

No. 870,528.

PATENTED NOV. 5, 1907.

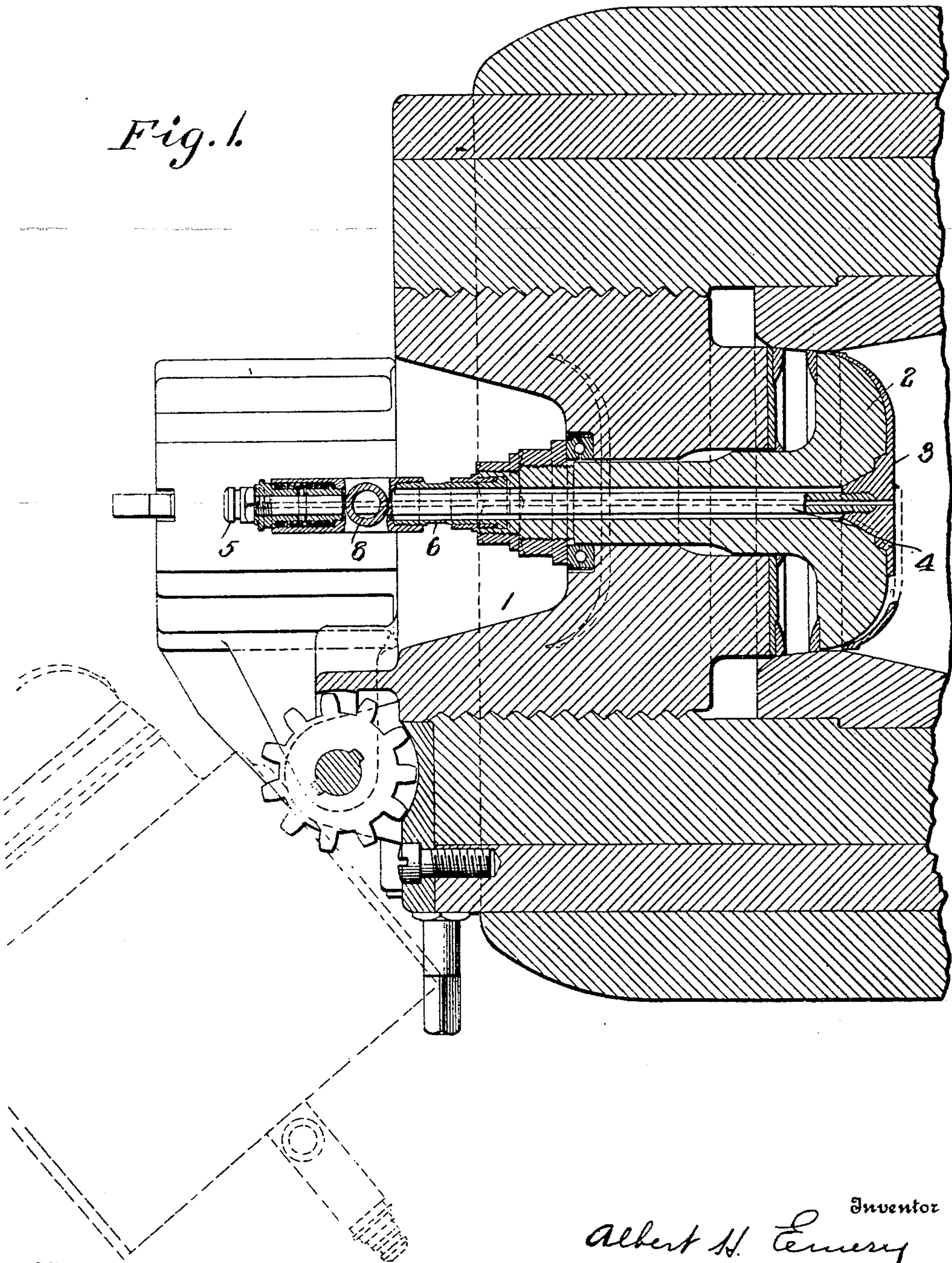
A. H. EMERY.

MEANS FOR CLEANING OUT THE CHAMBERS AND BORES OF GUNS.

APPLICATION FILED SEPT. 19, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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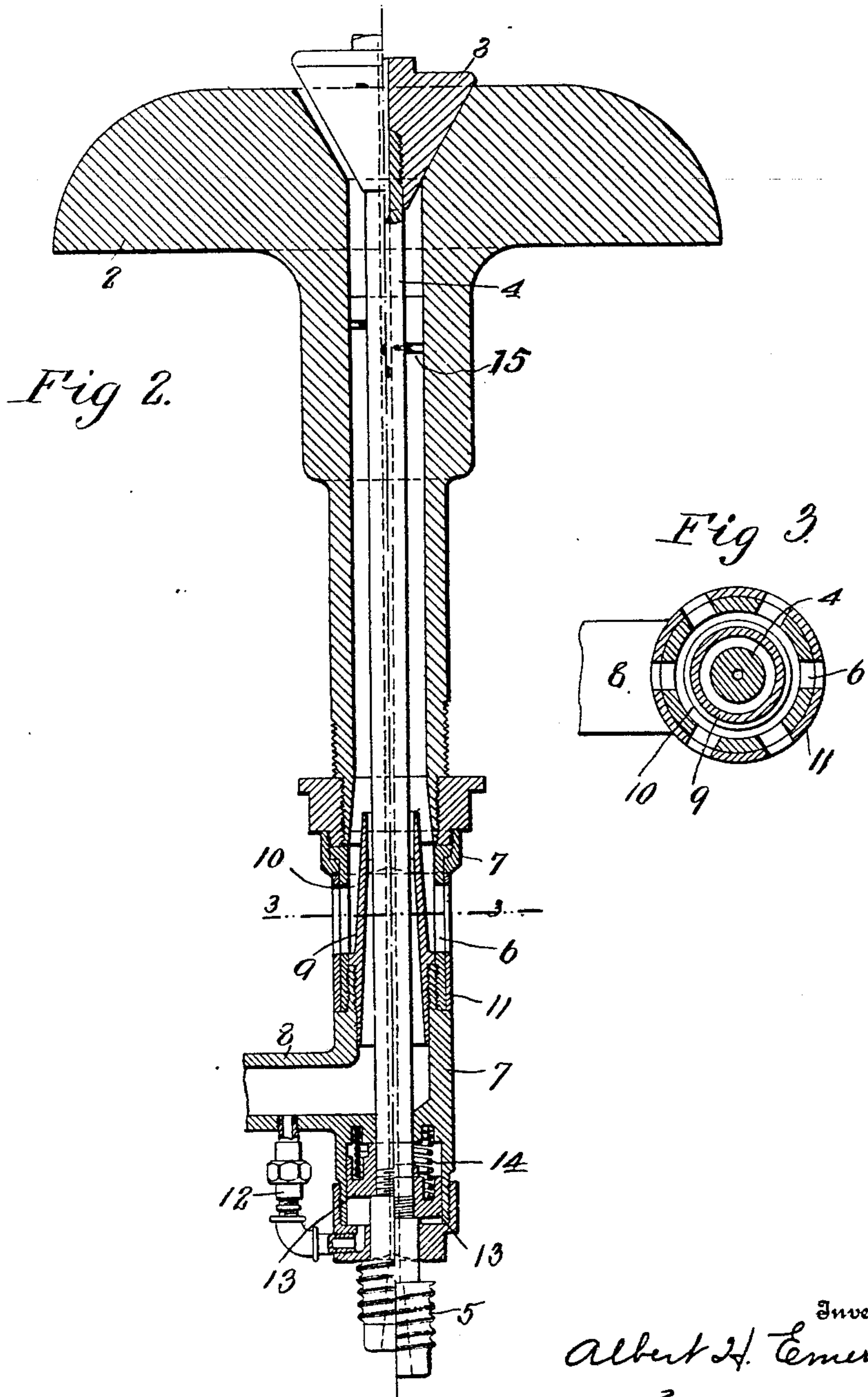
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Witnesses
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UNITED STATES PATENT OFFICE.

ALBERT H. EMERY, OF STAMFORD, CONNECTICUT.

MEANS FOR CLEANING OUT THE CHAMBERS AND BORES OF GUNS.

No. 870,528.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed September 19, 1907. Serial No. 393,697.

To all whom it may concern:

Be it known that I, ALBERT H. EMERY, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Means for Cleaning Out the Chambers and Bores of Guns, of which the following is a specification.

This invention is illustrated by three figures.

Figure 1 shows a section of the breech of the gun in plan, showing the process of cleaning applied thereto; Fig. 2 shows a sectional elevation of that portion of the breech block called the mushroom, and shows my invention applied thereto; Fig. 3 shows a sectional elevation of this apparatus on line 3—3, Fig. 2.

This invention relates to means for facilitating rapid loading of guns by quickly expelling the powder gases from the chamber of the gun and somewhat cooling the breech apparatus and chamber of the gun after firing. It is here shown applied to the ordinary screw breech block, which contains a central mushroom to prevent leakage of the gases around the block.

1 is the block shown in section, Fig. 1.

2 is the mushroom shown in sections, in Figs. 1 and 2, this mushroom always being applied in the axis of the breech block. In applying my invention, I make an opening into the chamber of the gun, either through the wall directly or through the breech block, preferably through the axis of the breech block, which in this case, as shown, becomes the axis of the mushroom. This hole is bored clear through the mushroom and enlarged at the interior where it enters into the powder chamber. It is there provided with a valve 3, with a stem 4 screwed therein. This valve stem extends back from the stem of the mushroom and receives on a thread 5 on its rear end the firing lock, which is not here shown. This valve stem has the usual lighting passage extending through it into the powder chamber. This invention is shown applied to the ordinary form of block now in use in the army and navy, and in so applying it, the mushroom is best extended to the rearward by a pipe 6 attached thereto by a screw-collar 7. This is attached in the form of the ordinary union which allows rotation of the pipe 6 and its elbow 7, which has an opening 8, through which the cleaning fluid is brought. In use, the valve 3 is tripped by being slipped forward.

In Fig. 1, the valve 3 is shown in a mushroom form, overlapping the mushroom. It is shown closed on the upper side, while the lower half of the valve is shown open, and when used in the form shown causes the cleaning medium to flow closely to the mushroom and expel gases or pieces of burning cartridge, which might otherwise lie close in the corner between the mushroom and chamber wall of the gun.

In Fig. 2, the valve is shown closed on the right hand side and shown open on the left hand side.

This cleaning medium is introduced before the loos-

ening and during the loosening of the breech block; so that most or all of the gases are expelled before the block is withdrawn from the gun. The cleaning medium may be any fluid or fluids, which it may be found desirable to use; air and steam, either or both are very good. Other gases or compounds may be used, or water may be introduced with either air or steam.

In the apparatus shown in Fig. 1, a single cleaning medium is usually used, and for that I prefer compressed air, which rapidly expels the burning gases from the gun, and, in expanding, absorbs heat from the parts through which it passes, thus cooling the block and chamber of the gun, and it should be allowed to flow under such pressure and quantity and time that all the gases will be expelled by the time the mushroom, in being withdrawn, reaches the rear of the gun. If the valve is tripped during the recoil of the gun, or immediately as the gun starts back into battery, there will be sufficient time to clear the gases from the gun by the time the block has been unloosed, and withdrawn to that extent that the mushroom is clearing the rear end of the gun when the air supply should be cut off. This adds no time whatever to the time of opening and closing the breech, but enables the gun to be fired very rapidly without danger from a flare-back.

To avoid the supplying of a very large quantity of compressed air, I prefer to introduce the compressed cleaning medium, steam or air, through two concentric parts, as shown in Fig. 2, where the compressed air or steam best comes through the opening 8 and elbow 7 and is discharged through the annular pipe 9 around the valve stem 4, and by its injector action brings air through the passage 10, which is an annular passage around the pipe 9, and carries it with the cleaning medium through the open valve 3 into the chamber of the gun, rapidly expelling the gases. When the breech block is sufficiently withdrawn to make an opening between the mushroom and the chamber around it, the injector action of all the cleaning medium flowing through the valve 3 acts to draw in a strong current of air around the mushroom and aid quickly in expelling all gases that are then in the gun.

The pipe 6, Fig. 2 has a series of lateral openings shown in Fig. 3. A sleeve 11 around this pipe 6 has similar openings and by rotating this sleeve 11, the lateral openings in the pipe 6 are regulated or cut off entirely, when so desired; so that in using this as an injector, the flow of the air around the pipe 9 may be regulated at will. Should the passage through 11 be open when the cleaning medium is brought through 8, the valve 3 might not open, but the cleaning medium pass out through these openings. To avoid danger of this, a passage is made through a pipe 12 to a press cylinder in the rear end of the piece 7, and a piston 13 is screwed on to the valve stem 4. The pressure of the medium coming through the pipe 12 acting on this

ly opens the valve 3 and allows the flow of medium into the chamber of the gun. If of the cleaning medium through the off, the spiral spring 14 acts against the use the valve 3.

short shouldered screws, screwed firmly and ground or cut to such a length as to and support it against lateral vibration is open.

described the invention, what I claim and desire to secure by Letters Patent is: a passage for supplying cooling or cleaning having a check valve to prevent back flow s, at time of firing and concentric inlets the fluid is brought.

block constructed with an axially disposed plying cooling or cleaning fluid to the gun, valve to prevent back flow of powder gases, g and concentric inlets through which the

through the breech block for supplying ing fluid to a gun, having a check valve to ow of powder gases, at time of firing and s through which the fluid is brought, ar- or relation one to the other.

block constructed with an axially disposed plying cooling or cleaning fluid to a gun, valve to prevent back flow of powder gases, g and concentric inlets through which the , arranged in injector relation one to the

m having a passage for supplying cleaning to the gun, and a plurality of openings to admit fluids from separate sources and ages conducting the fluid from the respec- to the mushroom passage.

m having a passage for supplying cleaning to the gun, and a plurality of openings to admit fluids from separate sources and ages conducting the fluid from the respec-

tive openings into the mushroom passage, said concentric passages being arranged in injector relation one to the other.

7. In a gun, a passage for supplying cleaning or cooling fluid thereto having a plurality of concentric inlets, and means for regulating or limiting the flow through one of said inlets. 45

8. In combination with the mushroom of a gun, a pas- sage for supplying cleaning or cooling fluid therethrough having a plurality of concentric inlets, and means for reg- ulating or limiting the flow through one of said inlets. 50

9. A mushroom provided with a passage therethrough for cleaning or cooling fluid, a check valve for closing said passage against back flow of powder gases at time of fir- ing, a valve stem extending into the passage and guiding means preventing lateral vibration of the valve stem. 55

10. A mushroom for guns constructed with a passage therethrough, a check valve for closing said passage against back flow of powder gases, having a stem project- ing into said passage, a piston on said valve stem and means for supplying fluid pressure to the piston to unseat the valve. 60

11. A mushroom for guns constructed with a passage therethrough, a check valve for closing said passage against back flow of powder gases, having a stem project- ing into said passage, a piston on said valve stem, an inlet for supplying a fluid medium through said passage to the gun and a duct for delivering a portion of said fluid me- dium to the piston to unseat the valve. 65

12. A mushroom for guns constructed with a passage therethrough, a check valve for closing said passage against back flow of powder gases, having a stem project- ing into said passage, a piston on said valve stem and means supplying fluid pressure to the piston to unseat the valve, and a spring opposing said piston and seating said valve when the fluid pressure is removed from the piston. 70

The foregoing specification signed at Washington, D. C. this 18 day of Sept., 1907. 75

ALBERT H. EMERY.

In presence of two witnesses—

EDWIN S. CLARKSON,

J. M. WYNKOOP.