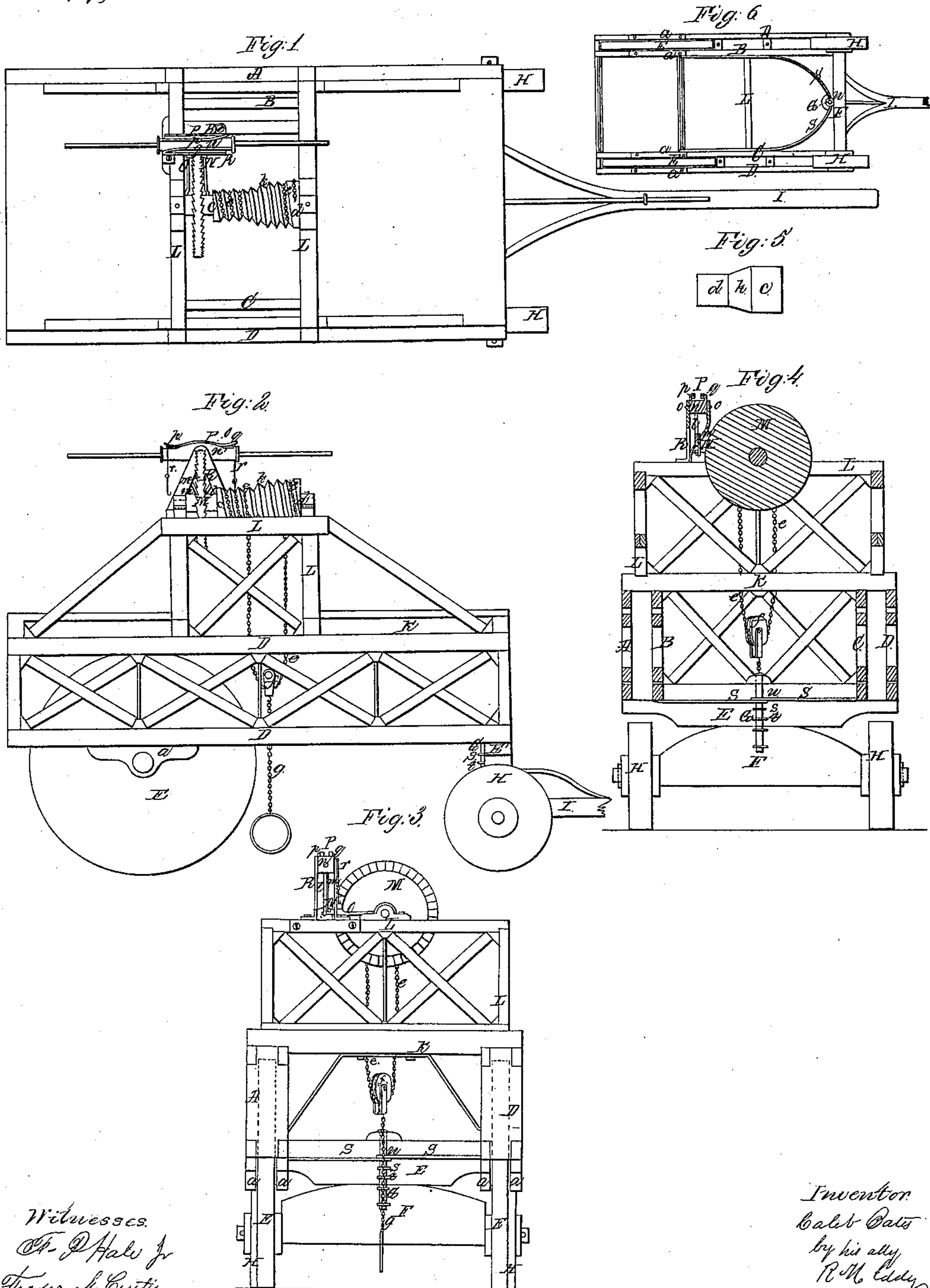


C. Bates, Stump Elevator.

N^o 44,390.

Patented Sep. 27, 1864.



Witnesses.
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UNITED STATES PATENT OFFICE.

CALEB BATES, OF KINGSTON, MASSACHUSETTS.

IMPROVEMENT IN CARRIAGES FOR RAISING AND TRANSPORTING ORDNANCE.

Specification forming part of Letters Patent No. 44,390, dated September 27, 1864.

To all whom it may concern :

Be it known that I, CALEB BATES, a resident of Kingston, in the county of Plymouth and State of Massachusetts, have invented a new or Improved Carriage for Raising and Transporting Ordnance; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 an end view, and Fig. 4 a transverse section, of it.

The said carriage is so constructed as not only to have a clear space between the axles of its two rear wheels, but each of the said wheels is supported within and by two strong trusses or frames, which are combined with an axle-bearer and a trussed frame for sustaining the operative machinery for raising a gun. Furthermore, the two barrels of the windlass have their helical grooves so connected by one being run into the other that the chain may coil from the larger to and upon the smaller, in order that the said chain, by depending from opposite sides of the smaller barrel, and while holding a gun raised so as to be transported by the carriage, shall operate to prevent the windlass from revolving. Furthermore, the king-bolt of the front axle is not only supported by the front or axle-beam of the carriage, but by a furcated brace extending backward from it to the side truss-frames of the carriage.

In the drawings, A and B, C and D, are the four side trusses or wheel-frames, they being arranged and constructed as represented. A wheel, E, is placed between the trusses of each pair A B and C D, and has its axle supported in boxes *a a*, applied to such trusses. The two axles are separate, so that there may be a clear space between them and the two inner trusses. At their front ends the four trusses are connected to and supported on an axle beam or bar, E', which in turn rests on the front axle, F, and is connected thereto by a king-bolt, G. The axle F is provided with two wheels, H H, and a draft-tongue, I. Two cross ties, K K, are extended from one to the other pair of the truss frames at their respective ends and upper surfaces, and are bolted securely thereto. Furthermore, there is an open frame, L, arranged on the pairs of the truss-frames and extending

from one to the other of them, it being bolted or fastened to them and provided with horizontal and inclined braces for keeping it in place.

The king-bolt G of the front axle passes down through bearings *s t*, projecting from the rear side of the bar E. It also goes through the eye *n* of a furcated iron brace, S, whose legs extend back and are fastened to the two pairs of truss-frames. Fig. 6 is an under side view of the carriage with the furcated brace as applied to the same and the king bolt. In this way the king-bolt will be supported by the said brace and the truss-frames, as well as by the bar E, the latter being thereby relieved from much of the strain of the draft-animals when yoked or harnessed to the tongue and in the act of drawing the carriage forward.

The frame L serves to support a double windlass composed of two barrels, *c d*, the two ends of a single chain, *e*, being fastened to these barrels, respectively. The chain depends from the two barrels and goes partially around the wheel of a pulley, *f*, from which the slings *g g*, for holding a gun by its trunnions, extend. Each of these barrels is grooved helically on its outer curved surface and from end to end thereof, one barrel having a diameter greater than the other. The helical groove of one barrel is run into that of the other by a short conical barrel or frustum, *k*, arranged between the two and on the same axis with them.

Before the formation of the helical grooves in the barrels, they would have the appearance as shown in Fig. 5, in which they are represented as two cylinders, *c d*, united by an interposed conic frustum, *k*. In forming the helical groove for supporting the chain it is to be run from the barrel *c* down and around the frustum *k*, and thence on and around the cylinder *d*.

By rotating the double windlass the chain will be caused to wind on the larger barrel and unwind from the smaller. As the larger barrel will take up the chain faster than it will be given off by the smaller barrel, the result will be that the pulley and its slings will be raised upward. After the chain may have filled the entire groove of the larger barrel it will descend the groove of the conic frustum *k* and pass into the groove of the lesser

barrel, in which case the chain will depend from opposite sides of the lesser barrel. Then, as the weight borne by the chain will act on opposite sides of the barrel, it will not operate to turn the windlass more in one than in the opposite direction.

The windlass is provided with a double ratchet-wheel, M, and two lever-pawls, N O, which, by means of crossed rods *l m*, are connected to the head *n'* of a brake-lever, P, whose fulcrum *o* is supported within a standard, R, the whole being arranged as shown in the drawings.

By moving the brake-lever with a reciprocating movement the pawls will be caused to alternately take into the double ratchet-wheel and rotate the same so as to cause the rotation of the windlass.

Two detacher-springs, *p q*, are placed on the top of the head *n'* of the brake lever, one end of each spring being fastened to such head. Chains *r r*, with hooks on their ends, extend down from the free ends of these springs, and when used are to be hooked into the adjacent ends of the pawls.

In consequence of the peculiar arrangement of the detaching springs or devices, each while being lifted by the brake will operate to draw the next adjacent pawl away from or out of engagement with the ratchet-wheel.

By means of the pawl-detachers the motion of the windlass may be reversed by the brake, so as to lower a weight or cannon suspended from the windlass.

The advantage of my present arrangement of the springs of the detachers is, that such springs are not likely, as spiral springs or springs placed under the brake-head are, to

become set, or overstrained, or injured. Any force tending to overstrain the springs will, under my arrangement of them, cause them to be brought hard up against the top surface of the brake-head.

An ordnance transport-carriage constructed as described will be found to work to excellent advantage in our fortifications and dock-yards.

I claim—

1. The combination and arrangement of the four truss-frames A B C D, the frame L, and the axle bar or beam E', together and with the windlass and its operative mechanism, substantially as hereinbefore described.

2. The arrangement of the furcated brace S with the truss-frames A B C D, the axle beam or bar E', and the king-bolt G.

3. I do not claim the combination of two windlass-barrels and one chain, having its end attached to the two barrels, respectively; but what I do claim is my improvement thereon, the same consisting in connecting the helical grooves of the two barrels by running one into the other by means of a grooved frustum arranged between and combined with the two grooved barrels, and so that the chain may coil from the larger to and upon the smaller of the two barrels, in manner and for the purpose or so as to operate as specified.

4. My improved arrangement of the detaching-springs with respect to the pawls and brake-head.

CALEB BATES.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.