

(No Model.)

W. RICHARD, H. G. OGDEN & E. E. HEATH.
WASHER FOR VEHICLE AXLES.

No. 477,065.

Patented June 14, 1892.

Fig. 1.

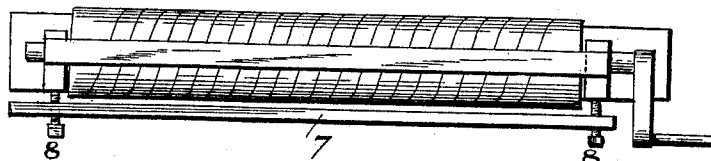
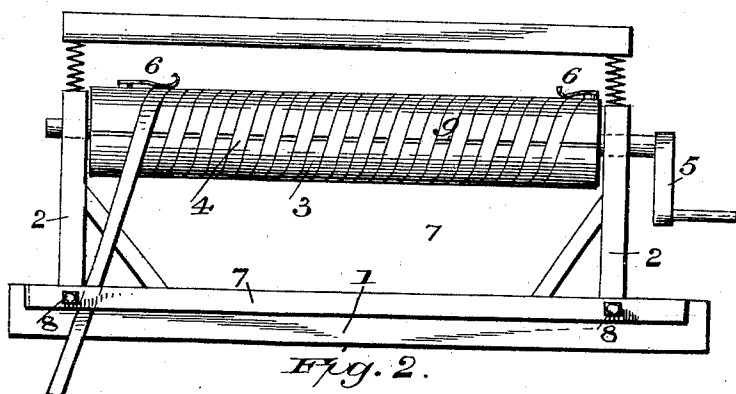
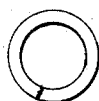


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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WASHER FOR VEHICLE-AXLES.

SPECIFICATION forming part of Letters Patent No. 477,065, dated June 14, 1892.

Application filed January 30, 1892. Serial No. 419,817. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM RICHARD, HERBERT G. OGDEN, and EDWARD E. HEATH, citizens of the United States, and residents of Bloomville, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Washers for the Spindles of Vehicle-Axles; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to improvements in washers for the spindles of vehicle and other axles and in the method of making the same.

The object of the invention is to provide a washer for axle-spindles which shall be economical in construction, and which will possess superior advantages over the ordinary leather washers with respect to efficiency in operation and durability in use.

It is also an object to provide an improved method of manufacturing the same, whereby they may be produced in a rapid manner and at a comparatively small cost.

The invention consists in a washer made from a strip of wood, vulcanized rubber, or other suitable material bent into the form of a ring, substantially as hereinafter described.

It also consists in the method of forming washers of wood, vulcanized rubber, or other suitable material by winding said material upon a cylinder and then severing the same at proper intervals to form rings, substantially as hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of one form of machine by which our invention may be carried into effect. Fig. 2 is a plan view of the same. Fig. 3 is a view of a washer constructed according to our invention.

In the said drawings the reference-numeral 1 denotes the base of the machine, provided with uprights 2, in which is journaled a roller or cylinder 3, either solid or hollow, the periphery of which is formed with a spiral groove of a regular pitch throughout its length to receive a strip of wood or vulcanized

rubber 4, which corresponds therewith in shape and size.

The numeral 5 denotes a crank by which the cylinder is rotated, and 6 6 are clamps for securing the ends of the strip. Above the cylinder is an adjustable board, which presses upon the strip and holds the same in the groove during the operation of winding. Upon the front of the base is an adjustable board 7, between which and said base the strip travels, whereby the tension is regulated by means of set-screws 8. The roller is also provided with a longitudinal groove 9, extending its entire length, bisecting the spiral groove. By inserting a fine-toothed saw longitudinally in the groove 9 and reciprocating it back and forth therein the strip in the spiral groove will be severed at the points of intersection of said grooves, forming a number of rings, which can be subsequently removed.

In carrying our invention into effect we take strips of wood of suitable size, the tougher the wood the better, with the grain running the length thereof, and boil or steam the same to give the requisite degree of pliability. The strip is then inserted in one end of the groove in the cylinder and secured thereto, and the cylinder is rotated, causing the strip to be wound in the groove, being held thereto by means of the adjusting-board. The cylinder is heated by steam or otherwise, so that the strip is dried during the progress of the work. The strip is subsequently removed from the cylinder and severed at proper points to form rings, which will correspond in diameter with the diameter of the grooved cylinder, with the grain of the wood running in the direction of the curve of the ring, or the rings may be formed or cut at one operation by means of the saw, as before set forth.

When the washer is to be formed of vulcanized rubber, the roller need only be heated sufficiently to give the requisite degree of pliability to the strip, as no drying is necessary, as will be obvious.

The roller may be made of wood or metal and either solid or hollow, and the spiral groove may be dispensed with, making the surface thereof perfectly plain. We prefer, however, having the groove, as it prevents

the edges of the strip from tearing or the corners from being slivered.

Having thus described our invention, what we claim is—

- 5 1. As an improved article, a washer for vehicle-spindles, consisting of a strip of wood bent into an annular ring, with the ends unattached to each other, and the grain thereof running in the same direction with the curvature of the strip, substantially as described.
- 10 2. The herein-described method of forming washers, the same consisting in taking a strip

of wood or vulcanized rubber, then winding the same on a cylinder, and finally severing into rings, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereunto affixed our signature in presence of two witnesses.

WILLIAM RICHARD.
HERBERT G. OGDEN.
EDWARD E. HEATH.

Witnesses:

J. M. OFT,
A. F. WALKER.