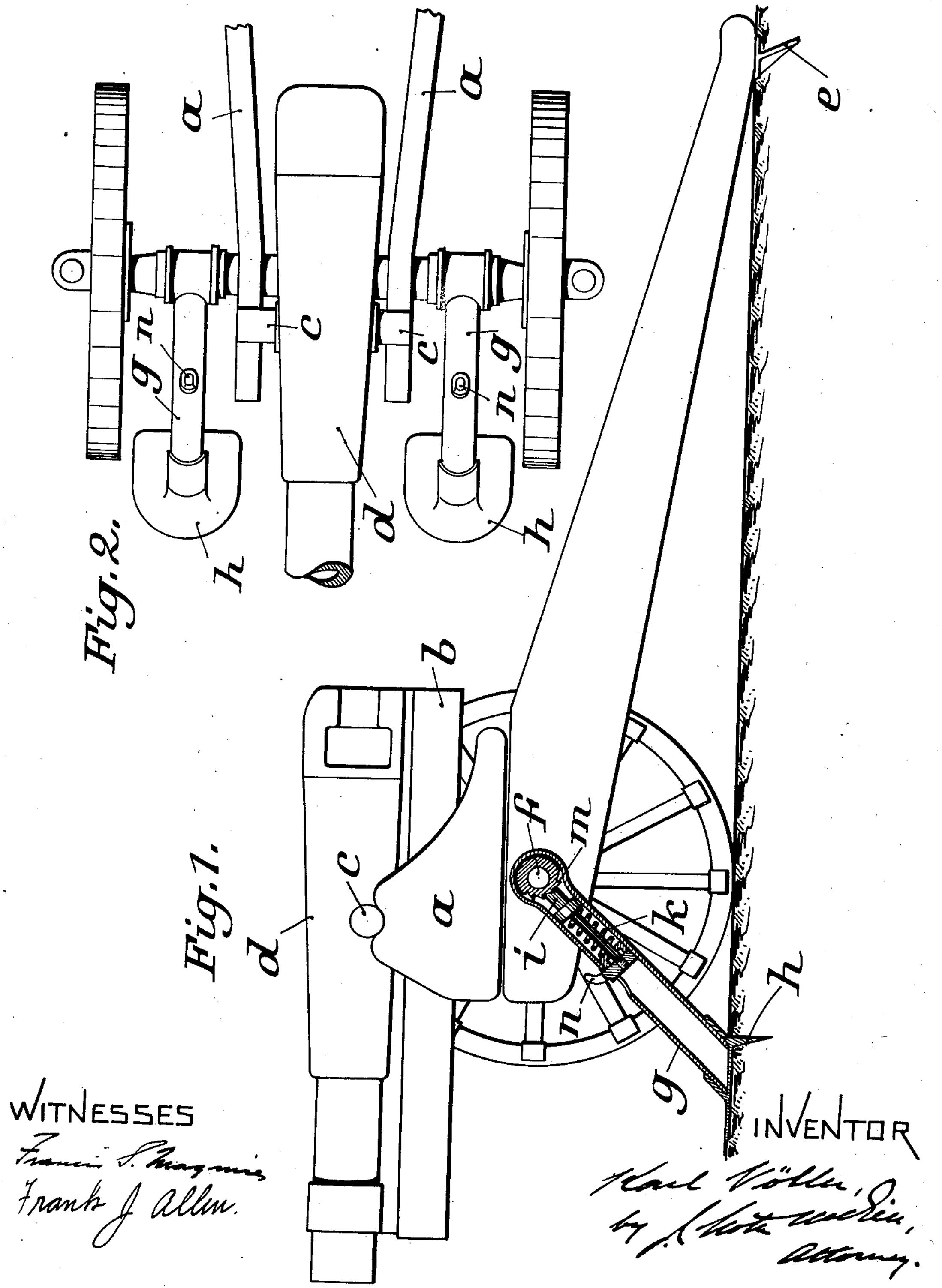
K. VÖLLER.

GUN CARRIAGE.

APPLICATION FILED APR. 4, 1911.

1,013,704.

Patented Jan. 2, 1912.



UNITED STATES PATENT OFFICE.

KARL VÖLLER, OF DUSSELDORF, GERMANY, ASSIGNOR TO RHEINISCHE METALLWAAREN- UND MASCHINENFABRIK, OF DUSSELDORF-DERENDORF, GERMANY, A CORPORATION OF GERMANY.

GUN-CARRIAGE.

1,013,704. Specification of Letters Patent. Patented Jan. 2, 1912.

Application filed April 4, 1911. Serial No. 618,910.

To all whom it may concern.

Be it known that I, KARL VÖLLER, engineer, a subject of the German Emperor, residing at 12 Scharnhorststrasse, Dusseldorf, Germany, have invented certain new and useful Improvements in Gun-Carriages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In guns having a recoiling barrel, the energy of the movement of the barrel during the recoil and the return is absorbed by a brake which exerts a reaction on the gun carriage and thus tends to move the latter in the direction of movement of the barrel. In guns of this kind which have generally been used, the reaction is in particular in a rearward direction as the concussion in the forward direction is only slight. For this reason there has only been provided a spade for preventing rearward movement of the gun carriage.

In guns of the type in which the gun is discharged at the end of the return movement of the barrel there is developed a considerable force tending to move the gun carriage in the forward direction. For the purpose of counteracting such force the gun carriage has been provided with a second spade taking effect in a direction opposite that in which the first spade is effective. This second spade has been made so that it can be folded on the gun carriage, the first spade being rigidly fixed to the carriage; the second spade is in this case only turned into its effective position when the gun is being fired and is returned to its ineffective position in order that the gun carriage may travel. Provision has been made for connecting the second spade immovably with the gun carriage during the firing so that the carriage forms part of a rigid triangle fixed in the ground at two angles by the spades. This construction has, however, an essential disadvantage. For if during firing one spade is pressed into the ground, the other spade is withdrawn from the ground, so that when the last-named spade is to come into action, the gun carriage must first be tipped about its wheel axis before it takes a firm purchase; at the same time the spade which has been driven firmly into the ground is loosened so that the carriage does not find a firm purchase.

The present invention seeks to avoid this objection. According to the invention the second spade is adapted to be folded on the carriage or on the wheel axle and between it and the carriage there is a locking device which allows the spade to turn in a downward direction about its pivot or the axle, but prevents a turning movement in the opposite direction. When the spade which is fixed to the gun carriage is pressed into the ground the pivoted spade swings downward until it again rests upon the ground. When force is exerted which tends to press the pivoted spade into the ground, the spade is prevented by the locking device from turning upward so that it works exactly like a spade fixed to the gun carriage.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

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

Figure 1 is a side elevation of a gun and its carriage fitted with the invention and Fig. 2 a plan of the gun.

The cradle *b* is mounted by trunnions *c* on the gun carriage *a*. The barrel *d* slides on the cradle which accommodates within it the recoiling and return braking mechanism. At the rear end of the carriage *a* is the rigidly fixed spade *e;* this spade may also be constructed in the known manner as a folding spade if desired.

On the wheel axle *f* are mounted to turn two arms *g* having at their free ends spades *h*. In each arm *g* is a sliding bolt *i* pressed by a spring *k* into notches *m* on the axle *n*. The notches *m* are so formed that they allow the arm *g* to turn freely downward but prevent upward movement of the arm. When the arm is to be turned upward to allow of travel of the gun carriage the bolt *i* is withdrawn from its engagement with notches *m* by pulling downward the handle *n*.

I claim as my invention:

1. In combination with a gun carriage having wheels and an axle therefor, and a spade at its rear end, a second spade pivoted to said axle and extending forwardly thereof, a fixed retaining element mounted on said axle, and means coöperating with said fixed element movable concentrically there-

to for permitting the second spade to be lowered automatically and preventing it being raised when in operative relation to said fixed element.

2. In combination with a gun carriage having wheels and an axle therefor, and a spade at its rear end, a second spade pivoted to said axle and extending forwardly thereof, a fixed retaining element on said axle, a spring impelled locking pawl movable longitudinally of said second spade for engaging said fixed element, said pawl permitting said second spade to be lowered automatically and preventing it being raised when in operative relation to said fixed element.

3. In combination with a gun carriage having a spade at its rear end, a second spade pivoted to a part of the carriage and extending forwardly of the axis thereof, and a locking device between the pivoted spade and the carriage comprising a spring pressed bolt and a fixed ratchet with which said bolt engages, said bolt being free to move relatively to said ratchet in the lowering of the spade but preventing the latter from moving in the opposite direction.

4. In combination with a gun carriage having wheels and an axle therefor, and a spade at its rear end, a second spade pivoted to said axle and extending forwardly thereof, a fixed retaining element on said axle, a spring impelled locking pawl movable longitudinally of said second spade for engaging said fixed element, said pawl permitting said second spade to be lowered automatically and preventing it being raised when in operative relation to said fixed element, and means for disengaging said pawl from said fixed element when it is desired to raise the spade.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

KARL VÖLLER.

Witnesses:
J. M. BOWCOCK,
MARTA L. THOMPSON.