

(No Model.)

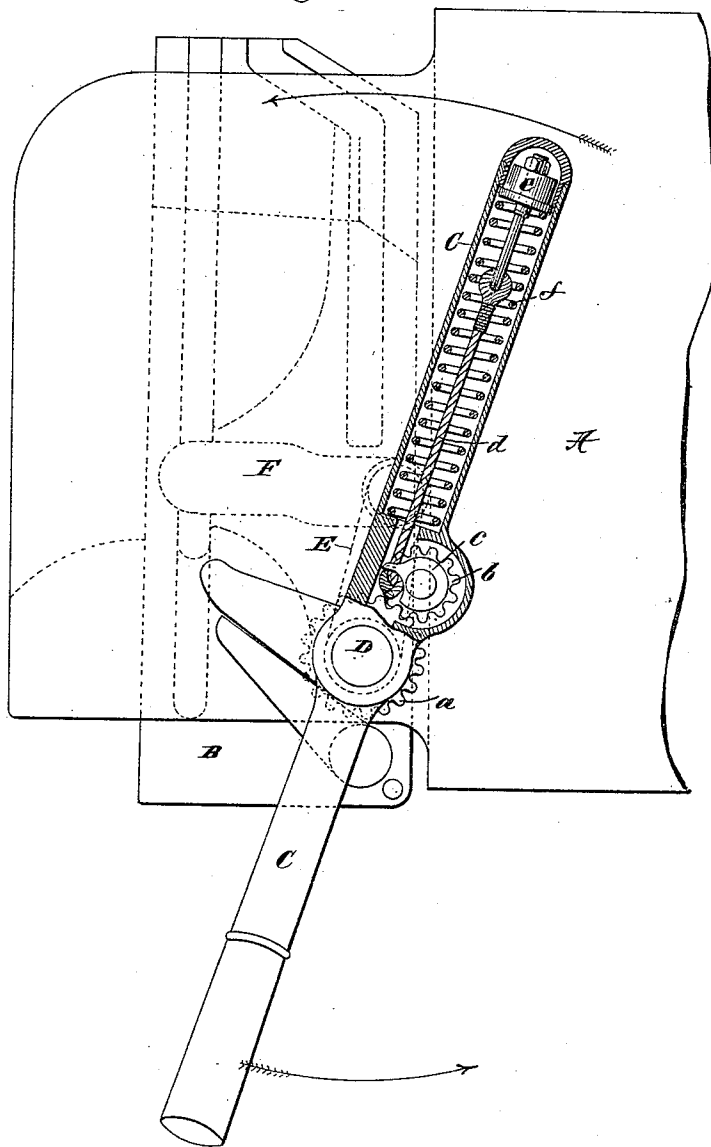
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A. C. KOERNER.
BREECH LOADING GUN.

No. 466,567.

Patented Jan. 5, 1892.

Fig. 1.



Attest:
Geo H. Botte
C. J. Sawyer

Inventor:
Alfred C. Koerner
Philip Munson Phelps & Hony
Atty's

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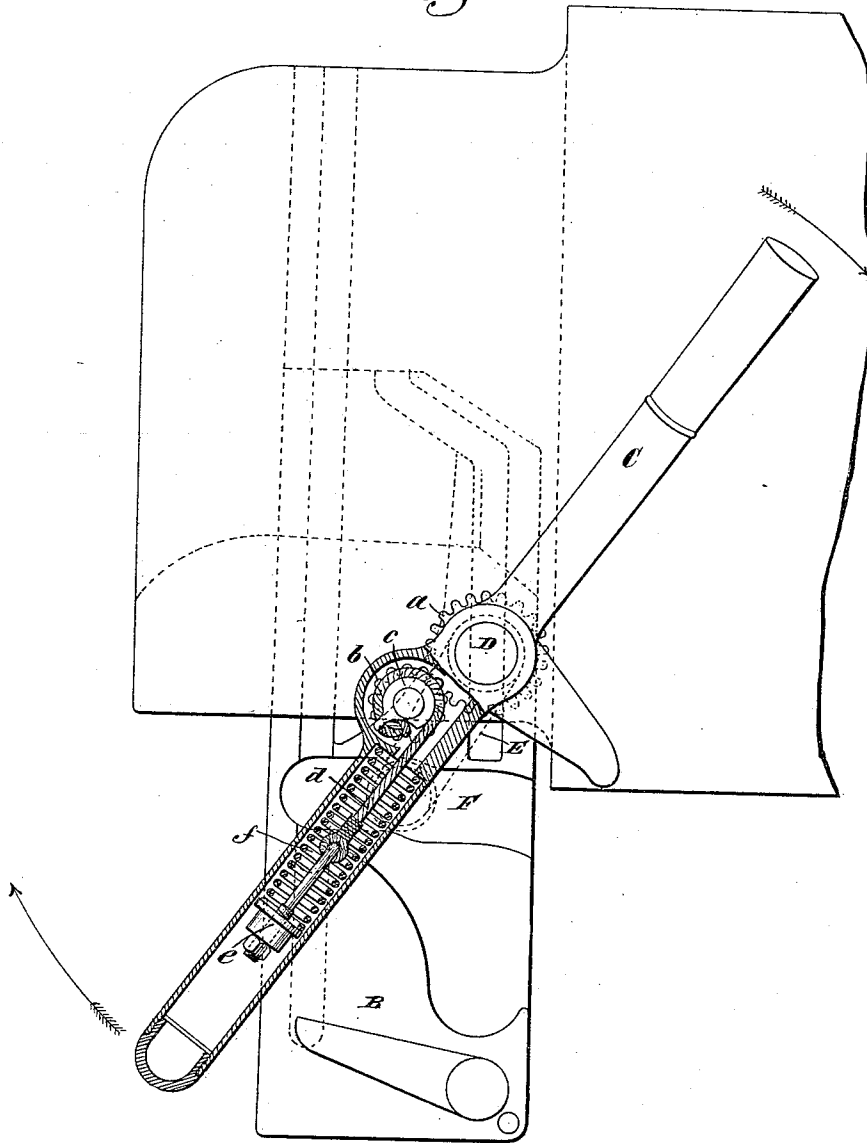
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Fig 2.



Attest:
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UNITED STATES PATENT OFFICE.

ALFRED CHRISTOPHER KOERNER, OF PARIS, FRANCE, ASSIGNOR TO THE
HOTCHKISS ORDNANCE COMPANY, LIMITED, OF LONDON, ENGLAND.

BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 466,567, dated January 5, 1892.

Application filed June 2, 1891. Serial No. 394,840. (No model.) Patented in France March 3, 1891, No. 211,861.

To all whom it may concern:

Be it known that I, ALFRED CHRISTOPHER KOERNER, a subject of the Queen of Great Britain, residing in Paris, France, have invented certain new and useful Improvements in Breech-Loading Guns, (patented in France March 3, 1891, No. 211,861, and filed in Germany March 12, 1891,) fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The invention relates to the breech-closing mechanism of heavy guns of that class in which a vertically-moving breech block or wedge is used. In guns of small size this block can readily be moved up and down by means of the side lever usually employed; but in heavy guns the weight of the block is such that great effort is required to lift it.

The object of my invention is to provide a simple and convenient means of utilizing the weight of the descending breech-block to aid in raising it, and I attain this object by means of a spring put under tension by the descending block on the rotation of the side lever in one direction to open the breech, the accumulated force of the spring being applied to aid in lifting the block again when the side lever is turned in the opposite direction to close the breech, and I preferably employ the construction hereinafter described, in which the spring is placed inside the handle of the side lever.

The invention is herein shown as applied to the well-known Hotchkiss gun, in which a sliding breech-block is used; but it will be understood that it is capable of being applied to and operating in substantially the same manner in connection with other guns in which a breech-block is employed moving in a vertical plane, so that the weight of the block aids its descent.

In the accompanying drawings, showing the preferred form of construction embodying my invention, Figure 1 is a partial side elevation of a gun, showing the breech closed, the handle being shown in section to illustrate the invention. Fig. 2 is a similar view showing the breech open.

A is the breech of the gun, B the vertically-sliding breech block or wedge for closing the

breech, and C the side lever, having the axis D and operating the breech-block through the crank E and cam F, all these parts being of the usual construction and operating in the usual manner. The side lever C may have two arms or handles, as shown, or one, as preferred, and all these parts may be of any other suitable construction.

Referring now to the parts in which my invention is embodied, *a* is a cog-wheel fixed to the side of the breech and meshing with a pinion *b*, attached to and rotating with a drum *c*, carried by the side lever and preferably mounted in a recess formed therein, as shown. To the drum *c* is secured one end of a cord *d*, which extends through the handle and is secured at its opposite end to a cap *e*, which rests upon the end of a coiled spring *f*, placed within the handle of the side lever.

The operation of the parts will be readily understood from the drawings and a brief description. When the breech is closed, the parts are in the position shown in Fig. 1, with the spring *f* expanded and the cord *d* unwound from the drum *c*. When the side lever is moved in the direction indicated by the arrows in Fig. 1 to lower the breech-block for opening the breech, the drum *c* is rotated by the engagement of gear *b* with fixed gear *a*, and the cap *e* is drawn inward, compressing the spring *f*, and when the breech is open the parts are in the position shown in Fig. 2, with the cord *d* wound upon the drum *c* and the spring *f* compressed. When the side lever is moved in the direction indicated by the arrow in Fig. 2 to raise the breech-block for closing the breech, the expanding force of the compressed spring tends to turn the drum and its pinion, and by the engagement of the pinion and fixed gear this force is transmitted to the side lever, thus aiding in lifting the breech-block to close the breech.

It is evident that my invention is not dependent upon the particular construction of gun shown, but may be applied to guns of other construction having a vertically-moving breech-block, and that the invention is not to be limited to the exact form and arrangement of the devices shown as embodying the same. The construction shown, however, forms a very simple and convenient means for utilizing

ing the weight of the descending breech-block. The spring and operating parts being placed inside the side lever are entirely out of the way and occupy otherwise waste space and at the same time are fully protected.

What I claim is—

1: The combination, with a vertically-moving breech-block and lever and connections for raising and lowering the same, of a spring carried by the lever, and connections whereby the spring is put under tension by the lowering of the breech-block and its reacting force applied to aid in raising the breech-block, substantially as described.

2: The combination, with the vertically-moving breech-block B and side lever C and connections for raising and lowering the breech-block, of spring *f* inside the lever, and connections whereby the spring is put under tension by the lowering of the breech-block

and its reacting force applied to aid in raising the breech-block, substantially as described.

3: The combination, with the vertically-moving breech-block B and side lever C and connections for raising and lowering the breech-block, of spring *f* inside the lever, rotating drum *c* and pinion *b*, carried by said lever, a cord connected to said drum and spring, and fixed gear *a*, meshing with said cord *d*, whereby the spring is put under tension by the lowering of the breech-block and its reacting force applied to aid in raising the breech-block, substantially as described.

In witness whereof I have hereunto set my hand this 16th day of May, 1891.

ALFRED CHRISTOPHER KOERNER.

Witnesses:

MARIUS LEFRANION,
CHARLES KURER.