

G. FALTER.
 RECOIL DEVICE FOR FIELD GUNS.
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985,334.

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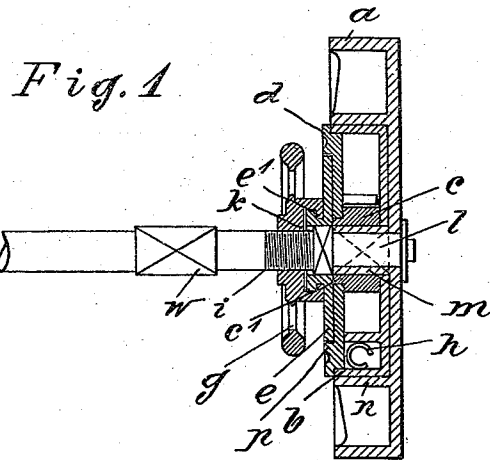


Fig. 2

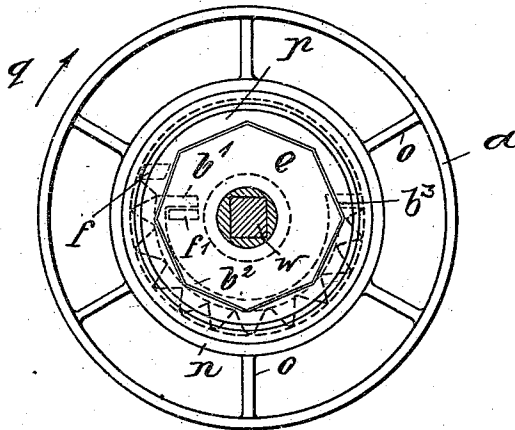
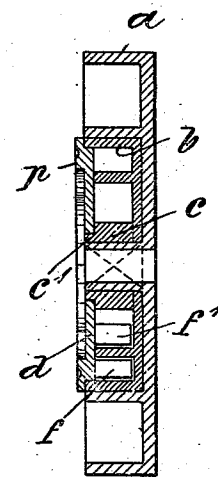


Fig. 3



Witnesses:

Nikolaus Meier
 Carl Siegen

Inventor:

George Falter

UNITED STATES PATENT OFFICE.

GEORG FALTER, OF LIMPERICH-ON-THE-RHINE, GERMANY.

RECOIL DEVICE FOR FIELD-GUNS.

985,334.

Specification of Letters Patent. Patented Feb. 28, 1911.

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To all whom it may concern:

Be it known that I, GEORG FALTER, a citizen of the Empire of Germany, residing at Limperich-on-the-Rhine, in the Empire of Germany, have invented a new and useful Recoil Device for Field-Guns, of which the following is a specification.

My invention relates to a recoil device for field-guns, which permits the wheels of the gun carriage to roll on the soil during the transport of the gun and to be coupled with the stationary axle when the gun is used, so that on firing the gun the wheels during the recoil of the carriage can roll back while straining springs inserted between them and the axle, so that the strain of the compressed springs will again roll the wheels forward and thus return the gun to its initial position.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a vertical transverse section through one of the wheels and the recoil device therewith connected, a part of the axle being shown in elevation and the gun carriage omitted, Fig. 2 is a vertical cross section through the axle and shows the wheel with its spring-casing in elevation, the spring being indicated by dotted lines, and the hand-wheel shown at Fig. 1 being omitted, and Fig. 3 is a horizontal section through the wheel and its spring-casing alone.

Similar letters of reference refer to similar parts throughout the several views.

w denotes an axle, which in any known manner is prevented by a gun-carriage (not shown) from turning. The axle w is shown to be provided for each wheel with a screw-thread i , a square head k and a pivot l . a denotes one of the wheels, which is shown to have a square nave m and an inner cylindrical rim n , which latter may be connected with the outer rim by radial ribs o . The nave m is adapted to turn on the pivot l and is in any known manner prevented from endwise motion. A cylindrical spring-casing b is introduced into the cavity formed by the inner rim n of the wheel a and has a square hole fitting the square nave m , so that in this manner the casing b is prevented from turning within the wheel a . A ring c having a square hole is in any known manner secured on the nave m for preventing the spring-casing b from endwise motion.

The spring-casing b is shown to be cast in one with a concentric inner rib b^2 extending over a little more than half the periphery, also with a rib b^3 connecting one end of the concentric rib b^2 with the outer rim, and at last with a stop b^1 at the free end of the rib b^2 , which stop b^1 projects toward the ring c . The casing b is closed with a cover d , which is mounted to turn on a reduced part c^1 of the ring c and also on the edge of the outer rim of the casing b . The cover d is provided on its inside with two lugs f and f^1 and on its outside with a concentric projection p . When the cover d is so turned in the direction of the hands of a watch in Fig. 2, that its lug f^1 strikes the stop b^1 , its other lug f closes a bent channel formed between the outer rim of the casing b , its concentric rib b^2 and its rib b^3 . Into this bent channel a suitable helical spring h is introduced, preferably in a strained state, so that it bears with one end against the rib b^3 and with its other end against the lug f , so that thereby the lug f^1 is pressed against the stop b^1 . The concentric projection p on the cover d is made polygonal on its inside, so that it forms one member of a clutch, the other member of which is denoted by e . This member e has a square central hole and fits on the square head k of the axle a , so that it is permitted to longitudinally move thereon. A hand-wheel g serving as a nut on the screw-thread i of the axle w is in any known manner adapted to engage in a groove e^1 provided in the nave of the member e . Of course the other wheel (not shown) at the other end of the axle a is with its recoil device constructed the same as the wheel a , only that it is left-handed, while the latter is right-handed.

The recoil device operates as follows: For the transport of the field-gun the two members e are by their hand-wheels g withdrawn, so that they do not engage the other members p and consequently the two wheels a are permitted to roll on the soil forward or backward. After the field-gun has been moved to the desired place from which it is to fire, the two wheels g are turned in the respective direction for coupling the members e with the other members p of the clutches, the two wheels a being, if necessary, slightly turned, until the members e can engage in the cavities of the other members p . Then the field-gun will be prevented from shifting, since the two bent helical springs h by their

tension prevent the wheels *a* from turning. When the gun is fired, so that it sends its projectile forward in the direction from the right to the left in Fig. 2, its carriage and therewith the stationary axle *w* will recoil in the direction from the left to the right, so that the two wheels *a* are compelled to roll on the soil in the direction of the arrow *g*. As, however, the axle *w* and thereby the two members *e* and *p* of each clutch and the two disks *d* are prevented from turning, the consequence will be, that the two wheels *a* will by their spring-casings *b* and the ribs *b*³ compress the two helical springs *h* and thus further strain them. When the strain of the two helical springs *h* attains its maximum, the momentum of the gun and its carriage will be annihilated, whereupon the strained springs *h* will turn the wheels *a* back in a direction opposite to the arrow *g*, so that the carriage will move forward and return the gun to its initial position, in which it can be charged and again fired.

I claim:

1. In a recoil device for field-guns, the combination with an axle prevented by the carriage from turning, of a wheel turnable on said axle, a disk turnable on said wheel, a spring inserted between said wheel and said disk and adapted to take up the recoil, means limiting the turn of said disk under the action of said spring, and means to couple and uncouple said disk and said axle.

2. In a recoil device for field-guns, the combination with an axle prevented by the carriage from turning, of a wheel turnable on said axle and having a concentric channel closed at one end, a disk turnable on said wheel and adapted to cover its channel and provided with a lug engaging therein, a helical spring in the channel of said wheel and adapted to take up the recoil, it bearing with one end against the end of the channel and with the other end against the lug of said disk, means limiting the turn of said disk under the action of said spring, and means to couple and uncouple said disk and said axle.

3. In a recoil device for field-guns, the combination with an axle prevented by the carriage from turning, of a wheel turnable on said axle, a disk turnable on said wheel, a spring inserted between said wheel and said disk and adapted to take up the recoil, means limiting the turn of said disk under the action of said spring, a clutch member fast on said disk, another clutch member longitudinally movable on said axle and prevented from turning, and means to couple and uncouple said two clutch members.

4. In a recoil device for field-guns, the combination with an axle prevented by the carriage from turning and having a screw-thread, of a wheel turnable on said axle, a disk turnable on said wheel, a spring inserted between said wheel and said disk and adapted to take up the recoil, means limiting the turn of said disk under the action of said spring, a clutch member fast on said disk, another clutch member longitudinally movable on said axle and prevented from turning, and a hand-wheel engaging the screw-thread of said axle and adapted to move said second clutch member into and out of engagement with said first clutch member.

5. In a recoil device for field-guns, the combination with an axle prevented by the carriage from turning, of a wheel turnable on said axle and having a concentric channel closed at one end, a disk turnable on said wheel and adapted to cover its channel and provided with a lug engaging therein, a helical spring in the channel of said wheel and adapted to take up the recoil, it bearing with one end against the end of the channel and with the other end against the lug of said disk, means limiting the turn of said disk under the action of said spring, a clutch member fast on said disk, another clutch member longitudinally movable on said axle and prevented from turning, and means to couple and uncouple said two clutch members.

6. In a recoil device for field-guns, the combination with an axle prevented by the carriage from turning and having a screw-thread, of a wheel turnable on said axle and having a concentric channel closed at one end, a disk turnable on said wheel and adapted to cover its channel and provided with a lug engaging therein, a helical spring in the channel of said wheel and adapted to take up the recoil, it bearing with one end against the end of the channel and with the other end against the lug of said disk, means limiting the turn of said disk under the action of said spring, a clutch member fast on said disk, another clutch member longitudinally movable on said axle and prevented from turning, and a hand-wheel engaging the screw-thread of said axle and adapted to move said second clutch member into and out of engagement with said first clutch member.

GEORG FALTER.

Witnesses:

LOUIS VANDORY,
GERTRUD BONA.