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3 SHEETS—SHEET 1.



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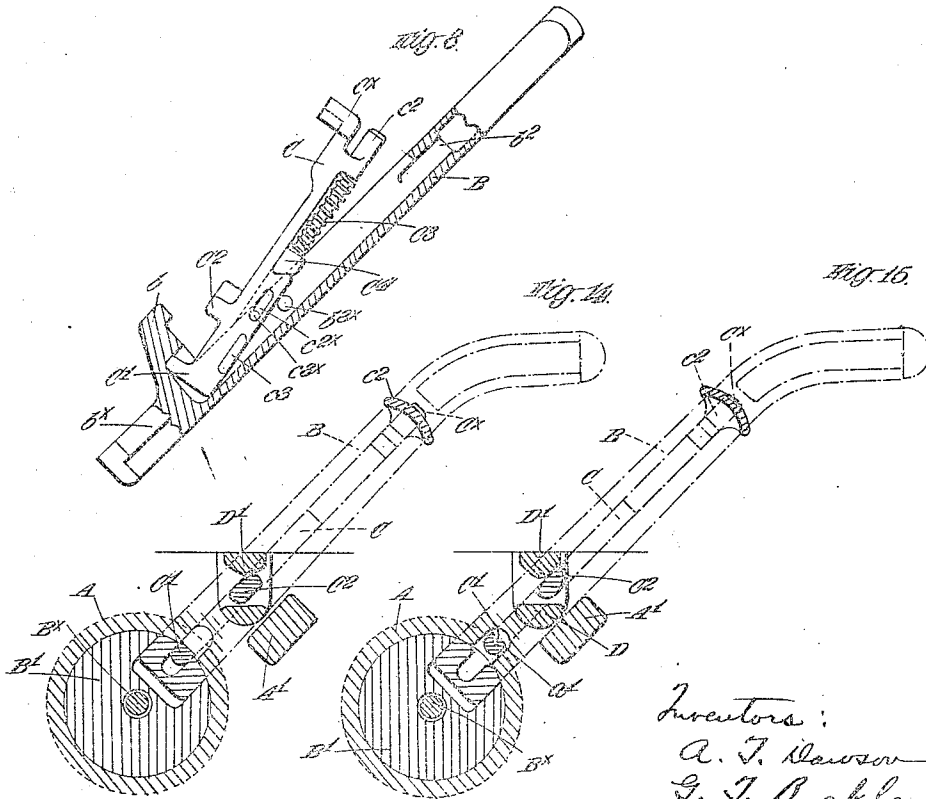
3 SHEETS—SHEET 2.

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BREECH MECHANISM OF ORDNANCE.

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1,337,004.



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UNITED STATES PATENT OFFICE.

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BREECH MECHANISM OF ORDNANCE.

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Specification of Letters Patent.

Patented Apr. 13, 1920.

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To all whom it may concern:

Be it known that we, Sir ARTHUR TREVOR DAWSON, knight, and Sir GEORGE THOMAS BUCKHAM, knight, both subjects of the
5 King of Great Britain, residing at Vickers House, Broadway, Westminster, in the county of London, England, have invented certain new and useful Improvements in or
10 Relating to the Breech Mechanism of Ordnance, of which the following is a specification.

This invention relates to ordnance breech mechanism of the swinging breech-screw carrier type.

15 According to the invention we provide means whereby in the event of the breech actuating handlever, when it comes forcibly against the usual stop at the completion of the locking movement of the breech screw,
20 commencing to rebound so as to unintentionally unlock or partly unlock the breech screw, will be automatically restrained and returned into contact with and held against the said stop. The said means preferably
25 comprise a spring controlled catch which is carried by the handlever and which, when the latter is about to strike the stop, comes into contact with a projection on the carrier and is thereby caused positively to assume
30 such a position in relation to a second projection on the carrier that when the handlever strikes its stop and attempts to rebound, it is returned into contact with the stop by the coöperation of an inclined surface
35 on the catch with a corresponding surface on the said second projection, this coöperation taking place under the influence of the spring of the catch. The catch may have a toe piece which, when the handlever
40 lies against the stop, is disposed in a slot in the carrier, and which during the opening and closing movements of the handlever travels in contact with the wall of the hole in which the actuating shaft is disposed.
45 In this manner the catch is retained in its depressed or inoperative position until the handlever approaches its stop and the toe piece becomes free to reënter the slot in the carrier, whereupon the catch is positively
50 moved as above described to prevent rebound. The handlever may be detachably connected to its shaft by a key and keyway contrivance and may be so formed as to retain the actuating shaft in position in the

carrier; the handlever may for example 55 have a hook-shaped projection normally engaging in a groove in the carrier.

In order that the said invention may be clearly understood and readily carried into effect we will describe the same more fully 60 with reference to the accompanying drawings, in which:—

Figure 1 is a rear elevation of the breech end of a gun showing the breech actuating handlever provided with a constructional 65 form of the aforesaid spring catch and its associated parts and also showing the means for detachably connecting the handlever to its actuating shaft and the means for retaining the actuating shaft in position in 70 the carrier.

Fig. 2 is a side elevation of Fig. 1 with part thereof in section on the line 2, 2 of Fig. 5.

Fig. 3 is a side elevation of the handlever 75 and its associated parts.

Fig. 4 is a section taken approximately on the line 4, 4 of Fig. 3.

Fig. 5 is a section taken approximately 80 on the line 5, 5 of Fig. 3.

Figs. 6 and 7 are views similar to Fig. 5 (with the handlever broken away) showing the handlever and its shaft in different positions during dismantling.

Fig. 8 is a sectional view of the handlever 85 to illustrate how the catch is removed therefrom, and

Figs. 9 to 15 are sectional side elevations showing the handlever and its catch in different positions hereinafter referred to. 90

A is part of the carrier and A' the handlever stop thereon. B is the breech actuating handlever, *b* is the hook-shaped projection thereon engaging in a groove *a* in the carrier and B' is the shaft to which this 95 lever is connected. C is the catch carried by the breech actuating handlever B and C' is the toe-piece thereon which is disposed in a slot *a'* in the carrier when the handlever lies against the stop A'. D, D' are the projections on the carrier with which a part C² of the catch C engages. 100

The inner portion of the handlever B is formed with longitudinal fins *b**, *b** engaging in grooves *b'**, *b'** in the outer end of 105 the shaft B', and a retaining screw B^{*} is provided for preventing unintentional sliding movement of the handlever from occur-

ring. To dismantle the handlever and the shaft, the retaining screw B^* is removed and the handlever is slid until the hook-shaped projection b thereon is free of its groove a in the carrier as shown by Fig. 6. The handlever and the actuating shaft can then be withdrawn from the carrier (see Fig. 7) and if it is desired to remove the handlever from the shaft this can be effected by merely sliding the handlever until its fins b^* , b^* are clear of the grooves b^* , b^* in the outer end of the shaft.

The aforesaid catch C is detachably held in position in the handlever B by an extension c^2 on its outer end entering a recess b^2 (Fig. 8) in the outer end of the handlever and by a key-piece c^3 on its inner end engaging in a recess in the handlever. The spring C^3 of the catch bears at its outer end against the catch and at its inner end against a block C^4 which is connected to the handlever, for example by a detachable transverse pin c^4 (Figs. 2 and 5) passing through a hole b^{3*} in the handlever, a slot c^{2*} in the catch and a hole c^{3*} in the block. By removing this pin, the catch can be slid inward until the extension c^2 and the key-piece c^3 on the catch become disengaged from the handlever, whereupon the catch together with its spring can be removed as a single unit by a bodily transverse movement through a slot or gap in the handlever, as shown by Fig. 8.

When the handlever B is approaching the locked position as shown by Fig. 12 and is about to come forcibly against the stop A' , the part C^2 of the catch C strikes against the projection D and the catch is thereby positively displaced into the position shown by Fig. 13. When the handlever then strikes the stop A' and attempts to rebound as shown by Fig. 14, it is returned into contact with the stop (see Fig. 15) by the inclined surface on the part C^2 cooperating with a corresponding surface on the projection D' , under the influence of the spring C^3 , the toe-piece C' then entering into the slot a' in the carrier.

When it is desired to open the breech, the catch C is moved, by downward pressure of the operator's hand against a lateral projection C^* at the outer end thereof, into the position shown in Fig. 9 to bring the toe-piece C' clear of its slot a' , this movement of the catch taking place against the resistance of the spring C^3 . The handlever is then moved away from the stop A' , the operator continuing to exert downward pressure on the lateral projection C^* of the catch to bring the part C^2 clear of the projection D' (see Fig. 10). When the part C^2 is fully clear of the projection D' as shown by Fig. 11, the toe-piece C' will have moved away from the slot a' in the carrier and the downward pressure of the operator's hand on the lateral projection C^* need then no longer be

exerted as the catch is held in its disengaged position by contact of the toe-piece C' with the wall of the hole in which the shaft B' is disposed. The said toe-piece travels in contact with this wall until the handlever resumes its position against the stop A' as hereinbefore described.

What we claim and desire to secure by Letters Patent of the United States is:—

1. The combination with a breech loading gun, of a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop, and means cooperating with the second stop to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to return and hold said lever against the first stop.

2. The combination with a breech loading gun, of a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop, and means carried by the lever cooperating with the second stop to initially restrain rebounding of the lever as a result of the latter coming forcibly in contact with the first stop and thereafter to return and hold said lever against the first stop.

3. The combination with a breech loading gun, of a carrier, a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop located on the carrier, and means cooperating with the stop on the carrier to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to restrain and hold said lever against the first stop.

4. The combination with a breech loading gun, of a carrier, a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop located on the carrier, and means carried by the handlever cooperating with the stop on the carrier to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to return and hold said lever against the first stop.

5. The combination with a breech loading gun, of a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop having an inclined surface, and a spring actuated member cooperating with said inclined surface to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to return and hold said lever against the first stop.

6. The combination with a breech loading gun, of a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop having an inclined surface, and a spring actuated member car-

ried by the lever coöperating with said inclined surface to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to return and hold said lever against the first stop.

7. The combination with a breech loading gun, of a carrier, a breech actuating hand lever, a stop for limiting locking movement of the lever, a second stop on the carrier having an inclined surface, and a spring actuated member coöperating with said inclined surface to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to return and hold said lever against the first stop.

8. The combination with a breech loading gun, of a breech actuating handlever, a stop for limiting locking movement of the lever, a second stop, a spring actuated catch carried by the lever and adapted to coöperate with the second stop to initially restrain rebounding of the lever as a result of the latter coming forcibly into contact with the first stop and thereafter to restrain and hold said lever against the first stop, means normally holding said catch in retracted position during opening and closing movements of the handlever, and means for releasing the catch for coöperation with the second stop upon predetermined closing movement of the handlever.

9. The combination with a breech loading gun, of a carrier, a breech actuating handlever, a stop for limiting locking movement of the handlever, a second stop, a spring actuated catch carried by the lever and adapted to coöperate with the second stop to initially restrain rebounding of the

lever as a result of the latter coming forcibly into contact with the first stop and thereafter to return and hold said lever against the first stop, and a toe on the catch interlocked with the carrier during opening and closing movements of the handlever to hold said catch in retracted position and released from engagement with the carrier upon predetermined movement of the handlever to permit said catch to move into co-operative engagement with the second stop.

10. The combination with a breech loading gun, of a carrier, a breech operating shaft rotatably and detachably supported by the carrier, and a handlever carried by the shaft and interlocked with the carrier whereby the breech operating shaft is held in position on the carrier by the handlever.

11. The combination with a breech loading gun, of a carrier, a breech operating shaft rotatably and detachably supported by the carrier, and a handlever carried by the shaft and interlocked with the carrier whereby the breech operating shaft is held in position on the carrier by the handlever, said handlever being disengageable from the carrier by movement transversely of and relative to the shaft.

12. The combination with a breech loading gun, of a carrier, a breech operating shaft rotatably and detachably supported by the carrier, a handlever carried by the shaft, and a hook-shaped lateral projection on the lever engaged in a groove on the carrier whereby the breech operating shaft is held in position on the carrier by the handlever.

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