

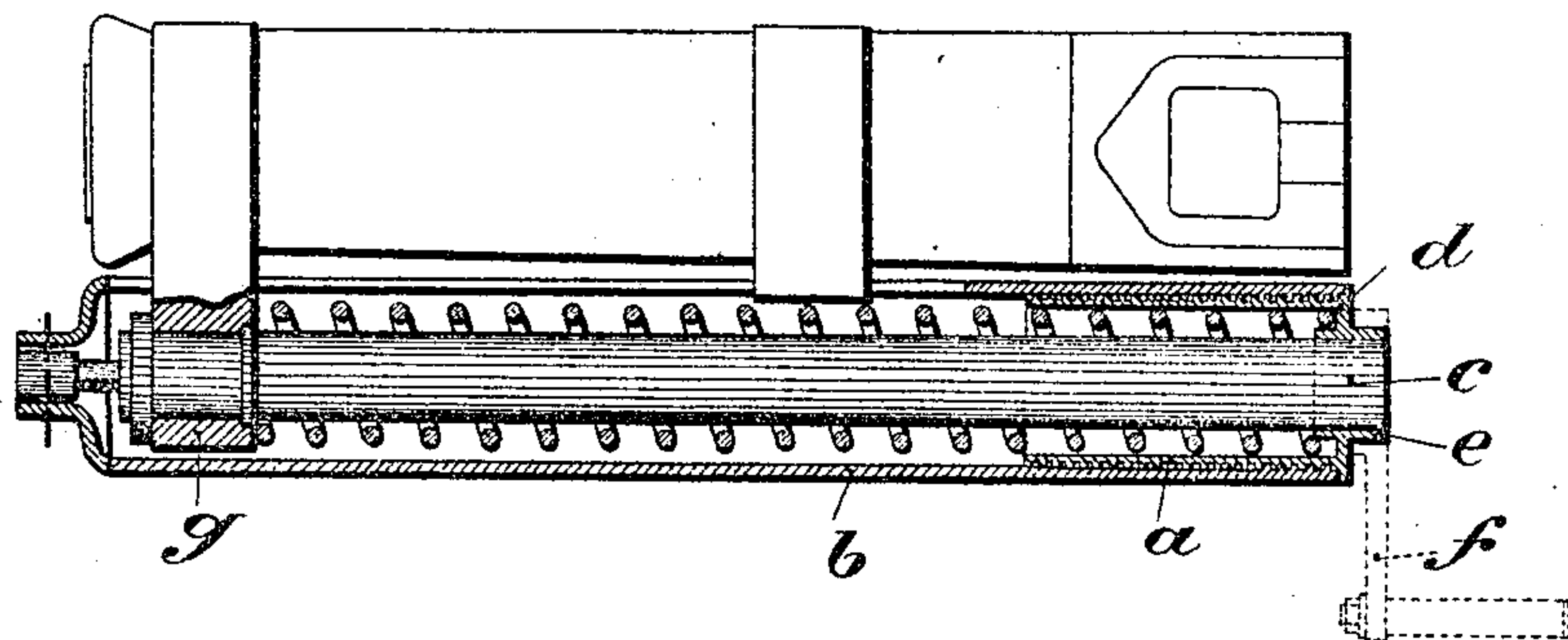
No. 751,874.

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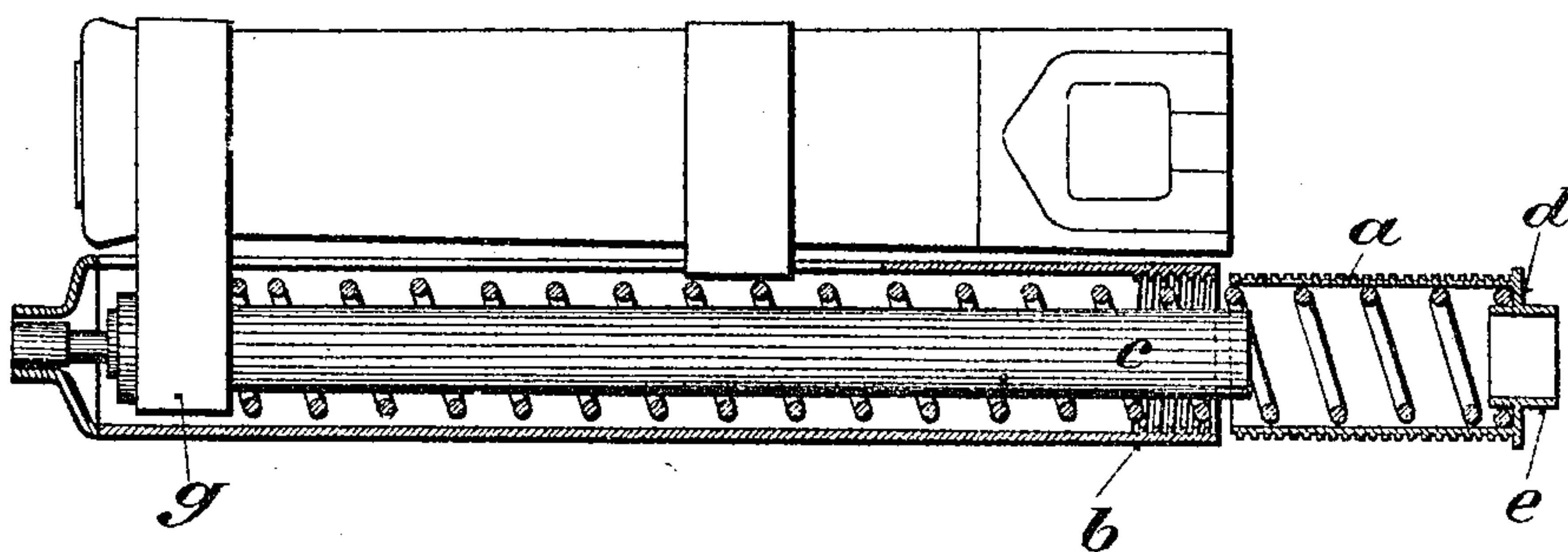
H. SCHRÖDER.  
RECOIL SPRING APPARATUS FOR GUNS.  
APPLICATION FILED MAY 29, 1903.

NO MODEL.

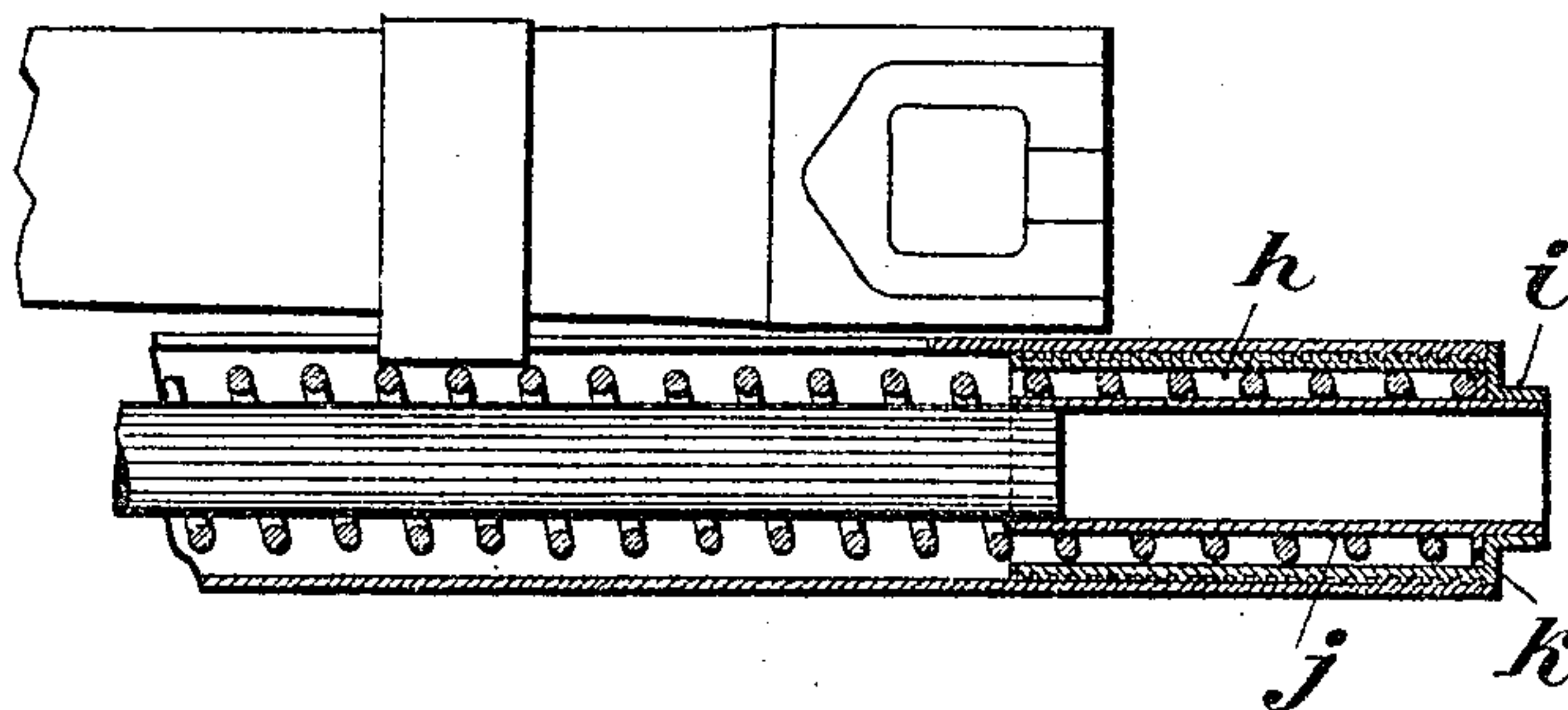
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## RECOIL-SPRING APPARATUS FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 751,874, dated February 9, 1904.

Application filed May 29, 1903. Serial No. 159,386. (No model.)

*To all whom it may concern:*

Be it known that I, HEINRICH SCHRÖDER, 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 or Relating to Recoil-Spring Apparatus for Guns, of which the following is a specification.

My invention relates to a device for use in securing and removing the recoil-springs of guns having recoiling barrels.

The upper gun-carriage or spring-tube at the rear is screw-threaded or provided with a screw-threaded portion forming a nut to receive the closing screw-threaded part. This part remains in the upper carriage after the spring has been secured and is removed only when the spring is to be released or removed.

The device is intended for guns in which the brake-cylinder is secured to the barrel by means of a bracket secured to the front portion of the gun-barrel.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a gun on the carriage in firing position with the spring slightly compressed. Fig. 2 shows the spring compressing and securing device unscrewed—that is to say, the spring completely released. Fig. 3 shows a device of a slightly-different construction.

The compressing-screw *a* is of sufficient length to effect the slight compression desired when it is screwed into the screw-threaded end of the upper carriage *b*. The cup-shaped end *d* of the compressing-screw *a*, mounted over the end of the brake-cylinder *c*, forms the rear abutment for the spring. In the cup *d* there is a guide-ring *e* concentric with the compressing-screw for guiding the brake-cylinder *c*, and said guide may also be attached to or formed integral with the cup. The guide portion situated beyond the gun-carriage is utilized for rotating the compressing-screw and provided for that purpose with a squared end, a groove or holes receiving a crank *f* or a spanner or lever. As shown in Figs. 1 and 2, the hollow cylindrical com-

pressing-screw *a* engages over the spring and the latter rests against the inner surface of the cup.

The brake-cylinder *c* is secured to the gun-barrel in front by means of a bracket *g*. The bracket is also utilized as an abutment for the front end of the spring. The barrel is guided on the gun-carriage in the well-known manner. Both open and closed gun-carriages may be used, only in case of the latter being used the upper wall is cut through for the length of the recoil. During the recoil the brake-cylinder *c*, together with the barrel, moves back, compressing the spring, and is guided in the guide-ring *e*. The bracket *g* prevents the brake-cylinder from turning. The spring can be released by screwing in or out the screw *a*, the gun-carriage *b* forming the tightening-nut.

Fig. 3 shows a modified construction of the compressing-screw. The hollow screw-plug *h* is also in this case made cup-shaped at the rear end; but instead of a guide-ring it has a collar *i*, in which there is a cylindrical guide *j*. This latter rests with its collar *k* against the inner cup-surface of the compressing-screw. The guide is rotatable and with its collar *k* forms a loose spring-cup in order to avoid twisting of the cup in tightening or releasing. The front portion projects a little beyond the brake-cylinder, which is at this place a little shorter than the upper gun-carriage. The collar *i* is used for receiving a crank-spanner or the like. When a special spring-cup is used, the guide can be made in one piece with the screw. For the rest the shape of and the method of securing the brake-cylinder are the same as in the construction already described. This construction is used for guns with recoiling barrels and for high elevation. By using this device the brake-cylinder is prevented from striking the ground in case of great elevations, and it becomes possible to use a long recoil-spring with an extended upper gun-carriage.

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

1. A recoil apparatus for guns comprising



in combination with a gun-barrel, a brake-cylinder, a casing surrounding said cylinder and having a portion of its inner face at one end screw-threaded, a spring surrounding the cylinder, a bracket attached at the forward end of the gun-barrel and extending in said casing, said bracket constituting an abutment for one end of the spring, and means extending in the casing, engaging the screw-threads thereof and inclosing the other end of the spring for forming an abutment for the spring, said means projecting from the casing and forming a guide for the brake-cylinder.

2. A recoil apparatus for guns comprising in combination with a gun-barrel, a brake-cylinder, a casing surrounding said cylinder and having a portion of its inner face at one end screw-threaded, a spring surrounding the cylinder, a bracket attached at the forward end of the gun-barrel and extending in said casing, said bracket constituting an abutment for one end of the spring, and adjustable means extending in the casing, engaging the screw-threads thereof and inclosing the other end of the spring, said means projecting from the casing and forming a guide for the brake-cylinder.

3. A recoil apparatus for guns comprising in combination with a gun-barrel a brake-cylinder, a spring surrounding the cylinder, a bracket attached to the forward end of the gun-barrel and connected with a brake-cylinder, said bracket constituting an abutment for one end of the spring, a casing surrounding

the spring and having one end thereof internally screw-threaded, a cup-shaped hollow screw-plug at the rear end of said casing, said plug engaging the screw-threads of the casing, a guide for the cylinder arranged at the rear end of the casing, and means for adjusting the screw-plug for controlling the tension of the spring.

4. A recoil apparatus for guns comprising in combination with a gun-barrel, a brake-cylinder, a spring surrounding the cylinder, a bracket attached to the forward end of the gun-barrel and connected with the brake-cylinder, said bracket constituting an abutment for the spring, a casing inclosing the brake-cylinder and spring, said casing having its rear end internally screw-threaded, an externally screw-threaded hollow plug extending in the rear end of the casing and engaging the screw-threads thereof, said plug having its rear end substantially cup-shaped, said plug partly surrounding one end of the spring and the cup-shaped end of said plug adapted to receive the end of the spring forming an abutment therefor, and a collar connected with the screw-plug and forming a guide for the brake-cylinder, said collar projecting from said plug.

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

HEINRICH SCHRÖDER.

Witnesses:

WILHELM TISCHENDORF,  
R. F. GELLERT.