

E. SCHNEIDER.

DISAPPEARING GUN CARRIAGE FOR USE ON SUBMARINES AND SIMILAR VESSELS.

APPLICATION FILED JAN. 3, 1916.

1,334,800.

Patented Mar. 23, 1920.

5 SHEETS—SHEET 1.

Fig. 1.

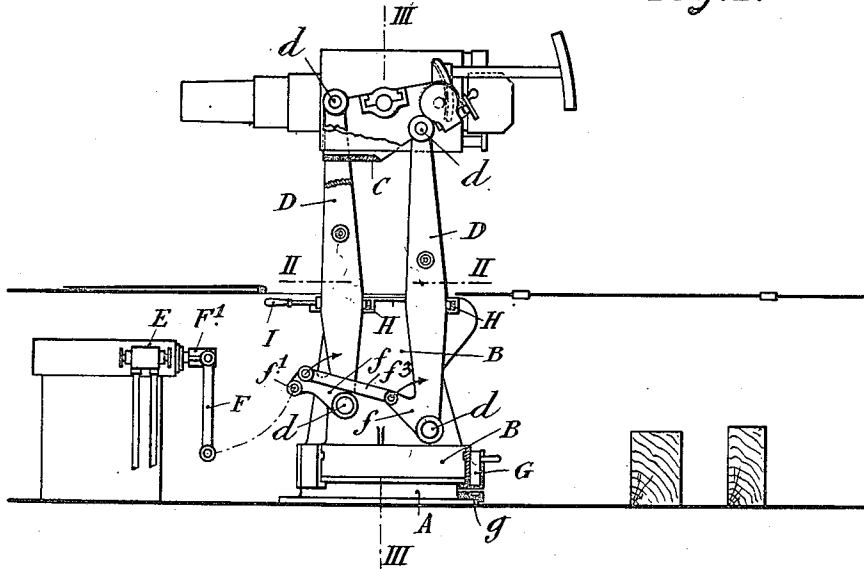
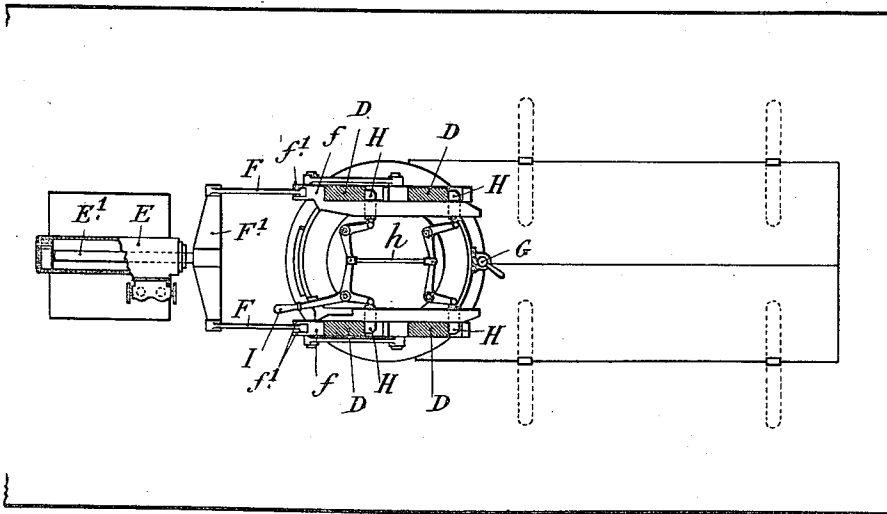


Fig. 2.



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Fig. 3.

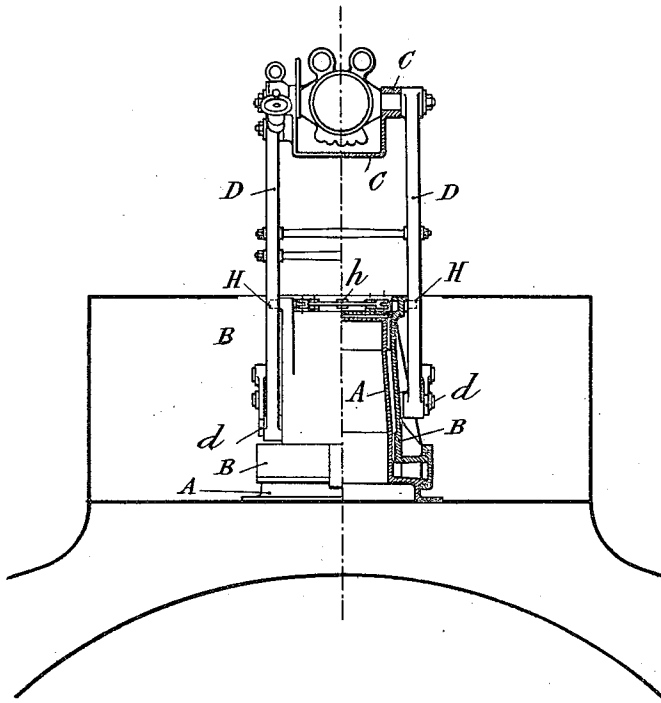
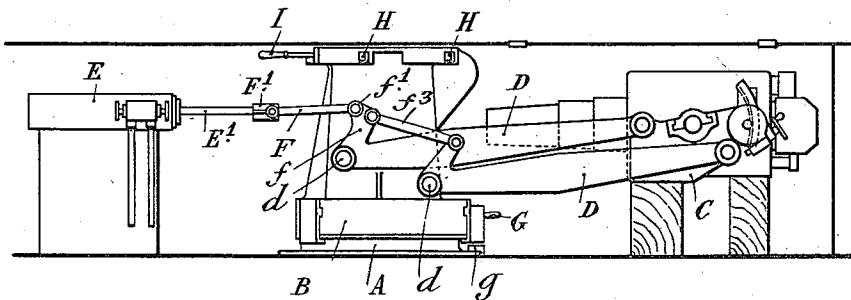


Fig. 4.



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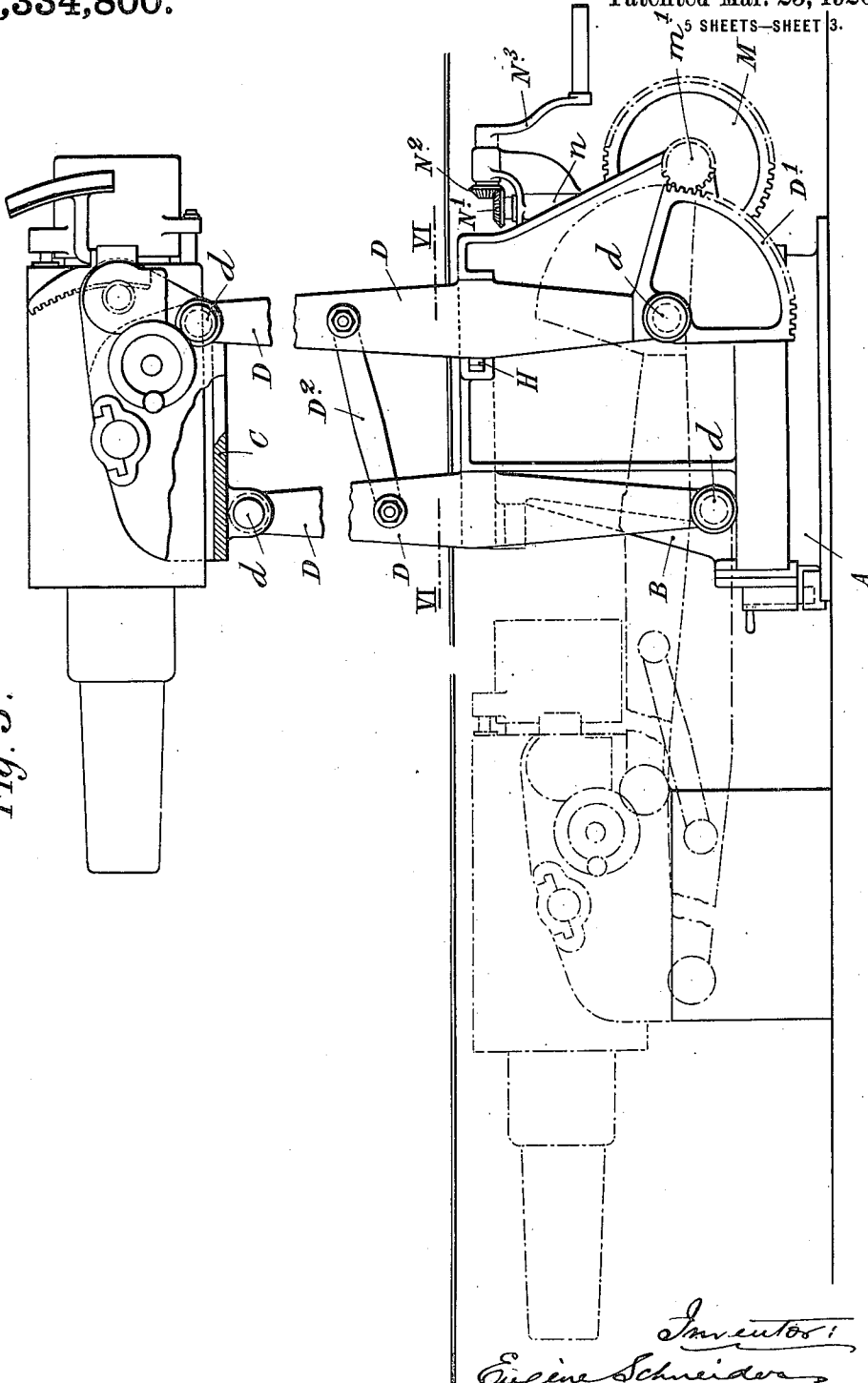
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5 SHEETS—SHEET 3.

Fig. 5.



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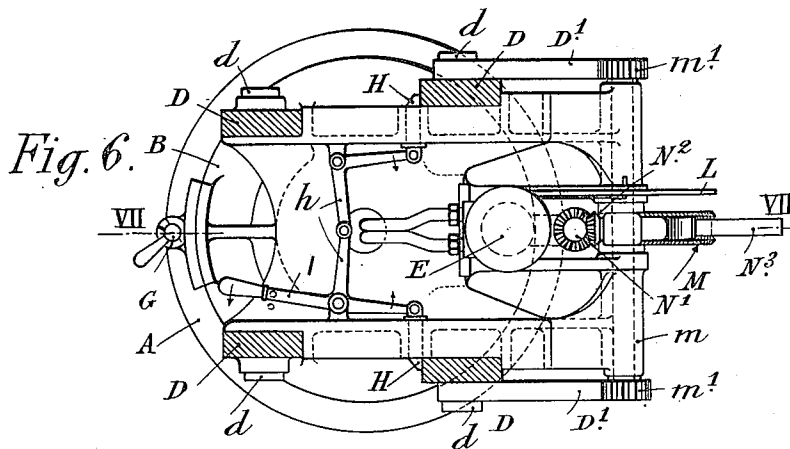
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5 SHEETS—SHEET 4.



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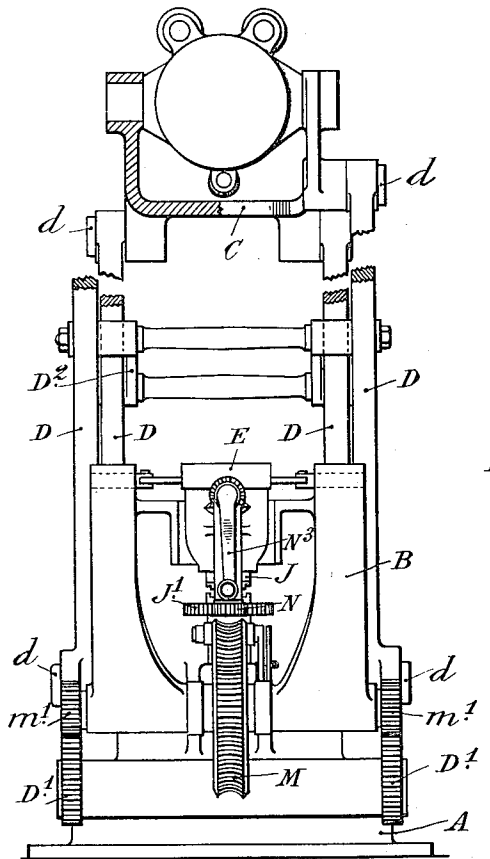


Fig. 8.

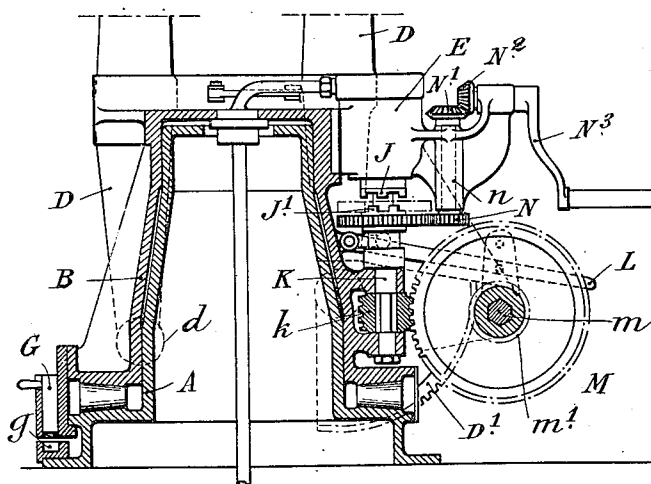


Fig. 7.

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UNITED STATES PATENT OFFICE.

EUGÈNE SCHNEIDER, OF LE CREUZOT, FRANCE, ASSIGNOR TO SCHNEIDER & CIE., OF
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DISAPPEARING GUN-CARRIAGE FOR USE ON SUBMARINES AND SIMILAR VESSELS.

1,334,800.

Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed January 3, 1916. Serial No. 69,969.

To all whom it may concern:

Be it known that I, EUGÈNE SCHNEIDER, a citizen of the Republic of France, residing at Le Creuzot, France, have invented a new and useful Improvement in Disappearing Gun-Carriages for Use on Submarines and Similar Vessels, which is fully set forth in the following specification.

The carriages of guns which are mounted on submarines and similar vessels are composed, as in the case of all guns that are adapted to turn on their mounts, of a stationary lower mounting serving as a foot bearing and an upper mounting adapted to turn on or in the said lower mounting and in which the gun barrel is journaled on trunnions.

In the known gun carriages of this kind the entire carriage (that is to say the said two mountings) together with the gun barrel is arranged to disappear into the superstructure or into a suitable lodgment of the vessel, in most cases by causing the said entire carriage to descend by turning on a fixed pivot. When it is desired to fire the gun the entire carriage is raised and thus brought from the hidden position into the position of use. These known arrangements have the drawback of requiring considerable expenditure of power or at least the use of auxiliary balancing devices for effecting the disappearing and rising movements of the gun carriage.

The present invention does away with those drawbacks as follows:—

According to this invention the lower mounting that serves as the foot bearing for the upper mounting is stationary, and the upper mounting which is adapted to turn in or on the said lower mounting is divided into two elements, namely, a lower element which remains permanently hidden and is capable of turning directly on or in the lower mounting, and an upper element which is movably jointed to the said lower element by means of connecting rods or parallel rodding or framing. The said upper element can be moved at will by means of an actuating mechanism into a raised or lowered position. By thus arranging that only the upper element of the upper

mounting shall have to be raised and lowered in order to cause the gun to appear and disappear, the weight of the disappearing parts is reduced to the weight only of the upper element and gun barrel.

This invention can be carried into effect in various ways.

According to one way, the mechanism for actuating the upper element of the upper mounting is independent of the gun carriage and has to be connected to the gun carriage when the latter is to be maneuvered.

According to another way the actuating mechanism is permanently carried by the upper mounting.

Two constructions for carrying these ways into effect are shown by way of example respectively in Figures 1 to 4 and Figs. 5 to 8 of the accompanying drawings.

Fig. 1 is a side elevation of the improved gun carriage with the disappearing element of the upper mounting in the raised position for using the gun;

Fig. 2 is a horizontal cross section on the line II—II of Fig. 1;

Fig. 3 in its right half is a half vertical cross section on the line III—III of Fig. 1, and in its left half is a half rear end elevation of Fig. 1;

Fig. 4 is a side elevation of the improved gun carriage with the disappearing element of the upper mounting in the lowered or hidden position.

Fig. 5 is a side elevation of a modified construction showing the disappearing structure in full lines in the raised position, and in dot and dash lines in the hidden position;

Fig. 6 is a longitudinal section on the line VI—VI of Fig. 5;

Fig. 7 is a partial vertical section on the line VII—VII of Fig. 6;

Fig. 8 is a rear elevation corresponding to Fig. 5.

The entire carriage comprises a fixed lower bell-shaped mounting A that serves as a foot bearing for the upper mounting. According to the invention the latter is divided into two elements B and C. The lower element B in the example shown is made of bell shape so as to cover the lower

mounting, and it is connected to the other element by means of an arrangement of two pairs of separate side rods D pivoted to the two elements at *d* in such a manner as to constitute with the latter two jointed parallelograms. Any other suitable means may be employed to serve as jointed connections between the two elements B and C of the upper mounting.

The dividing of the upper mounting into two elements B and C allows of keeping permanently hidden not only the lower mounting A on which the upper mounting C—D—D—B is adapted to turn horizontally for training, but also the lower element B which constitutes an important part of this turning mass.

The upper element C carries journaled on trunnions a gun barrel of any suitable construction, the turning of the gun barrel on its trunnions for the purpose of elevating the gun being effected by any suitable known mechanism.

In the example, the mechanism for actuating the mass which is to disappear is independent of the gun carriage and may be installed in the superstructure of the vessel as shown. The motor E, which may be a hydraulic motor or a motor of any other type, is designed to be connected to the carriage structure which is to be raised.

In the example shown the connecting mechanism between the motor E and the mass to be raised and lowered consists of two connecting rods F jointed to a cross-head F¹ fixed to the piston E¹ of the motor. These connecting rods F are respectively jointed at their other ends to forks *f*' formed on arms *f* extending from the respective side rods D. The front and rear side rods D are also preferably connected by links *f*³. The coupling of the connecting rods F to their forks *f*' is effected by inserting the respective joint pins. Uncoupling, when desired, is effected by withdrawing these pins. Fig. 1 shows the motor disconnected from the gun carriage, and Figs. 2 and 4 show the motor connected to the gun carriage. G is a locking bolt for locking the element B, by engaging in a socket *g* of the foot bearing A, in the position desired for effecting the operations of raising and lowering the disappearing elements of the gun carriage.

An arrangement of four locking bolts H provided on the element B and adapted to be operated by means of a common hand lever I with linkage *h* allows of locking the side rods D in the raised position of the gun.

In the example of Figs. 5 to 8 the actuating mechanism for effecting the rising and disappearing movements of the gun is carried by the lower element B of the divided upper mounting B—D—D—C.

The hydraulic or other motor E is fixed on the part B and it carries a clutch half

J with which the other clutch half J¹ sliding on a short shaft K can be engaged by means of a hand lever L. The shaft K is formed with a worm *k* engaging with a worm wheel M fitted on a shaft *m* journaled in a bracket bearing carried by the part B.

The shaft *m* carries on each end a pinion *m*¹ engaging with a toothed sector D¹ fixed to the corresponding rear side rod D. The rear side rods D, which may be connected to the front side rods D by means of links D², are locked in the raised position of the gun by locking bolts H which are actuated by means of a common hand lever I through suitable linkage *h* such as that shown.

In case of damage to or stoppage of the motor E the maneuvers can be effected by hand. For this purpose the clutch half J¹ must be moved into the position indicated in Fig. 7 into engagement with a pinion N carried by a shaft *n* journaled in a bracket that may be fixed to the motor E or to any other part of the element B.

This shaft *n* carries also a bevel pinion N¹ driven by a pinion N² adapted to be actuated by means of the crank handle shaft N³.

The motor and the disappearing portion of the gun carriage may have either the relative position shown for the purpose of causing the gun to disappear from the rear in the forward direction, or the reverse position in which the gun would then disappear from the front toward the rear.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A gun-mounting comprising a bell-shaped foot-bearing, a lower bell-shaped element mounted to revolve thereon, an upper gun-carrying element, and jointed connections between said elements whereby said upper element may be raised and lowered with respect to said lower element.

2. A gun-mounting comprising a foot-bearing, a lower element revolubly mounted thereon, an upper gun-carrying element, jointed connections between said elements, a motor, a manually-operable means, and a clutch for interchangeably connecting said motor and manually-operable means with said connections to raise and lower said upper element.

3. A gun-mounting comprising a foot-bearing, a lower element revolubly mounted thereon, an upper gun-carrying element, parallel links connecting said elements, sector-gears carried by certain of said links, gearing in mesh with said sector gears, a motor, a worm and worm-wheel transmission intermediate said motor and gearing, and a clutch intermediate said motor and worm.

4. A gun-mounting comprising a foot-bearing, a lower element revolubly mounted thereon, an upper gun-carrying element, jointed connections between said elements, a

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motor and connections for operating said
first-named connections to raise and lower
said upper element, a clutch in said last-
named connections, and manually-operable
5 means connectible with said connections for
raising and lowering said upper element
when said clutch is disconnected.

In testimony whereof I have signed this
specification in the presence of two sub-
scribing witnesses.

EUGÈNE SCHNEIDER.

Witnesses:

CHAS. P. PRESSLY,
G. F. WADBY.