

J. H. Ward Ordnance

N^o 42630

Patented May 3^d 1864

Witness =
J. W. Smith
of the house

J. H. Ward

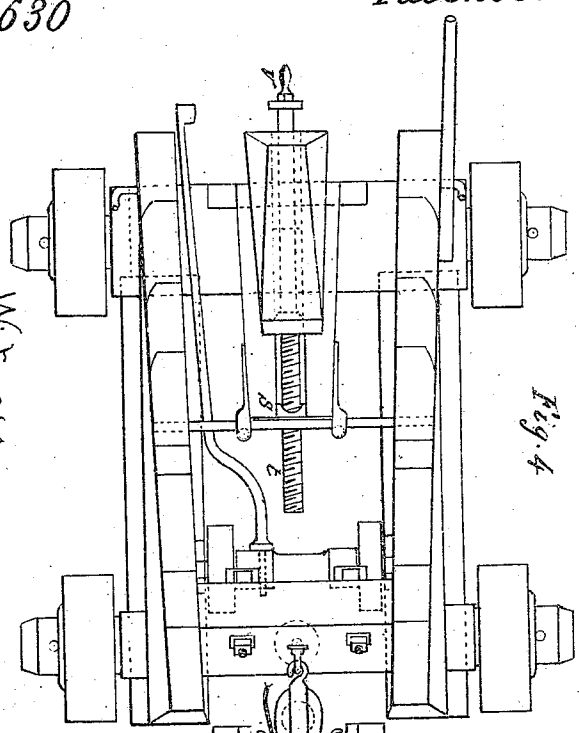


Fig. 4

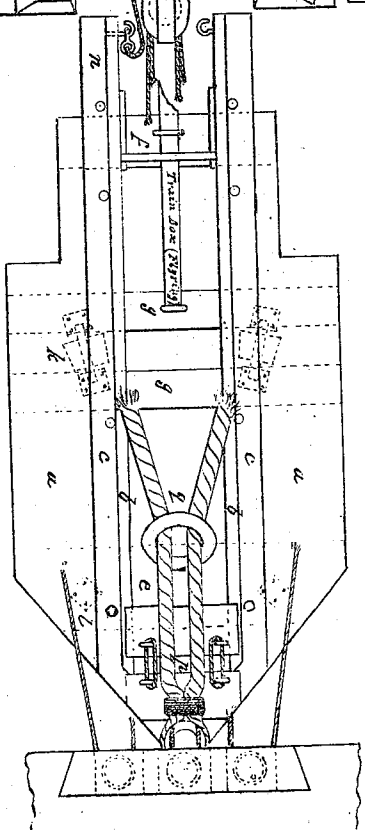
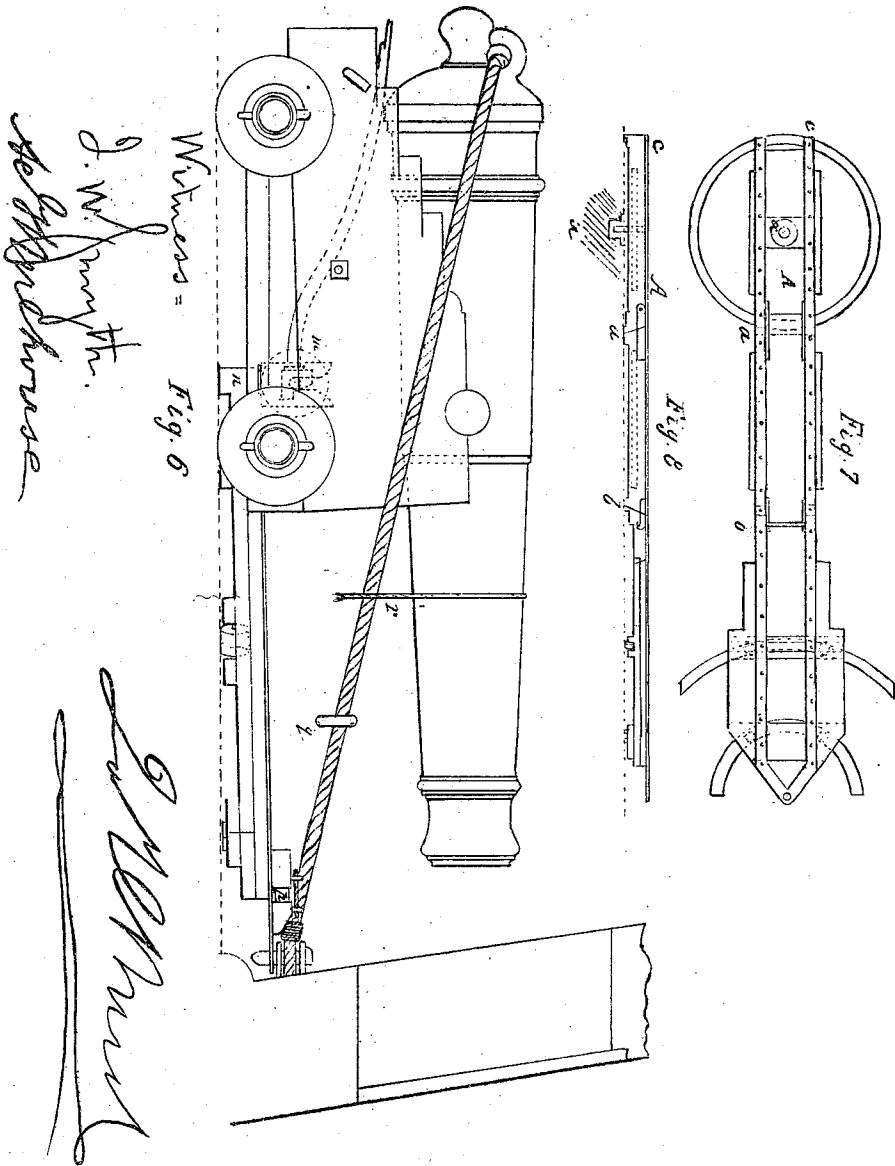


Fig. 3

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UNITED STATES PATENT OFFICE.

JAMES H. WARD, OF THE UNITED STATES NAVY; SARAH A. WARD ADMINISTRATRIX OF SAID WARD, DECEASED.

IMPROVEMENT IN OPERATING SHIPS' GUNS.

Specification forming part of Letters Patent No. 42,630, dated May 5, 1864.

To all whom it may concern:

Be it known that I, JAMES H. WARD, of the United States Navy, have invented a new and useful Improvement in the Mode of Managing and Pointing Ships' Broadside Guns; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

Figures 1, 2 represent a side view of the gun, its carriage, slide, or ways with the breeching slack. Figs. 3 and 4 represent a top plan of the carriage and its slide or ways, the gun being removed to show the parts underneath it. Fig. 5 represents an elevation of the front end of the carriage. Fig. 6 represents a side elevation of the gun, its carriage, and trucks, with the breeching taut. Fig. 7 represents a top plan of a turn-table, with the ways and tail-piece for turning and shifting the gun from one side to the opposite one of the vessel. Fig. 8 represents a side elevation of the same.

Similar letters of reference, when they occur in the separate figures, denote like parts in all the drawings.

The object and purpose of this invention are, first, to so apply the rolls and supports underneath the rails, slide, or ways on which the gun and carriage runs in and out and is trained, and at or near the center thereof, as that the slide or ways shall tip when the excess of weight is on either side of said rolls or center support; also, in combining, with the shipping ways or slide on which the gun and carriage is run in and out and trained, a tail-piece connected thereto, but removable therefrom, and resting upon the deck when in use, for the purpose of readily mounting the gun and carriage upon the slide or rails, when by the recoil or other causes they should be off of the slide; also, to the use of an elastic ring, one or more, in connection with the breeching, to more gradually take up and check the recoil of the gun.

To enable others skilled in the art to make and use this invention, the subjoined description, in connection with the accompanying drawings, is referred to.

Of the slide, *a* is the wing; *b*, the thick piece; *c*, the rail; *d*, the nose; *e*, the outer transom;

f, the inner transom, and *g* the middle transom; *h*, the shoes bolted up beneath the fore axle-tree, and forming a recess, *i i*, in which the thick pieces of the slide run when the carriage is on the slide and the shoes rest on the wings. If the shoes were between and not beneath the axle-tree, the recesses *i i* would necessarily be cut wholly out of the axle-tree.

Under the middle transom, directly beneath the rails, I fix a pair of lignum-vitæ blocks, or for the slide of a heavy gun, a pair of conical rollers, which I call the middle "bearing-block" or "rollers." (See *k*, Figs. 1 and 3.) They are intended to sustain the middle of the slide as high from the decks as the brass bearing-plates *b*, Figs. 1 and 3, to be placed under the fore transom to sustain that end of the slide; and if these middle and outer bearers stand out from beneath their respective middle and outer transoms an inch or half an inch, as it is intended they shall, it follows that when the slide rests by those bearers upon a level deck, the hind transoms will forsake the deck by an inch or half an inch, as the case may be, and as is seen in Fig. 1. It also follows that when the hind end of the slide is depressed by any force to the deck the slide will tip on the center bearing, and the fore end of its bearers will forsake the deck, as is seen in Fig. 6. It furthermore follows that when the hind end of the slide is so depressed to the deck the fore ends of the shoes will easily run on the hind ends of the wings if they be chamfered a little, by which means the carriage is readily and easily, without lifting, got onto the slide, as it is seen in Fig. 6, in which the fore trucks and the rollers on the tails are both in action at once. Again, it follows that when the carriage is run entirely onto the slide and the gun is out to battery the slide will tip with its fore bearings to the deck, and the hind transom from the deck and the truck of the carriage will forsake the deck by an inch or half an inch, as the case may be. In other words, by this arrangement of the bearings and hind transom a gun weighing several tons is easily lifted—may be said, in fact, to lift itself—with its trucks half an inch or an inch from the deck. Again, when the gun is fired and recoils in as the weight passes back of the center bearing, the slide gently and imperceptibly tips with the hind transoms to

the deck, and the hind dumb-trucks come in contact with the deck to ease the recoil, which is thus rendered kind upon the breechings, the carriage, and the deck; and when the gun is run back off the slide onto the deck, instead of the enormous weight falling with an injurious surge an inch in distance from the slide to the decks, as it would but for the tip, it falls easily and gently as it had risen upon the slide without blow, noise, or jar. Again, by this arrangement, while the end bearings alternately forsake the decks, the center bearing never can, however uneven the decks may be; hence, the center of the slide being always supported, the slide, though made very slender and light, can never spring or settle in the middle, as all long slides most commonly do, even although to prevent it made of a weight objectionable in ships. If the slide be so short, as in the case of light short guns, as not to admit of a "middle bearing," then the shoes beneath the hind axle-tree must be a half inch thicker than they are beneath the fore axle-tree, and the hind end of the slide a half inch less in thickness than the fore end, so that the carriage may be easily got in the slide, and when on all the trucks be a half inch clear of the deck for training. This feature is material as aiding to get the trucks a half inch clear of the decks without the labor of lifting a heavy gun. This slide, as thus described and represented, I claim to be a new and original invention of my own, where it is specified as such, and differing from any other slide—as shorter, therefore occupying less room on deck; as lighter, because a mere skeleton, therefore burdening a ship less; as strong and stiff, though light and open, because of the thick middle bearing; as less likely to swell and warp, because of the small quantity of material, the number of pieces, and their disposition; as more open, therefore less damaging to the decks, because they dry quicker beneath the slide; and, above all, on account of the greater ease and readiness with which a carriage and heavy gun may be got on this than on any other slide, which ease and readiness, I repeat, are due, in a great measure, to the middle bearing on which the slide tips, or to the adjustment of the shoes beneath the axle-tree. But with the short slide described the fixed roller-handspike *m*, Fig. 6, and to facilitate the movement of the carriage by separating the friction-surfaces—viz., the bottoms of the shoes and tops of the wings—would run off the rails, and thus become of no effect. To prevent this I introduce, as a new and original invention not heretofore described, a "tail-piece," which is a frame, *n*, in Figs. 1, 3, and 6, temporarily attached by any convenient method to the slide, but so as to ship and unship at pleasure. Usually it hooks, or else it keys up by two forks (see *o*, Fig. 1) to a rod across between the thick pieces of the slide and the frame, so arranged as to elongate or prolong the rails as much as necessary to sustain the roller-handspike in a

working position, as *m* is on *n* in Fig. 6, when the gun is, as there represented, into a taut breeching, muzzle one foot within the port; but the tail *n* is wholly removable when the gun is out to battery and secured.

In lieu of the hinged block to run the gun out against, heretofore described and published, I introduce an india-rubber buffer, *p*, Figs. 1, and 3, and 6, against which, when the gun is run out, the shock of running out is broken, to the great relief of both the ship and carriage. (See it represented, *p*, in Figs. 1, and 3, and 6.) It is so placed on the slide that the fore axle-tree strikes and brings the carriage up against it when the gun is out. Some guns weigh five tons, and it is important to break the blow of so great a weight, especially when it is a lee gun, and liable to get away from the men and run out violently by gravity.

To reduce the shock and strain of recoil upon the ship, the breeching, and the bolts, I slip on the pivoted part of the breeching an india-rubber ring, *q*, Figs. 1, 3, and 6, and fasten it up to the breeching-legs near to the breast of the carriage. When in recoil the breeching draws taut, the legs spread, opening this ring from four to eighteen inches in some cases, and the elastic resistance mitigates and reduces the shock and strain very much. This ring *q*, Figs. 1, 3, and 6, together with a becket, *r*, Figs. 1 and 6, obviate the necessity both of the usual side shackle and of a man to keep the breeching clear.

I use in lieu of the usual train-tackle to the hind axle-tree for running a gun in an "in-tackle" to the fore axle-tree, from the hind end of the tail-piece, which in-tackle acts always directly and never obliquely from the gun, however oblique to the beam the training of the gun may be, because, unlike the inner block of the train-tackle hooked to a stationary ring-bolt in the deck, the inner block of the in-tackle, being hooked to the tail-piece, moves around with it in training. The sheave in Fig. 5, fore axle-tree, is for the in-tackle fall.

In order to adapt the slide described aforesaid to a shifting gun intended to be used on one side or another, or on one bow or the other, a "turn-table," *A*, Figs. 7 and 8, is arranged. It is composed of two parallel rails, to correspond in size, height, &c., with the tail-piece. It turns on a pivot. (Seen in *x*, Figs. 7 and 8.) A pair of other rails, *b a*, unite the tail-piece and the turn-table. When united, the gun runs back on the turn-table. The uniting-rails lift from the hook at *b* on the hinge at *a*, the gun is turned around, the slide shifted by hand to the other side, the connecting-rails dropped with the hook in place at *b*, the gun run off the turn-table onto its slide, ready for use, and the rails doubled back on the hinge *a*, so that *b a* will lay on *a c*, and this turned fore and aft occupies very little room. This combination of the slide and the turn-table I claim as a new and valuable improvement, superior to any other method for the

same purpose, because lighter, quicker, less liable to derangement, less costly, and leaving the gun capable of use even although the slide and turn-table or either of them were broken.

Having thus fully described the nature, object, and purpose of the invention, what is claimed as new therein, and for which Letters Patent is asked, is—

1. So applying the rolls and supports underneath the slide, rails, or ways on which the gun and its carriage run in and out and is trained, and at or near the center thereof, as that the ways shall tip when the excess of weight is on either side of said rolls or central support, substantially in the manner and for the purpose set forth.

2. In combination with the tipping slide, ways, or rails on which the gun and carriage are worked, the tail-piece connected thereto,

but removable at pleasure, said tail-piece resting upon the gun-deck when in use, for the purpose of readily mounting the gun and carriage on the slide, substantially as described.

3. In combination with the breeching or breech-tackle for catching and restraining the recoil of the gun, the elastic ring for gradually checking the strain on the breeching, substantially as described.

4. In combination with the tipping slide and tail-piece, a turn-table for turning and shifting the gun from one port to another, or from one side of the ship to the other, substantially as described.

J. H. WARD.

Witnesses:

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THOS. M. CASH.