

No. 754,896.

PATENTED MAR. 15, 1904

E. K. ROTHE.

FLUID BRAKE FOR RECOIL GUNS.

APPLICATION FILED OCT. 3, 1903.

NO MODEL.

Fig. 1.

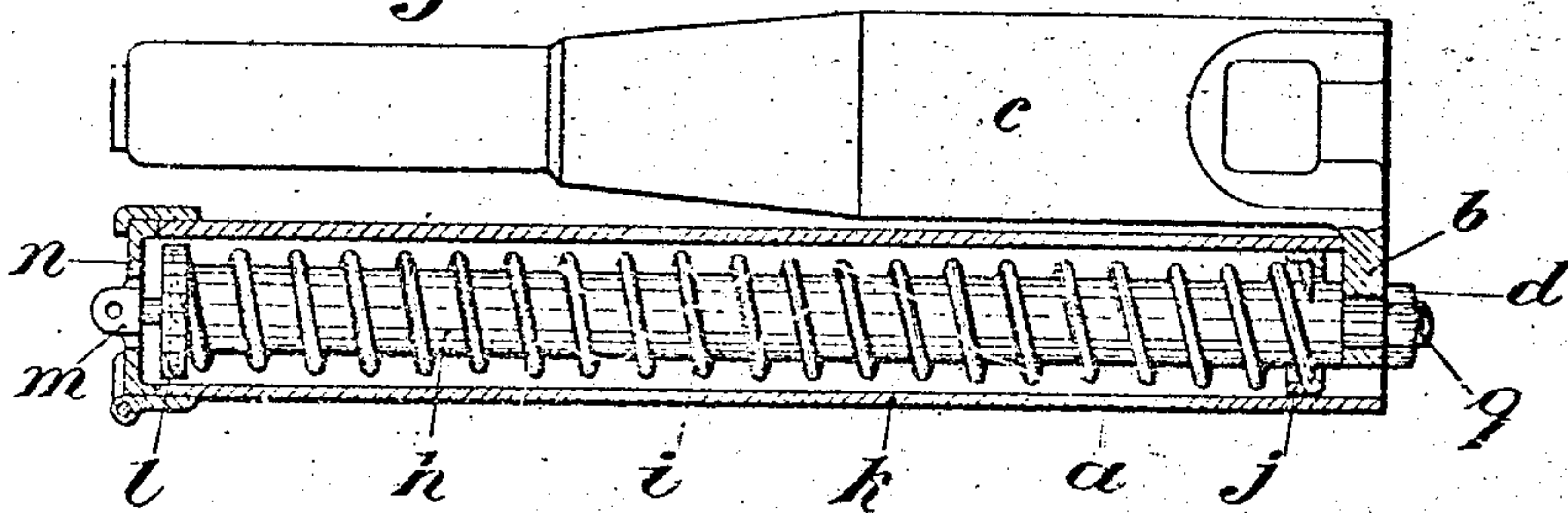


Fig. 2.

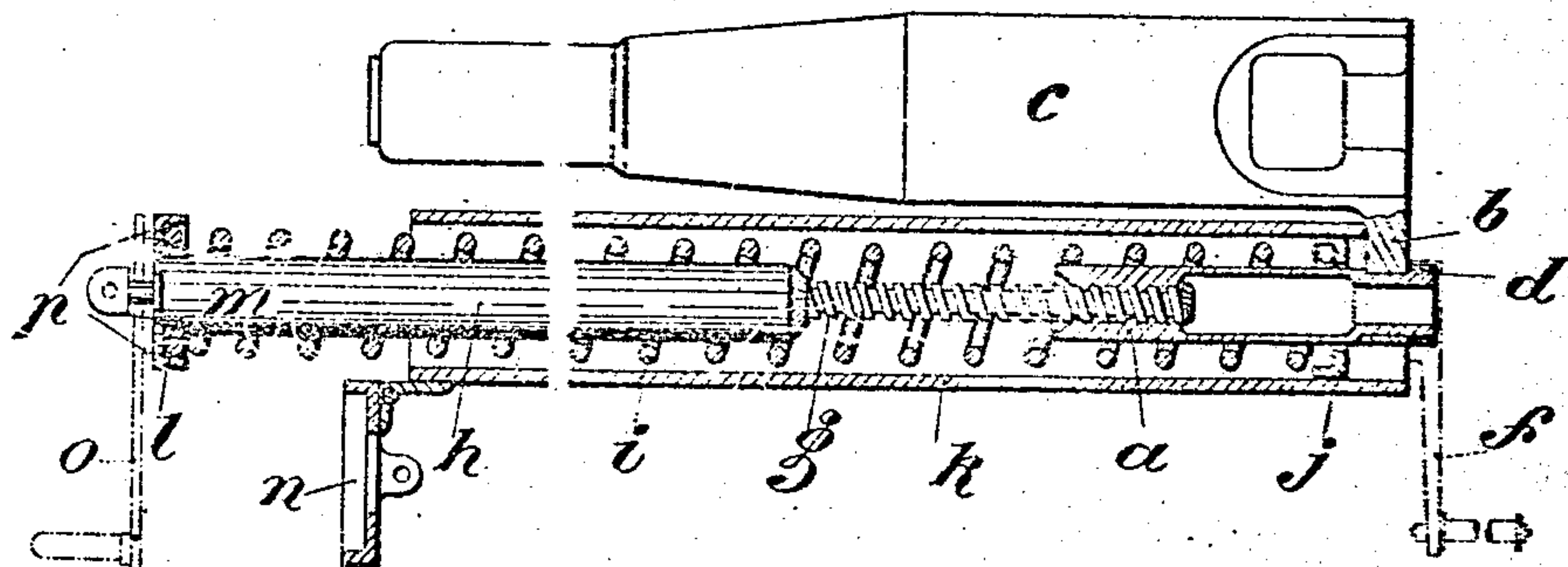
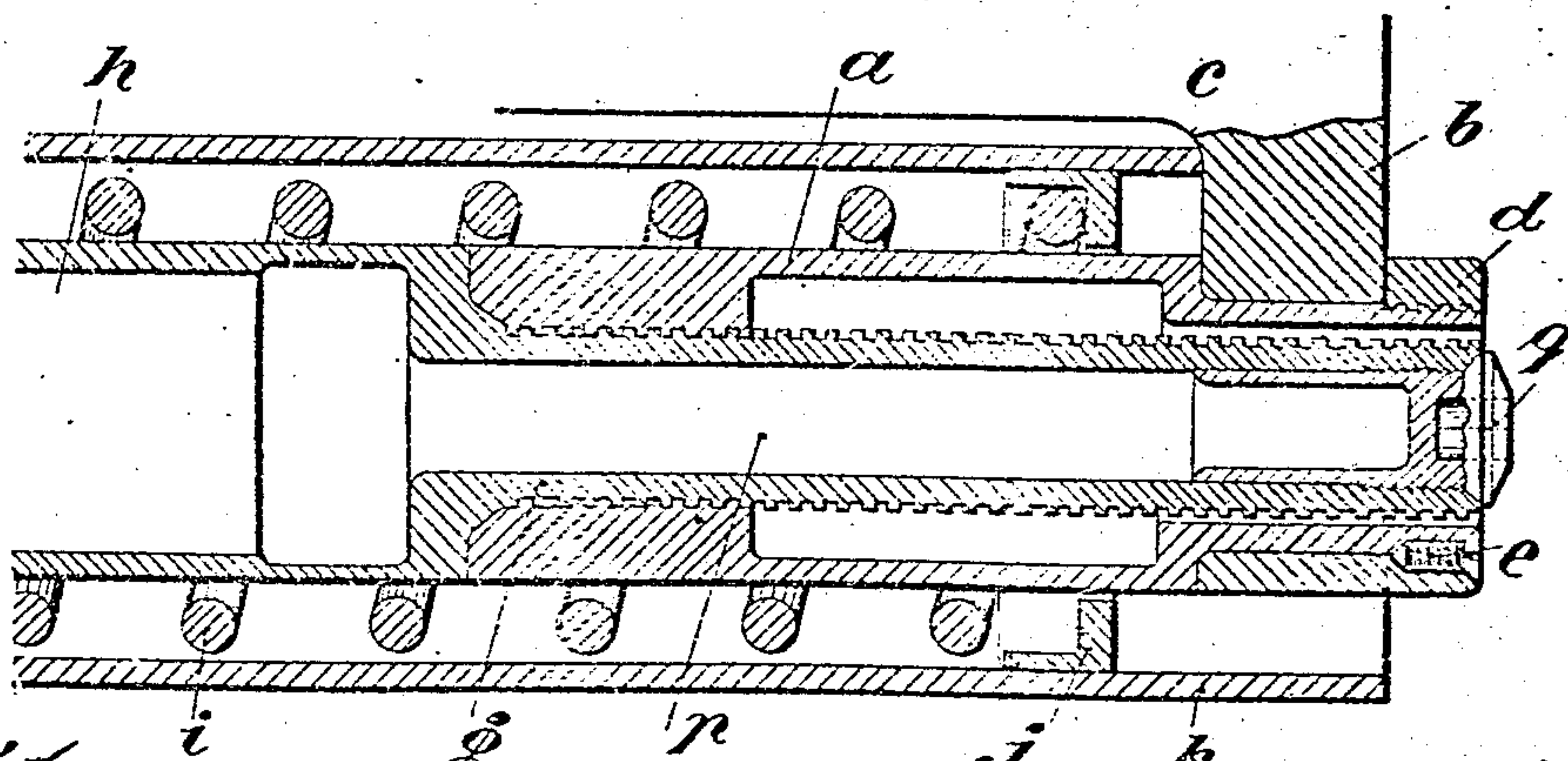


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

ERNST KARL ROTHE, OF EISENACH, GERMANY, ASSIGNOR TO THE FIRM
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FLUID-BRAKE FOR RECOIL-GUNS.

SPECIFICATION forming part of Letters Patent No. 754,896, dated March 15, 1904.

Application filed October 3, 1903. Serial No. 175,683. (No model.)

To all whom it may concern:

Be it known that I, ERNST KARL ROTHE, engineer, a subject of the Grand Duke of Saxe-Weimar, residing at Eisenach, in the Grand Duchy of Saxe-Weimar, German Empire, have invented certain new and useful Improvements in Fluid-Brakes for Recoil-Guns, of which the following is a specification.

My invention relates to a fluid-brake for recoil-guns of a construction that the putting in and taking out of the recoil-spring is facilitated.

In a fluid-brake for recoil-guns of the ordinary construction it is necessary when filling the same to take out the piston-rod, and consequently to detach the brake-cylinder from the front closing-cap to remove the piston-rod, and after filling to reestablish connection in the reverse way. A great disadvantage follows such types of brake-cylinders in the field, as when the piston-rod is removed its packing is liable to become dusty and dirty and there is danger of some of the glycerin or liquid filling being lost. In order, therefore, to enable the brake-cylinder to be conveniently filled, the screw-threaded tension-nut, which gives the preliminary tension required to the spring, is connected according to this invention directly to the rear of the gun, the brake-cylinder proper being provided at the back with a hollow screw-threaded socket, while the tension-nut is also made hollow at the back and the hollow socket of the brake-cylinder closed by a detachable screw-plug.

A construction according to my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partly in section, of a gun on its carriage in position ready for firing, the spring being held in preliminary tension. Fig. 2 shows a sectional view of tension device screwed out—that is to say, with the spring slackened. Fig. 3 shows in longitudinal section the arrangement of the rear end of the brake-cylinder and of the “tension-nut” on an enlarged scale.

The tension-nut *a* is in this construction arranged at the rear end of the brake-cylinder

and mounted with its rear extremity in a downward projection or lug *b* of the gun, so as to be easily rotatable, while it is prevented against longitudinal movement. The nut *d*, which rests against the rear surface of the lug *b*, is secured against unscrewing by a locking-screw *e* and serves to insure the turning of the tension-nut in the lug *b*. The nut *d* serves at the same time to receive a crank-handle *f* for turning the tension-nut. The cylindrical tension-nut is provided with an internal screw-thread, into which is screwed the extension *g* of the brake-cylinder *h*. The abutments for the spring *i* are formed by two washers, of which the rear one, *j*, is secured to the spring casing or carriage *k* a little in front of the lug, while the front washer *l*, is detachably secured to the front end of the brake-cylinder *h*. The piston-rod head *m* of the brake is detachably secured to the folding or detachable front pressure-plate *n* of the casing. The front washer *l* is provided with holes for receiving on a crank-handle *o*.

In order to take out the spring, the head of the brake-rod is released, the pressure-plate *n* folded back, and the brake-cylinder held by means of the crank *o*, the tension-nut *a* being turned by means of the crank *f*, mounted on the nut *d*. This arrangement enables a much quicker slackening of the spring by turning both cranks *o* *f* in opposite directions. The nut *a* remains on the lug *b*, while the extension *g* of the brake-cylinder is screwed out until the nut has been released. As the tension-nut *a* is held in the lug and the brake-cylinder extension *g* cannot be screwed out completely, the brake-cylinder always retains its horizontal position in the casing *k*. The putting in of the spring is effected by simply pushing it over the cylinder and the tension-nut, whereupon after having put on and secured the front washer *l* and turning it in the opposite direction to that during the removal, the brake-cylinder extension *g* is screwed into the nut *a* and the spring compressed, whereby a smooth cylindrical surface is produced, as the tension-nut and the cylinder have the same outside diameter, and the extension *g* is screwed into the tension-nut to such an ex-

tent as not to leave any interval between the inner end cylinder and the outer end of the tension-nut. As the cylinder extension *g* is provided with a perforation *p* going through it and closed at the back by a screw-plug *q*, it is easily possible by removing the screw-plug *q* and without disturbing in any way the position of the brake-cylinder and of the spring to introduce the brake liquid.

10 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A fluid-brake for recoil-guns, comprising 15 a brake-cylinder provided with a hollow externally-threaded reduced portion, a hollow socket engaging said reduced portion, a detachable plug closing said cylinder at the end of said reduced portion whereby the cylinder 20 may be filled on removing the plug, said hollow socket rotatably associated with a lug on the rear of said gun, a recuperating-spring surrounding said brake-cylinder, and a tubular casing around said spring.

2. In a fluid-brake for recoil-guns, the combination of a gun-carriage, a gun having a 25 lug thereon, a hollow socket, rotatably associated with said lug, a brake-cylinder having a hollow externally-threaded reduced portion closed by a screw-plug at the end thereof, 30 said reduced portion engaging said hollow socket, an external collar on said brake-cylinder, a spring surrounding said brake-cylinder and bearing at one end against the collar on said cylinder, a casing around said spring and 35 attached to the gun-carriage, a collar arranged in said casing against which the other end of said spring bears, a stationary piston and piston-rod extending through said brake-cylinder, a hinged cap upon one end of said casing, and means for locking said cap to said piston-rod. 40

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

ERNST KARL ROTHE.

Witnesses:

Fritz Schnell,
Ernst Eberhardt.