

(No Model.)

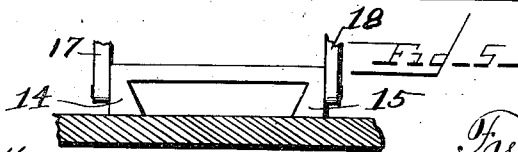
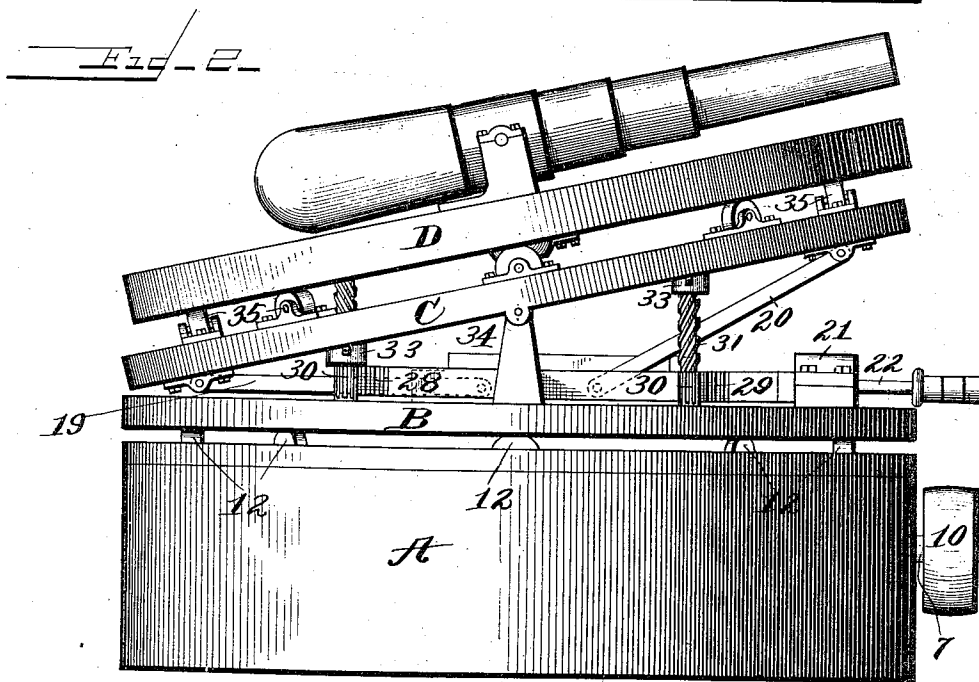
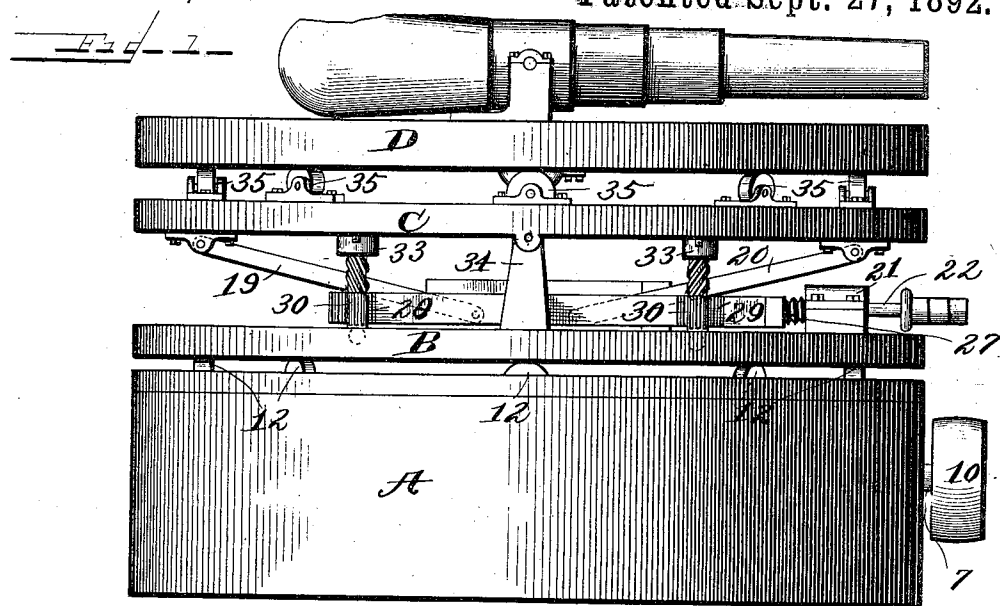
3 Sheets—Sheet 1.

F. BEX.

MEANS FOR OPERATING HEAVY ORDNANCE.

No. 483,130.

Patented Sept. 27, 1892.



Witnesses
G. A. Taubenschmitt
J. D. Kingberry.

Inventor
Frederick Bex
By Wm. H. Bates
his Attorney

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Fig. 3.

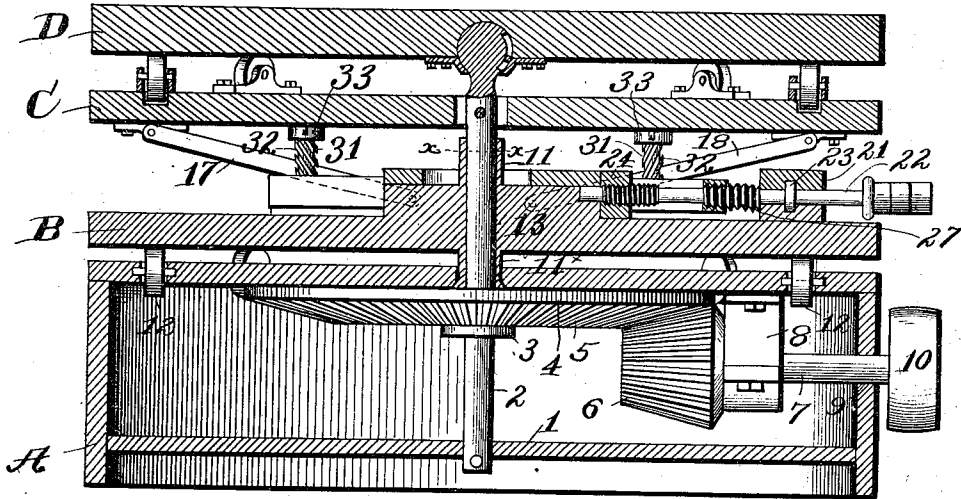
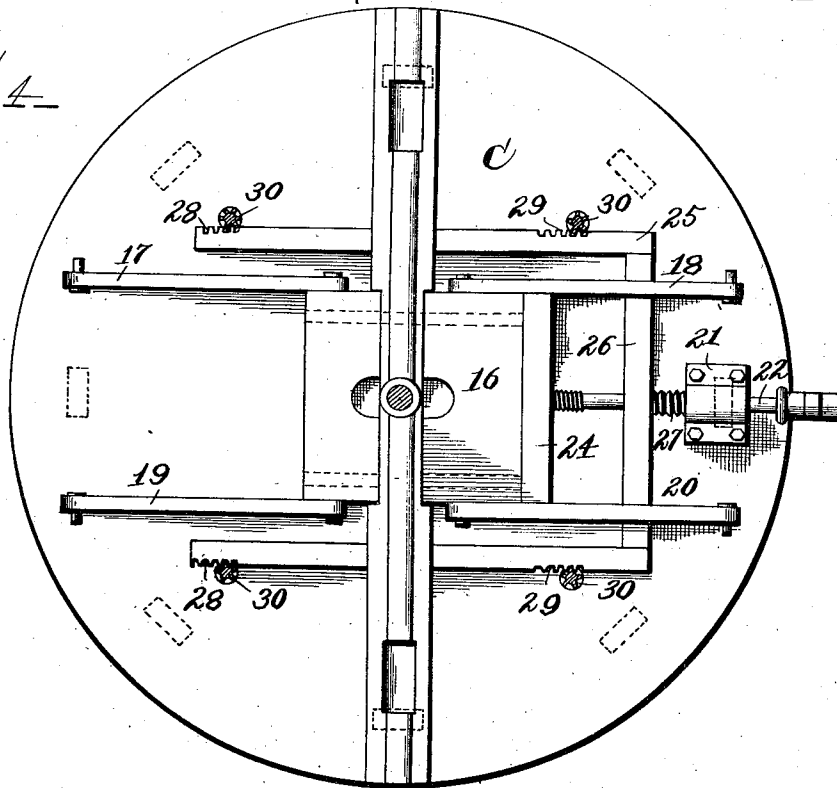


Fig. 4.



Witnesses

G. A. Tauberschmitt
J. D. Kingberry

Inventor

Frederick Bex
By *Wm. H. Bates*
his Attorney

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Fig 6

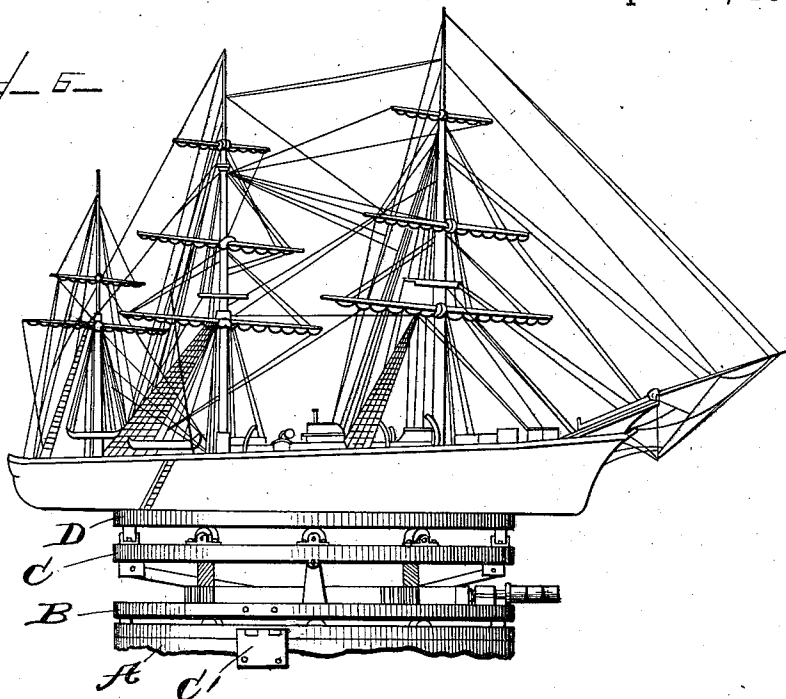
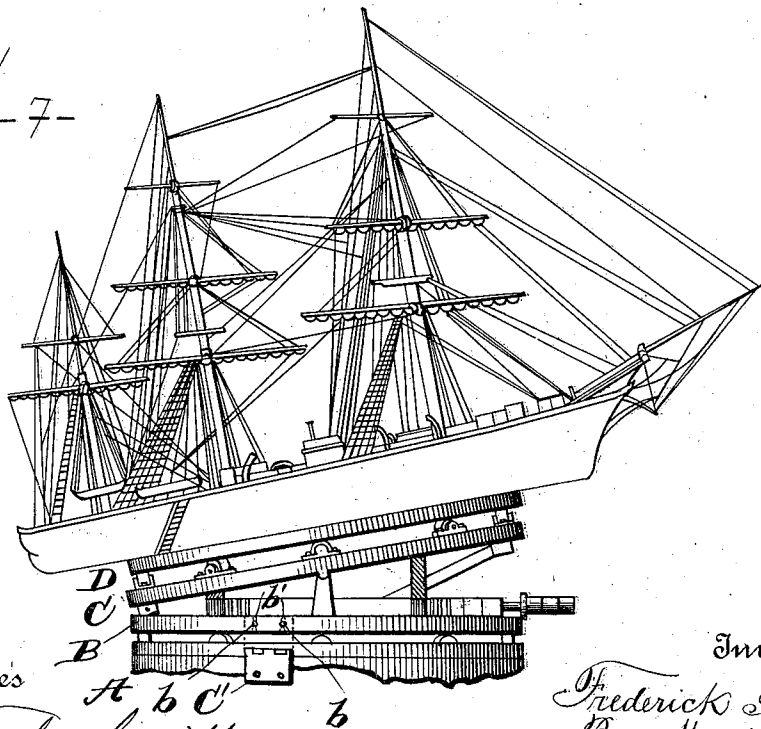


Fig 7



Witnesses

G. A. Taubenschmidt.
J. D. Kingsbery.

Inventor

Frederick Bex
By J. M. H. Bates
his Attorney

UNITED STATES PATENT OFFICE.

FREDERICK BEX, OF WASHINGTON, DISTRICT OF COLUMBIA.

MEANS FOR OPERATING HEAVY ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 483,130, dated September 27, 1892.

Application filed January 11, 1892. Serial No. 417,665. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK BEX, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Operating Heavy Ordnance; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide a platform for use in naval gunnery for the purpose of acquiring in shore practice the skill requisite to manipulate guns at sea and to enable persons unskilled in the art to learn how to train guns in order to compensate for the rolling of a ship upon which such guns may be mounted.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a side view in elevation of the carriage having the gun mounted thereon. Fig. 2 is a side view showing the platforms of the carriage tilted. Fig. 3 is a central vertical section showing the rotating mechanism. Fig. 4 is a plan view taken on the line $x x$ of Fig. 3. Fig. 5 is a detail of the sliding block. Fig. 6 is a view showing a ship with masts and sails mounted on the carriage in a horizontal position, and Fig. 7 is a similar view showing the carriage and ship elevated.

A designates a strong drum constituting the base of the carriage, which sustains and supports the carriage proper and has mounted therein the requisite mechanism for rotating the carriage. In this casing or drum is arranged a cross-bar 1, in the center of which is rigidly fixed the lower end of a vertical shaft 2. On this shaft is secured a supporting-collar 3, on which rests a wheel 4, provided with a bevel-gear 5, which meshes with a bevel gear-wheel 6 on a shaft 7, carried on bearings 8 9, substantially as shown. On the outer end of the shaft 7 is a pulley 10, having belt connection with a power. (Not shown.) From the hub or center of the platform B extend sleeves 11 11^x, formed on the hub of the rotating platform B. In the top of the drum A are journaled a number of rollers 12, on which the platform B revolves, as shown in the drawings. On the middle of the platform B is a

block 13, having flaring or dovetail sides, which engage with the reversely-shaped flanges 14 15 of a sliding block 16; (see Fig. 5,) to which is attached or connected the tilting mechanism serving to produce the variable motions of the carriage. To the opposite sides and ends of the sliding block 16 are pivotally connected the tilting bars 17 18 19 20, having their upper and outer ends jointed to the under side of the tilting platform C, as shown in Figs. 3 and 4 of the drawings. On the platform B is a block 21, in which a screw 22 is held against progression by means of a collar 23. This screw at the inner portion engages with a cross-piece 24 on the sliding block 16, so that when the screw is turned the block is drawn or pushed in corresponding direction and the connecting-bars made to move the platform C. On the platform B is an angular yoke 25, the cross-head 26 of which has a threaded hole through it, in which the threads 27 of the screw 22 engage, as seen in Figs. 3 and 4 of the drawings. In the arms of the yoke 25 are formed racks 28 29, which engage gears 30 on vertically-arranged lifting-screws 31, as seen in Fig. 4. These screws 31 have their lower ends rounded, as seen in dotted line in Fig. 4, and have the shanks formed with quick-pitch threads 32, which engage nuts 33, fixed on the under side of the tilting platform C and pass up through the platform, as shown. The rear set of lifting-screws have the threads the reverse from the front set, so that when one set is used to lift the carriage the other set draws in opposite direction to assist in the operation. On the platform B is a support 34, extending across the platform and constituting a fulcrum, on which the platform C is hinged, rests, and tilts. On the platform C are a number of rollers 35, which support the outer portions of the gun-floor D, which has a ball-and-socket bearing connection to the shaft 2, as best seen in Fig. 3 of the drawings. The center hole in the platform C is made larger than the diameter of the shaft 2, in order that space may be provided for the tilting of the platform at this point.

In Figs. 6 and 7 is shown a rectangular locking-plate C', hinged at its top to the drum, the free end of which has holes therein, through

which slotted pins *b*, secured in the periphery of the platform B, are passed and keyed by means of keys *b'*, thus locking the parts A and B together. By locking the parts A and B together, as shown in Fig. 7 in dotted lines, and putting power-belt on pulley it throws the gun-floor up, and by means not herein shown the belt is moved automatically to the pulley, which reverses the motion of the screw and incline of the gun-floor and produces a heaving and pitching motion.

The ships shown in Figs. 6 and 7 of the drawings are not regarded as integral parts of the machine. They are merely shown as illustrating the fact that on a deck sufficiently large a miniature ship can be mounted and the same movement imparted to the ship and its gun or guns as would be given to a single gun mounted thereon, and in addition to the art of gunnery seamanship may thus be acquired.

By such construction of mechanism as I have described and illustrated I am enabled to give those movements to my device located on land which are naturally given by the waves of the ocean to vessels—that is, a rolling and pitching motion—the advantages derived from a device of this kind being such that by practicing thereon on land by persons unacquainted with the motions of a vessel at sea they can get so accustomed to these movements that they can within a comparatively short time acquire great skill and proficiency in the management of the various duties requisite on board of a vessel and the ready manipulation of guns thereon consequent upon these motions, that where they have heretofore known nothing whatever of peculiar motions which are given to vessels at sea without having experienced years of travel upon the ocean.

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

1. In a gun-carriage, the combination of a supporting-base, a rotating platform on the base, a rotating and tilting platform on the said rotating platform, means, as described, for tilting the platform, and a gun-floor, with rails and masts, on the tilting platform, arranged to accommodate the motions and be tilted therewith, substantially as described.

2. In a gun-carriage, the combination of the rotating platform B, a centrally-arranged sliding block on the platform, the tilting platform C, the connecting-rods between the platform C, the sliding block, and means, sub-

stantially as described, for moving the sliding block, as and for the purpose set forth.

3. In a gun-carriage, the combination of the rotating platform B, a centrally-arranged sliding block on the platform, the tilting platform C, the connecting-rods between the platform C and the sliding block, a sliding yoke on the platform B, having racks in its arms, lifting-screws to engage the racks and tilt and sustain the platform C, and means to move the yoke and the sliding block, substantially as described.

4. In a gun-carriage, the combination of the platform B, a yoke on the floor of the platform, having racks formed in it, a tilting platform C, arranged above the platform B, lifting-screws arranged to engage the racks of the yoke and tilt the platform, and a screw to move the yoke, substantially as described.

5. In a gun-carriage, the combination of a supporting-base, a rotating platform on the base, a rotating and tilting platform, means, as described, for tilting the platform, and a gun-floor on the tilting platform arranged to accommodate the motions and be tilted therewith, substantially as described.

6. In a gun-carriage, the combination of a base, a central vertical shaft and gear for actuating the same, and a series of platforms centrally mounted on the said shaft, the extremity thereof terminating in a ball, which engages with a socket on the gun-platform to permit the gyratory motion of the same.

7. In a gun-carriage, the combination of a base having a central vertical shaft and gearing connecting it with a suitable motor, a series of platforms centrally located on said shaft, mechanism for tilting and rotating said platforms, and a ball-and-socket joint on the terminal of said shaft to permit the gyratory movement of the gun-platform supported thereon.

8. In a gun-carriage having a suitable base, a vertical shaft, a series of rotary platforms mounted thereon, and mechanism for actuating the same, of a ball-and-socket joint terminating said shaft, said ball having a recess on the surface thereof for the reception of an antifriction-roll, whereby the wave-like motion of the platform is facilitated.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK BEX.

Witnesses:

L. C. STRIDER,
O. M. BALL.