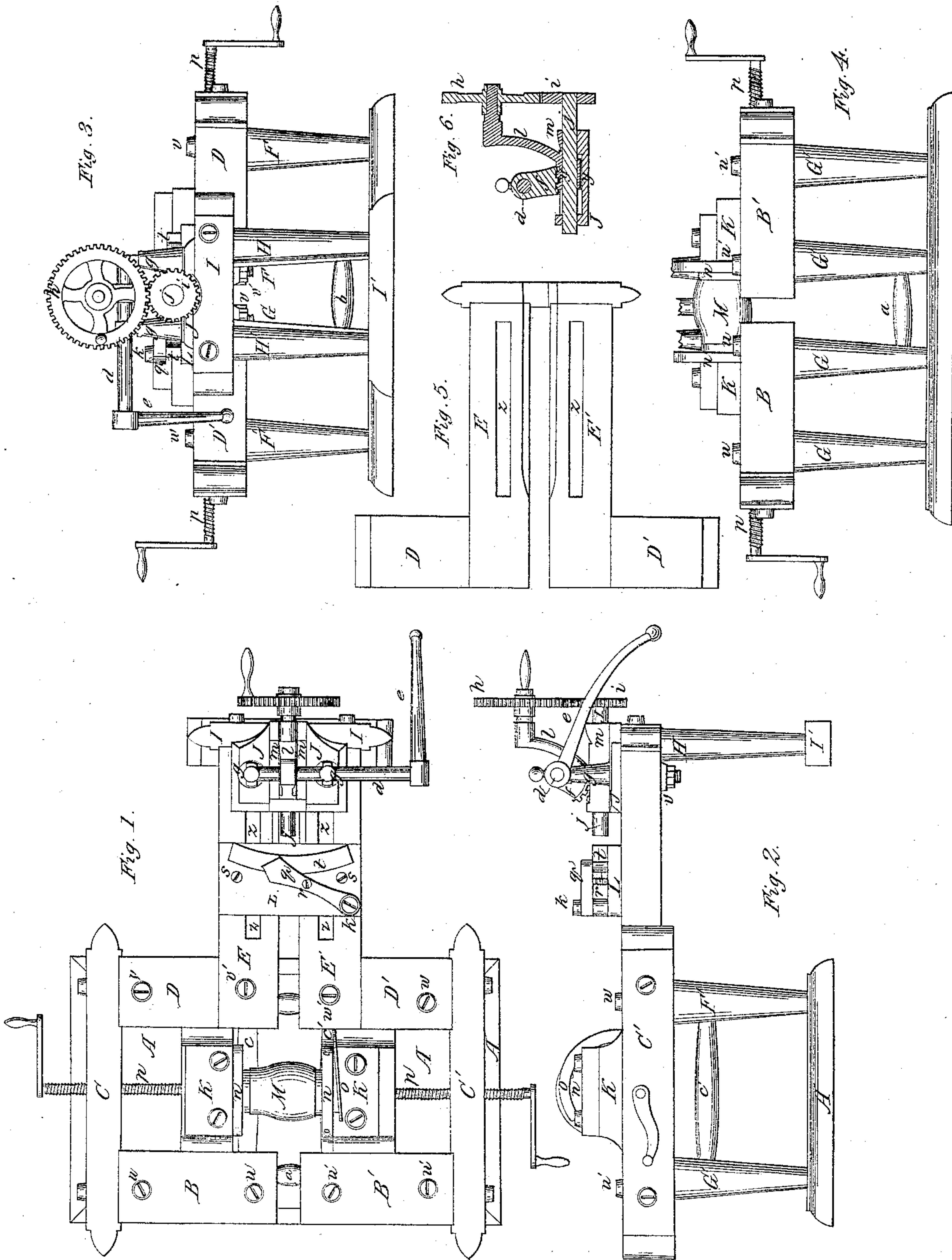


C. H. Guard,
Boring and Tenoning Machine.

No 18,448.

Patented Oct. 20. 1857.



UNITED STATES PATENT OFFICE.

CHAUNCEY H. GUARD, OF BROWNSVILLE, NEW YORK.

WHEELWRIGHT-MACHINE.

Specification of Letters Patent No. 18,448, dated October 20, 1857.

To all whom it may concern:

Be it known that I, CHAUNCEY H. GUARD, of Brownsville, in the county of Jefferson and State of New York, have invented a new and useful Improvement in Machinery for Making Wheels for Carriages, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 is a top view of my improved wheel making machine; Fig. 2, a side elevation of the same; Fig. 3, a view of the right-hand end of said machine; Fig. 4 a view of the left hand end of the same; and Figs. 5 and 6 are detached portions of said machine.

Similar letters indicate like parts in each drawing.

The peculiar feature of novelty in my machine for making wheels for carriages &c., consists in the novel shape and arrangement of the respective parts thereof which enables the hub, the spokes, and the fellies, to be successively operated upon, within the machine, and then be combined with each other, without removing the hub from the holders which support it during the operations of boring and mortising.

The frame of my improved wheel-making machine, is composed of longitudinal side-portions, or halves, which are united to each other in such a manner as to form a perfect whole for the support and guidance of the respective movements of the machine. The rear side of the said frame is composed of the outside longitudinal beam C, the parallel transverse beams B, D, and the inside longitudinal beam E, which are combined with each other, and with suitable supporting legs and braces, as represented in the drawings; viz: Tenons on the outer ends of the beams B, D, are secured in mortises in the beam C; and a tenon on the inner end of the beam D, is secured within a mortise in the inner end of the beam E. The screws *u*, *u*, connect the legs G, G, with the beam B; the screw *v*, connects an outer leg F, with the outer end of the beam D; and the screw *v'*, connects the inner leg F, with the inner end of the beam E. At a short distance below the under surfaces of the beams B, D, E, the inner posts G, F, are connected together by the strong brace *c*.

The front portion of the frame of my improved wheel-making machine is com-

posed of the beams B', D', E', which are connected together by means of mortises and tenons in the same manner that the corresponding parts in the rear portion of said frame are united to each other; and the said united beams are supported by means of the legs G', G', F', F', and the connecting brace *c'*, in the same manner that the rear half of the frame of the machine is supported by the corresponding legs G, G, F, F and the connecting brace *c*. The inner facing surfaces of the beams B, D, and B', D', have grooves formed in the them which receive the adjustable followers K, K,—before the respective portions of the frame of my wheel-making machine are combined with each other. The respective portions of the aforesaid machine are combined with each other into a perfect and symmetrical whole, in the following manner; viz: In the first place the feet of the supporting legs G, G, G' G'; F, F, and F', F', are firmly secured to a suitable platform A', or its equivalent, then the outer ends of the beams E, E', are united to each other by the cross-beam I, which is supported upon the legs H, H', that rise from the base-beam I'; and then the inner legs G, G', are united to each other by means of the brace *a*, and the inner legs F, F', are united to each other by means of the brace *b*.

The frame of my wheel-making machine, when thus constructed, is ready to receive the necessary operating parts to manufacture a perfect wheel from the unfinished hub, spokes, and fellies; and all without removing the hub from its holders, from first to last.

The disk hub-holders *n*, *n*, have strong outwardly projecting journals which are received into suitable boxes secured to the followers K, K. The inner faces of the said holders, which receive and support a hub while it is being bored and mortised; and also while the spokes are driven into it, the tenons formed on the extremities of the same, and the fellies driven on to the said spokes; may be of any suitable shape to give the proper support to the said hub. The hub holders may also be turned around and secured in the required positions, in any usual or suitable manner.

Longitudinal movements may be imparted to a hub, when it is secured within the holders *n*, *n*, by means of the right and left crank-screws *p*, *p*, which pass through

screw-nuts secured in apertures in the beams C, C', and act against the outer sides of the followers K, K.

The apparatus mounted on the plate J, by a slight change of position, and by shifting the operating tools, can perfectly perform the following functions; viz: bore and mortise a hub, bore the necessary number of holes in a felly, and form tenons on the ends of the spokes, after they have been driven into a hub, while it is supported by the holders *n, n*. The said apparatus is composed of the chisel and auger-holder *j*, which works in the open mouthed box *m*, and is so combined with the lever *e*, and with the toothed crank wheel *h*, that longitudinal reciprocating movements, and also continuous rotary movements may be separately or simultaneously imparted to said holder. The construction of the said apparatus which enables the said movements to be accomplished, is as follows:

A metallic sleeve *y*, embraces the central portion of the chisel and auger-holder *j*, and from the said sleeve an inclined arm *l*, rises, which terminates in a horizontal journal that receives the toothed wheel *h*, and supports it immediately above the pinion *i*, at the outer end of the chisel and auger-holders. A series of teeth are formed on the upper side of the sleeve *y*, which receive matching teeth at the extremity of the arm *f*, that descends from the oscillating shaft *d*, which has its bearings in the standards *g, g*, that rise from the plate J. Screw-shanks descend from the standards *g, g*, through apertures in the plate J, and through the slots *z, z*, in the beams E, E'; so that by means of the screw-nuts *v, v*, which work on the said screw-shanks, against the under surface of said beam, the before described boring and mortising apparatus combined with the plate J, can be secured in any desired position upon the beams E, E'.

When employed for boring and mortising a hub, the aforesaid apparatus must be moved inward and secured at the proper

distance from said hub. When the said apparatus is used for forming the tenons upon the extremities of the spokes, after they have been driven into the hub, the apparatus must be moved outward and secured in a proper position upon the beams E, E'. When the said apparatus is used for boring the necessary holes in the fellies of a wheel, it must be secured in the position represented in the drawings, and with it there must be temporarily combined with the machine the felly-holder L, *q, r, k*, represented in the drawing. A felly *r*, may be placed in any required position upon the platform L, and secured in said position by the clamping bar *q*, and the set-screws *k, r*.

The opening between the inner ends of the beams B, B', and between the inner sides of the beams E, E', enables the spokes to be driven into a hub without removing it from the holders which secure it during the operations of boring and mortising. The inner upper angles of the beams E, E', are beveled off to give room for the pinion *i*, on the end of the chisel and auger-holder *j*, to be freely rotated in every position that the boring and mortising apparatus may be placed in upon the said beams.

Having thus fully described my improved machine for making the wheels of carriages, &c., what I claim as my invention and desire to secure by Letters Patent is—

The arrangement of the respective movements thereof with each other and with the frame of the machine in such a manner that the several parts of a wheel may first be separately operated upon and then be combined with each other, as herein set forth.

The above specification of my improvements in the machinery employed in the manufacture of the wheels of carriages, &c., signed this 28th day of May, 1857.

CHAUNCEY H. GUARD.

Witnesses:

RUSSELL S. TAFT,
A. A. BYINGTON.