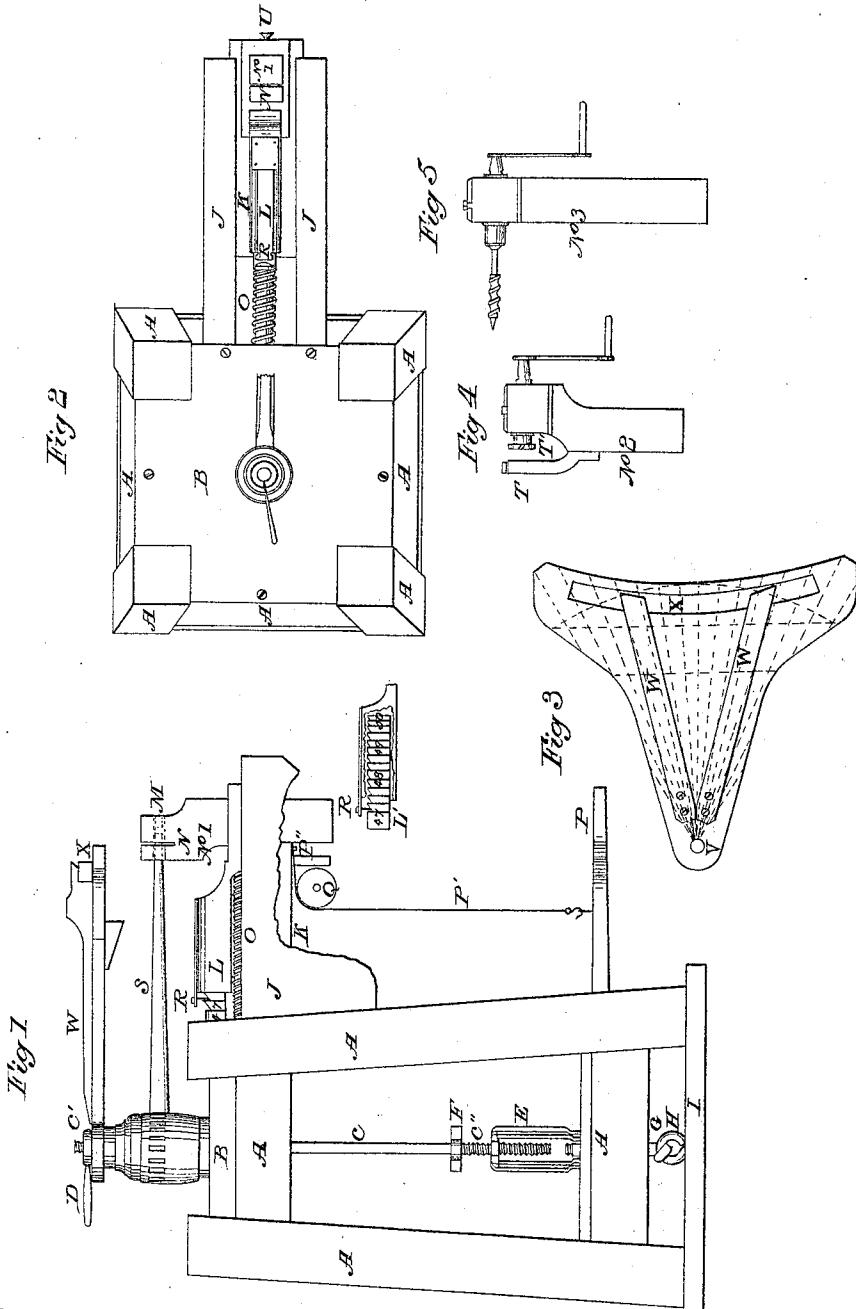


G. W. Hatch,

Making Carriage Wheels,

No 41,004,

Patented Dec. 22, 1863.



Witnesses:

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IMPROVEMENT IN MACHINES FOR MAKING CARRIAGE-WHEELS.

Specification forming part of Letters Patent No. 41,004, dated December 22, 1863.

To all whom it may concern:

Be it known that I, G. W. HATCH, of Parkman, in the county of Geauga and State of Ohio, have invented new and useful Improvements in Machines for Making Carriage-Wheels; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view. Fig. 2 is a top view, and Figs. 3, 4, and 5 are detached parts.

Like letters refer to like parts in the several views.

The nature of my invention relates to such a construction of the machine that all the various operations of setting the spokes and putting on the felloes may be performed without removing the hub from the machine, and at the same time insure a great degree of accuracy in the structure of the wheel. A strong frame-work having a height about equal to a common work-bench is shown at A, the posts of which are a little inclined inward at the top, for the purpose of securing firmness to the structure. The top of this frame is surmounted by a strong and solid plank, B, having a thickness of two or three inches, forming a bed or table, upon which the hub is placed and secured while the spokes are being set. In the center of this bed B is a hole, of about an inch in diameter, through which the rod C passes. This rod is made of iron, and upon each end is cut a screw-thread, as shown at C' C''. The upper end, C', is provided with a wrench-nut, D, by the action of which the hub is secured in place, as hereinafter stated, during the operation of setting the spokes. The hub is placed upon the table B, and the rod C passes through its center, as shown in Fig. 1. The lower end of the rod C passes through the upper end of the swivel E, as shown at C''. A thumb-piece, F, is fastened upon the rod C just above the swivel, by means of which the rod C can be adjusted endwise to suit the various lengths of the hubs. The lower end of the swivel E is provided with a short screw-bolt, G, which connects with a staple, H, in the floor I, and when the nut D is screwed down upon the hub the whole frame is firmly pressed upon and secured to the floor, thus giving great steadiness to the machine.

Upon one side of the machine I affix the arms J J, which extend outward from the frame about two feet. A sliding frame or cross-head, K, works in ways formed in the inner faces of the pieces J J, and upon this cross-head is mounted a scale, L, (shown also in section at L',) by which the lengths of the spokes are determined by means of the graduated rod L', being brought into contact with the edge of the bed or table B.

The figures upon the scale indicate the length of the spokes. This scale L is attached to the cross-head K at its outer end, and is mortised for the reception of the lower end of the head-blocks, presently to be described. These head-blocks are three in number, and are marked No. 1, No. 2, No. 3, respectively. No. 1 is shown in place in Figs. 1 and 2, and Nos. 2 and 3 are shown detached in Figs. 3 and 4. All of them fit into the same mortise in the cross-head K. The head-block No. 1 has a hole in its face side, (indicated by the dotted lines M, Fig. 1,) into which the ends of the spokes S enter after having been driven into the hub, and in which position they are sawed off to a uniform length preparatory to being tenoned in the manner hereinafter specified. A slit, N, serves as a guide to the saw. A spiral spring, O, is placed between the mortise in the cross-head K and the frame A, the action of which is to keep the head-block pressed back to the position shown in Fig. 2. By the compression of this spring the graduated scale L' is brought into contact with the edge of the table B, which determines the distance the head-block moves toward the table. This movement of the head-block by means of the compression of the spring O is accomplished by means of the treadle P, which is connected to the head-block by means of a strap, P', which passes over a roller, Q, and is attached to the cross-head at P''. The treadle is operated by means of the foot, by which it is depressed, the action of the spring raising the treadle when the pressure is released. The graduated scale L' is provided with a pawl, R, which falls into the notches upon the upper side of the scale, as indicated in Fig. 1. When the spokes have all been sawed off to the proper length the head-block No. 2 (seen detached in Fig. 4) is introduced into its place. This head-block has a rest, T, upon its face side, which su]

the spokes while being tenoned. The tenon is cut by means of a hollow auger, T', which is turned by a crank, the graduated scale L' being so adjusted as to cut the tenon to the proper length. The head-block No. 2, as in the former case, is moved up to the work by depressing the treadle P. When the spokes are all tenoned, the head-block No. 2 is removed, and the head-block No. 3 is introduced. This head-block is shown detached in Fig. 5, and carries the bit or auger for boring the holes in the fellies. It is, like the others, moved forward by the action of the treadle P and back by the spring O. All of the head-blocks are secured in the mortise in the cross-head, at any desired height, by means of a set-screw, U. (Shown in Fig. 2.) In order to secure the fellies in their proper position for boring, I construct a segment table. (Shown detached in Fig. 3.) It is of a triangular form, and when in use is secured upon the top of the hub, as shown in Fig. 1, by means of the rod C, passing through the hole V and being held in place by the nut D. Upon the top of the table I secure two spring-grips, W, which are of equal radial length, and the felly X is secured by them for being bored, in the manner shown in Figs. 1 and 3. The felly is marked off for the holes for the tenons and placed against the shoulders of the spring-grips W, as before stated, and moved along from point to point, as required, till all the holes are bored.

The operation of this machine is as follows: The hub is placed upon the center of the table B, the rod C passing through its center and firmly secured by the nut D. The spokes are then driven into the mortises in the hub in the usual manner. The head-block No. 1 is now inserted into the mortise and so adjusted as to allow the ends of the spokes to enter the hole M. The graduated scale L' is then set to the number corresponding to the size of the wheel. I then bring the head-block for-

ward by depressing the treadle until the scale L' comes in contact with the edge of the bed B, and then saw off the spoke by passing the saw into the slit N, and this operation is repeated till all of the spokes are sawed off to the required length. I then remove head-block No. 1 and insert head-block No. 2 and place it in position, and after setting back the scale L' the depth of the felly I bring the head-block to bear upon the spokes by means of the treadle P and cut the tenon by means of the hollow auger T' until one after another all are tenoned. I then remove head-block No. 2 and put in its place head-block No. 3. The triangular table, Fig. 3, is now secured in its place upon the top of the hub and the fellies, properly marked off, introduced under the spring-grips W. An auger of proper size being placed in head-block No. 3, I proceed to bore all of the holes in the fellies. The triangular table is then removed, the fellies set, and the wheel is finished off in the usual manner. Thus all the several operations of making the wheel after the hub and spokes are prepared are performed upon the same machine without removing the hub.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The frame A, bed B, rod C, swivel E, and attachments G and H, arranged as and for the purpose specified.
2. The arms J and cross-head K, for receiving and operating the head-blocks, as set forth.
3. The graduated scale L, in combination with the head-blocks Nos. 1, 2, and 3, and cross-head K, constructed and operated substantially as and for the purpose specified.
4. The table, Fig. 3, when constructed substantially as described, for the purpose of holding the felly while being bored, as set forth.

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Witnesses:

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