

No. 710,411.

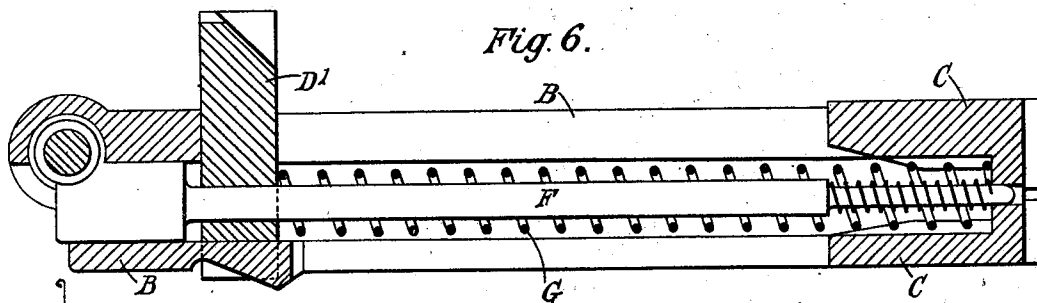
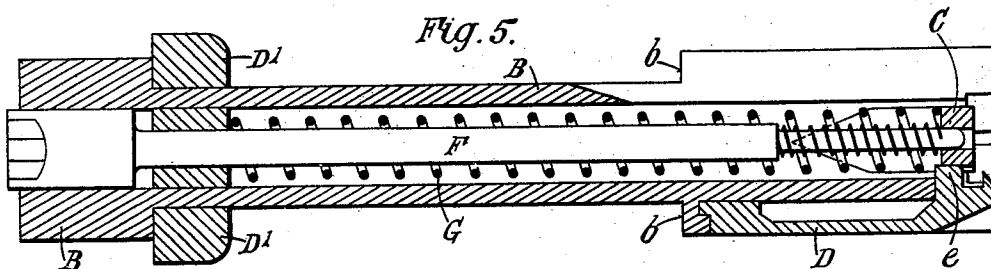
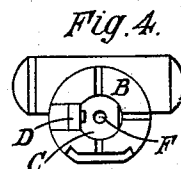
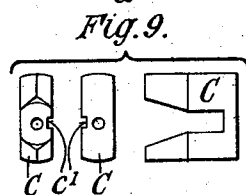
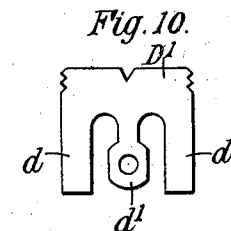
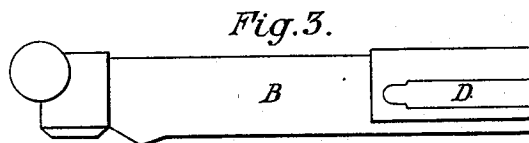
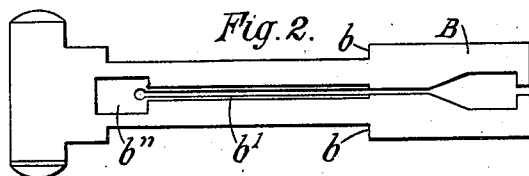
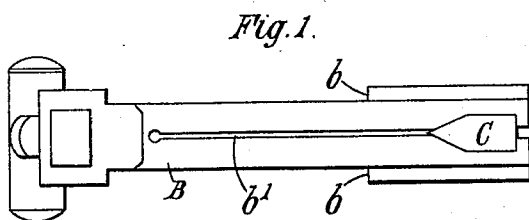
T. BERGMANN.
FIREARM.

(Application filed Oct. 15, 1901.)

Patented Oct. 7, 1902.

(No Model.)

3 Sheets—Sheet 1.



WITNESSES.

Wm. M. Bell.
Robert J. Pollitt.

INVENTOR,

Theodor Bergmann,
by G. Hartner & Steward,
attorneys.

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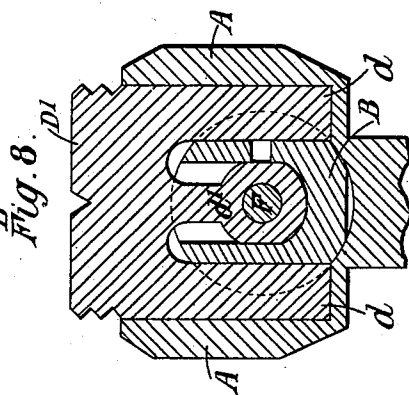
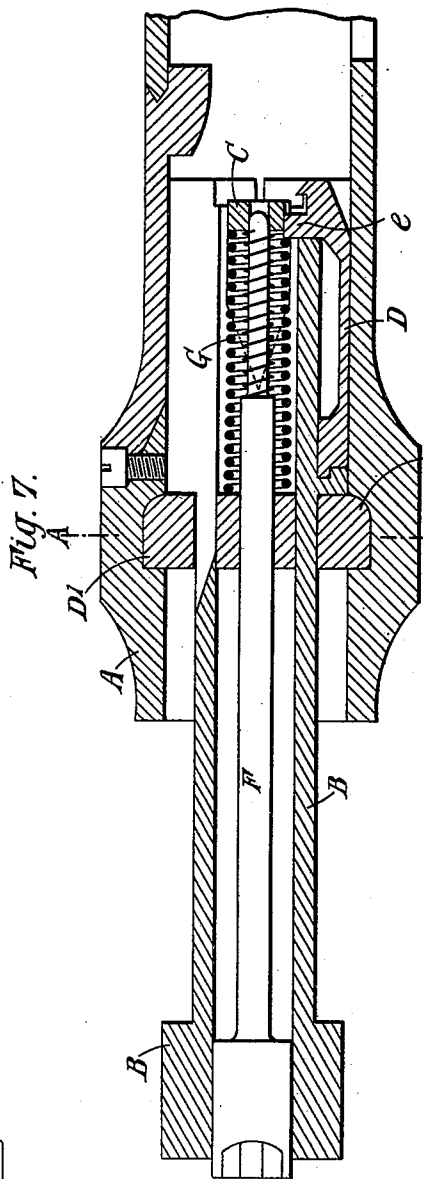
T. BERGMANN.
FIREARM.

(Application filed Oct. 15, 1901.)

Patented Oct. 7, 1902.

(No Model.)

3 Sheets—Sheet 2.



WITNESSES.

Wm. D. Zell.
Robert J. Pollitt.

INVENTOR,

Theodor Bergmann,
by Garton & Steward,
attorneys.

T. BERGMANN.
FIREARM.

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(No Model.)

3 Sheets—Sheet 3.

Fig. 11.

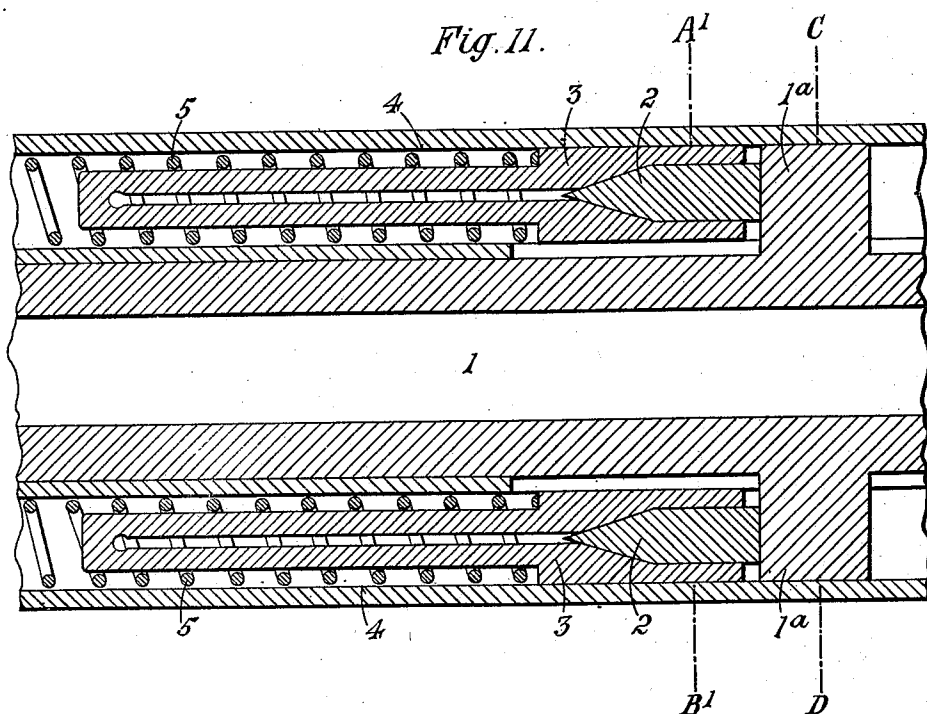


Fig. 12.

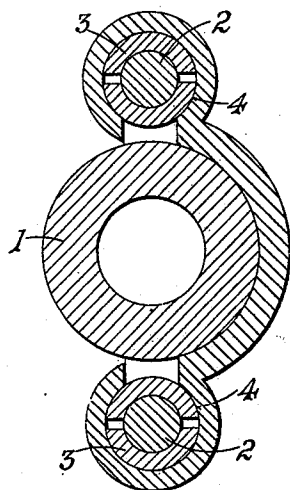
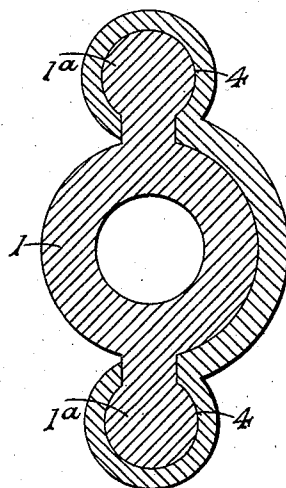


Fig. 13.



WITNESSES.

Wm. D. Bell.
Robert J. Pollitt.

INVENTOR,

Theodor Bergmann,
by Garthner & Leonard,
Attorneys.

UNITED STATES PATENT OFFICE.

THEODOR BERGMANN, OF GAGGENAU, GERMANY.

FIREARM.

SPECIFICATION forming part of Letters Patent No. 710,411, dated October 7, 1902.

Application filed October 15, 1901. Serial No. 78,677. (No model.)

To all whom it may concern:

Be it known that I, THEODOR BERGMANN, a subject of the German Emperor, residing at Gaggenau, Baden, in the Empire of Germany, have invented certain new and useful Improvements in Brakes for Firearms, of which the following is a specification.

It is well known that in automatic firearms without stiff bolts the breech-bolt or cylinder is pushed back in the event of a heavy charge with a force that has a very deteriorating effect on the weapon.

The improvement which is the object of this invention allows a heavy charge to be used in light weapons without affecting the strength or injuring the operating parts. This result is obtained by a breech-bolt or cylinder which is enlarged during the discharge of the weapon by means of suitable devices. This enlargement by exercising friction on the sides of the casing arrests the recoil.

In the accompanying drawings, Figure 1 is an under side view of the breech-bolt or cylinder, the brake-wedge being drawn back. Fig. 2 is a plan view of the same without the brake-wedge. Fig. 3 shows the right-hand side of the same part. Fig. 4 is a front view of the breech-bolt or cylinder with the brake-wedge. Fig. 5 is a horizontal section through the breech-bolt or cylinder and its parts as well as the stop-plate. Fig. 6 is a vertical section of the same parts. Fig. 7 is a horizontal section through the case and the cylinder, as well as the parts of the latter, pushed back. Fig. 8 is a cross-section on the line A B, Fig. 7. Fig. 9 shows the brake-wedge as seen from the back, front, and side thereof. Fig. 10 is a back view of the stop-plate. Fig. 11 is a horizontal section through the middle part of a double firearm with double brake. Fig. 12 is a cross-section on the line A' B', Fig. 11. Fig. 13 is a similar section on the line C D, Fig. 11.

The breech-bolt or cylinder B, arranged in the casing A of a firearm reloading by means of the recoil, Figs. 1 and 2, is divided for a portion of its length, so that the two halves may be forced apart and then return to their initial position as soon as the pressure ceases. In the division or opening, which is wider at the front than at the back of the cylinder, is

placed the brake-wedge C, Fig. 1, the rear end of which is of wedge shape, its front face projecting slightly beyond the bottom of the recess made in the head of the cylinder to receive the end of the cartridge, Figs. 5 and 6.

The brake-wedge is held in the cylinder by the foot *e* of the extractor D engaging in the groove *c'* of the brake-wedge C, Figs. 4, 7, and 9, and also by the firing-pin F, the point of which passes through the front wall of the cylinder, as well as by a spring G, the rear end of which is placed in the hollow of the cylinder. Owing to the first-named method of fastening this wedge will still be held in the cylinder even if the spring and firing-pin were taken off. In order to limit the recoil of the cylinder, it is necessary to use the stop-plate D', Figs. 10, 6, 5, and 8, which still guides the cylinder and may be made in the shape of a sight.

The accompanying drawings show the manner in which the stop-plate is placed in the casing A and the manner in which its lateral feet *d d* are passed over the cylinder, as well as the manner in which the shoulders *b b* of the said cylinder limit the recoil of the cylinder by bearing against the feet *d d* of the plate D'. The central foot *d'* of the recoil-plate D' engages in the hollow of the cut-off cylinder and serves as a rear bearing to the spring G. The foot *d'* is held in this position because the firing-pin F passes through the perforated end of the said foot of the plate D. The groove *b'*, Fig. 2, of the cylinder B is widened at *b''*, so that the strengthened end of the foot *d'* can enter and leave the cylinder.

The brake works in the following manner: As soon as the base or flanged part of the cartridge the bottom of which rests on the outer face of the brake-block C is moved back after the discharge of the weapon the wedge, which projects beyond the recess of the cylinder-head, will recoil therewith, while the cylinder (owing to its inertia and the power of the spring G acting thereon) offers such a resistance that the brake-wedge opens the divided cylinder, and the two halves of the latter bear against the sides of the casing A, producing friction the action of which is proportionate to the energy produced by the base of the cartridge, which after being fired leaves the barrel toward the rear.

The above-described brake can be arranged in such a manner that the bottom of the cartridge will not act directly upon the front of the wedge C; but the breech-bolt or cylinder will be connected to a brake-wedge which acts upon the split piston, as shown in Figs. 11 and 13. In this construction the brake-wedge 2 instead of being flattened is formed as a pin having a circular section. Figs. 11 and 13 show how during the recoil of the barrel 1 the projections 1^a act upon the brake-wedge 2 in order to open the split pistons 3, producing on the sides or walls 4 the friction necessary to deaden the recoil. The springs 5 offer the resistance necessary for the action of the brake-wedge, the said springs causing the barrel to return to its initial position. This brake for firearms is shown double in Figs. 11 and 13. However, one or more brake-wedges will be effective on simple levers by pressing the latter against the solid sides, so as to produce the necessary friction.

What I claim is—

1. The combination, in an automatic firearm, of a breech-bolt having a slit extending along part of its length and a recess at one end of said slit having inclined surfaces, and a wedge arranged in said recess and adapted to be engaged by a recoiling part in the firearm to expand the breech-bolt, substantially as described.

2. The combination, in an automatic firearm, of a casing, a breech-bolt in said casing having a slit, a wedge in said slit, a spring arranged in said breech-bolt and engaging the

wedge, and a stop-plate secured in said casing and engaging said spring, substantially as described.

3. In an automatic firearm, the combination, with the firing-pin and with the breech-bolt, the latter having a longitudinal slit, of a wedge engaging the walls of the slit of said breech-bolt, and surfaces in said firearm adapted to be engaged by said breech-bolt when expanded by the wedge, said firing-pin penetrating the wedge, substantially as described.

4. The combination, in an automatic firearm, of a casing, a breech-bolt in said casing, an internal chamber in said breech-bolt, a longitudinal slit in said breech-bolt, a wedge in said slit, a stop-plate in said casing, a projection formed on said stop-plate and extending into the chamber in said breech-bolt, and a spring between said projection and said wedge, substantially as described.

5. In a firearm, the combination of a split part, relatively fixed parts between which said split part is disposed, a wedge-shaped recoil-receiving part engaging said first-named part in the split portion thereof, and a spring normally pressing said recoil-receiving part out of the other part, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

THEODOR BERGMANN.

Witnesses:

RUDOLF SUTOR,
KARL STRAUSS.