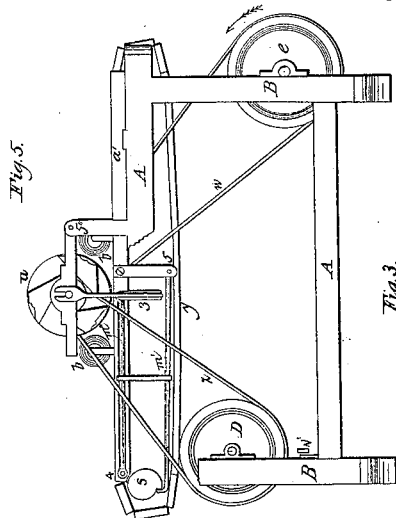
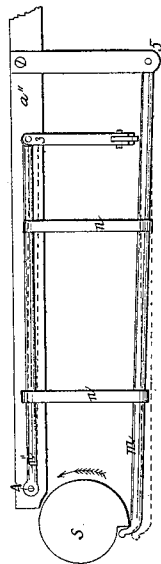
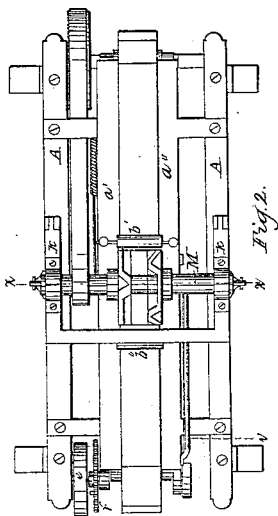
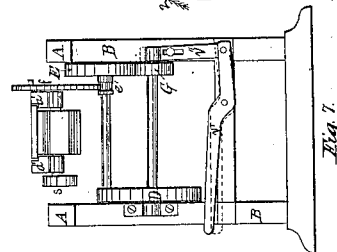
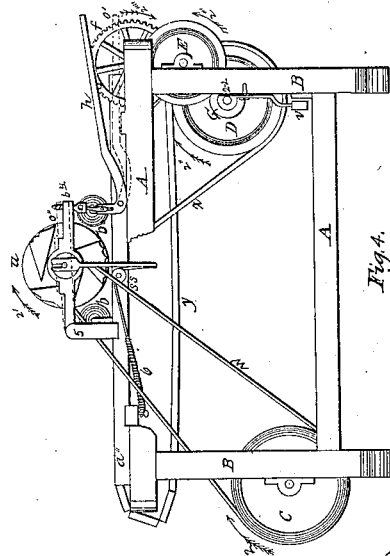


Patented Jan. 23, 1866.

Fig. 6.



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R. H. BOYNTON, OF OSHKOSH, WISCONSIN.

IMPROVEMENT IN SPOKE-MACHINES.

Specification forming part of Letters Patent No. 52,130, dated January 23, 1866.

To all whom it may concern:

Be it known that I, RALPH H. BOYNTON, of Oshkosh, county of Winnebago, State of Wisconsin, have invented new and useful Improvements in Machines for Dressing Spokes; and I do hereby declare that the following is a full, clear, and exact 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 2 is a plan, looking down upon the top; Fig. 3, a side view of the side A, Fig. 2; Fig. 4, a side view of the side B, Fig. 2; Fig. 5, an enlarged vertical longitudinal section, showing the different positions of the levers m' m'' as operated upon by the revolution of the cam or rotating pattern s ; Fig. 6, a lateral vertical section through the line $x x$, Fig. 2; and Fig. 7, a vertical section through the line $z z$, Fig. 2.

The same letters refer to like parts on the different sections of the drawings.

A A, $a' a''$, and B B on the different sections represent rails and posts of a rectangular frame, constructed in any suitable manner to support the several parts of said machines.

The operation is as follows: Power being applied, a band, w , from the pulley C, Fig. 4, to a small pulley upon the arbor which carries the cutter-heads gives motion to the cutter-heads in the direction of the arrow z' , and a band, x , from the opposite end of the same arbor to the pulley D, gives D revolution, as indicated by the arrow z'' , a pinion, g , hung upon the opposite end of the same journal with D, meshes into the wheel E, (or drives it by friction,) giving E motion in the direction shown by z''' ; and hung upon the journal with E is a small pinion, e' , meshing into the gear-wheel f , giving f motion, as shown by z'''' . Hung upon the shaft with f is the rotating pattern s , which operates the levers m' m'' , Fig. 5, they in turn acting upon the bent arms $t t$, Fig. 6, which in their turn actuate the cutter-heads $u u$, forcing them closer together, and allowing them to assume their original position again with each revolution of the pattern s and gear-wheel f . The endless chain or belt y is carried forward on drums at either end of the frame. One of the drums, being hung on the shaft with the wheel f , receives motion in the direction with f . The pulley D and pinion g are hung upon a vibrating journal, Fig. 7, one end of said journal being hung upon

the upright bar v'' , which is jointed to the vibrating lever v' at o' , the upper end being secured by a bolt through a slot in said bar v'' , allowing it free motion.

It will be seen that when the lever v' is depressed, as shown by the dotted lines, the pinion g will be thrown into gear with the wheel E, which drives f , thus giving feed-motion to the endless chain or belt y .

The hanging frame k is jointed to uprights at $5' 5''$, Figs. 3 and 4. The office of said frame is to carry the journal m of the cutter-heads $u u$, and is so operated that it rises and falls with each revolution of the wheel f .

The cutter-heads $u u$ are secured to collars which slide freely upon the arbor m . Through this arbor, and lengthwise with it, is a slot, through which are passed keys, which keys are fast in the cutter-heads, but slide freely in this slot, allowing the cutter-heads a free lateral motion. This motion is given the cutter-heads by the journals $3' 3''$, Fig. 6. The arbor m is hollow to admit through it the journals $3' 3''$, the inner ends being attached to the cutter-heads, the outer ends having their bearings on the upright ends of the arms $t t$. When the horizontal ends of the arms $t t$ are depressed to the dotted lines seen at Fig. 6 the cutter-heads will be forced close together. The arms $t t$ are jointed at $3 3$ and hinged at $4 4$, so that the horizontal ends at $3 3$ have a perpendicular motion and the upright ends have a lateral motion.

The levers m' m'' , Fig. 5, are hinged at one end, m' at 5, and m'' at 4, the opposite end of m'' being jointed at 3. The two levers are connected by a cross-bar, n , which is movable, and the lever m'' is connected with arm t' by a stud, 3. During the revolution of the rotating pattern s the end of the lever m' is depressed to the dotted lines, Fig. 5, and the levers being connected by the bar n , m'' will be drawn down, as at 3, thus forcing the arms $t t$ into the position shown by dotted lines, Fig. 6.

6, Fig. 4, is a spring fastened at 8 and connected with the arm t'' by a cord running over a pulley at $s s$. When the pattern s has made a complete revolution the lever m' will be free, and the action of the spring 6 will lift the horizontal ends of the arms $t t$, as at $3 3$, Fig. 6, thus throwing apart the cutter-heads and restoring the levers m' m'' to their original position.

H, Fig. 4, is a bent lever actuated by a stud upon the wheel *f*, whose office it is to raise and lower the hanging frame *k*. This is done as follows: In *k*, at *b*, 4, is set a socket, *i'*, and on the short arm of the lever *h* is jointed a stud, *i*², one end of this stud fitting into the socket *i'*, the other end jointed to *h* by a bolt and nut, the bolt working in a slot in *h*, so as to be adjustable at will. The vibration of the frame *k* is to adapt the perpendicular action of the cutter-heads to spokes differing in thickness.

It will be observed that by placing the connecting-bar *n* in the different positions seen at Fig. 5 the action upon the cutter-heads will be varied, thus enabling said machine to dress spokes differing in taper.

Having described the several parts of said machine separately, I will now describe their united action.

Power being applied, the pulley C is set in motion in the direction indicated by the arrow *z*. Motion is thus given to D and *g*. The long arm of the lever *v'* being depressed, *g* is thrown into gear with E, setting all the parts in motion. The material is then placed upon the moving bed or chain *y*, (being held down while passing under the cutters by rolls C,) so that so much of the spoke as will be re-

quired for the tenon will have passed under the cutter when the stud on the wheel *f* comes in contact with the lever *h*. The wheel *f*, in its further revolution, lifts the lever *h*, which allows the frame *k* to fall slightly, making a depression in the spoke, then lifts it to the dotted line *o''*, in which position it remains until the spoke has passed from under the cutters.

During the revolution of the pattern *s* the cutter-heads, through the medium of the levers *m'* and *m''* and arms *t t*, are gradually forced nearer together until the complete revolution of the pattern, when the spring 6 brings them back again to the starting-point, and a repeating operation completes the job.

Having thus described my invention, I will proceed to state what I claim as new and desire to secure by Letters Patent:

The rotating cutters *u u*, bent levers 4 4, lever *m'*, and cam-shaped pattern *s*, arranged with reference to each other and to the endless bed or chain *y* substantially as and for the purpose herein set forth.

R. H. BOYNTON.

Witnesses:

JOHN BUCKSTAFF, Jr.,
CHARLES STEVENSON.