(No Model.)

W. D. HILLS.

TIRE TIGHTENER.

No. 494,334. Patented Mar. 28, 1893.

Fig. 1.

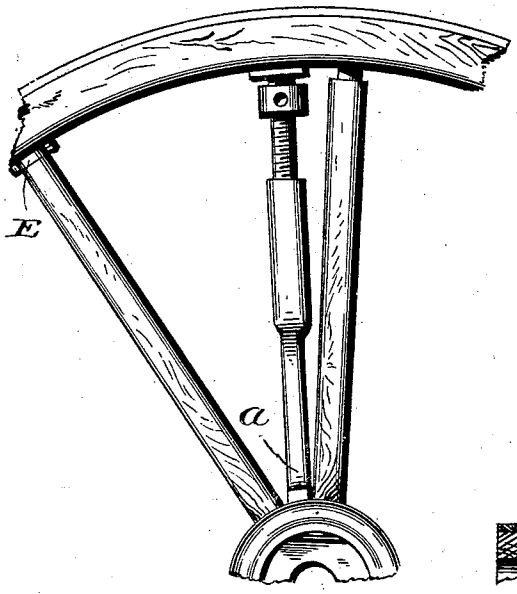


Fig. 2.

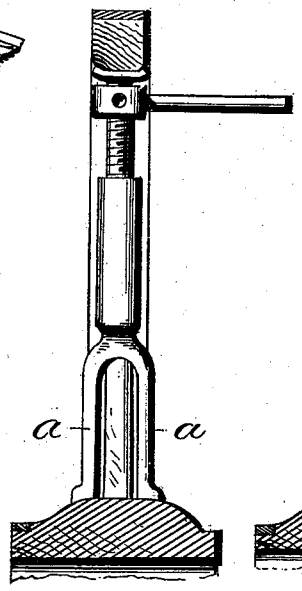


Fig. 3.

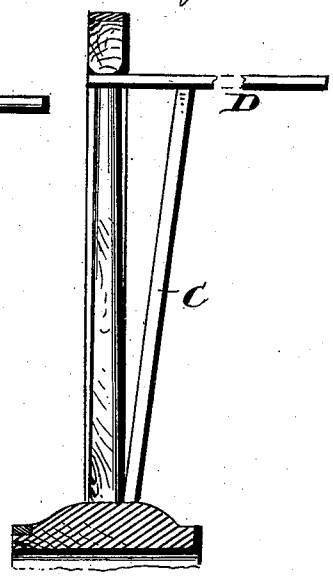


Fig. 4.

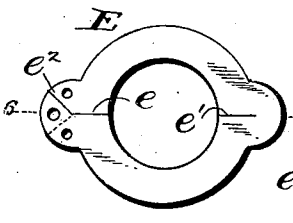


Fig. 5.

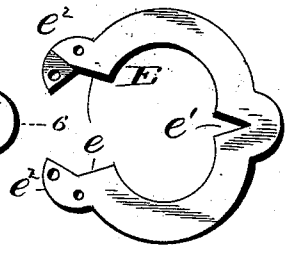
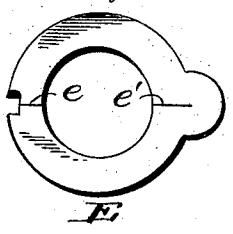


Fig. 6



Witnesses
C. J. Williamson.
P. J. Rogers.

Inventor
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UNITED STATES PATENT OFFICE.

WILLIAM D. HILLS, OF SALEM, ILLINOIS.

TIRE-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 494,334, dated March 28, 1893.

Application filed November 17, 1892. Serial No. 452,252. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. HILLS, a citizen of the United States, residing at Salem, in the county of Marion and State of Illinois, have invented certain new and useful Improvements in Washers for Wheel-Fellies; 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 letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in washers for wheel fellies and it consists in the peculiar construction of the washer, as more fully hereinafter described and claimed, and shown in the annexed drawings, in which;

Figure 1, is a side elevation of a portion of a wheel, illustrating the practice of my invention. Fig. 2 is a vertical section thereof. Fig. 3, is a like view showing a simple lever device for expanding the felly. Figs. 4 and 5, are detail views of the washer preferably employed, shown respectively closed and open. Fig. 6 is a detail of the washer of a slightly modified form.

In Figs. 1 and 2 of the drawings I show a screw jack arranged for moving the felly outward, said jack having one end bearing against the hub of the wheel and the other against the inner face of the felly, preferably close to one of the spokes. Said jack is of ordinary construction excepting that its base is forked or bifurcated to form two legs *a*, *a*, as shown, so that the jack can bear upon the hub with equal pressure upon both sides of the spoke and thus avoid danger of injury to the wheel by unequal strains. For light wheels, the simple contrivance shown in Fig. 3 may be employed. This comprises the rod or bar C whose lower end is placed upon the hub, from which it extends in a radial direction upward and outward, and a second rod or bar D constituting a lever resting on the upper end of the bar C for a fulcrum, and having one of its ends engaging the inner face of the felly. A simple downward movement on the outer end of the bar D will accomplish the expansion of the felly. The bars C and D may be of either wood or metal.

The washer which I employ to place around the spoke-tenon between the spoke-shoulder and the inner face of the felly, to securely hold the felly in its expanded condition may be of metal, rubber, paper, or any desired material, and of course has to be split in order to permit of its being fitted to place.

I show several forms of washer. In Figs. 4 and 5, it consists of an annulus E cut entirely through at one side at *e*, and at a diametrically opposite point, cut at *e'* only partially through. At both places the annulus is enlarged as shown to form projections. The through cut *e* is made so that the two sides of the projection e^2 thereat will over-lap and through them where they over-lap is formed an opening for the passage of a screw or nail, into the felly for the purpose of holding the washer in place.

To use the washer, it is first opened as shown in Fig. 5 sufficiently to enable it to be passed around the tenon of the spoke, and is then closed and fastened as indicated. A hole is formed in each part of the divided projection e^2 for the insertion of a suitable instrument to effect the ready opening of the washer.

The washer shown in Fig. 6 discards the projection e^2 and the fastening device. It is made of material which will enable it to retain the shape given it without assistance from fastening expedients. The edges of the annulus at the cut *e* are notched for the ready opening of the washer.

I propose to have washers of varying thicknesses, to adapt them to the necessities of the case, for it will be obvious, not only that the different spokes may require different thicknesses, but also, the same spoke will at different times necessitate different washers.

It will be seen that washers can most easily and quickly be put in place, and as readily removed when necessary, either for the substitution of others, or upon account of the wood of the wheel swelling in wet weather, so as to make it desirable to remove them.

What I claim is—

1. A washer for the purpose named, consisting of an annulus in a single piece severed entirely through at one point, and partially

at another, substantially as and for the purpose described.

2. A washer, comprising an annulus of a single piece severed entirely through at one point and partially at another, and adapted to receive a fastening at the point of complete severance, substantially as described.

3. A washer in the form of an annulus formed of a single piece of flexible material having a slot at one point and cut entirely through at its diametrical opposite side with enlargements opposite the cut and slit, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM D. HILLS.

Witnesses:
JAMES B. LEWIS,
JOHN WIBEL.