No. 691,913. Patented Jan. 28, 1902.

S. N. McCLEAN.

RECOIL CHECK FOR GUNS.

(Application filed May 15, 1900.)

(No Model.)

Fig. 1.

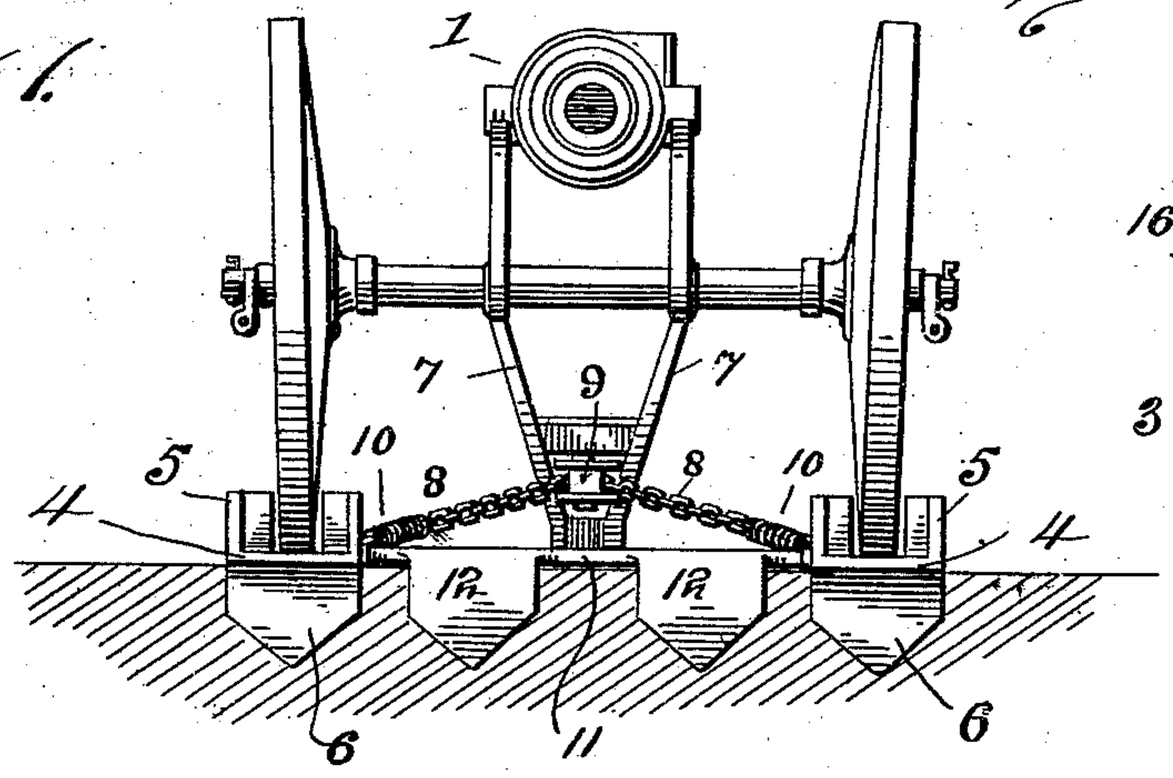


Fig. 4.

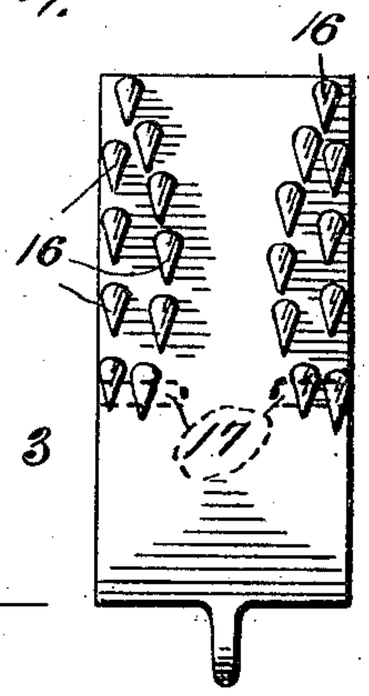


Fig. 2.

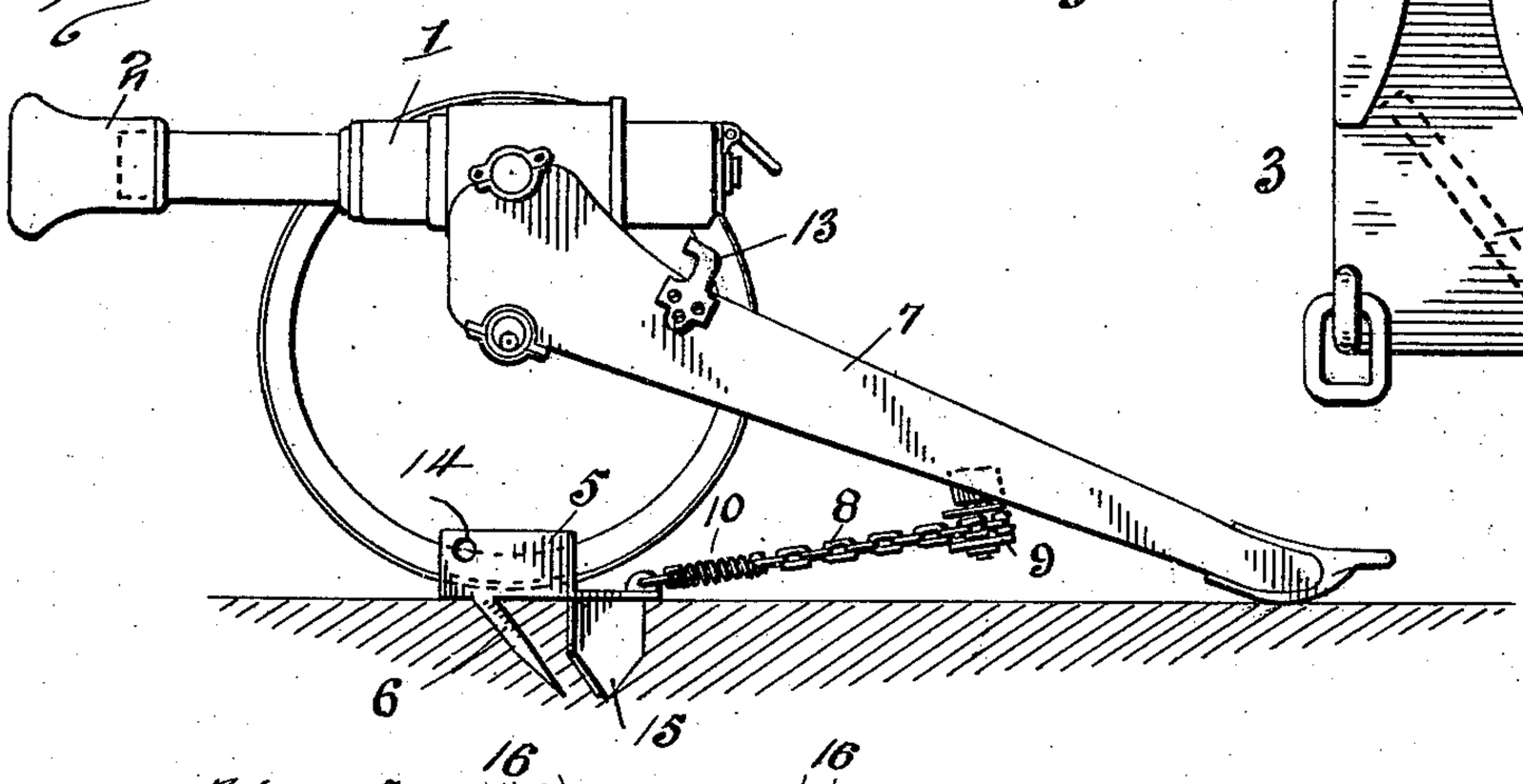


Fig. 3.

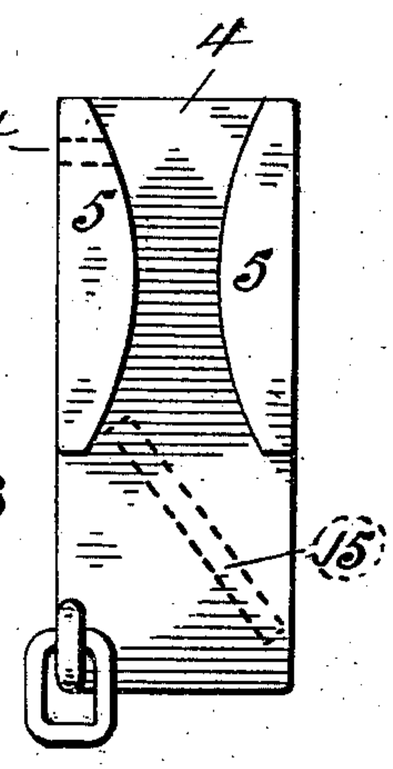
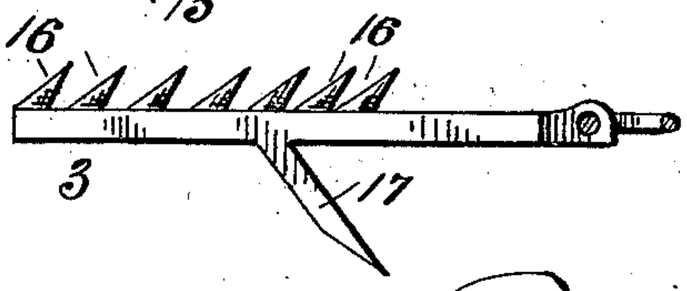


Fig. 5.



WITNESSES

Charles K. Davies.

Wm. B. Forham.

INVENTOR

Samuel N. McClean.

by S. J. Cameron

his Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL N. McCLEAN, OF CLEVELAND, OHIO.

RECOIL-CHECK FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 691,913, dated January 28, 1902.

Application filed May 15, 1900. Serial No. 16,793. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL N. McCLEAN, a resident of Cleveland, Ohio, have invented a new and useful Improvement in Recoil-Checks for Guns, which invention is fully set forth in the following specification.

My invention relates to guns, and more particularly to means for controlling the recoil and jumping action of the gun and mount under the shock of discharge. Heretofore in certain classes of gun-mounts, of which a field gun-carriage may be taken as an example, resistance to the recoil has been applied at a point below and to the rear of the gun, with the result that the gun has had a tendency to turn about said point of resistance in a vertical plane, thereby suddenly elevating the muzzle of the gun or causing it to "jump." Thus in field-carriages the lower end of the tailpiece has been provided with a spade, which by reason of its engagement with the ground tended to resist the recoil of the gun and carriage; but under the shock of discharge this spade would frequently fail to hold the gun against recoil, while still offering resistance enough to cause a jump of the gun, which forbade accurate gunnery. Unsuccessful efforts have been made to overcome these defects by providing a spade to enter the ground centrally between the wheels of the carriage and pivoting the gun on a vertical pivot secured to the spade, while the tailpiece is attached to the spade by a chain.

The object of the present invention is to provide means whereby the rearward recoil of the gun shall be resisted in such a manner that the strain due to the recoil shall act in a line substantially parallel with the axis of the gun and snugly and firmly hold the gun down in battery position.

With this object in view the invention consists in means placed below the gun and mount (and supporting the weight thereof) and engaging the ground or gun-platform and a connection between the said means and the mount, said connection serving to transmit the force of recoil to said means.

More specifically stated, the invention consists in a shoe or shoes having a spade attached thereto, whereby engagement between the shoe and the ground or gun-platform is secured, a gun-mount resting in and supported by said shoe or shoes, and suitable connections between the said mount and the shoe or shoes for transmitting the strain of recoil to said shoes. Where the shoes are designed for field-carriages, they are preferably provided with side flanges so arranged that when the wheels of the carriage are resting between said flanges the carriage may be given the turning movements involved in training the gun without removing the wheels from the shoes or changing the position of the latter. The connection between the shoes and the carriage is in the form of a chain, rod, or hawser attached to the shoes and connected to the tailpiece, preferably with a spring-section introduced therein.

The inventive idea involved may receive various mechanical expressions, one of which I have illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a gun-carriage, in position on the shoes, whose spades are shown inserted into the ground. Fig. 2 is a side elevation of Fig. 1 with one of the wheels removed, and Fig. 3 is a plan view of one of the shoes. Fig. 4 is a plan, and Fig. 5 a side elevation, of a modified form of shoe,

Referring to the drawings, 1 represents a gun preferably provided with a gas-current-controlling attachment 2 of my invention, which controls or neutralizes any required portion of the recoil and to which the devices herein described are auxiliary. The shoe 3 is in the form of an extended plate 4, preferably having upwardly-projecting side flanges 5 5, whose inner faces are formed on reversed curves, while a spade 6 projects downward from the lower face of the plate 4, preferably with a rearward inclination of from twenty-five degrees to forty-five degrees from the perpendicular, as shown in Fig. 2. For the purpose of resisting side strains the shoe is preferably provided with an oblique spade 15, as shown in side elevation in Fig. 2 and in dotted lines in Fig. 3. Each of the shoes is connected to the tailpiece or trail 7 of the carriage, the connections from the separate shoes being wholly independent of each other, or, as shown in Figs. 1 and 2, consisting of a chain or like device 8, extending from one

shoe rearward to a pulley 9 on the trail or tailpiece 7 and around said pulley to the other shoe. In most cases it is found desirable to interpose an elastic link or member between the shoe and the gun-mount, and this may be accomplished either by means of a spring-section 10 in the chain 8 or by mounting the pulley 9 yieldingly between the plates of the tailpiece. The point where the chain 8 or the pulley 9 is secured to the trail is usually about one-half the distance from the axle of the gun-carriage to the extremity of the trail, though it may, if desired, be fixed slightly nearer the said extremity than the axle, as shown in Fig. 2. As usually employed, a shoe is placed under each wheel of a gun or carriage, whose weight thereby serves to hold the spades firmly in the ground, and when thus firmly retained the two spades offer sufficient resistance to the recoil to effectually control the same. In some cases, however, I connect the two shoes by a cross-bar 11, extending near the surface of the ground between the shoes, and attach additional spades 12 12 thereto, thereby obtaining an exceedingly firm anchorage. For the purpose of supporting the shoes on the carriage during travel a pin or hook 13 is provided on each side of the trail, and on these the shoes are hung by means of a hole or perforation 14, formed for this purpose in one of the flanges 5.

The operation of the device is as follows: The shoe-spades having been driven into the ground and the wheels of the carriage placed on the shoes, as shown in Figs. 1 and 2, the gun is fired, and such portion of the recoil as it is not deemed desirable to counteract or neutralize by means of the gas-current-controlling device 2 is transmitted through the chain 8 to the spades, which are held firmly in position in the ground by the weight of the gun and carriage. The tendency of the force of recoil is to move the carriage directly rearward, and this tendency is resisted by the spades, whose line of resistance is practically parallel with the surface of the ground. The gun now has little or no tendency to jump, since the strain due to the recoil is applied in a direction tending to hold the gun firmly down on the ground rather than elevate or lift it.

In Figs. 4 and 5 I have shown a modified form of shoe in which the side flanges are composed of a series of short sharp-pointed rearwardly-inclined teeth 16, and the spade corresponding to spade 6 of Figs. 1 and 2 is bifurcated, the two sections 17 17 (see dotted lines, Fig. 4) being spaced or separated. Should the ground be of such a character that the spade-sections 17 17 could not be inserted therein, the shoe could be reversed and the short sharp teeth 16 would take hold where the spade would not. In this case the wheels would rest between the sections 17 17 of the reversed shoe.

Having thus described my invention, I claim—

1. The combination of a pair of shoes arranged on opposite sides of the gun and provided with spades, the carriage resting upon and supported by the shoes, and a connection between the shoes and carriage.

2. The combination of a pair of shoes arranged on opposite sides of the gun and provided with means for engaging the earth or gun-platform, with a gun-carriage resting upon said shoes and means connecting the shoes to the carriage at a point to the rear of the shoes.

3. The combination with a pair of shoes arranged on opposite sides of the gun and provided with means for engaging the earth or gun-platform, with a gun-carriage resting upon said shoes, and elastic connections between said shoes and the gun-carriage.

4. The combination with a pair of shoes arranged on opposite sides of the gun and provided with means for engaging the earth or gun-platform, of a gun-carriage resting upon said shoes, and a connection between said shoes and extending around a bearing on the gun-carriage to the rear of the shoes.

5. The combination of a pair of shoes arranged on opposite sides of the gun and provided with means engaging the ground or gun-platform, with a carriage resting upon said shoes and means holding the carriage in contact with the shoes when the gun is fired.

6. The combination of a pair of shoes provided with means engaging the ground or gun-platform, and a carriage resting upon said shoes, a pulley on the trail of the carriage, and a flexible connection between the shoes and passing around the pulley.

7. The combination of a pair of shoes arranged on opposite sides of the gun and provided with means engaging the ground or gun-platform, a carriage resting on said shoes and a rigid connection between said shoes, said connection being also provided with means engaging the ground or gun-platform.

8. In a device of the character described, a shoe composed of a plate having a downward projection to engage the ground or gun-platform and upwardly-projecting side flanges.

9. In a device of the character described, a shoe comprising a plate having a spade extending transversely across the same and a spade arranged obliquely to said transverse spade.

10. In a device of the character described, a shoe having upwardly-projecting side flanges with reversely-curved interior faces.

11. The combination of a pair of shoes having downwardly-projecting spades and upwardly-projecting side flanges, with a gun-carriage having its wheels resting on said shoes and a connection extending from each shoe to the trail of the carriage and attached to said trail at or below the longitudinal center thereof.

12. The combination of a pair of shoes having downwardly-projecting transverse and oblique spades and upwardly-projecting side

flanges with reversely-curved interior faces, with a gun-carriage whose wheels rest in said shoes between said flanges, a pulley on the trail of the carriage at or below the longitudinal center thereof, and a connection extending between the shoes and passing over the pulley.

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

SAMUEL N. McCLEAN.

Witnesses:
S. T. CAMERON,
WM. B. KERKAM.