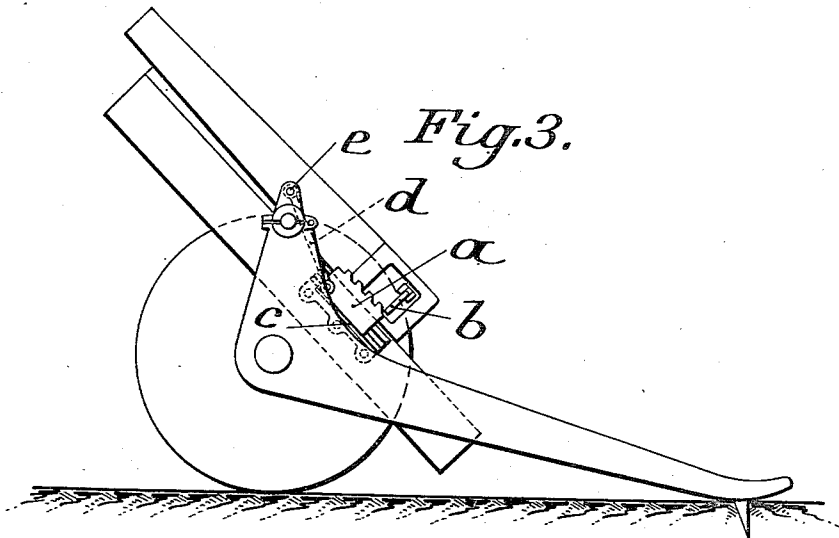
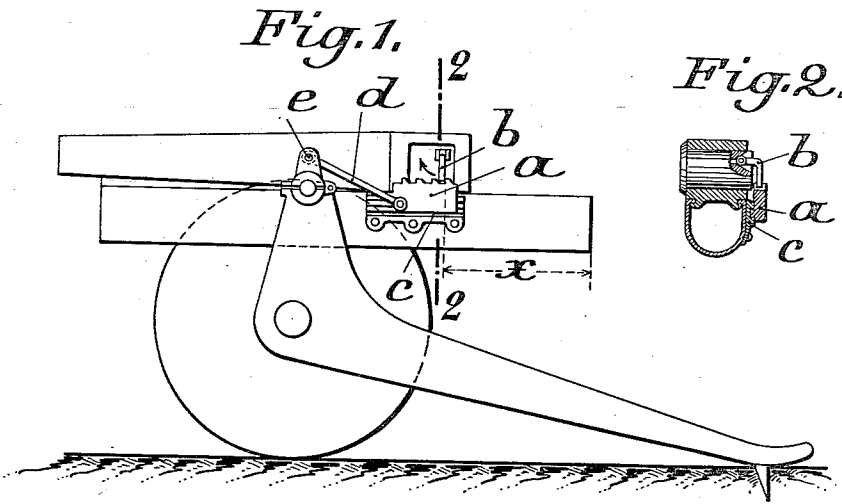


E. MÜLLER.  
 FIRING DEVICE FOR GUNS WITH DIFFERENTIAL RECOILS.  
 APPLICATION FILED MAY 26, 1911.

1,026,597.

Patented May 14, 1912.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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FIRING DEVICE FOR GUNS WITH DIFFERENTIAL RECOILS.

1,026,597.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed May 25, 1911. Serial No. 629,403.

To all whom it may concern:

Be it known that I, EMIL MÜLLER, engi-  
neer, a subject of the German Emperor, re-  
siding at 83 Collenbachstrasse, Dusseldorf,  
5 Germany, have invented certain new and  
useful Improvements in Firing Devices for  
Guns with Differential Recoils; and I do  
hereby declare the following to be a full,  
clear, and exact description of the invention,  
10 such as will enable others skilled in the art  
to which it appertains to make and use the  
same.

Guns with differential recoil are generally  
fired by the trigger lever coming into con-  
15 tact with a fixed stop shortly before the end  
of the run out motion; the trigger lever is  
consequently operated and the charge is  
fired. Should a mis-fire occur the energy  
of the running out movement is not ab-  
20 sorbed by the recoil of the gun after firing  
but the gun is urged with great force by the  
spring or air accumulators to the end of its  
path and may very possibly be forced out  
of its direction. The trigger must then be  
25 released a second or third time by hand  
until at last the charge is fired. The whole  
energy of the recoil must then be absorbed  
in the comparatively short recoil stroke ar-  
ranged for guns with differential recoil,  
30 since the running out movement is finished  
and consequently the force due to the recoil  
will be twice as great as if the charge were  
fired during the run out. The present in-  
vention avoids this drawback by an arrange-  
35 ment in which the members which bring  
about the automatic firing are so constructed  
that the trigger lever is repeatedly operated  
during the course of the run out.

A constructional form of the invention is  
40 represented in the accompanying drawings  
in which—

Figure 1 is a side view of the gun in a  
horizontal position, Fig. 2 is a section across  
the line 2—2 of Fig. 1, Fig. 3 represents the  
45 gun with the barrel in an inclined position.

The fixed piece *a*, encountered by the  
trigger lever *b* during the running out move-  
ment is provided according to the invention  
with several teeth or projections which  
50 cause the trigger lever *b* to be operated sev-  
eral times in quick succession during the  
forward movement, so that it is possible  
and probable that an effective firing will

occur, even if a mis-fire has occurred the  
first time. The trigger lever is so arranged 55  
that it is drawn back during the forward  
movement by the teeth of the fixed piece *a*;  
while during the recoil it can be displaced  
by a certain angle in the direction of the  
arrow shown in Fig. 1, so as to avoid the 60  
projections of the piece *a*. The arrange-  
ment can obviously be altered so that there  
are several teeth on the trigger lever and  
only one on the fixed support.

In the constructional form shown the fir- 65  
ing support *a* is adapted to be automatically  
displaced so that as the elevation is in-  
creased the course traversed before the fir-  
ing position is reached will be increased, in  
order to prevent the longer recoil of the gun, 70  
due to its greater elevation, from running  
the gun beyond the cradle. For this pur-  
pose the firing support *a* can slide in guides  
*c* in the cradle and is linked through a con-  
necting rod *d* with a point *e* of the carriage 75  
situated above the trunnions. By this de-  
vice the firing support *a* is drawn farther  
forward on the cradle as the gun is ele-  
vated, so that the distance the gun is run  
out before it reached the firing position is 80  
automatically increased.

I claim as my invention:

1. A firing device for differential recoil  
guns comprising, in combination with a bar-  
rel, a trigger lever, and means coöperating 85  
with the trigger lever for repeatedly operat-  
ing it during the run out of the barrel.

2. A firing device for differential recoil  
guns comprising, in combination with a bar-  
rel, a trigger lever, and a series of teeth for 90  
operating the trigger lever during the run  
out of the barrel.

3. A firing device for differential recoil  
guns comprising, in combination with a bar-  
rel, a trigger lever, and a plate for coöperat- 95  
ing with said trigger lever and having  
means for operating it several times during  
the run out movement of the barrel, and  
means for automatically displacing said  
plate relatively to the barrel according to 100  
the elevation of the latter.

4. In combination with a barrel, the cradle  
therefor, and means pivotally supporting  
the cradle, of a trigger lever carried by the  
barrel, a plate slidably mounted on the cradle 105  
and having a series of teeth with which the

trigger lever is designed to engage on the  
run out of the barrel, and a link pivotally  
connecting said plate and the cradle sup-  
port at a point above the pivot of the cradle  
5 for automatically changing the position of  
the plate when the barrel and cradle are ele-  
vated.

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

EMIL MÜLLER. [L. s.]

Witnesses:

ALBERT F. KEEFER,  
HEDWIG HEÜNICKEN.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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