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No. 681,021. Patented Aug. 20, 1901.

C. H. GRIFFITH.

BREECH LOADING CANNON.

(Application filed May 9, 1901.)

(No Model.) 4 Sheets—Sheet 1.

Fig 1.

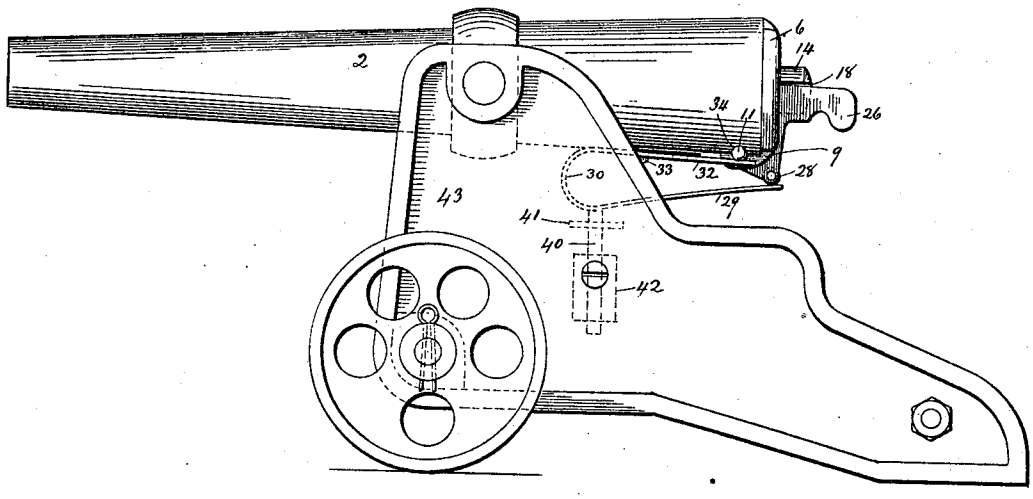
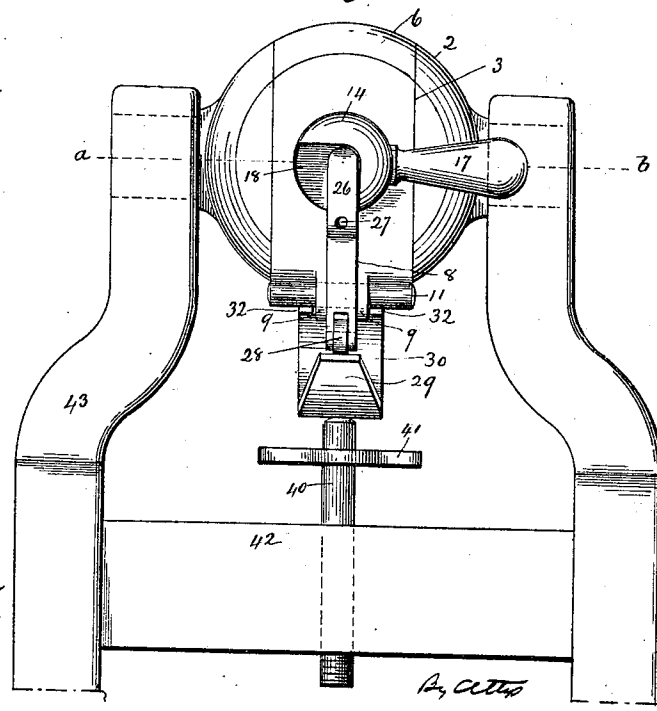


Fig 2.



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Fig 3

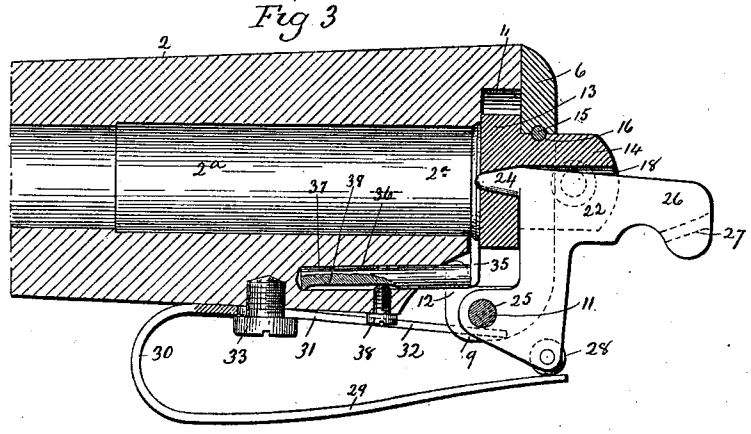


Fig 4

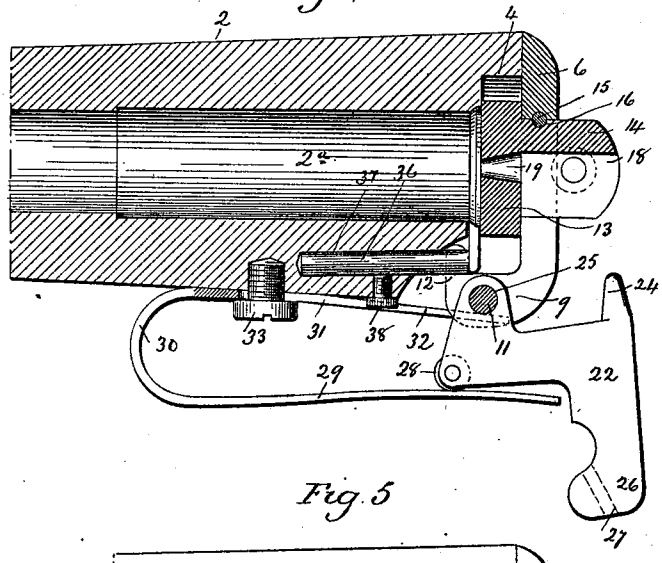
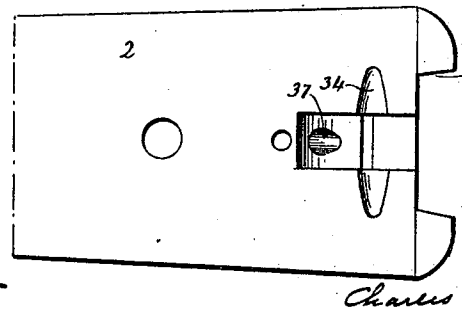


Fig 5



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Fig 6

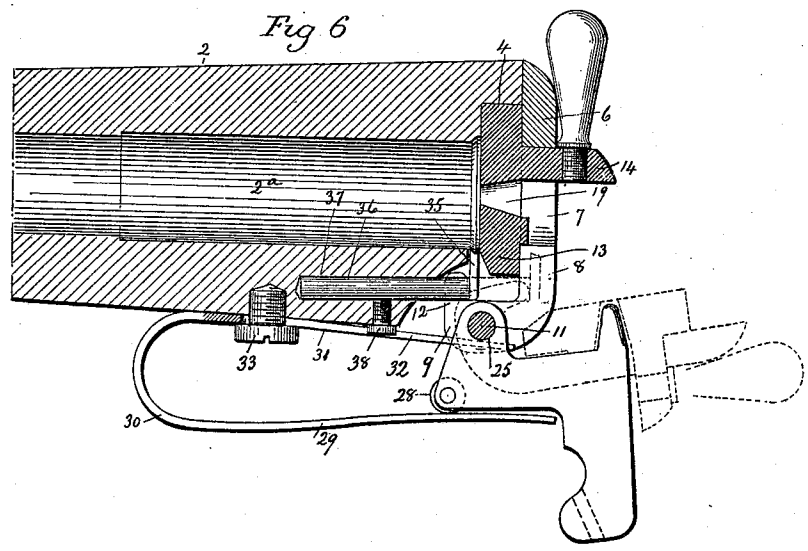


Fig. 7

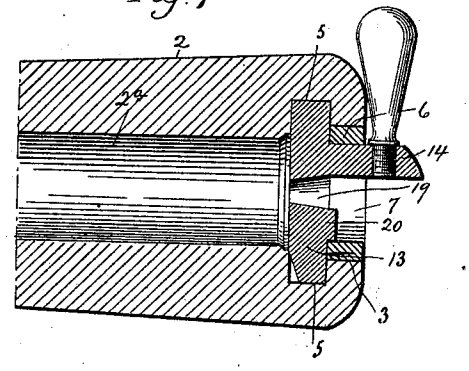


Fig. 8

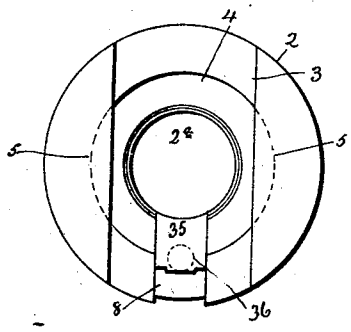
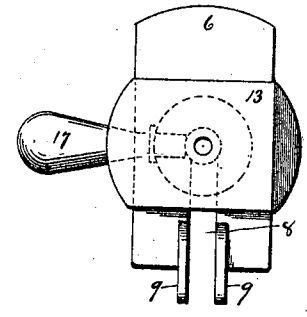


Fig. 9



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Fig. 10

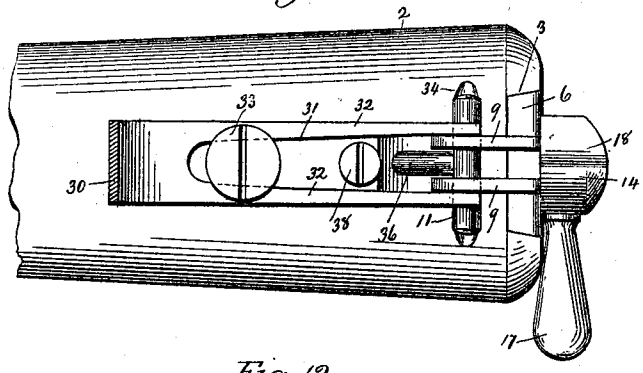


Fig. 11

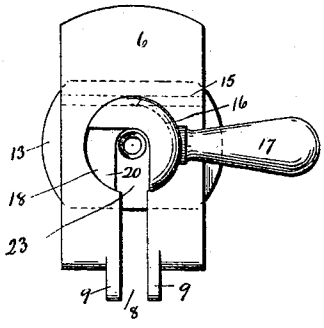


Fig. 12

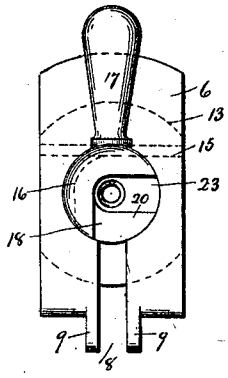


Fig. 13

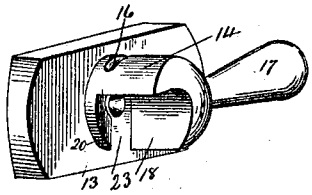


Fig. 14

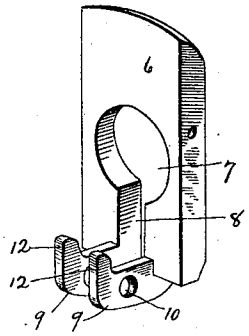
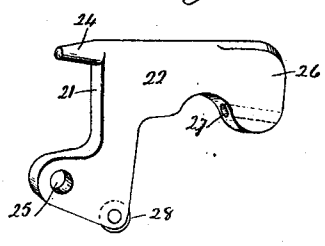


Fig. 15



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UNITED STATES PATENT OFFICE.

CHARLES H. GRIFFITH, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO WINCHESTER REPEATING ARMS CO., OF SAME PLACE.

BREECH-LOADING CANNON.

SPECIFICATION forming part of Letters Patent No. 681,021, dated August 20, 1901.

Application filed May 9, 1901. Serial No. 59,371. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. GRIFFITH, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Breech-Loading Cannon; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of my improved cannon; Fig. 2, an enlarged broken view thereof in rear elevation; Fig. 3, a broken view of the rear end of the barrel of the cannon in vertical longitudinal section, showing its parts in their closed relations and its hammer in its fired position; Fig. 4, a corresponding view with the hammer in its cocked position; Fig. 5, a broken reverse plan view of the rear end of the barrel of the cannon with all of its parts removed; Fig. 6, a broken view, in vertical longitudinal section, of the rear end of the barrel of the cannon, showing its breech-block carrier and breech-block in their closed and locked positions by full lines and in their unlocked and open positions by broken lines; Fig. 7, a corresponding but less comprehensive view of the rear end of the barrel of the cannon in horizontal section on the line *a b* of Fig. 2; Fig. 8, a view in rear elevation of the barrel of the cannon with all of its parts removed except the extractor; Fig. 9, a detached view, in inside elevation, of the breech-block carrier, the breech-block, and the handle applied to the latter; Fig. 10, a broken reverse plan view of the rear end of the barrel of the cannon with the lower leaf of the hammer-spring broken away; Fig. 11, a detached view, in rear elevation, of the breech-block carrier, breech-block, and handle, showing the breech-block and handle in their locked relations to the breech-block carrier; Fig. 12, a corresponding view showing the breech-block and handle in their unlocked relations to the breech-block carrier; Fig. 13, a detached perspective view of the breech-block and handle; Fig. 14, a detached perspective view of the breech-block carrier looking toward its inner face; Fig. 15, a detached perspective view of the hammer.

My invention relates to an improvement in breech-loading cannon, the object being to produce at a low cost for manufacture a simple, safe, and effective cannon designed with particular reference for use as a saluting-cannon.

With these ends in view my invention consists in a cannon having certain details of construction and combinations of parts, as will be hereinafter described, and particularly recited in the claims.

In carrying out my invention I form in the extreme rear end of the barrel 2 of the cannon a vertical centrally-arranged breech-block-carrier slot 3, having parallel side walls. The bottom of this slot opens directly into a circular breech-block recess 4, concentric with the bore 2^a of the barrel 2 and larger in diameter than the width of the slot 3, whereby locking-spaces 5 are formed under the middle portions of the side walls of the same. The said slot receives a vertically-arranged breech-block carrier 6, formed with a central circular hub-opening 7 and with a vertical hammer-clearance slot 8, which leads from the bottom of the said opening 7 downward through the lower edge of the said carrier, which is formed with two forwardly-projecting arms 9, having registered perforations 10 for the reception of the pin 11, upon which the carrier swings. At their extreme inner ends the arms 9 are formed with upwardly-extending extracting-toes 12, the rear edges of which are beveled.

The breech-block recess 4, already described, receives the oblong breech-block 13, which has straight sides and rounded ends, which latter are entered into the locking-spaces 5 when the breech-block is turned into its horizontal recoil-taking position. The said breech-block 13 bears against the inner face of the breech-block carrier 6 and is formed with a heavy hub 14, which passes outwardly through and projects beyond the central circular hub-opening 7 of the breech-block carrier, in which the hub, and hence the breech-block, are secured by means of a transverse pin 15, mounted in the breech-block carrier

d entering a circumferential groove 16, ·med in the hub and adapted in length to ıit the rotary movement of the breech-ɔck to an arc of substantially ninety de-ɛes, the engagement of the end walls of the ɔove 16 with the pin 15 positively limiting ɜ rotary movement of the breech-block, the ojecting outer end of the hub 14 of which furnished with an operating-handle 17. ıe said hub 14 is formed with a large clear-ce-opening 18, entering it from its outer d and extending forwardly to the outer face the breech-block. As shown, this clear-ce-opening is an opening of ninety degrees—at is to say, its side walls stand at right an-ɛs to each other. It is cut beyond the axial nter of the hub, so as to expose the firing-ening 19, formed in the center of the breech-ɔck.

In order to prevent the firing of a cartridge the cannon when the breech-block is not its fully-locked position, I provide a safety-oulder 20 at the inner end of the clearance-ɹening 18 and locate the said shoulder so at it will be engaged by the forward edge , Fig. 15, of the hammer 22 unless at the ne the hammer falls the breech-block is in ɜ fully-locked position, at which time the ammer-groove 23, formed at the inner end the hub, is in line with the hammer-slot 8 the breech-block, and hence in line with e hammer itself. This safety-shoulder 20 erefore acts as a fender and prevents the ·ing-nose 24 of the hammer from reaching .e cap of the cartridge in case the hammer ıould fall when the breech-block is not in its cked position.

The hammer 22 is flat in form, adapted in ıickness to enter the hammer-slot 8 of the ·eech-block carrier and the space between ıe arms 9 thereof, and is provided with a ·vot-hole 25, receiving the pin 11, before entioned, which forms a pivot for the breech-lock carrier, as well as a pivot for the ham-er. At its outer end it is formed with a ıger-piece 26, containing an opening 27 for ıe attachment of a lanyard. The hammer also furnished with an antifriction-roller 3, which is engaged by the tapered rear end f the lower leaf 29 of a heavy sheet-metal ammer-spring 30, the upper leaf of which is ɔrmed with a long slot 31, producing two ɔrresponding spring-fingers 32 32, the for-ard end of the slot 31 receiving a heavy ·rew 33, by which the spring is secured to ıe barrel of the cannon. The extreme rear ıds of the spring-finger 32 engage with the ıds of the pin 11 and hold the same in place ı the shallow groove 34, formed for their re-ɛption in the lower face of the barrel 2 of ıe cannon. This pin is not, therefore, driven ıto the barrel 2, but simply laid into the said roove, in which it is held by the upward ressure of the said spring-fingers. This fea-ıre of construction makes my improved can-on very easy to make, assemble, and dis-ıember. The lower leaf 29 of the said spring performs the twofold function of holding the hammer in its cocking position and of throwing the hammer forward to explode the cartridge after the antifriction-roller 28 of the hammer passes its dead-center point.

The extracting-toes 12 of the breech-block carrier coact with the lower edge of the inner face of an extractor-head 35, located at the rear end of a longitudinally-movable rod 36, moving back and forth in a socket 37, formed for its reception below the bore 2^a of the barrel and held in place by a screw 38 passing upward into the barrel through the slot 31 in the spring 30 and entering a longitudinal groove 39, formed in the lower face of the rod. It will be readily understood that when the breech-block carrier is swung outward into its open position the lugs 12 will force the extractor-head rearwardly and so effect the extraction of the spent shell with the inner face of the lower edge of the rim of which it engages.

For elevating the cannon I employ an elevating-screw 40, having a thumb-wheel 41 and engaging with the forward end of the lower leaf 29 of the hammer-spring 30, the said elevating-screw being mounted in a cross-tie 42, uniting the sides of the carriage 43, in which the barrel 2 of the cannon is trunnioned.

It is obvious that in carrying out my invention some changes from the construction herein shown and described may be made. I would therefore have it understood that I do not limit myself to the precise details shown, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cannon, the combination with a pivotal breech-block carrier formed with a hub-opening and with a hammer-clearance slot leading downward therefrom through the lower edge of the carrier, of a breech-block placed against the inner face of the said carrier and provided with a hub extending rearwardly through the said hub-opening thereof, a handle located upon the projecting rear end of the said hub, and a swinging hammer entering the slot in the carrier, and having the same pivotal center as the carrier.

2. In a cannon, the combination with a pivotal breech-block carrier formed with a hub-opening and with a hammer-clearance slot leading downward therefrom through the lower edge of the carrier which is formed with two forwardly-projecting arms for the reception of the pivot upon which the carrier swings, of a breech-block placed against the inner face of the said carrier and provided with a hub extending rearwardly through the said opening, and a hammer entering the said slot and having the same pivotal center as the carrier.

3. In a cannon, the combination with a

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breech-block carrier formed with a circular hub-opening and with a hammer-clearance slot leading downward therefrom through the lower edge of the carrier, of a breech-block formed with a firing-opening provided with a hub extending rearwardly through the said hub-opening, also formed with a clearance-opening exposing the said firing-opening; and a hammer having the same pivotal center as the said carrier, entering the slot therein, and also entering the said clearance-opening in the hub of the breech-block.

4. In a cannon, the combination with a breech-block carrier formed with a hub-opening and with a hammer-clearance slot leading downward therefrom, of a breech-block formed with a hub extending rearwardly through the said hub-opening, the said block being formed with a firing-opening, and the said hub being formed with a clearance-opening exposing the said firing-opening, a safety-shoulder located at the bottom of the said clearance-opening adjacent to the said firing-opening and constituting a fender for the hammer except when the breech-block is in its closed position, and a hammer having the same pivotal center as the said carrier and entering the slot therein, and also entering the clearance-opening in the said hub of the breech-block.

5. In a cannon, the combination with a breech-block carrier having a central opening, of a breech-block provided with a hub projecting rearwardly through the said opening, a hammer, and a pin constituting the pivot for both the breech-block carrier and the hammer.

6. In a cannon, the combination with the barrel thereof, of a breech-block carrier, a breech-block carried thereby, a hammer, a pin constituting the pivot for both the breech-block carrier and the hammer, and a hammer-spring engaging with the pin for holding the same in place in the barrel of the cannon.

7. In a cannon, the combination with the barrel thereof, the same having an open groove formed in its lower face at its rear end, of a pivotal breech-block carrier, a breech-block carried thereby, a hammer, a pin constituting the pivot for both the breech-block carrier and the hammer, and a hammer-spring engaging with the pin for holding the same in the said groove in the barrel.

8. In a cannon, the combination with the barrel thereof, of a breech-block carrier, a hammer, a pin on which both the said carrier and hammer swing, the said pin being located in the lower face of the said barrel, and a spring engaging with the said pin to hold it in place in the barrel of the cannon, and engaging with the hammer to hold the same in its cocked position, and to throw it into its firing position.

9. In a cannon, the combination with a barrel having a breech-block slot and a locking-recess, of a pivotal breech-block carrier formed with a central opening and with a hammer-slot, a breech-block formed with a hub projecting rearwardly through the central opening of the breech-block carrier, and furnished with a handle, a hammer mounted upon the same pivot as the breech-block carrier, and entering the said slot therein, and a spring coacting with the said hammer to hold it in its cocked position and to throw it into its firing position.

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

CHARLES H. GRIFFITH.

Witnesses:
DANIEL H. VEADER,
THOS. C. JOHNSON.