

R. H. BOYNTON.

MACHINES FOR DRESSING SPOKES.

No. 173,441.

Patented Feb. 15, 1876.

Fig. 1.

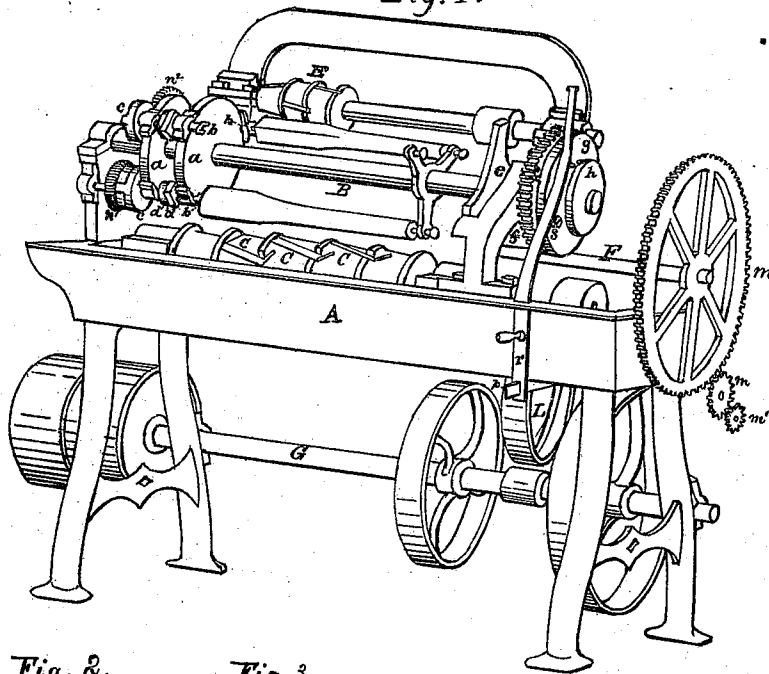


Fig. 2.

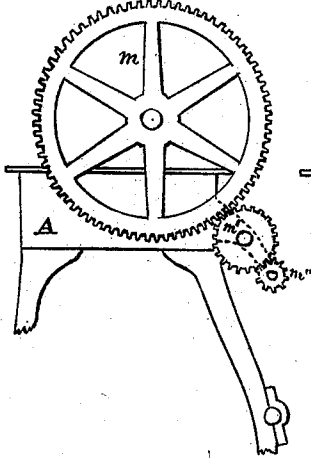


Fig. 3.

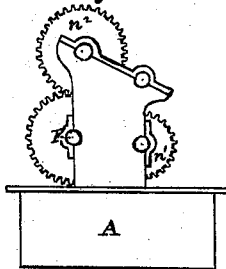


Fig. 4.

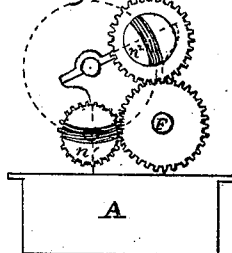


Fig. 5.

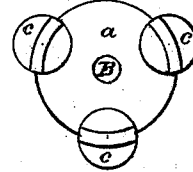
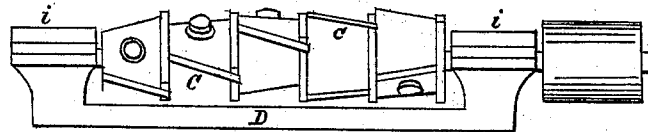


Fig. 6.



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Witnesses

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Fig. 7.

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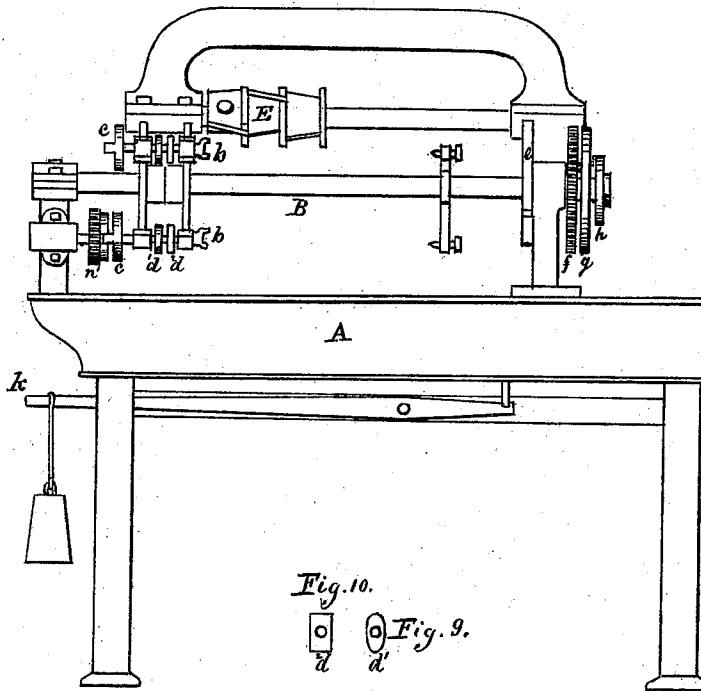
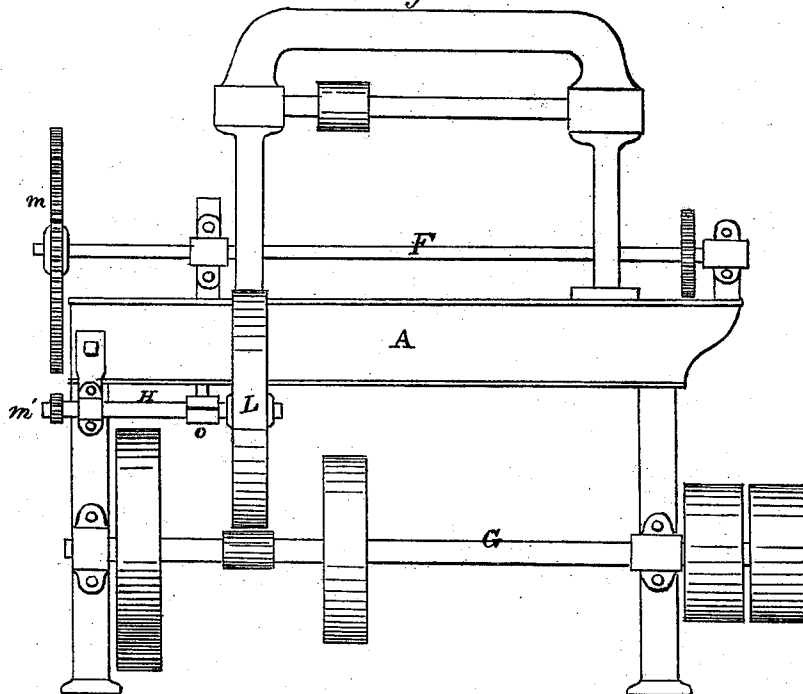


Fig. 10.



Fig. 9.

Fig. 8.



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UNITED STATES PATENT OFFICE.

RALPH H. BOYNTON, OF OSHKOSH, WISCONSIN.

IMPROVEMENT IN MACHINES FOR DRESSING SPOKES.

Specification forming part of Letters Patent No. 173,441, dated February 15, 1876; application filed February 7, 1876.

To all whom it may concern:

Be it known that I, RALPH H. BOYNTON, of the city of Oshkosh, Wisconsin, have invented a new and useful Machine for Dressing Spokes, of which the following is a specification:

My invention relates to a machine constructed with a reel, upon which spokes are to be placed, (while being dressed,) in combination with two sets of cutters.

Figure 1, Plate 1, is a perspective view of the machine. Fig. 2, Plate 1, is a view of the right-hand end of the machine. Fig. 3, Plate 1, is a view of the left-hand end of the machine. Fig. 4, Plate 1, shows the reverse side of Fig. 3 and one-half of the clutch. Fig. 5, Plate 1, shows the left-hand end of the reel as it would appear detached from the machine. Fig. 6, Plate 1, is a detached view of the lower cutters and the yoke in which they revolve. Fig. 7, Plate 2, is a front view of the machine. Fig. 8, Plate 2, is a view of the reverse side. Figs. 9 and 10, Plate 2, represent patterns that give the required shape to the spokes.

A represents the frame or bed of the machine, upon which are the stands supporting the upper cutters and the stands supporting the reel and the machinery for revolving the spokes. B represents the shaft of the reel, upon which are two circular plates, marked *a*. Upon the rim of these plates (equidistant from each other) are three short shafts, as seen in Fig. 1, Plate 1. On the right-hand end of each of these short shafts is a forked center, marked *b*, for holding the butt of the spokes. On the left-hand end of each is a circular plate, marked *c*, with a curved rib or tongue across the face of it, which fits into a corresponding groove in the face of gears *n*¹ and *n*², forming a clutch connecting the spoke-centers with the driving-gears. The curvature of the tongues and grooves is the same as that of a circle whose center is the reel-shaft and its circumference the spoke-centers. Upon each of the short shafts above mentioned are patterns *d*¹ *d*², seen in Figs. 9 and 10, Plate 2, which shape the spokes. Upon shaft B is a triangular plate, in which are three round centers for holding the small end of the spoke, as seen in Fig. 1, Plate 1. Upon the same shaft is a triangular plate, marked *e*, which is

the means of locking the reel while the spokes are being dressed. Outside the bearing of the reel-shaft is a gear, marked *f*, an eccentric, *g*, and a circular plate, *h*, as seen in Fig. 1, Plate 1, and Fig. 7, Plate 2. Plate *h* is fastened to the reel-shaft, the gear and eccentric are loose on the reel-shaft. Eccentric *g* has four studs upon the side next to plate *h* and one upon the other side. Gear *f* and plate *h* each have a stud upon their inner sides. C represents the lower cutters, which extend the entire length of the spoke, as seen in Fig. 1, Plate 1. The journals of these cutters have bearings at *i i* in yoke D, as seen in Fig. 6, Plate 1. D represents a yoke, the right-hand end of which rests upon a weighted lever, *k*, seen in Fig. 7, Plate 2, which keeps it up against the eccentric *g*. The left-hand end of the yoke is kept up against pattern *d*¹ by a weighted lever, not shown. E represents the upper cutters, which square and finish the butt of the spoke. F represents a shaft, that extends the entire length of the machine. Upon the right-hand end of this shaft is a large gear, marked *m*. Upon the same shaft is a pinion, that meshes into gear *f*, and at the left-hand end of the shaft is a gear meshing into the gears *n*¹ and *n*². (Seen in Figs. 3 and 4, Plate 1.) G represents a counter-shaft, (seen in Fig. 8, Plate 2,) upon which are driving-pulleys that, through the medium of belts, give motion to the cutters C and E. H is a short shaft. (Seen in Fig. 8, Plate 2.) One end of this shaft has its bearing on the end of a lever which is located under the bed cross-wise of the machine. One end of this lever is seen at *o*. The other end is seen at *p*, and is hinged near its center to the bed A. Upon shaft H is a friction-pulley, L. Upon the other end of this shaft is pinion *m*¹.

In Fig. 1, Plate 1, is shown an upright lever, *r*, the lower end of which is connected with the cross-lever at *p*. This upright lever is for throwing the machinery that revolves the spokes into and out of gear. On the reverse side of this lever is a stud, which rests upon the bed when the machinery for revolving the spokes is in gear with the counter-shaft.

The operation of spoke-dressing with this machine is as follows:

The cutter being in motion, the operative

will first put a spoke into the unoccupied centers seen in Fig. 1, Plate 1, and then turn the reel toward him one-third the way round, which will bring the spoke directly over the cutter. At this point the reel is automatically locked. In turning the reel, the stud upon the side of plate *h* comes in contact with the stud upon the side of the eccentric and carries it round with the reel one-third of a revolution, and forces the lower cutters down so that they make only a light cut on the spoke. The next thing for the operative to do is to raise the upright lever *r* until it catches on the top of the bed *A*. This lever being connected with the cross-lever, the raising of it depresses the opposite end of the cross-lever and brings the friction-pulley *L* in contact with the counter-shaft, setting in motion shaft *H*, which, through the train of gears *m'' m' m*, puts in motion shaft *F*, gears *n' n²*, and the spoke-centers that are clutched with them. When the machinery that revolves the spokes is set in motion, gear *f*, which remained still when the reel was turned, is made to turn in the same direction as the eccentric, and, after making one-third of a revolution, the stud on its side comes in contact with the one on the eccentric and carries the eccentric with it until both have made a revolution. Just as the eccentric completes its revolution, stud *s* strikes against the upright lever *r*, disengaging it from the bed, which throws the mechanism that revolves the spoke out of gear.

The several parts of the machine are so arranged that its motion is stopped when the gears *n' n²* and plates *c c c* are in the position seen in Figs. 4 and 5, Plate 1. When the clutches are in this position the reel can be revolved one-third of the way round, or more, if desired. The shape of the eccentric is such that, as it is turned, it first forces the cutters *C* down and then allows them to rise to the point required for finishing the spoke. The

shape of pattern *d¹* is such that, as it revolves, it produces a vibratory motion of cutters *C*, the effect of which is to produce the oval form of the spoke. The shape of pattern *d²* is such that, as it revolves, it produces a vibratory motion of the upper cutters *D*, the effect of which is to produce the rectangular form of the butt of a spoke.

While the first spoke is being dressed the operative will put another spoke into the reel, and then turn it as before, which movement brings the first spoke round to the upper cutters, where it will be finished, and the second spoke down to the lower cutters, where the body of the spoke will be rounded preparatory to finishing. The operative will now put another spoke into the reel, which fills it, and turn the reel as before, which will bring the first spoke round to the place where it was put in, when it can be removed and another put in its place.

Thus the operative will be engaged in putting undressed spokes into the reel and taking out dressed ones at the same time that other spokes are being dressed.

Having described my invention and method of operating the same, what I claim as new, and wish to secure by Letters Patent, is—

1. The clutch formed by curved tongues and grooves, substantially as described, for the purposes set forth.
2. The revolving reel, constructed and operating as described, in combination with a vibrating revolving cutter, substantially as specified.
3. The revolving reel for holding spokes, in combination with two sets of cutters for dressing spokes, substantially as and for the purposes set forth.

RALPH H. BOYNTON.

Witnesses:

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J. A. LOUNDES.