2 Sheets—Sheet 1

P. F. JONES.

Gun-Carriage.

No. { 2,887. / 33,891. }

Patented Dec. 10, 1861

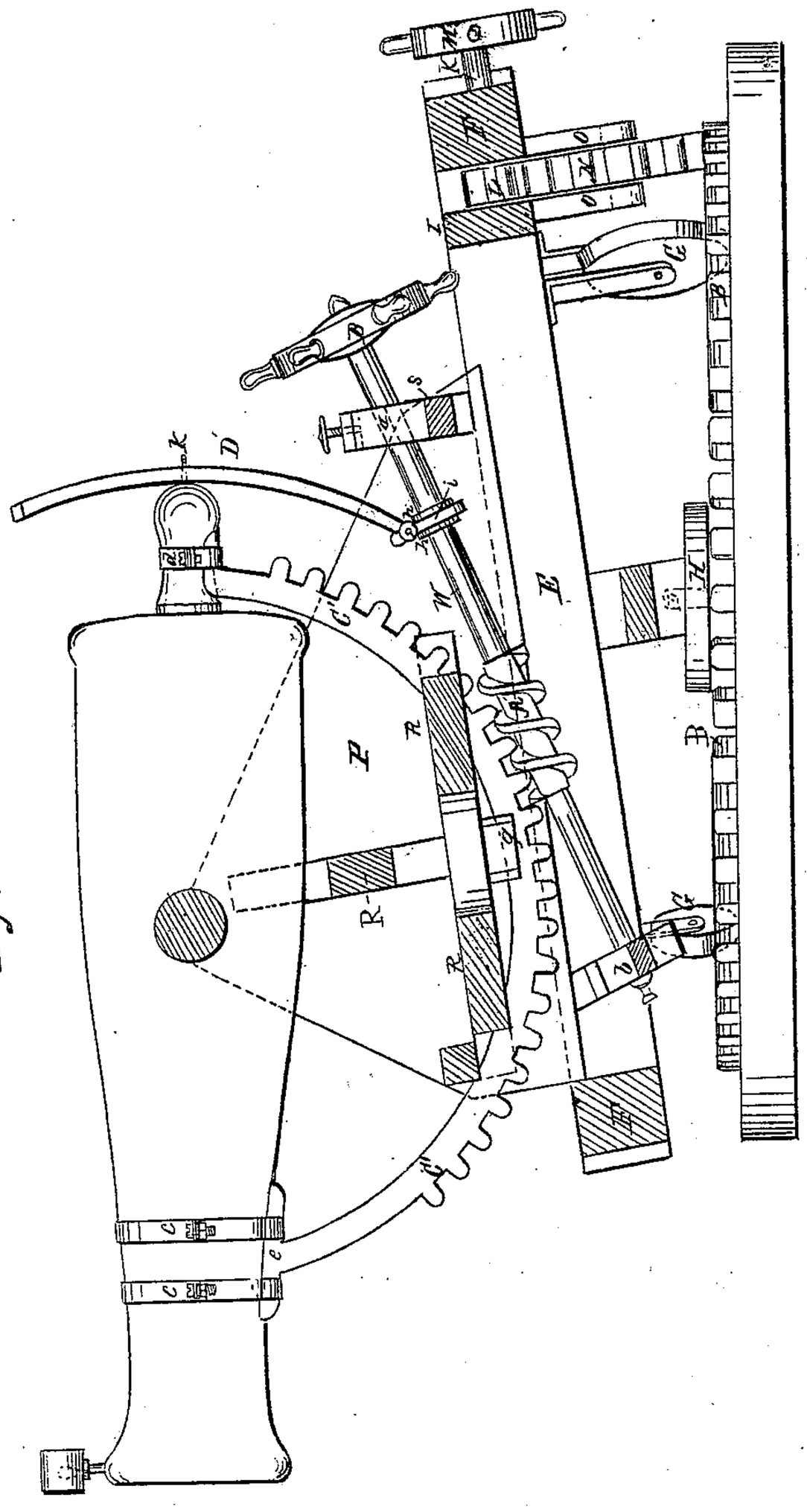

Fig. 1.

Witnesses.
Oliver D. Barrett
E. B. Woodruff

Inventor.
P. F. Jones

2 Sheets—Sheet 2.

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Fig. 4.

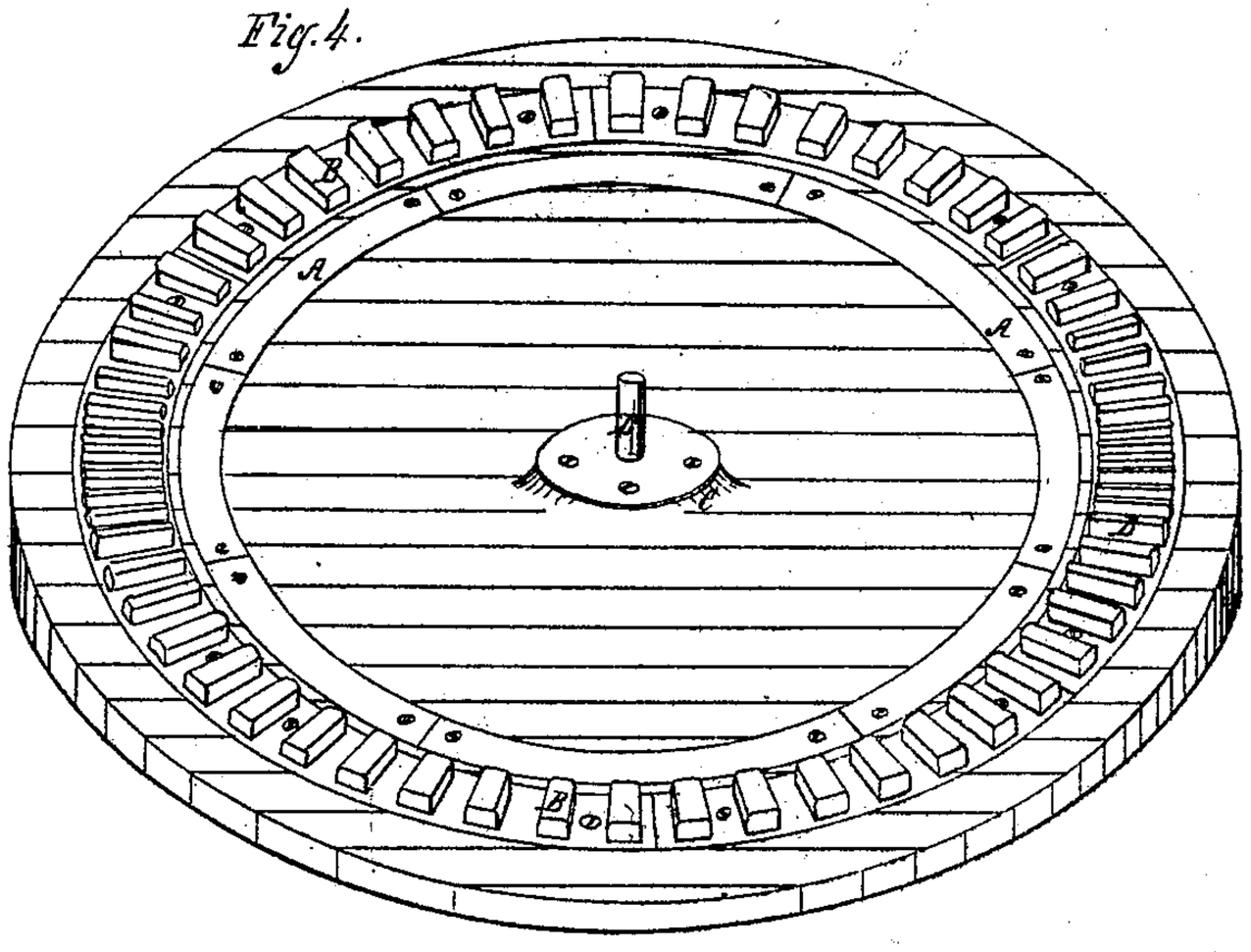


Fig. 3.

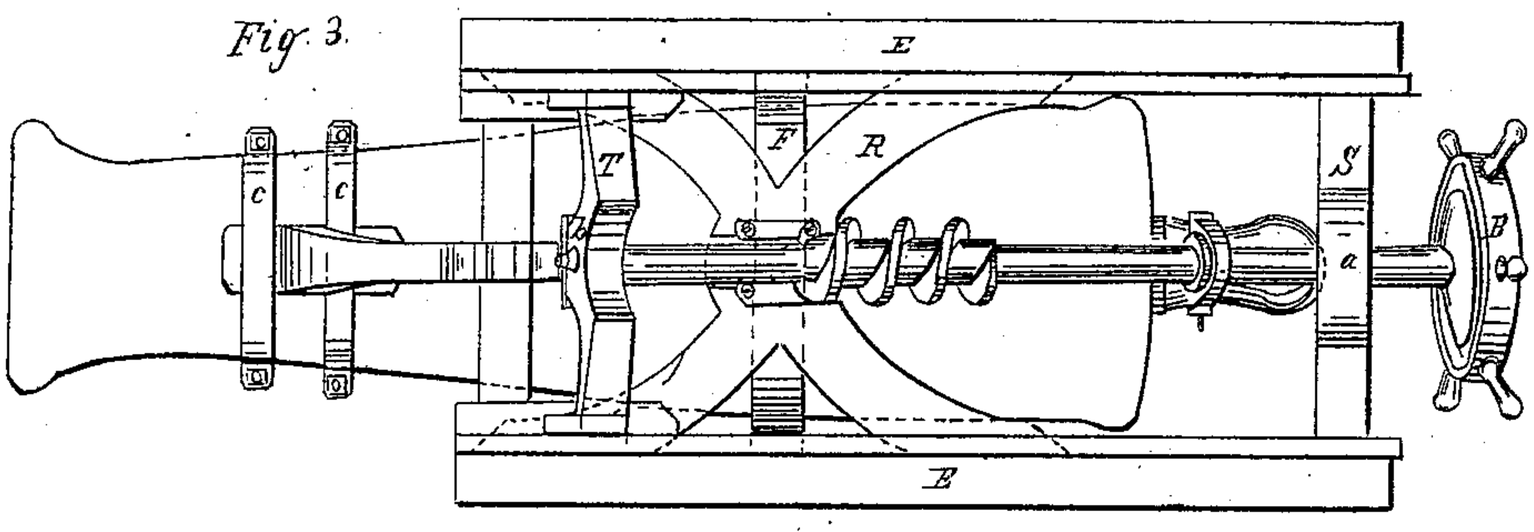
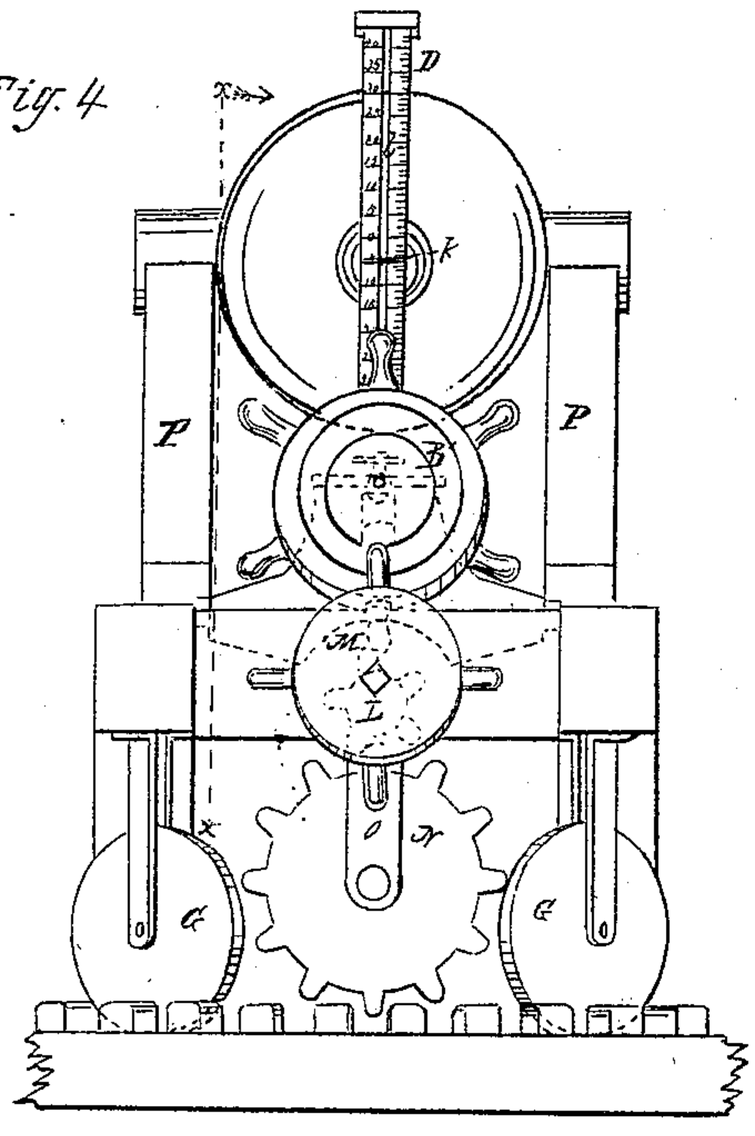


Fig. 4



Witnesses.
Ulrich D Barrett
J. B. Woodruff

Inventor
P. F. Jones

UNITED STATES PATENT OFFICE.

P. FRANKLIN JONES, OF NEW YORK, N. Y.

IMPROVEMENT IN OPERATING HEAVY GUNS.

Specification forming part of Letters Patent No. **33,891**, dated December 10, 1861.

To all whom it may concern:

Be it known that I, P. FRANKLIN JONES, of the city, county, and State of New York, have invented certain Improvements in the Mechanism Employed in Directing or Pointing and in Elevating and Depressing Heavy Guns; and I do hereby declare that the following is a description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section through the line *x x* of Fig. 2; Fig. 2, a rear view; Fig. 3, a bottom view of the carriage and worm-rod, and Fig. 4 a perspective view of the traverse and cog circles.

The nature of my invention consists, first, in the means provided for directing or pointing the gun and carriage by which they may be thrown around an entire circle in a horizontal plane, so that whether the gun be used *en barbette* in fortifications or as a pivot-gun on shipboard its muzzle may not only be turned to any point of the compass, but may be made to follow the motions of a passing vessel with the greatest accuracy; second, in the mechanism devised for elevating and depressing the gun, whereby the power of the gunners is economized and an extreme range of elevation and depression secured; third, in the peculiar construction and arrangement of the instrument adopted for determining and indicating the angle of elevation or depression of the gun; fourth, in the combination of the mechanism devised for elevating and depressing the gun with the peculiarly constructed and arranged instrument adopted for determining and indicating its angle of elevation or depression, by which combination the piece is accurately and almost instantly "elevated," and, fifth, in the combination of the means provided for directing or pointing the gun with the mechanism devised for elevating and depressing it, by which combination the gun is most expeditiously "laid."

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the platform, if the gun is used in fortifications, or on the deck if on shipboard, is laid the usual metallic traverse-circle A, cast or made in sections, as shown in the drawings, for purposes of cheap repair and easy transportation. In like position and of like construction and concentric with the said traverse-circle, but outside of it, is laid the cog-circle B. From the common center of these circles rises the bed C, upon which is bolted the pintle D. The chassis is of the ordinary construction, having the usual rails E, transoms F, and conical traverse-wheels G, with the exception that the middle transom F is curved downward, to the bow or lower part of which is bolted the pintle-plate H. The rear part of the chassis is also provided with a supplemental transom I, parallel with and a few inches in front of the rear transom F. These transoms furnish bearings for the shaft K, which upon its front end carries the pinion L and on its rear end the hand wheel or winch M. The pinion L engages with the larger pinion N, having its bearings in the hangers O, which latter pinion engages in its turn with the cog-circle B. From this description the operation of this part of my invention will be obvious.

The gun and gun-carriage being in position on the chassis, the directing or the pointing of the gun is a matter easily effected by means of the hand-wheel M. The gunner has the piece always under complete control, and if in land-batteries or on shipboard it be desirable to follow the motions of a vessel this may be done with great exactness and with the expenditure of comparatively little power. So, too, in case of attack upon a fort from the land side all the barbette-guns upon the water front may be instantly turned inland for the purpose of shelling a foe attacking from that quarter, and thus all the barbette-guns may be utilized at the same moment. Such is also the case in front attacks. The land-side guns may be as readily turned seaward and in the same manner the whole barbette battery brought into play.

The gun-carriage P, provided with truck-wheels, rolls back in the recoil upon the rails E of the chassis in the ordinary manner, the said carriage being sufficiently braced by means of the curved braces or center transoms R R, which are firmly bolted to the inner sides of the cheeks. The rear transom S curves upward and at its center or highest point is pro-

vided with a box *a*, which furnishes the bearing for the rear upper end of a shaft W, which inclines downward toward the platform, so as to give a proper elevation to the hand-wheel, whose front lower end has its bearing in the front transom T, similarly formed and furnished with a box *b*. Between these bearings S and T, but nearest the latter and almost directly under the trunnions of the gun, the shaft W is constructed with a worm A′ and in rear of the rear transom S with a hand-wheel B′. To the under side of the gun is attached the cogged semicircle C′ by means of straps *c c* and *d* at equal distances from the trunnions, the straps *c c* passing around the chase or neck of the gun in front of the trunnions and a double-formed toe *e* on the front end of the semicircle C′, while the strap *d* passes around the cascabel and the toe *f* on its rear end, the center of the said semicircle being steadied by working through a groove or mortise *g*, formed on the under side of the brace or transom R R.

It being premised that the worm A′ engages with the cogged semicircle C′, the method of elevating and depressing the gun is readily understood, and the advantages accruing from the means employed are no less obvious. By the described combination of the lever and screw powers, there being two of the former and one of the latter, great power and strength are secured, so that the heaviest gun can be elevated and depressed by a single gunner. The range of elevation and depression is also an important object gained by this method, it being greater than that obtained from any other with which I am acquainted.

The third point of my invention relates to the instrument employed for obtaining the desired angle of elevation or depression of the gun. This consists of a fixed circular slotted scale or gage D′, having the degrees marked on its convex face, as seen in Fig. 1. It is connected to the worm-rod W (which at the point of attachment is made with two fixed collars *h*) by means of a yoke *i*, which is jointed to its lower end at *j*, and it is held in an upright position by means of the double-headed index or pointer *k*, which extends from the rear end of the cascabel through the sight-slot *l*. By these means of taking the elevation or depression the gunner is enabled to determine at a glance the exact degree and through the slot in the scale or gage to obtain at the same time a perfect sight. This method also has the advantage over any other with which I am familiar in that any degree of elevation or depression can be taken instantly without any change in the mechanism, the same being always in readiness for working, and also because the scale or gage, as well as the mechanism for elevating and depressing, is wholly connected with the recoil or gun-carriage and moves with it, and is thus protected from injury resulting from the recoil.

For all my improvements it may be said that they are simple and cheap, and that they are perfectly adapted to the gun-carriages now in use and may be applied without any material alteration, whether the carriage be of wood or iron.

I am aware that pivot-guns have been used on shipboard which were capable of being turned to any point of the compass by means of pulleys and tackles; but in such cases there can be no regular movement of the gun from the nature of that mechanical power. I am also aware that a toothed segment and pinion have been employed to give lateral deflection to the gun; but this does not embrace the idea of sweeping the horizon so that all the guns of a fort may be turned upon the same side; but,

Having thus described my invention and its operation in such terms as I now think are sufficiently full, clear, and exact, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The cog-circle B, in combination with the pinions L and N, or either of them, when constructed as described and used in connection with the traverse-circle A.

2. The cogged semicircle C′, attached to the chase or neck and to the cascabel, as described, in combination with the worm A′, as and for the purpose set forth.

3. The fixed circular slotted scale or gage D′, when constructed and arranged substantially as above specified.

4. The cogged semicircle C′ and worm A′, in combination with the fixed circular slotted scale or gage, as described.

5. The cogged circle B, with its pinion or pinions, in combination with the cogged semicircle C′ and worm A′, as and for the purposes indicated.

In testimony whereof I have hereunto set my hand this 15th day of October, 1861.

P. FRANKLIN JONES.

In presence of—
WM. BATES,
J. B. WOODRUFF.