June 17, 1924.

1,497,763

E. MÜLLER

GUN

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Fig. 2.

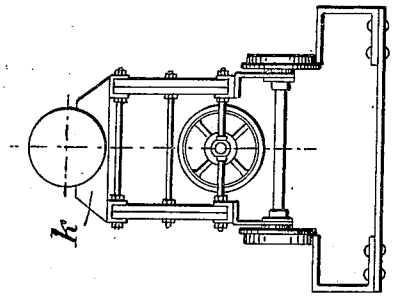

Fig. 1

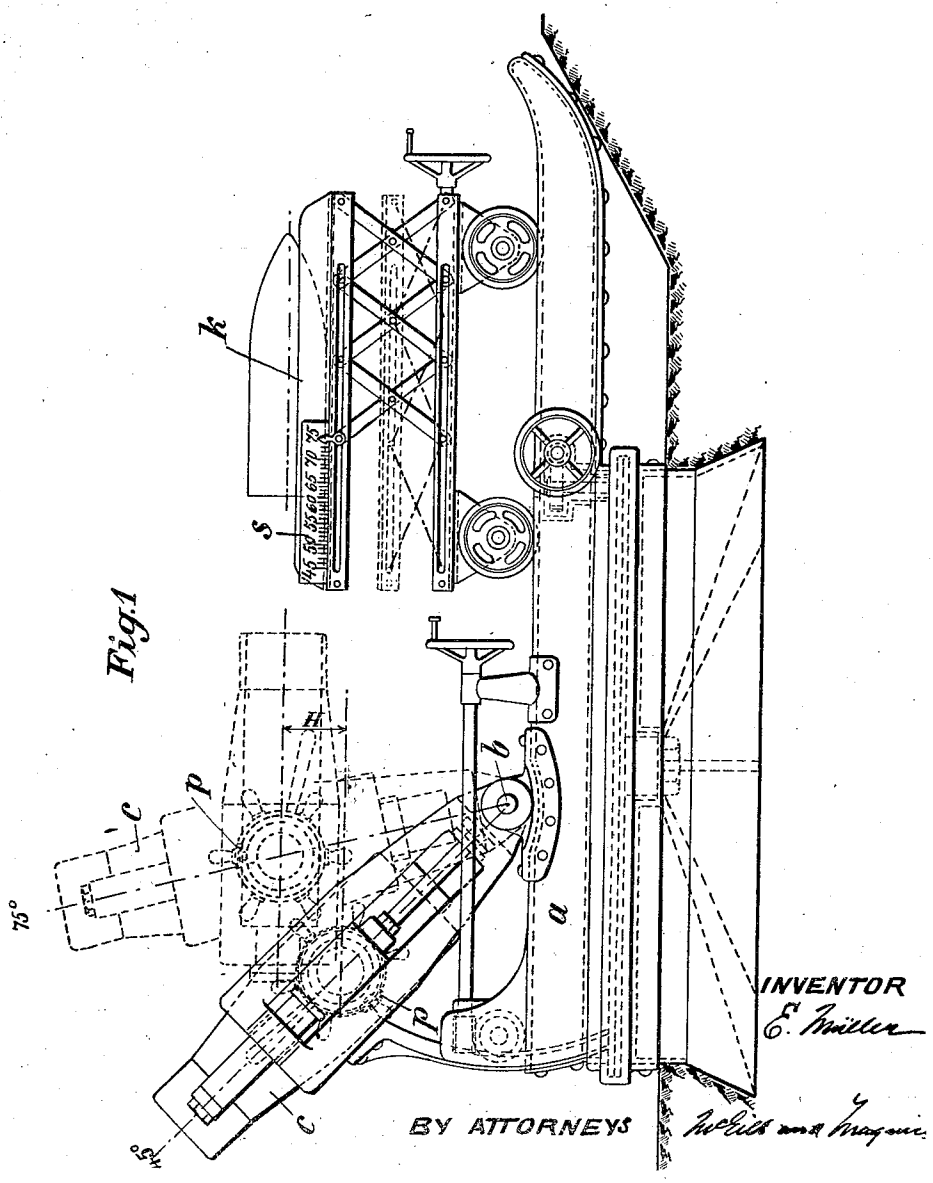

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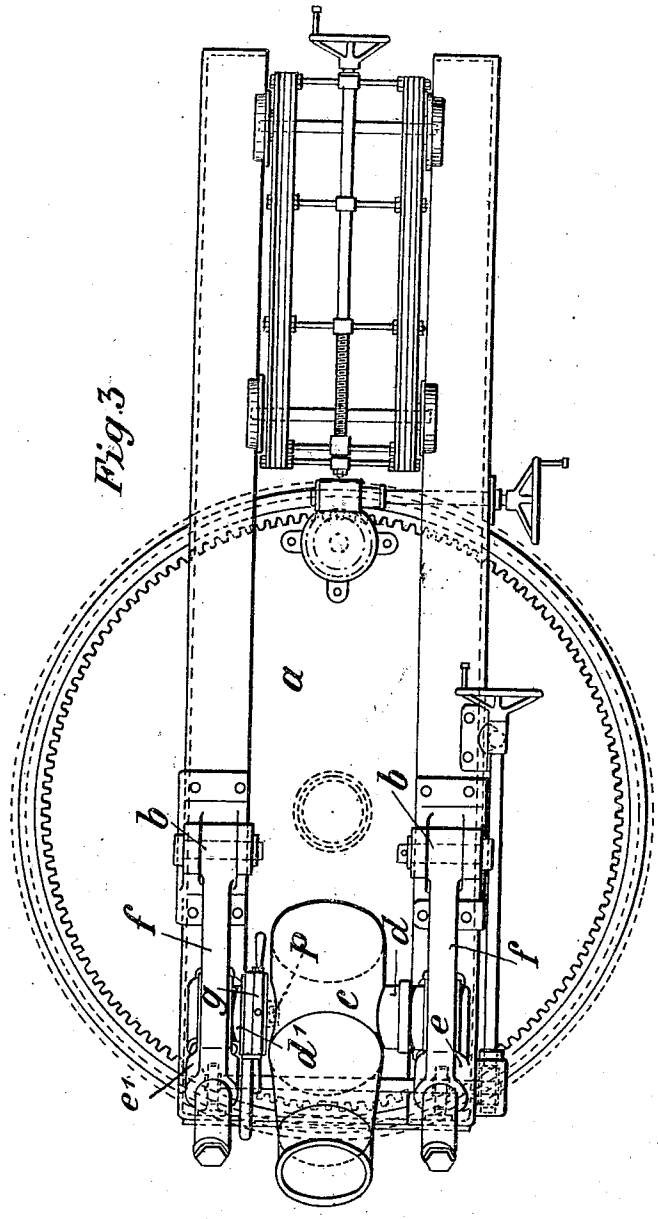
Fig. 3



INVENTOR

Emil Müller

BY ATTORNEYS

McDill and Baynes

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GUN

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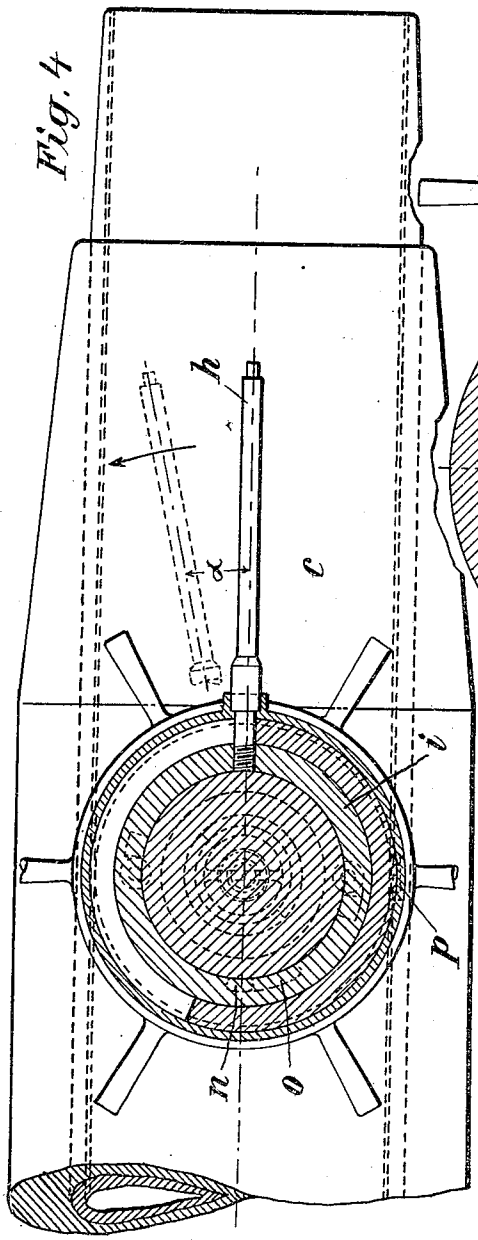

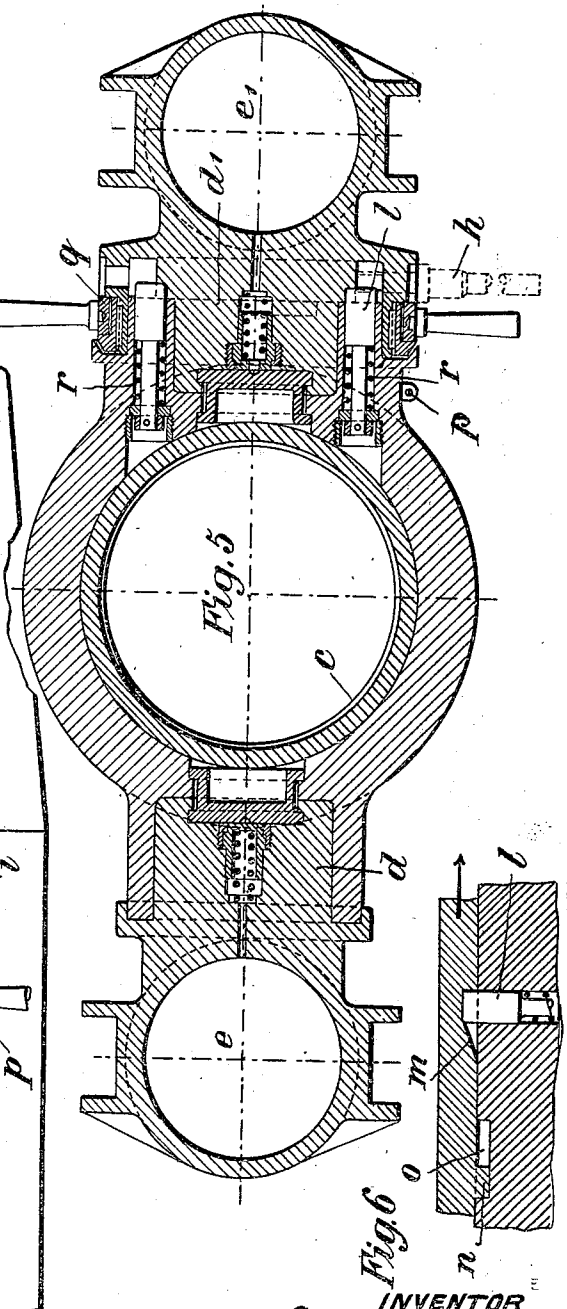

INVENTOR

Emil Müller

BY ATTORNEYS

McGill and Wagner

Patented June 17, 1924. 1,497,763

UNITED STATES PATENT OFFICE.

EMIL MÜLLER, OF DUSSELDORF, GERMANY, ASSIGNOR TO THE FIRM OF RHEINISCHE METALLWAAREN-UND MASCHINENFABRIK, OF DUSSELDORF-DERENDORF, GERMANY.

GUN.

Application filed September 2, 1921. Serial No. 498,006.

To all whom it may concern:

Be it known that I, EMIL MÜLLER, a citizen of Germany, residing at Dusseldorf, Germany, 8 Julicherstrasse, have invented certain new and useful Improvements in Guns (for which I have filed application for Letters Patent in Germany December 27, 1917), of which the following is a specification.

The present invention has for its object a gun, which is primarily destined for heavy ordnance. Hitherto the introduction of the shells into guns of that kind proved exceedingly wearisome and difficult, and it was necessary to make use of some auxiliary and transporting devices, and to change the barrel together with its cradle from the firing position into the loading position. Especially with steep firing guns whose trunnions are arranged so far back that part of the barrel of the brake will recoil beyond this point, loading is only possible, if the barrel is lowered from the steep into the horizontal position for loading purposes, which procedure will entail a change in the direction of height.

Steep firing guns have become known in which the barrel is connected with the levelling device by means of a coupling, and by actuating the latter the connection between levelling device and trunnion was disengaged, whereby the barrel and the cradle were brought from the firing into the loading position and then loading resumed its former position, without it being necessary to adjust the levelling device. In this mode of construction it became necessary however, to swing the recoiling parts as well as the cradle also into the loading position, which procedure in the case of heavy and very heavy guns required much time and a large consumption of power.

According to the present invention this drawback is obviated in that for loading the barrel neither an adjustment of the levelling device nor a change of position of the cradle parts is necessary, only a turning of the barrel being required. For this purpose means are provided permitting the barrel to be swung from the firing position into the loading position around two trunnions provided between the supports of the cradle and independently from the cradle and levelling device. To effect this a coupling may be provided, which is interposed between the barrel and cradle. Said coupling may be of such construction that by a simple turning of an adjusting lever rigidly connected with an annular disc, elastic coupling bolts become disengaged and a thumb disposed on the annular disc slides in a groove arranged in the socket bearing in such a way that it will effect a turning after engagement. The barrel thus brought into the loading position is then fixed in a suitable manner so that a quick loading may be effected in a simple manner without the use of special auxiliary apparatus.

In the drawings, Fig. 1 is a view in side elevation. Fig. 2 is a rear view of the loading chute. Fig. 3 is a top plan view. Fig. 4 is an enlarged view with parts in section, showing one of the supporting trunnions. Fig. 5 is a cross sectional view through the supporting trunnion. Fig. 6 is a detail, in section.

The gun shown in Fig. 1, for instance a mine thrower, is disposed on a platform *a* in such manner, that the trunnions *b* about which the barrel *c* is swung when adjusting the height, are arranged so far back, that no part of the barrel or the brake will recoil beyond that point. The barrel *c* is disposed by means of two lateral journals *d*, and *d'* (Figs. 3 and 5) in both the cradles *e*, *e'*, which are held by the support *f* of the cradles. Between barrel *c* and the one part *e'* of the cradle a coupling *g* is interposed in the journal *d'*. The journals *d*, *d'* are disposed in the gravity point of the barrel *c* and carry the sliding pieces of the brake cylinders, which are arranged in the guides of the cradles.

If it is for instance intended to load the gun, according to the invention, it is not necessary to touch the levelling device in order to effect a turning of the barrel, and furthermore no derrick is required for introducing the ammunition; it is only necessary to disconnect the coupling *g* arranged between the barrel *c* and cradle *e'* permitting the barrel to be swung individually. This is effected in such a way, that by turning the adjusting lever *h* (Fig. 4) an annular disc *i* rigidly connected with the latter is turned and the spring-pressed coupling bolts *l* brought out of engagement with the barrel and cradle, in that said coupling bolts *l* slide on an inclined plane *m* (Fig. 6) and in consequence become disengaged.

During this movement a nose *n* provided on the annular disc *i* and guided in a groove *o* provided in the journal bearing after engagement takes the barrel along if the turning movement is continued, so that the barrel is brought into the loading position required. This position will suitably be a horizontal one and may be ascertained by means of a water-level *p* or a pendulum cross. In such loading position the barrel *c* is secured by means of a friction coupling *g*. Then loading of the barrel takes place, while the degree of elevation imparted to the barrel is adjusted on a scale *s* provided on a vertically adjustable loading chute *k*, while the latter occupies the elevation of the barrel *c* to be loaded.

After loading the friction coupling *g* is disengaged and the adjusting lever *h* brought back into its former position. Hereby the coupling bolts *l* slide on the face of the annular disc *i* back to the inclined plane *m*, where by the pressure of the springs *r* they automatically snatch into the respective groove, so that the barrel *c* again occupies its former position. Since the adjusting lever *h* and coupling *g* are arranged in the journaled bearing *d'* partaking in the backward movement of the barrel and the coupling bolts *l* are disposed vertically in relation to the axis of the barrel, an automatic disengagement of the barrel by the recoiling force is excluded.

With certain kinds of guns the construction according to the invention may be such, that the journals disposed between the barrel and cradle may simultaneously serve as trunnions.

I claim:

1. In a drawback gun, the combination with a barrel, a cradle, means associated with said cradle for guiding said cradle during recoil, means permitting said barrel to swing relative to said cradle for loading including journals provided between the barrel and cradle, and means for automatically coupling said barrel and cradle when the barrel is moved from loading to firing position.

2. In a drawback gun, the combination with a barrel, a cradle, means associated with said cradle for guiding said cradle during recoil, means permitting said barrel to swing relative to said cradle for loading including journals provided between the barrel and cradle, and spring-pressed bolts, arranged vertically in relation to the axis of the barrel, for automatically coupling said barrel and cradle when the barrel is moved from loading to firing position.

3. In a drawback gun, the combination with a barrel, a cradle, means associated with said cradle for guiding said cradle during recoil, journals between the barrel and cradle, and a coupling interposed between the barrel and cradle for connecting the barrel and cradle in firing position, including spring-pressed bolts, and means for disengaging said bolts to permit said barrel to swing relative to said cradle.

4. In a drawback gun, the combination with a barrel, a cradle, means associated with said cradle for guiding it during recoil, journals between the barrel and cradle for connecting the barrel and cradle in firing position, including spring-pressed bolts, a rotatable disk having portions adapted to actuate said bolts against the tension of their springs, and a projection on said disk for engaging said barrel to swing it relative to said cradle when disengaged therefrom.

5. In a drawback gun, the combination with a barrel, a cradle, means associated with said cradle for guiding it during recoil, journals between the barrel and cradle for connecting the barrel and cradle in firing position, including spring-pressed bolts, a disk having portions adapted to actuate said bolts to uncouple said barrel and cradle, a projection on said disk for engaging said barrel, and a lever rigidly connected with said disk for turning it to actuate said bolts and to swing said barrel relative to said cradle.

6. In a drawback gun, the combination with a barrel, a cradle, means associated with said cradle for guiding it during recoil, journals between the barrel and cradle for connecting the barrel and cradle in firing position, including spring-pressed bolts, a disk having portions adapted to actuate said bolts to uncouple said barrel and cradle, and a lever rigidly connected with said disk for turning it to actuate said bolts, said bolts, disk and lever being carried by said barrel and partaking of the movements thereof.

7. A drawback gun including a barrel, a cradle, means associated with said cradle for guiding said cradle during recoil, journals provided between the barrel and cradle to permit said barrel to swing relative to said cradle, in combination with a vertically adjustable loading chute, a scale on the latter graduated in units of gun elevation, and a pointer movable over the scale in unison with the elevation of the chute.

In testimony whereof I have affixed my signature in presence of two witnesses.

EMIL MÜLLER.

Witnesses:

HERMANN SCHÜLER,

PAUL QUAAS.