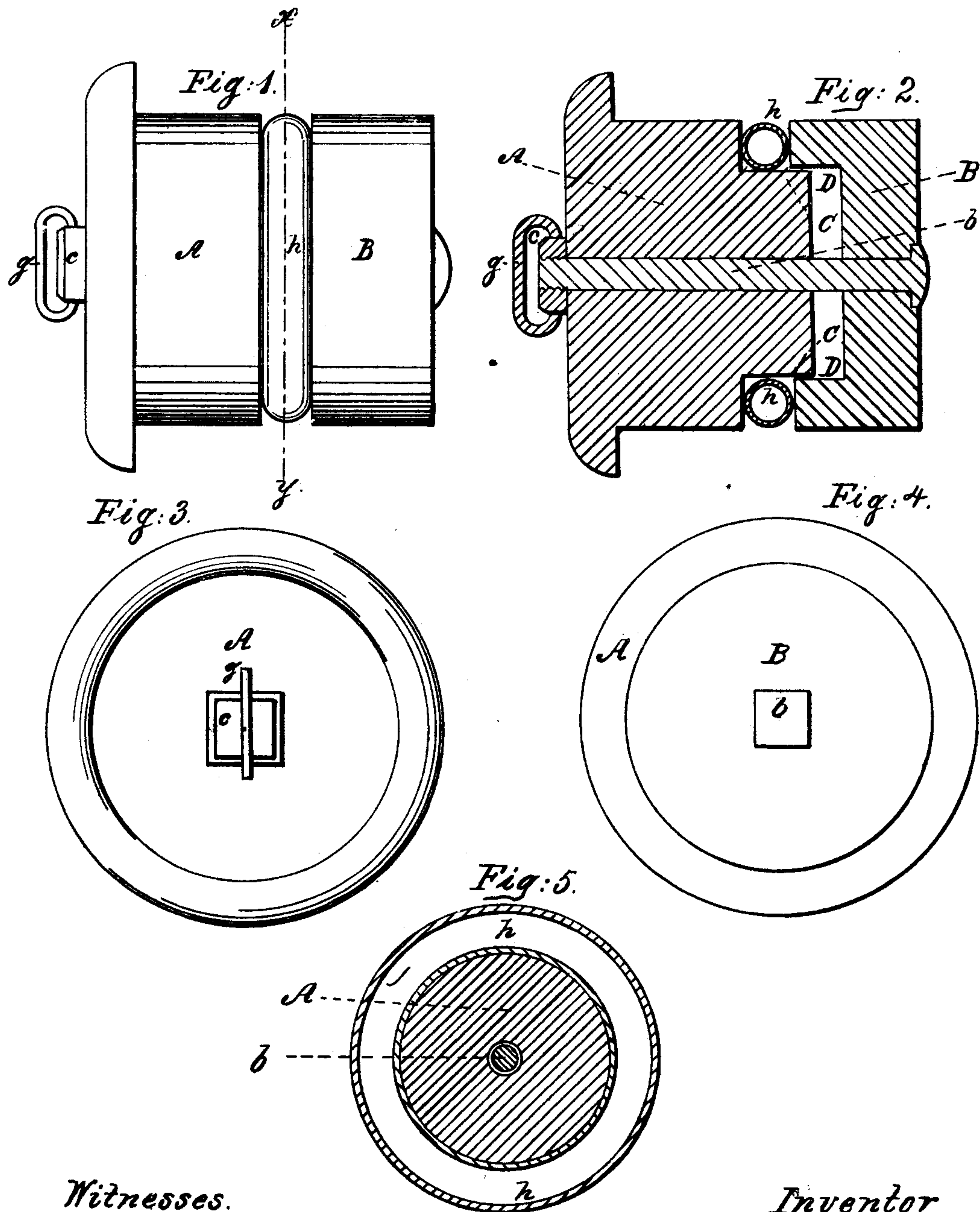


T. T. S. LAIDLEY.
Tompson for Fire Arms.

No. 77,988.

Patented May 19, 1868.



Witnesses.
Robert Edmund Olesky
W. Walters.

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T. T. S. LAIDLEY, OF THE UNITED STATES ARMY.

Letters Patent No. 77,988, dated May 19, 1868; antedated May 1, 1868.

IMPROVEMENT IN TOMPION FOR FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, T. T. S. LAIDLEY, of the United States Army, now residing at Governor's Island, in the county and State of New York, have invented certain new and useful Improvements in Tompions; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a view of the tompion complete.

Figure 2 represents a longitudinal section through the same.

Figure 3 represents a front end view of the tompion.

Figure 4 represents a rear end view of the same.

Figure 5 represents a transverse section, taken at the dotted line, X Y, of fig. 1.

Similar letters of reference, where they occur in the separate figures, denote like parts in all of the drawings.

I am aware that India rubber, as a packing, has been used in tompions, and I do not claim it independent of my special way of using it, but, as heretofore used, the India-rubber packing, to a very great extent, is impracticable, first, because it was used in the shape of a belt or band of solid rubber, which was so stiff as to be incapable of being forced into the grooves of the gun, and hence did not protect the interior of the gun, or, if forced into the grooves, the pressure was so great as to make it extremely difficult to draw out the tompion, the great extent of contact-surface between the rubber and the metal of the gun causing the former to adhere to the latter with great tenacity. An attempt has been more recently made to obviate this adhesion of the rubber to the gun, by covering the rubber with felt, cloth, plush, &c., and putting a metal case or cylinder behind the rubber. Whilst this may partially remedy one defect, it creates another, which makes it useless for rifled cannon, as the pressure through the metal band or cylinder completely prevents the packing from being forced into the grooves. The force, too, required to make such a packing effective, makes the tompion very difficult to be withdrawn, and thus this plan is inoperative, or, at least, very objectionable.

A tompion that will effectually close the muzzle of a gun, whether rifled or otherwise, and with the least radial pressure, so as to make it easily removable when required, was a thing sought after, but not devised until I invented the plan of packing which I will hereafter explain.

My invention consists in the use of a tubular India-rubber packing, which surrounds the tompion, and is capable of being expanded to fit the bore, or bore and grooves, of the gun, by a moderate degree of pressure, and which presents a more limited extent of contact-surface to the metal of the gun, and is, consequently, more easily removed from the bore of the gun than any other form that has equal efficiency and economy in its application.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings, first premising that, by the term "India rubber," I mean any of the preparations of India rubber known in the arts or to the trade, and termed vulcanized, prepared, desulphurized, or compounded, or otherwise.

The tompion is made in two parts, viz, the head, A, and the heel portion, B. There is a round tenon, C, formed on the head A, and a recess, D, in the heel portion, which will receive it, and a screw-bolt, *b*, passing centrally through the two parts, A B, draws and holds them together.

A nut, *c*, with a loop or thumb-lever, *g*, connected with it, runs on to the thread of the screw-bolt, so that when the tompion is put into the gun, the packing may be expanded by turning said nut from the exterior.

The parts A B may be made of wood, or of metal, or of parts of each. When made of metal, and for guns of large bore, they may be made hollow, for the sake of lightness and facility in handling.

In or around the shoulder formed by the round tenon C, and between it and the cup or recessed portion, B, there is placed a ring of tubular rubber, *h*, which, by the drawing together of the two parts A B, is expanded outward, it being prevented from going inward by the tenon, around which it is placed. The advantages of the tubular-rubber packing are many. It is cheaper, lighter, and more elastic than solid rubber, inasmuch as it has its own elasticity controlled or regulated, in a great measure, by the air-cushion within it, and is very susceptible

to pressure and the removal of pressure from it. It can be forced into the grooves of the gun without so much extent of contact-surface as would cause it to rigidly adhere, when desirable to remove it after long contact.

Mathematically, this round tubular packing, in a state of rest, would touch the bore of the gun in a line only. A V-shaped piece of packing would do the same, and, consequently, they are the equivalents of each other. The round packing itself could be pinched up into a V-form, by making the shoulders that hold or embrace it of that shape, instead of square, as shown; but either the V or wedge-shaped or the round packing would, by pressure from the adjacent solid parts of the tompon, expand so as to present more than mere line contact, and either form can be pressed into the grooves of the gun, so as to make it completely tight, and not only approximately so. Both the tubular or circular and the wedge-shaped packing would form, theoretically, a "knife-edge," bearing against the bore of the arm, which pressure would increase into surface-bearing, in proportion to the increase of the pressure, and the wedge-shaped packing, if used, need not be hollow to its point; it may be solid where it is thinnest, or at its point.

For a musket-tompon, which, of necessity, is small in diameter, the round tenon and cup may be dispensed with, as the screw-bolt will occupy space enough to form a bearing to prevent the rubber from expanding inward.

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

In combination with a tompon, and means for expanding it, a tubular packing, substantially as and for the purpose set forth.

T. T. S. LAIDLEY.

Witnesses:

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