No. 714,227. Patented Nov. 25, 1902.

R. L. NOTMAN.

SPOKE CHIPPING MACHINE.

(Application filed Mar. 6, 1901.)

(No Model.) 2 Sheets—Sheet 1.

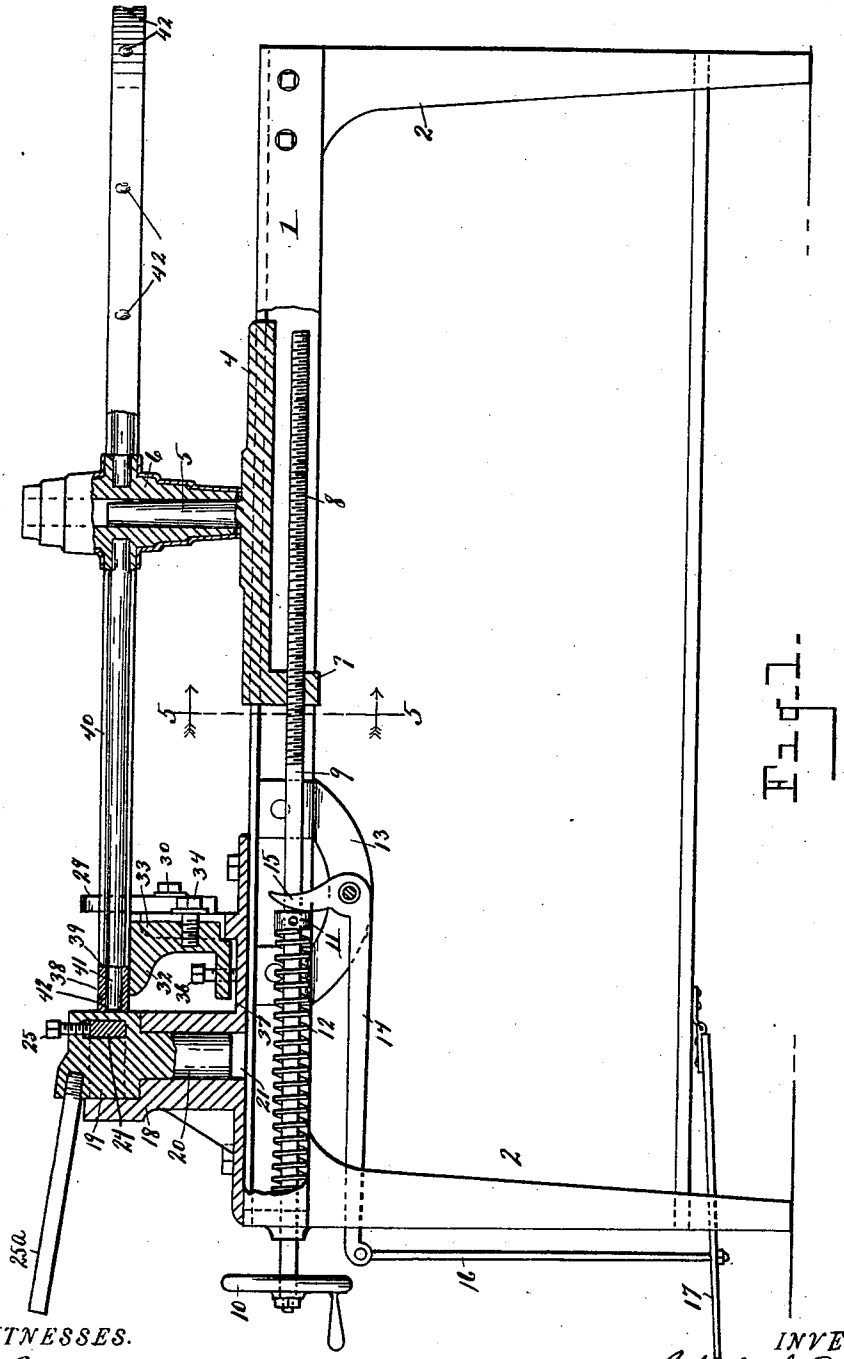


Fig. 1.

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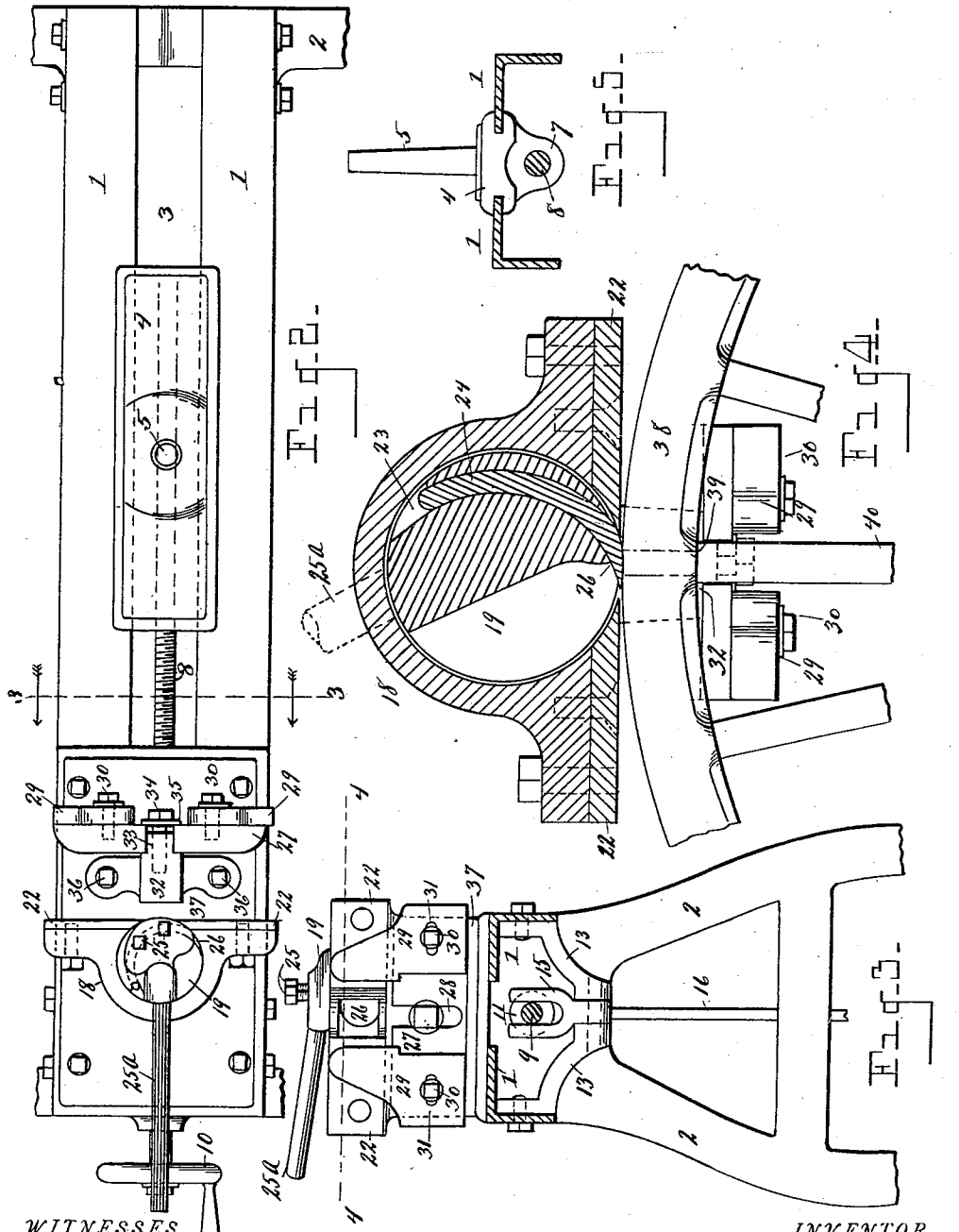
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UNITED STATES PATENT OFFICE.

ROBERT L. NOTMAN, OF FLINT, MICHIGAN.

SPOKE-CHIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 714,227, dated November 25, 1902.

Application filed March 6, 1901. Serial No. 50,050. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. NOTMAN, a citizen of the United States, residing at Flint, in the county of Genesee, State of Michigan, have invented certain new and useful Improvements in Spoke-Chipping Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a machine for chipping or gouging the ends of the spokes of vehicle-wheels; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide simple and efficient means for holding the wheel perfectly in place and in position to receive the operation of the knife, so as to effect a perfect chipping or gouging of the end of the spoke at the periphery of the felly, at the same time forcing the shoulder of the spoke against the felly and setting all parts into their proper place, so that the felly may be sawed or reduced to its proper circumference and insuring all spokes of uniform length and a proper distribution of the strain between them, thereby obviating breaking said spokes in setting the tire and in using the wheel.

The above object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention, parts of which are in section and parts being broken away to more clearly illustrate the construction. The wheel appearing upon the machine has its hub and rim in section. Fig. 2 is a plan view of the machine. Fig. 3 is a transverse section as on line 3 3 of Fig. 2. Fig. 4 is an enlarged sectional view, as on line 4 4 of Fig. 3, through the turret carrying the rotary head in which the gouging-knife is mounted and through the operation of which the end of the spoke-tenon projecting through the felly is chipped and gouged. Fig. 5 is a transverse section, through the bed, adjacent to the sliding table mounted therein, said section being taken on line 5 5 of Fig. 1.

Referring to the characters of reference, 1 designates the bed of the machine, composed of the opposed angle-plates mounted upon suitable supporting-legs 2 and so positioned as to form an open space 3 (see Fig. 2) between the adjacent edges of the plates of said bed. Mounted between the plates of the bed of the machine is a sliding table 4, having channels in its opposite edges which receive the edges of the plates of the bed and between which said table is confined and directed in its movement. Projecting from said table is a mandrel 5, adapted to enter the hub 6 of the wheel when placed thereon. Attached to the table 4 is a depending bracket 7, which is tapped to receive the threaded end 8 of the rotary shaft 9, journaled in the frame and having upon the outer end thereof the hand-wheel 10, through the medium of which the shaft is rotated. When the shaft 9 is revolved, its threaded portion is caused to turn within the tapped bracket 7 and the table 4 to slide in the bed of the machine, as will be readily understood. Fast on the shaft 9 is a collar 11, and confined between said collar and the end of the machine is a coiled spring 12, which environs the shaft 9 and whose force is exerted against said collar to retract the shaft 9, the outer end of which is mounted to slide as well as to rotate in the end of the frame of the machine.

Depending from the bed-plates 1 are supporting-brackets 13, between which is pivoted a bell-crank lever 14, whose curved upper end 15 is bifurcated so as to stand astride of the shaft 9 and engage the collar 11 on opposite sides thereof. To the horizontal end of the lever is pivoted a vertical rod 16, whose lower end is attached to the hinged treadle 17, whereby upon depressing said treadle the lever 14 is actuated to engage the collar 11 and slide the shaft 9 longitudinally against the action of the spring 12, imparting a corresponding movement to the table 4 for purposes hereinafter described. Upon the release of the treadle the spring 12 returns the shaft and table to their former position.

Mounted upon one end of the machine is a turret 18, in which is seated a rotary head 19,

having a depending stem 20, which extends into the socket 21 of said turret. The recess within the turret, which receives and confines the annular rotary head 19, breaks through the face of the turret, so that the curve of said head intercepts the outer line of the face-plates 22, mounted on the turret and partially embracing the head 19 therein, there being an open space between the opposed ends of said face-plates through which a portion of of the rotary head is exposed. Formed in the rotary head 19 is a curved horizontal channel 23, eccentric to the axis of oscillation of the head and carrying a curved adjustable knife 24, adapted to be secured in position after adjustment by the set-nuts 25, which pass through the top of the head and impinge upon the upper edge of said knife. Projecting from the rotary head is a handle 25^a, through the medium of which the head may be oscillated. If desired, however, a pulley may be connected with the head 19, so as to give it a continuous rotary motion. The knife 24 is so adjusted in the head 19 as to cause its cutting-point 26 to project slightly beyond the circle described by the contour of the head, so as to present the cutting edge of the knife through the opening between the opposed ends of the face-plates 22 of the turret.

Mounted upon the bed of the machine in advance of the turret 18 is a vertical plate 27, having a central vertical slot 28 extending downward from the upper edge thereof. Mounted upon said plate on either side of said slot are the laterally-adjustable wings 29, adapted to be secured in place by the bolts 30, which pass through the slots 31 in said wings into the plate 27. These adjustable wings are adapted to embrace the spoke of the wheel to more firmly retain the wheel in position while the knife is operating thereon, and are made laterally adjustable, so as to accommodate any size of spoke.

A supporting-block 32 is located adjacent to the vertical plate 27, adapted to support the felly when the wheel is being operated upon. Projecting from the vertical face of the supporting-block is a tongue 33, which enters the slot in the plate 27 and receives the bolt 34, that passes through said slot and is provided with a washer 35, bearing upon the margins thereof, whereby said supporting-block may be secured in position. For the purpose of adjusting said block vertically to accommodate fellies of various thickness it is provided in its opposite extremities with set-screws 36, which are threaded in said block and bear upon the base-plate 37, whereby by turning said screw said block may be adjusted vertically.

In the operation of this device the table 4 is first adjusted by means of the screw-shaft, so that the felly 38 of the wheel, when the hub is placed upon the mandrel of said table, will lie adjacent to the face-plates of the turret, with the spoke to be operated upon embraced between the adjustable wings 29, as shown in Figs. 1 and 4, the block 32 supporting said felly. To bring the rim of the felly against the face-plates of the turret, a downward force is applied to the lever or treadle 17, whereby the table 4 is caused to slide toward the turret and carry the felly into engagement with the face-plates thereof, at the same time forcing the shoulder 39 of the spoke 40 closely into contact with the felly's inner rim. In this position the parts are firmly held by maintaining the pressure upon the treadle 17, when by rotating the head 19, through the medium of the handle 25, the gouge-knife 24 is caused to engage the protruding end of the tenon 41 of the spoke and chip the end of the tenon, so as to gouge it off slightly below the periphery of the felly, as clearly shown at 42 in Fig. 1; but one operation of the knife is necessary to chip and countersink the end of the spoke, when upon releasing the treadle 17 the wheel may be turned so as to bring a succeeding spoke in position to be operated upon, the arrangement being such as to enable the chipping and gouging of the spokes to be rapidly accomplished.

By the operation of this machine a uniform length of spoke is assured and the protruding of the tenon of the spoke beyond the periphery of the felly is obviated. At the same time the spoke is so forced into position in the felly as to cause its shoulder to bear upon the inner face thereof, whereby the felly is firmly supported and the strain upon the wheel is divided equally among all of the spokes, obviating a springing and cracking of the felly and the breaking of the spokes, which sometimes results from their being of unequal length. The setting of the spokes properly into the felly enables the felly while the wheel is on the machine to be sawed to the proper circumference, thereby facilitating the setting of the tire.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for the purpose set forth, the combination of a movable wheel-support, a fixed rest for the felly of the wheel having an opening through the face thereof, means for moving the wheel-support to force the felly against the rest and drive the shoulder of the spoke against the felly in line with said opening, a gouging-knife movable in a fixed plane contiguous to the felly of the wheel and parallel thereto adapted to cut transversely of the spoke to chip or gouge the end of the tenon at the surface of the felly and means for operating said knife.

2. In a machine for the purpose set forth, the combination with a support for the wheel, of a rest having an annular chamber therein and an opening through the face thereof against which the felly of the wheel is adapted to be forcibly held, an oscillatory head rotatably seated in the chamber of said rest, a gouge-knife in said head standing contigu-

ous to the periphery of the felly and exposed through the opening in the face of the rest, adapted to engage and gouge the outer end of the tenon of the spoke, means for holding the shoulder of the spoke forcibly against the felly of the wheel during the operation of gouging the end of said spoke and means for rotating said head.

3. In a machine for the purpose set forth, the combination of the rotary head, a gouge-knife adjustable diametrically of said head, said knife operating in a plane at right angles to the axis of the head to sever the spokes by a transverse cut, a support for the felly adjacent to said knife, means for supporting the wheel with one of the spokes thereof in position to be operated upon by said knife and means for applying pressure with the wheel in said position to force and hold the shoulder of the spoke tightly against the felly and cause the protruding end of the tenon to project into the path of said knife.

4. In a machine for the purpose set forth, the combination of a movable table, having a mandrel adapted to enter the hub of a wheel, a turret having an opening in the face thereof, a rotary head in said turret, a gouge-knife in said head, adapted to be presented through the opening in the turret by a movement of the head, means for moving said table to carry the rim of the felly forcibly against the face of said turret in line with one of the spokes of the wheel and means for rotating said head to cause the knife therein to gouge the end of the tenon of said spoke.

5. In a machine for the purpose set forth, the combination of a movable table carrying a mandrel adapted to enter the hub of a wheel, a support for the felly of the wheel, adjustable wings adapted to confine the spoke being operated upon, a turret inclosing a rotary head therein, a knife in said head whose cutting edge is adapted to protrude through the face of said turret and means for moving said table to carry the felly of the wheel forcibly against the face of the turret while the knife is operating upon the end of the tenon of the spoke and means for moving said head to actuate said knife transversely of the end of the spoke.

6. In a machine for the purpose set forth, the combination of a sliding table, having a mandrel adapted to receive the hub of a wheel, a turret against which the felly is adapted to be carried by a movement of said table, when the wheel is in position thereon, a rotary head within said turret carrying a knife adapted to protrude through an opening in the face of the turret as said head is rotated, a rotary screw-shaft engaging said movable table, a fixed collar upon said shaft, a spring environing said shaft and engaging said collar, a lever engaging said collar adapted to move the shaft longitudinally against the action of said spring and means for operating said lever.

In testimony whereof I sign this specification in the presence of two witnesses.

ROBERT L. NOTMAN.

Witnesses:
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GUY M. WILSON.