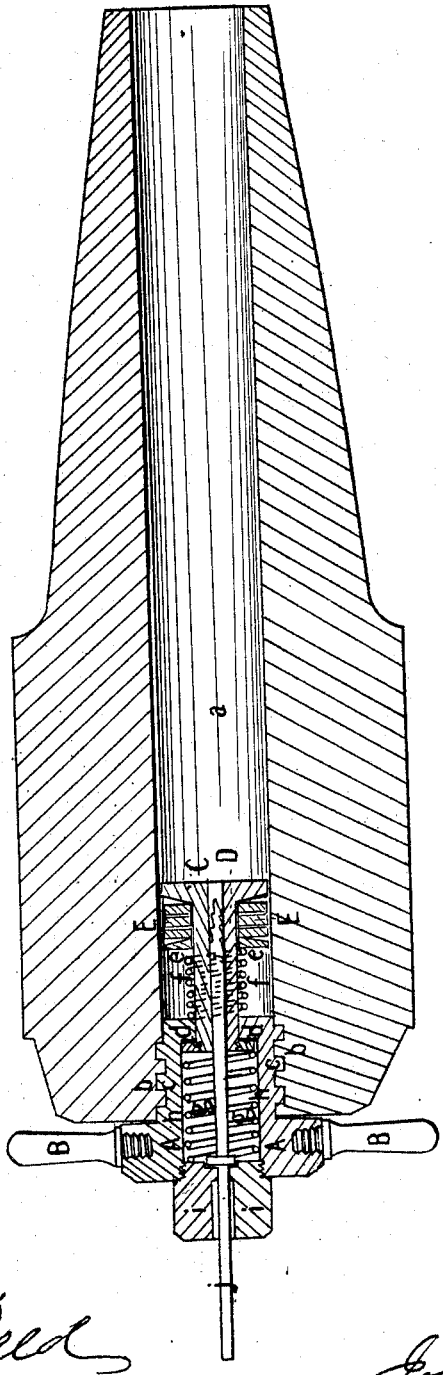
J. F. CLEU.

Ordnance.

No. 45,586. Patented Dec. 27, 1864.



Witnesses

Jas P. Hall

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JOHN F. CLEU, OF NEW YORK, N. Y.

IMPROVEMENT IN ELASTIC BREECHES FOR ORDNANCE.

Specification forming part of Letters Patent No. **45,586**, dated December 27, 1864; antedated December 22, 1864.

To all whom it may concern:

Be it known that I, JOHN F. CLEU, of the city, county, and State of New York, have invented a new and useful Improvement in Ordnance and Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, and representing a central longitudinal section of a cannon having my improvement applied.

The first part of my invention relates to an improvement in breech-loading guns; and it consists in the combination of a threaded breech-plug, a sliding piston, a recoil-spring, and a packing-spring, as will be hereinafter described.

The second part of my invention consists in the combination of a packing-collar with a sliding needle for igniting the charge, as hereinafter described; but in breech-loading ordnance and fire-arms I always employ springs composed of rings, disks, or cylinders of india-rubber, which, by their compression lengthwise of the bore, are caused to be expanded circumferentially, and thereby made to serve as a packing to prevent leakage of gases at the breech.

The cannon represented is breech-loading. The bore *a* is continued right through the breech, and a female screw-thread, *b*, is cut in the rear part for the reception of the movable screw-plug or breech-piece A, which has a male screw-thread, *c*, on its exterior, to screw into the said female thread, and is furnished on its rear part with levers B B, which enable it to be screwed in and out, and which serve as handles by which to hold it when screwed out.

C is the piston for reducing the recoil, fitted easily to the rear portion of the bore *a*, and having a concentric cylindrical stem, D, which works freely through a central hole in the movable breech-piece A, or in the solid breech of a muzzle-loading gun, and which has a screw-thread on its rear end for the reception of a nut, *d*, which prevents the piston from moving forward beyond a certain distance in the bore *h*.

E is a spring of vulcanized india-rubber, made in the form of a ring, of an external diameter to fit easily to the bore *a*, and of an internal diameter to fit easily to the stem D of the piston, applied in the rear of the piston, and having applied behind it a metal ring, *e*, which is fitted loosely to the stem of the piston. Behind this ring *e* a spiral spring, *f*, of steel wire is coiled round the piston-stem, one end bearing against the said ring and the other end against the breech-piece A or breech. *g* is another spiral spring applied within a cavity, *h*, bored in the rear of the breech-piece A or breech, its front end bearing against a central plug, *i*, screwed into the rear of the breech-piece or breech. The springs *e f g* all tend to resist the action of the explosive force of the charge upon the piston C, and so to cause the said piston to yield and be pressed back gradually by the said force, and prevent or reduce in a very great degree the recoil of the gun. As the india-rubber spring E is pressed back, it is caused to expand circumferentially, and so made to fit tightly to the bore and prevent any leakage of gas at the breech of a breech-loading gun.

Instead of the two springs E and *f* between the piston and breech-piece or breech of the gun, there may be a single india-rubber spring composed of a single cylinder or of several rings, and such a spring may be used alone to check the recoil of the piston.

j represents a needle inserted through the breech-piece and piston, to effect the ignition of the charge by its action upon a fulminate priming applied within the cartridge. The same kind of needle may be used in a muzzle-loading gun, inserted through a hole drilled in the breech, and the said needle may be made with one or more shoulders, *j'*, faced with india-rubber, to serve as checks to the escape of gas. Other modes of effecting the ignition of the charge may, however, be used in connection with my invention—for instance, a flat-headed needle or plunger for striking a percussion-cap placed on the cartridge.

I am aware that cushions or springs have before been applied within the bore of fire-arms, behind the charge, to relieve the gun from sudden strain; but in my invention a great practical advantage results from the combination, with a breech-plug, A, of a slid-

ing piston, C, and a spring, E, yielding longitudinally and expanding radially, so as to relieve the gun of strain and lessen the recoil, and also prevent the escape of gas around the breech-block.

I am also aware that a needle has before been used for igniting cartridges without the use of the customary touch-hole or vent; but in my invention great advantage results from the combination with such needle of a collar or shoulder, *j'*, faced with india-rubber, to close the aperture around the stem of the needle, and thus prevent the escape of gas at this part.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the breech-block A, sliding piston C, packing-spring, and recoil-spring, constructed and operating substantially as and for the purposes set forth.

2. The sliding needle *j*, constructed with a collar or shoulder, *j'*, faced with india-rubber, to act as a gas-check, as and for the purpose specified.

JOHN F. CLEU.

Witnesses:

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GEO. W. REED.