J. J. WALSH.

CARRIAGE FOR WORKING, TRAINING, &c., CANNON.

No. 30,186. Patented Sept. 25, 1860.

Fig. 1.

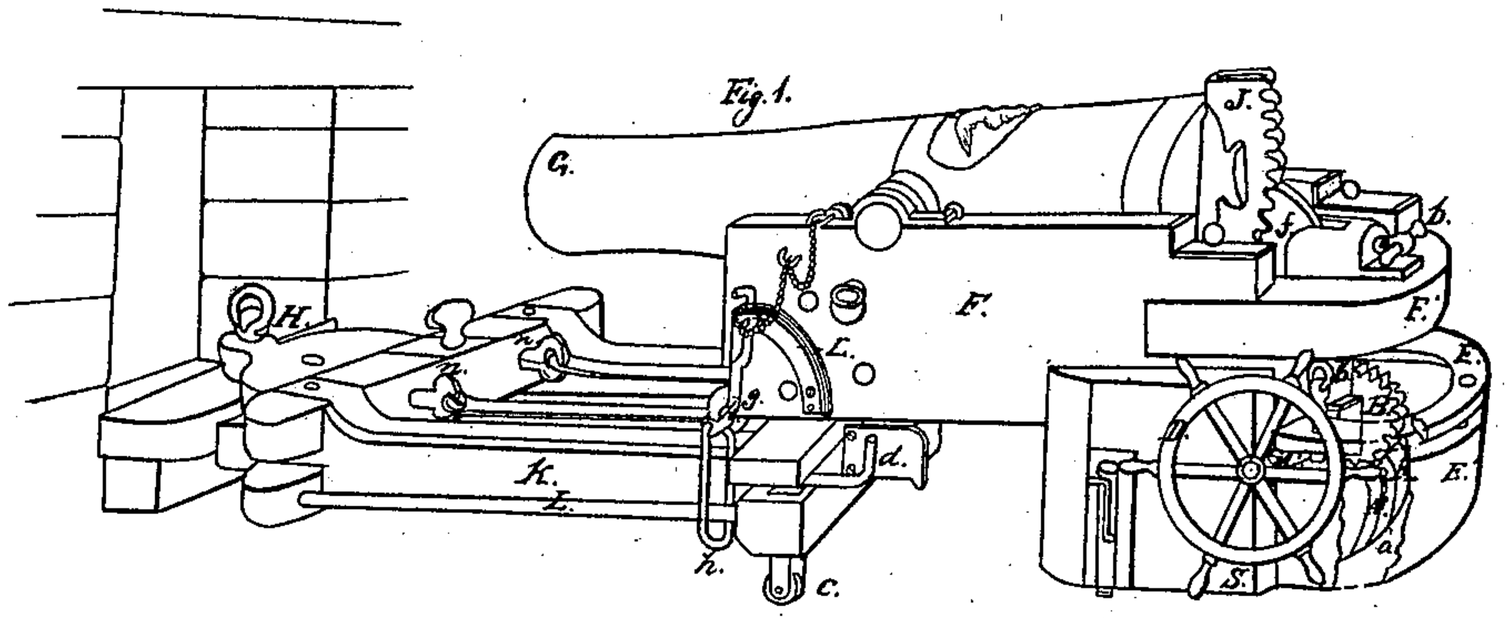


Fig. 2.

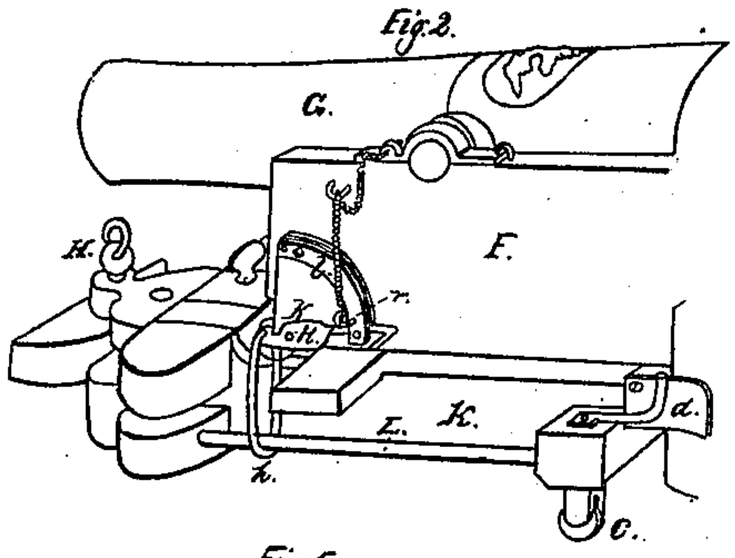


Fig. 3.

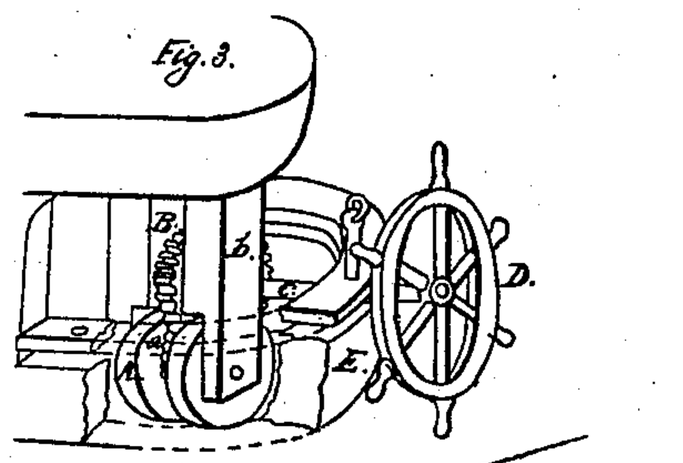


Fig. 5.

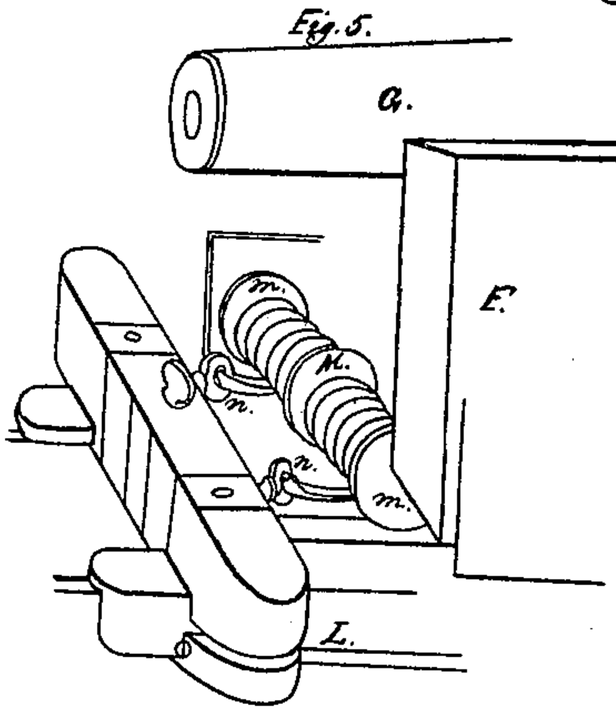


Fig. 4.

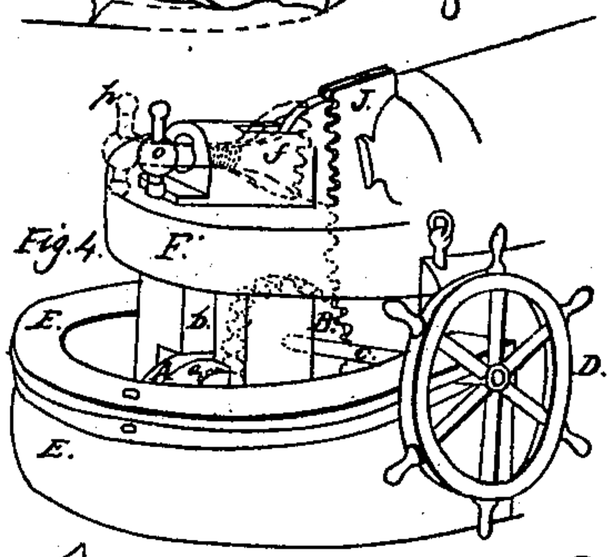


Fig. 6.

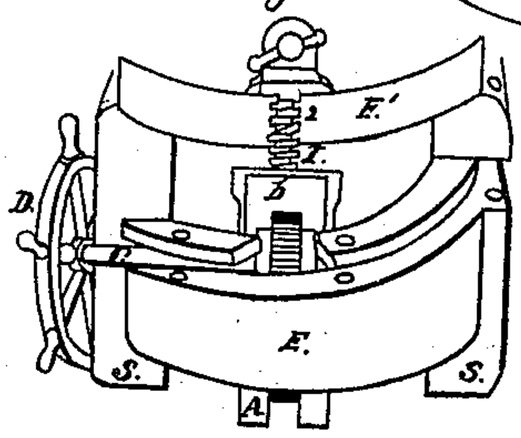
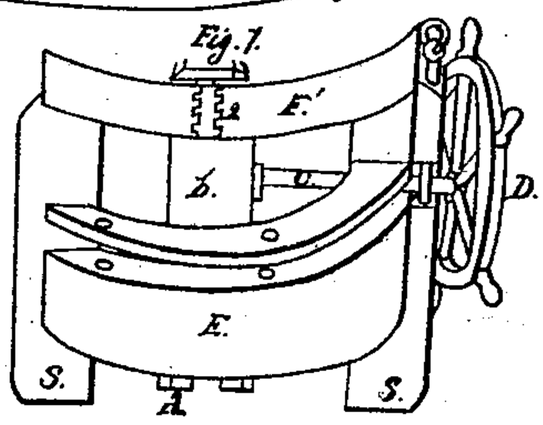


Fig. 7.



Witnesses.

L. D. Law

Howard Bird

Inventor.

John J. Walsh

UNITED STATES PATENT OFFICE.

JOHN J. WALSH, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, THOS. L. BRAYNARD, AND H. C. ADAMS, OF NEW YORK, N. Y.

GUN-CARRIAGE.

Specification of Letters Patent No. 30,186, dated September 25, 1860.

To all whom it may concern:

Be it known that I, JOHN J. WALSH, of the city and State of New York, have invented a new and Improved Carriage for Working, Training, and Elevating Cannon on Shipboard, in Fortifications, Redoubts, and other Places; and I do hereby declare that the following is a full, clear, and exact description thereof and of its construction and mode or manner of operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The important feature of this invention consists in arranging a supporting and propelling wheel under the breech of the gun, and connecting therewith a hand wheel, like a steering wheel, so that by such wheels the gun may be run out or in, and trained sidewise, or in different directions, and also elevated or depressed to give it any required range.

Figure 1, is a side view of a gun and carriage, when the gun is run in, or the carriage is extended, and showing the position of the wheel for running the gun out or in; Fig. 2, is a side view of the same, when the gun is run out. Fig. 3, is a view of the rear of the carriage showing the position of the wheels, when the gun is to be trained sidewise. Fig. 4, shows the position of the wheels to elevate or depress the gun. Fig. 5, is a front view of the carriage showing the harness and its self acting reel. Figs. 6, 7, show the relative positions or elevations of the heel of the carriage, as the hand wheel is on opposite sides of the gun.

At the breech of the gun is placed a supporting wheel A, which is also made a pivot wheel, so that the line of its tread can be placed parallel with the length of the gun, as seen in Fig. 1, or at right angles to it as in Fig. 3, according as the gun is to be run out or in, or trained sidewise. Such wheel has a broad tread, around which and a little below the face of the wheel, is a cog band or wheel *a*. Into this gears the cog wheel B, on the shaft C, the other end of which shaft carries the wheel D, which is made with arms, like an ordinary steering wheel, to be handled by one or more men as necessary. The shaft C, is supported from the frame work *b*, which supports the propelling pivot wheel A, and the outer end of such shaft and its hand wheel D, sweep upon the half circle E, at the rear of the gun, and as they move, turn the wheel A, and change the line of its tread.

The wheel A, does not turn on a fixed point, but in the top of the frame work *b*, there is fixed a screw 1, which works into, and out of, the female screw 2, which is inserted in a part F′ of the carriage. The height of the frame work *b*, and wheel A, is such that when the hand wheel D, is placed as shown in Fig. 7, the wheel A will be clear of the deck or platform, and the carriage will rest upon its heels *s*, *s*. When in this position the screw 1, will have entered wholly within the female screw 2, as shown in Fig. 7. When the wheel D, is turned so as to be at the rear of the gun, as shown in Fig. 3, the screw will be drawn a quarter revolution out of the female screw 2, bringing the wheel A, against the deck and elevating the heel of the carriage about half an inch. When the wheel is carried to the opposite side of the gun, as shown in Fig. 6, the screw 1, will be drawn still farther, and the carriage elevated about an inch. The gun carriage is thus raised clear from the deck, and rests upon the wheel A, when it is desired to run her out or in, or train it, but rests on the deck and relieves the wheel A, when the wheel D, is to be used to elevate or depress the gun; and the power required to work the screw 1, is but slight as it is applied at a great leverage.

The surface of the semi-circle E, on which the shaft C moves, is not level but has an inclination corresponding with the pitch of the screw, so that the shaft C, will continually rest upon the top of the semicircle E, notwithstanding the elevation and depression of the carriage by means of the screw in the top of the framing *b*, and will rest at all times upon such inclined surface, as a support.

The operation of the supporting and pivot wheel A, in connection with the hand wheel D, is substantially as follows: When the hand wheel D, is placed on one side of the breech of the gun, as shown in Fig. 1, the supporting wheel A has the line of its tread parallel with the length of the gun G. When so placed, the wheel A rests upon the deck or platform, and as the hand wheel D, is turned, the wheel A will, through the

geared wheel B, be revolved, and the gun and its carriage be run out or in, according to the direction in which the hand wheel is operated. If now the hand wheel be swung around in the rear of the gun, as shown in Fig. 3, the tread of the wheel A, will be placed at right angles with the length of the gun G, so that as the hand wheel is turned, the rear of the carriage and breech of the gun will be trained or moved sidewise in either direction. When the gun is to be so trained, the small supporting wheels *c*, *c* under the sides of the under carriage K, are to be turned so that their tread will correspond with that of the wheel A. This is readily done by means of the levers *d*, *d*, which are fixed to the upper ends of the standards of the wheels *c*, *c*. When the gun and its carriage are trained, the whole carriage turns upon the point H, as a center. These two positions of the supporting and pivot wheel A, allow of all necessary motions of the gun, in running it out or in or training it sidewise, and as will be at once apparent, such movements are easily effected by or through the hand wheel D, and with a great saving of power, as compared with the ordinary methods or manner of working and training cannon. If now the hand wheel D, is carried around, to the other side of the gun, as shown in Fig. 4, the tread of the supporting wheel A, will again be parallel with the length of the gun. But by such movement of the hand wheel, the shaft C, is carried into a slightly elevated seat *e*, and the wheel A, is thus raised a little from the deck or platform, so that it does not actually support the gun, and can revolve without changing the position of the gun. When however the hand wheel D, is so placed, the geared wheel B, meshes into the geared or cogged sector J, which is fixed to the breech of the gun. As the wheel D, is turned, the breech of the gun will thus be elevated or depressed, as may be required. A ratchet, or cog-faced piece of metal *f*, which is forced to or from the sector J, by means of a screw shaft *o* and lever *p*, or which may be fastened in any reliable manner, retains the gun at any elevation desired. The shaft C, in its different positions on the circle E, rests and turns against the stops *e*, *e*, or it may be held by means of a band passing over the shaft, and held to the circle E, with detachable bolts or pins.

As will thus be at once apparent the arrangement of the wheels D, and B, and causing them to be thrown into gear with the wheel A, and sector J, as required, is such that by them, the gun can be run out or in, or trained sidewise, or to elevate or depress it, so as to secure any desired range. Their arrangement is also such as to be applicable and useful in changing the position of the gun to different places.

The forward end of the carriage or upper carriage F, rests upon rollers *g*, which rest and move upon the under carriage K. When the gun is trained the whole carriage moves as one, but when the gun recoils, or is run out or in, the upper carriage F, only moves, and this rolls upon the under carriage K. By thus making the carriage in two parts, and having one traverse or roll upon the other, all necessary motion of the gun is permitted, while the carriage is much more compact, and when the gun is housed, no part of the carriage projects much beyond the breech of the gun.

To lessen the force and extent of the recoil, and render possible a shorter carriage, there is fixed to each side of the under carriage, strong horizontal rods L, around which pass, and on which slide the strong links *h*, *h*, which are also fastened to one end of the levers *k*, *k*, which are attached to the upper carriage F. The long arm of such lever moves in the guards *l*, and is held firm by pins *r*. When such lever is depressed, as shown in Fig. 2, the link *h*, is forced tightly against the rod L, thus creating resistance and diminishing the extent of the recoil of the gun. When the recoil is over and the gun is to be run out, the levers are raised, as shown in Fig. 1, when the links no longer bind, and the gun is quickly moved by the hand wheel D.

To the forward end of the upper carriage is also fixed a reel or drum M, as seen in Fig. 5, having at each end wheels *m*, *m*, which rest and roll upon the under carriage K. Around such reel winds a harness, the other ends of which are fixed to rings *n*, *n*, in the forward cross piece of the under carriage. The resistance and tension of this harness, as the gun moves back, tends to lessen the recoil, and as the gun is run forward, the reel is revolved through the wheels *m*, *m*, and the harness again wound upon the reel, and this by the movement of the gun, and without the labor of any one.

A single man on each side of the gun works the cam levers *k*, *k*, to cause the links to bind the rods L, and when necessary can change the tread of the side wheels *c*, *c*, and these men can also relieve the gunners, when desired.

By the arrangement and application of the hand wheel D, in connection with the wheel A, and sector J, three or four men, in addition to the loaders of the gun, can work and train the largest guns now cast, performing the labor of from fifteen to twenty men, as ordinarily applied.

What I claim as my invention and desire to secure by Letters Patent is—

1. The use and arrangement of the hand

wheel D, and gear wheel B, in combination with the supporting and pivot wheel A, substantially as described, for the purpose of running out and in, and training cannon as described.

2. The arrangement of the said wheels D, and B, in combination with the geared sector J, for the purpose of elevating or depressing the gun as described.

3. The arrangement of the rods L, links *h*, *h*, and levers *k*, *k*, in combination with the two carriages substantially as described, for the purpose of lessening the extent and force of the recoil of the gun.

4. The arrangement and combination of the screws 1, 2, with the pivot wheel A, substantially as described, for the purpose of elevating and lowering the gun carriage, for the purposes set forth.

JOHN J. WALSH.

Witnesses:
S. D. Law,
Mark Poole.