2 Sheets—Sheet 1.

D. D. JOHNSON.

Loading-Attachment for Ordnance.

No. 202,174. Patented April 9, 1878.

Fig. 1.

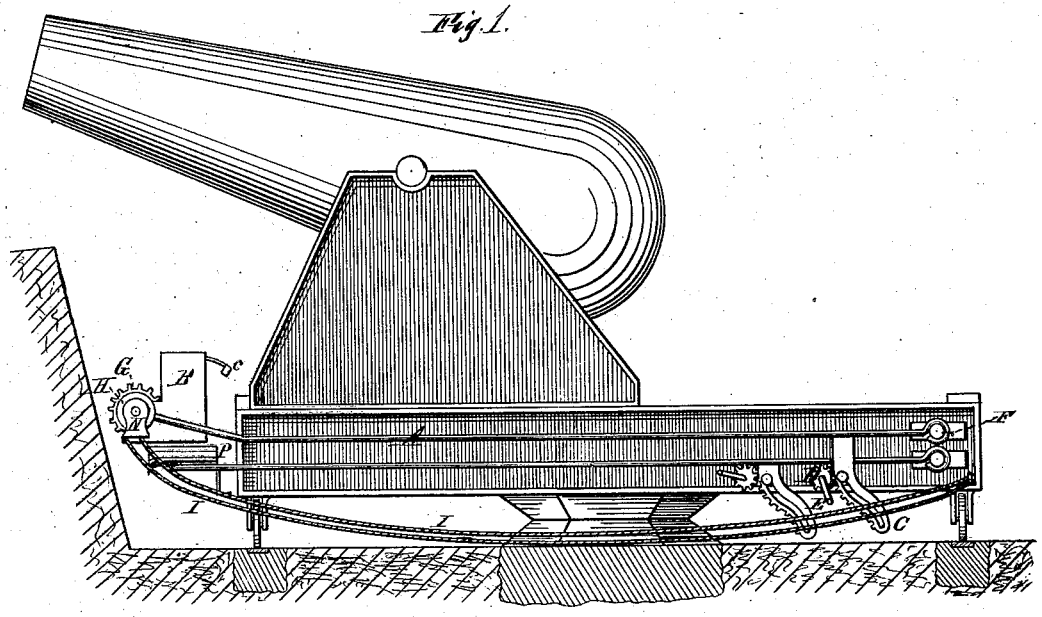
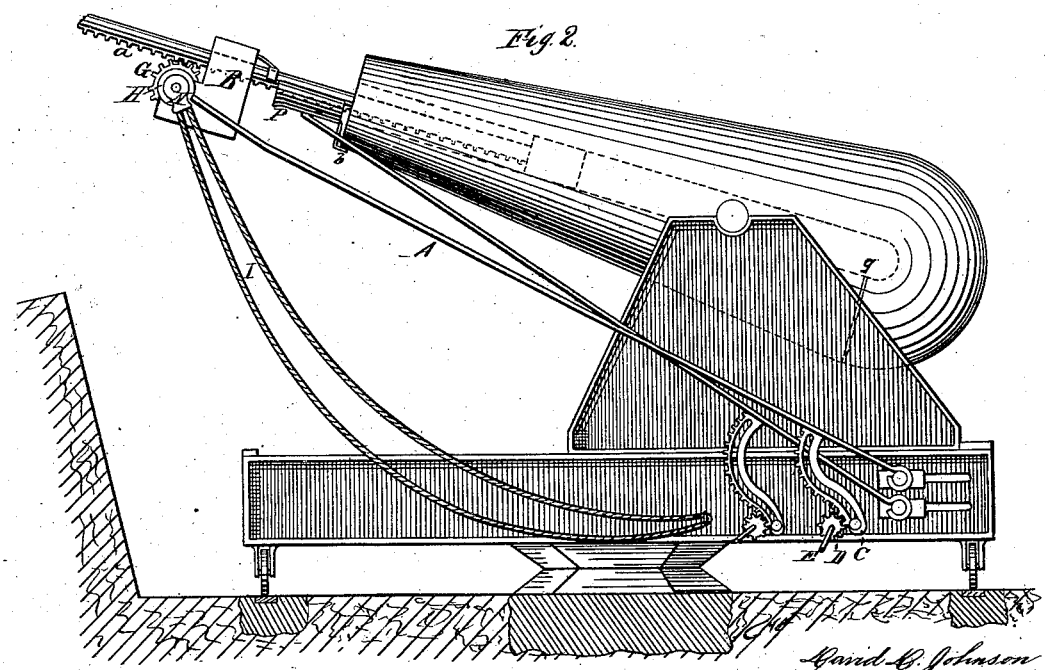


Fig. 2.



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2 Sheets—Sheet 2.

D. D. JOHNSON.

Loading-Attachment for Ordnance.

No. 202,174. Patented April 9, 1878.

Fig. 5.

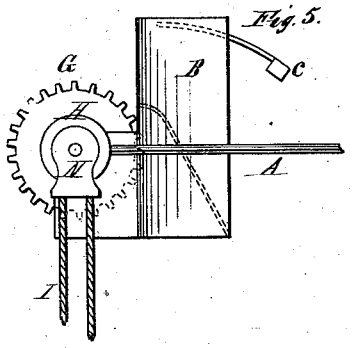


Fig. 4.

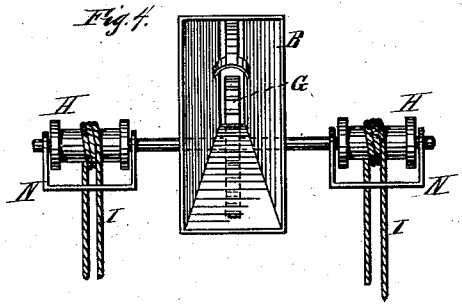


Fig. 3.

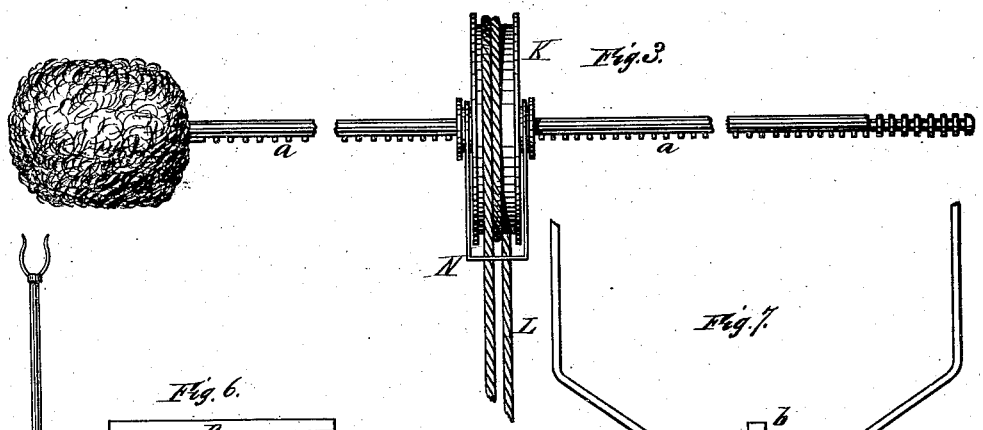


Fig. 7.

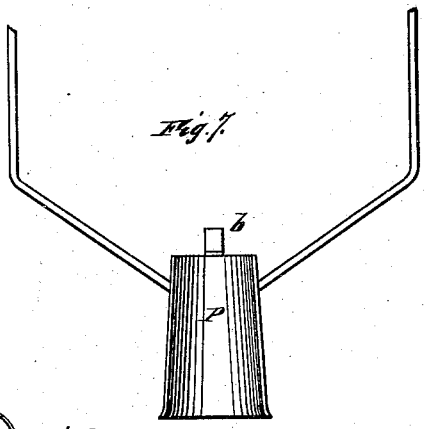


Fig. 6.

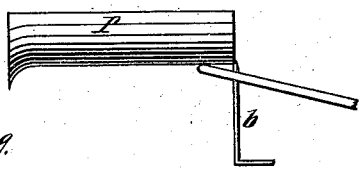
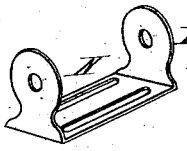


Fig. 9.

Fig. 8.



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UNITED STATES PATENT OFFICE.

DAVID D. JOHNSON, OF UNITED STATES ARMY.

IMPROVEMENT IN LOADING ATTACHMENTS FOR ORDNANCE.

Specification forming part of Letters Patent No. **202,174**, dated April 9, 1878; application filed February 27, 1878.

To all whom it may concern:

Be it known that I, DAVID D. JOHNSON, first lieutenant Fifth United States Artillery, at present stationed at West Point, county of Orange, and State of New York, have invented certain new and useful Improvements in Apparatus for Loading Heavy Guns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side elevation of a center-pintle gun-carriage having my improved apparatus attached thereto, and represented as being depressed and out of the way, as when the gun is being fired. Fig. 2 is a similar view, showing the staff-carriage and cartridge-stand elevated to a position suitable for use in loading the gun. Fig. 3 is an elevation of the sponge-staff detached from the staff-carriage, but provided with its rotating wheel or drum. Fig. 4 is a front elevation, and Fig. 5 a side view, of the staff-carriage. Fig. 6 is a side elevation, and Fig. 7 a plan, of the cartridge stand or carrier. Fig. 8 is a perspective view of the spider employed to prevent the operating ropes or cables from becoming dislodged from their respective drums. Fig. 9 is an elevation of a staff employed to insert the rammer or sponge-staff properly in the carriage.

Like letters in all the figures indicate corresponding parts.

The object of my invention is to produce an apparatus for loading heavy guns which shall be capable of being applied without alteration of the present styles of gun-carriages, which may be operated from a position considerably below the muzzle of the gun, be simple in construction, not liable to get out of order, and admit of the usual manipulations of both the rammer and sponge-staves.

To accomplish all of this, the invention consists in certain novel arrangements or combinations of parts, as will be hereinafter first fully described, and then pointed out in the claims.

A A are the arms or rods which support the staff-carriage B. These are shown as provided with a sliding journal, as at F, and with an elevating-ratchet, C, located between the journal and the staff-carriage. The carriage B has an enlarged flaring mouth upon the side next the gun, so as to render the insertion of the sponge or rammer staff as little difficult as possible. The cog-wheel G is axled within carriage B, and is turned by one or two drums, H H, around which the operating ropes, chains, or cables I are passed.

That the gun may be properly cleaned before loading, it is regarded as necessary that the sponge should be revolved within the bore; and in order to provide for this manipulation, I mount the drum K upon the sponge-staff, supplying it with an operating cord or chain, L, and so fitting it that it will move in the direction of the length of the staff, but if revolved will carry the staff with it.

In order to clean the gun by use of this apparatus, the carriage B will be elevated by simply turning crank E of ratchet-wheel D until said carriage is in proper position opposite the muzzle. The sponge-staff is then seized with the hands, directed into the flaring mouth of the carriage, and run through as far as convenient. Then the rod (shown at Fig. 9) is employed to elevate the free end of the staff, and the ratchet-wheel brought into play to run it back as far as necessary. To facilitate the adjustment of the staff in its carriage, the upper edge of the lower inclined face is slightly rounded so as to allow said staff to be run backward more readily, and to avoid turning wheel G until the ratchet *a* comes in contact with the teeth thereof.

By reversing the motion of wheel G the sponge is forced into the bore, the drum K sliding along easily upon the staff, and the operation of sponging is completed by causing the staff to be revolved through the medium of its drum and operating-rope. To facilitate this revolution of the staff, the ratchet thereon is made to envelop or completely encircle it at the end, so that there will be no interference by the teeth of wheel G. The sponge-staff may then be withdrawn by again turning wheel G and the cartridge carrier or rest, with the cartridge brought up to the position indicated in Fig. 2. The rammer-staff is then placed in the carriage, and operated in a manner similar to that of the sponge-staff, by means of which the cartridge may be properly rammed. The shell or shot is then insert-

ed much in the same way, and the carriages lowered to a position out of the way of the movements of the gun.

The cartridge-rest P is made tapering toward the mouth of the gun, the better to direct the cartridge, and it is provided with a tongue, *b*, adapted to arrest its upward motion by contact with the muzzle.

The ratchets which serve to elevate the carriages are preferably curved, substantially as shown in the drawings, so that the carriages may be brought down one over the other, as in Fig. 1; and these ratchets should be so curved and proportioned as to cause the cartridge-carrier to fall between the muzzle and the staff-carriage when the two are elevated for work.

To prevent the operating-cords from becoming displaced, I swing the spiders N to the axles of their corresponding drums, and run the cords through the slots provided for their reception. The drum K is also provided with a spider, N, convenient bearings for it being located upon each side of said drum.

The endless cord or cable used in connection with drum K should be pinned thereto at a point such as will insure the proper location of ratchet *a* whenever the rope is pulled down and arrested by said pin; for, if the ratchet fall upon the upper side of the staff after revolution, it could not be drawn out of the bore by wheel G, since the teeth of the latter would not engage with the ratchet. The spring shown at *c* operates to prevent the staff from inclining too much when unevenly balanced upon wheel G, and also to hold the staff down upon the wheel.

Although the apparatus is shown as applied to one particular form of carriage, it should be noted that it is equally applicable to any other form or style; and, instead of connecting the staff and cartridge-carriers with the chassis-rails, they may be moved vertically, or in any other direction, by any suitable means, located at any convenient part of the work, or upon any convenient part of the gun-carriage or its rails.

The vent *q* is preferably located beneath the gun, so that the operators will not be required to expose their persons during loading or priming.

As illustrated, the device is intended to be operated by hand; but the construction and arrangements of the different parts are such that any convenient form of power may be easily and quickly applied thereto.

The carriages are shown as supported upon double arms, one at each side of the rails; but it may be found desirable to employ only one arm, which may be done without departing from the spirit of the invention.

The apparatus as thus constructed is simple and effective, and admirably answers the several objects of the invention, as previously stated.

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

1. In combination with a staff-carriage made adjustable, the operating-drum H, ratchet-wheel G, and sustaining-spring *c*, substantially as shown and described.

2. In combination with the sponge-staff, the operating-drum K, mounted thereon and movable, substantially in the manner and for the purposes set forth.

3. In combination with the staff-carriage, having a ratchet-wheel mounted therein, a sponge-staff provided with a circular ratchet at one end, arranged to permit the rotation of said staff upon the wheel, substantially as and for the purposes set forth.

4. In combination with the supporting-arms of the staff-carriage, which are pivoted or journaled at one end, a curved rack-bar and operating-pinion, located between the carriage and journal, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

DAVID D. JOHNSON.

Witnesses:
GEO. F. E. HARRISON,
W. S. WYATT.