

No. 620,639.

Patented Mar. 7, 1899.

L. BUIS.
WHEEL TIGHTENING DEVICE.

(Application filed Nov. 19, 1898.)

(No Model.)

Fig. 1.

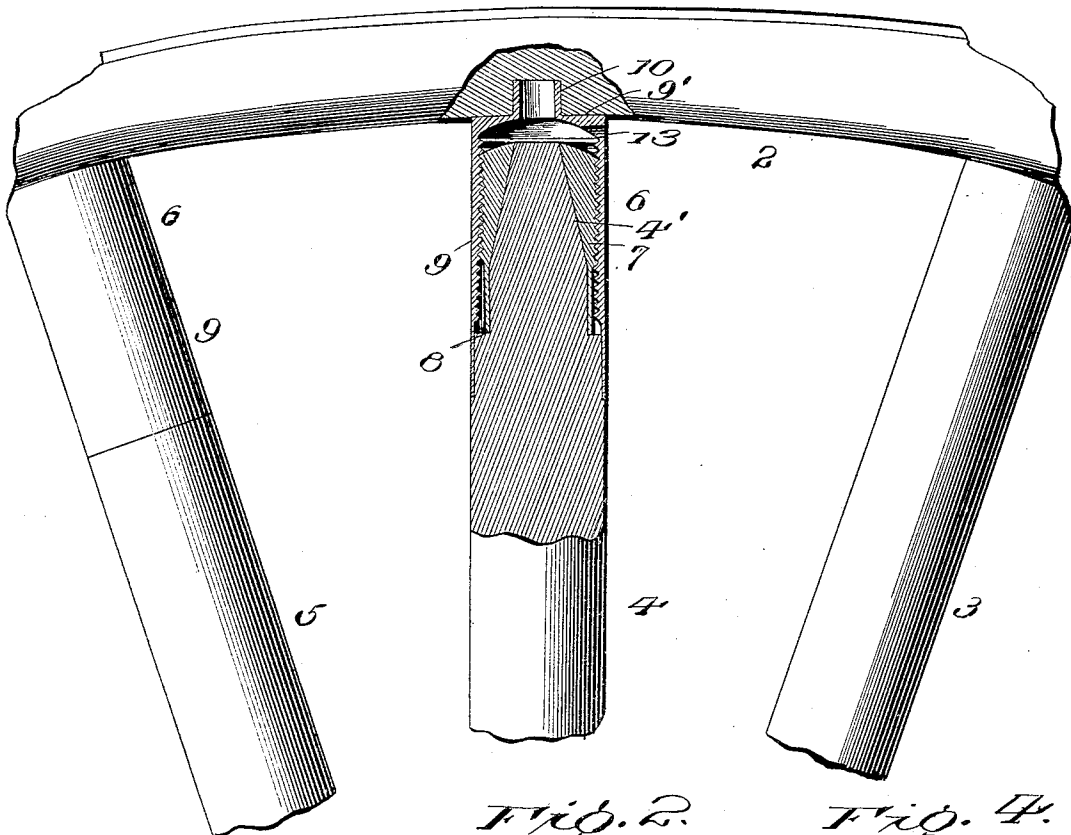


Fig. 2.

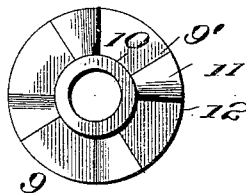


Fig. 4.

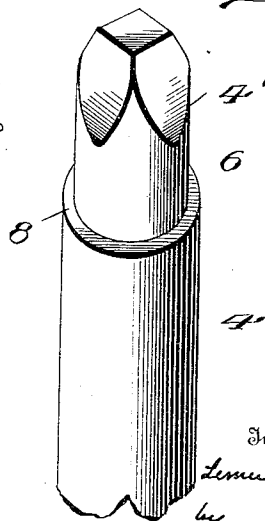
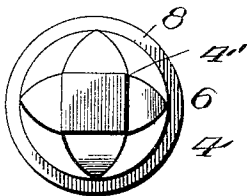


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

LEMUEL BUIS, OF LITTLE ROCK, ARKANSAS, ASSIGNOR TO IDELLE WILSON BUIS.

WHEEL-TIGHTENING DEVICE.

SPECIFICATION forming part of Letters Patent No. 620,639, dated March 7, 1899.

Application filed November 19, 1898. Serial No. 696,949. (No model.)

To all whom it may concern:

Be it known that I, LEMUEL BUIS, a resident of Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Spoke-Extension and Wheel-Tightening Devices; and I do hereby 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 pertains to make and use the same.

The invention relates to wheels, and has for its object to provide an economical and efficient spoke-extension and wheel-tightening device which is easily applied and operated by persons of ordinary skill and is not liable to disarrangement and not unsightly in appearance.

The invention consists in the construction herein described and pointed out.

In the accompanying drawings, Figure 1 is a side elevation of a part of a wheel, one of the spokes with the improvement applied thereto being shown in section. Fig. 2 is a plan of the improved device. Fig. 3 is an end view of an interior thimble applied to a spoke. Fig. 4 is a partial perspective of a spoke.

Numeral 2 denotes a wheel-rim. Wheel-spokes are indicated by 3, 4, and 5. These may be of any desired form and character, except as hereinafter pointed out. 3 denotes a spoke of usual form, to which the improved device is not shown applied, said spoke being tenoned in the rim in any usual manner. 4 indicates a spoke shaped to receive the improved device, and 5 indicates the external appearance of a spoke with the improvement.

As shown at 4, the spoke to which the improvement is applied is made shorter than usual and does not reach the felly or rim except by the medium of the spoke extension 6. This construction is not, broadly, of my invention. This spoke has its end reduced transversely by a bevel 4' or the like and is made angular preferably, as shown in Figs. 1 and 4. It is made angular as the most convenient means of preventing the rotation thereon of the exteriorly-screw-threaded thimble 7, which may have a similarly-shaped opening to fit the spoke, as indicated in the drawings. This angular interior of thimble

7 is in the present instance frusto-pyramidal in form to fit the similarly-beveled end of the spoke, the latter being best shown in Fig. 4. The exterior of sleeve 7 has a uniform circumferential dimension, except that the screw-threads are omitted from its inner end, its wall being thin at such part and having its thickness increased toward its outer end to provide sufficient metal for screw-threads and to fit the beveled spoke, substantially as shown. The sleeve 7 being made thin at its inner end, as stated, requires less cutting of the spoke than otherwise.

9 denotes an exterior thimble internally threaded to adapt it to be screwed upon thimble 7, the latter being held from rotation by its angular connection with the spoke. The interior screw-threads of this exterior thimble are also omitted toward its inner end, and it is made thin to avoid too much cutting of the spoke, which is preferably reduced beyond the inner end of thimble 8, so that the exterior of said thimble will be in the same plane as the exterior of the spoke.

On the outer end of the thimble 9 is a tenon 10, which is round and may be hollow, as shown, and is entered in a similarly-shaped hole or mortise in the rim. The end portion 9' of thimble 9 around the tenon is provided with inclined planes 11, terminating in short planes or faces 12, which obstruct the backward turning of thimble 9, as will appear.

13 indicates a hole in which to enter a suitable tool for turning the thimble 9 on the thimble 7. The lower part of thimble 9 need not be screw-threaded. It fits, preferably, a rounded part of the spoke and conceals the interior thimble and excludes dirt.

The parts described having been duly assembled on the spoke, the thimble 9 can be screwed on thimble 7 toward the rim, so that its tenon shall enter the hole therein and its face 9' be forced against the inner face of the rim, with the effect to tighten the spoke in the wheel.

The rotation of thimble 9 being in the direction indicated by the arrow, the inclined planes or faces offer little resistance; but as the connection of the thimble, spoke, and rim is tightened the wood will be compressed by the faces 11 and will expand behind the faces

12, with the effect to lock the thimble in its tightened situation, so that it cannot be turned back to loosen the parts by use nor without the application of a tool with considerable leverage. The bevel at 4' supports the thimble 7 against the thrust of the exterior thimble and prevents the shoulder 8 from being cut or split. The wall of thimble 7 is made thick to fit this bevel, and the screw-threads are conveniently formed on this thickened part.

Should the wood shrink so as to loosen the spokes after they have once been made tight, the thimble or thimbles 9 can be turned to make the wheel tight again.

The improvement is not confined to exact dimensions nor to other immaterial details which may be modified by skilled mechanics. Thus instead of the four inclines 11 numerous serrations, preferably having faces of unequal length, might be employed. The ends of the spokes might have a hexagonal or other angular form, or the thimble 7 could be fixed against rotation on the spoke by other means. Cast-steel is very suitable for the thimbles, but not essential.

It is not necessary that fellies be used, and the invention is applicable to entire rims.

Having thus described my invention, what I claim is—

1. In a wheel having spokes and a rim, the interior thimble having exterior threads and fixed to the spoke, the exterior thimble rotatable on the spoke and entirely covering

the inner thimble and provided with female threads to engage those first named said exterior thimble being provided with a tenon entering a mortise in the rim, the end of the thimble exterior to the tenon having a serrated face engaging the inner rim-surface to prevent the unscrewing of the thimble.

2. In a wheel having spokes and a rim, an externally-threaded thimble having an interior opening angular in cross-section, a spoke having its outer end fitted in said opening, an exterior thimble screwing upon the spoke-connected thimble and provided with a serrated face bearing on the rim, the wall of both of said thimbles being made thin at their inner ends and the outer thimble having its exterior surface continuous with that of the spoke and throughout its length of similar dimensions.

3. In a wheel having spokes and a rim, an externally-threaded thimble having an interior opening angular in cross-section, a spoke having its outer end fitted in said opening, and an exterior thimble screwing upon the spoke-connected thimble and against the wheel-rim, the inner thimble being open from end to end to facilitate seating the spoke.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

LEMUEL BUIS.

Witnesses:

JOE H. FORD,

JOHN FLETCHER.