

(No Model.)

F. MOHR.
RECOIL CHECK FOR WHEELED GUN CARRIAGES.
No. 512,120.
Patented Jan. 2, 1894.

FIG. I.

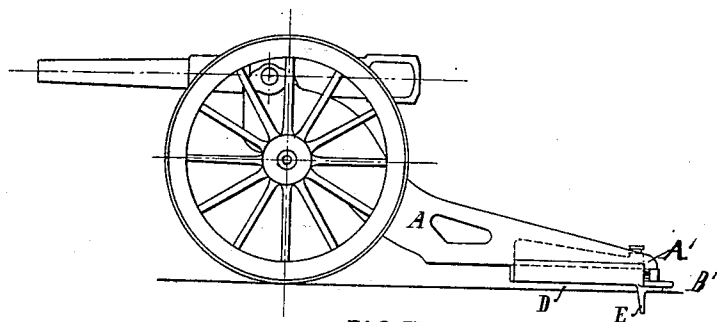


FIG. II.

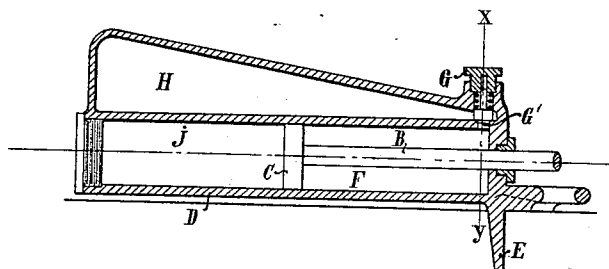
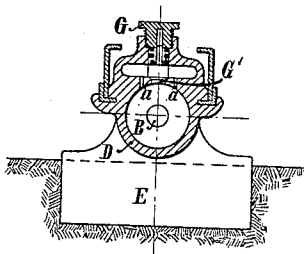


FIG. III.



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UNITED STATES PATENT OFFICE.

FREDERIK MOHR, OF MAGDEBURG-BUCKAU, GERMANY, ASSIGNOR TO THE GRUSONWERK, OF SAME PLACE.

RECOIL-CHECK FOR WHEELED GUN-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 512,120, dated January 2, 1894.

Application filed October 5, 1892. Serial No. 447,893. (No model.) Patented in Belgium May 12, 1892, No. 99,654.

To all whom it may concern:

Be it known that I, FREDERIK MOHR, a subject of the King of Denmark, and a resident of Magdeburg-Buckau, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Gun-Carriages, (for which I have obtained Letters Patent in Belgium, No. 99,654, dated May 12, 1892,) of which the following is a specification.

My invention relates to improvements in wheeled gun-carriages.

The object of my invention is to shorten the recoil as much as is practicable, and to enable the operation of running out to be performed automatically with but slight strain of the material of the gun-carriage. According to my said invention I arrange a recoil-brake on the trail of the gun-carriage, part of which brake is held by a spur driven into the ground. The said brake is hydraulic and may be constructed in any desired manner. It may for instance comprise a cylinder which is filled with glycerine and in which a perforated brake-piston moves during the firing.

In order that my said invention may be clearly understood I will now proceed to describe the same with reference to the accompanying drawings by way of example, in which—

Figure I is a side elevation of a gun provided with a press which accumulates the power of the recoil and utilizes the same for the running out of the gun. Fig. II is a longitudinal central section through the end of the trail, and Fig. III is a transverse section of the press or brake on the line *xy* of Fig. II.

Like letters of reference indicate corresponding parts throughout the drawings.

A is the trail of the gun carriage.

B is the rod by which the trail is connected with the piston C of a press or brake, through the medium of the enlargements A' and B' on the trail and rod respectively.

D is the cylinder provided with a spur E which is driven into the ground and holds the cylinder upon the same.

The space F behind the piston is filled with liquid.

G is a spring-loaded valve controlling an

aperture G' by which the portion F of the cylinder D communicates with an air vessel H cast on the said brake cylinder, into which air-vessel the liquid is forced during the recoil, and at which time it lifts the said valve and passes through the aperture G', and through other apertures *a* also connecting the cylinder space F with the vessel H and hereinafter referred to more particularly, so that the pressure of the air in the said vessel increases. If the forward end of the cylinder D be closed by a cover a vacuum will be produced, during the recoil, in the space J in front of the piston C. The said apertures *a* may, as shown, be unprovided with valves, and of such a size that they offer sufficient resistance to the liquid forced into the air vessel by the movement of the piston; or there may be an aperture or apertures provided with a valve or valves opening toward the space F so as to close during the recoil and open during the running out of the gun. After the termination of the recoil the air under pressure in the air vessel forces the liquid through the apertures *a* back into the brake cylinder, whereby the piston C is compelled to move forward and to run the gun out. The liquid in returning from the air vessel H through the small apertures *a* into the space F controls the movement of the piston C so that the gun will return gently to the firing position. The resistance of the press or brake is preferably such that the momentum of the force tending to cause the jumping of the gun about the spur is just balanced by the weight of the gun and carriage. Thus the entire weight of the gun and carriage is thrown upon the trail, the wheels being completely relieved; therefore a brake acting upon the latter during the firing would be superfluous. During the running out the weight is again distributed between the wheels and the trail of the gun-carriage. The force tending to counteract the jumping of the gun about the spur diminishes toward the termination of the recoil movement because the center of gravity approaches the spur E. Therefore the press or brake must be so arranged that its resistance gradually diminishes during the recoil. This object is easily effected by the appropriate arrangement of the valve G.

As compared with those guns in which only the gun proper or that and part of the gun-carriage, is put under the control of the brake this invention possesses the advantage that in consequence of the greater matter to be set in motion the length of the recoil is shortened without increasing the tendency of the gun to jump or subjecting the gun-carriage to excessive stresses. As compared with those guns the recoil of which is under the control of ordinary hydraulic brakes, it has the advantages that the gun is run out automatically without the use of inclined planes to the firing position, and that the brake apparatus constitutes part of the gun-carriage which does not require to be specially fixed in the ground.

Having now particularly described my invention, what I claim is—

1. A recoil press or brake for gun-carriages, consisting of a suitable press having a spur, to be driven into the ground, projecting from the side of the press-cylinder, and a piston having a rod passing through one end of the cylinder and connected with the trail, whereby the gun and carriage will have a limited recoil for the purpose specified.

2. A wheeled gun-carriage having mounted on its trail a recoil press or brake constructed with a spur to be driven into the ground and with a closed air vessel communicating with the press, for the purpose specified.

3. The combination of a wheeled gun-carriage, having a trail, and a recoil press slidably mounted on said trail, having means for fixing it to the ground and having its piston connected with said trail, substantially in the manner and for the purpose set forth.

4. The combination of the trail of a wheeled gun-carriage and a recoil press located thereon and having means for engaging the ground at or near the extremity of said trail, substantially as set forth.

5. In a brake for wheeled gun-carriages the combination of the cylinder, having a piston connection with the carriage, and a reservoir or chamber in communication with one end of the cylinder for storing power of compression when the recoil takes place, said brake having a spur for fixing it upon the ground, all substantially as set forth.

6. In a brake for wheeled gun-carriages, the combination of a compression cylinder having a piston connection with the gun-carriage, a storage chamber having communication with the compression cylinder and an adjustably-loaded valve controlling said opening whereby the resistance of the brake may be regulated according to the weight of the gun, substantially as and for the purpose set forth.

7. In a brake for gun-carriages, the combination of a closed compression cylinder having a piston-connection with the carriage, and a storage chamber having a valved port for establishing free communication with the cylinder behind the piston, during recoil, and also having a supplemental restricted opening between the cylinder and chamber forming a by pass around the valve to permit the power of compression to be returned gradually for running out the gun, all substantially as set forth.

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Witnesses:

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