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FUSE SETTING APPARATUS

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Fig.1.

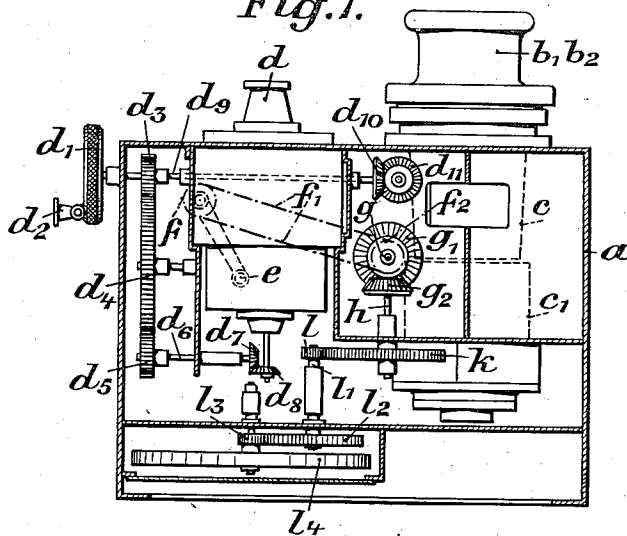
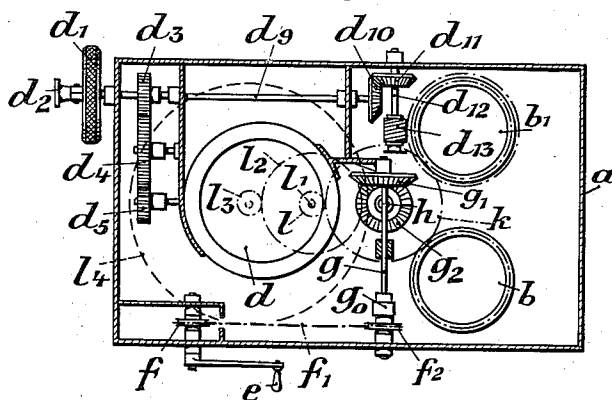


Fig.2.



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FUSE SETTING APPARATUS

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The invention relates to fuse setting apparatus of the type having an energy accumulator in the setting mechanism.

In the known type of fuse setting apparatus, the energy accumulator has consisted in a spring adapted to be tensioned by the driving crank of the apparatus, which spring sets the setting member in movement and makes the operation of the machine dependent on the actuation of the driving crank, so that the working capacity of the spring is intended to suffice for the adjustment of a plurality of fuses. Such spring mechanisms, acting as energy accumulators, have, however, the disadvantage of requiring special checking devices for regulating the running speed. Moreover, the turning moment yielded by them corresponds to the actual tension of the spring, and stronger resistances such as occur, for instance, when the adjusting ring on the fuse becomes dirty or fits too tightly, stop the machine prematurely.

A fuse setting apparatus according to the invention comprises an energy accumulator in the form of a flywheel.

In contrast to the spring mechanisms, the energy accumulator for fuse adjusting machines according to the invention in the form of a flywheel is not only at the same time a speed regulator for ensuring a uniform running of the mechanism, but higher resistances, which may, of course, also be opposed by a greater application of force on the crank, are overcome by the flywheel which in the effort to retain the velocity imparted to it gives off quite automatically a corresponding powerful driving moment.

It is advantageous to arrange a free-wheel coupling between the shaft driving the fuse setting member and the flywheel and its driving mechanism (prime mover or hand crank). This then permits the setting member and, therefore, also the flywheel to be driven in the proper direction of rotation only, but in spite of the continued running of the flywheel permits a hand-driving crank to come to a standstill as soon as the latter is no longer turned. Then, for instance, changes of position such as are often necessary with a large traverse of the gun can be carried out with the setting apparatus with the flywheel running without rotating outer parts being inconvenient or dangerous for the gun crew. Moreover, the rotating flywheel, owing to its gyroscopic action, prevents the machine, the center of gravity of which is relatively high, particularly when the projectile is inserted, from tipping

over when it is lifted on by handles to change its position.

Figs. 1 and 2 of the accompanying drawing give a diagrammatical representation of an example of construction of the fuse setting apparatus according to the invention in sectional elevation and in plan.

The box-like housing *a* of the fuse adjusting machine contains side by side two adjusting setting sockets *b*₁, *b*₂ with setting members *c*, *c*₁ disposed one over the other; at the side of the setting sockets there is fitted the lamp receiver *d* associated with an order transmitting device for giving the commanded or time values for the fuses. For the timing process the lower setting members *c*₁ are actuated by the crank *e* which turns continuously and in the same direction, the rotational movement of which is transmitted to the setting member *c*₁ through the chain drive *f*, *f*₁, *f*₂; the shaft *g*, the bevel gearing *g*₁, *g*₂, the vertical shaft *h* and the spur wheel mechanism *k*, by way of automatically controlled couplings which are not shown and which are placed in the drive to the setting members.

The parts of the lamp receiver *d* to be adjusted according to the flashing command lamps and the upper setting members *c* are driven by the crank drive *d*₁, formed as a milled wheel, to which the crank handle *d*₂ is hinged.

The rotational movements of the crank mechanism *d*₁ are transmitted by way of the spur wheels *d*₃, *d*₄, *d*₅ and the pair of bevel pinions *d*₆, *d*₇ to the pointer of the lamp receiver or by way of the shaft *d*₈, the pair of bevel pinions *d*₁₀, *d*₁₁, the shaft *d*₁₂ and worm wheels *d*₁₃ to the adjusting members *c*. The shaft *d*₁₂ is shown in section in Fig. 1; worm mechanism mounted symmetrically to *d*₁₂ on the shaft *d*₁₂ for driving the adjusting member *c* in the adjusting socket *b* not being shown.

The spur wheel *k* at the same time rotates the flywheel *l* by way of the spur wheel *l*, the vertical shaft *l*₁ and the pair of spur wheels *l*₂, *l*₃. On the shaft *g* there is provided a free-wheel coupling *g*₀.

When the rotational movement of the crank *e* ceases, the flywheel *l* takes over the driving of the setting member *c*₁, by way of the pair of spur wheels *l*₃, *l*₂, the vertical shaft *l*₁, and the pair of spur wheels *l*, *k*. The flywheel is of such dimensions that the energy accumulated therein is sufficient for the timing of four to seven fuses, so that the timing of fuses is possible even with large changes in position of the machine, that is to say long interruption of the rotation of the

crank and is completed on the inserted projectiles during the change of position.

I claim:—

5 1. In a fuse setting apparatus, a setting mechanism, an energy accumulator in form of a flywheel, a shaft driving said setting mechanism and said flywheel, a driving mechanism for said shaft and a free running coupling arranged between said shaft and its driving mechanism.

2. In a fuse setting apparatus, a setting mechanism, an energy accumulator in form of a flywheel, a shaft driving said setting mechanism and said flywheel, a driving mechanism for said shaft, consisting of a hand crank and a free running coupling arranged between said shaft and said crank.

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