W. O. JOHNSON.

TIRE-TIGHTENER.

No. 169,814. Patented Nov. 9, 1875.

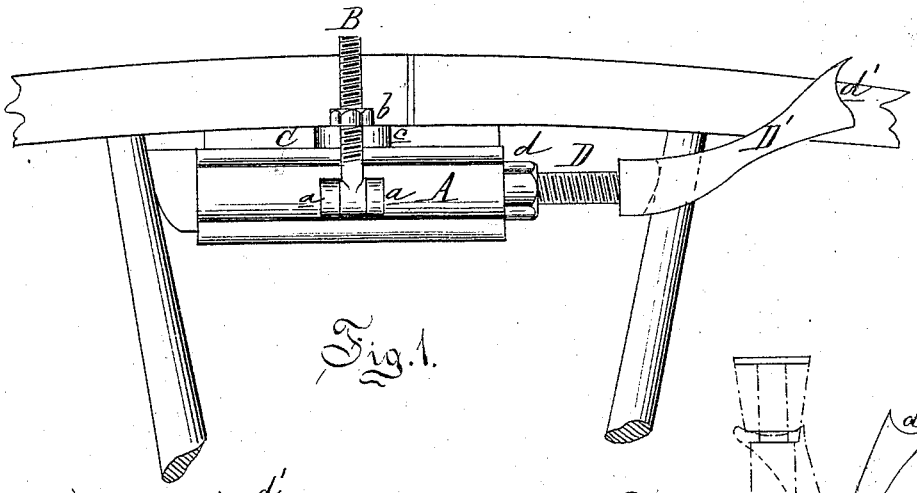


Fig. 1.

Fig. 2.

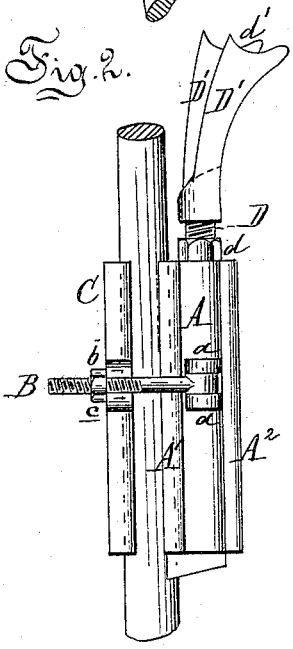


Fig. 3.

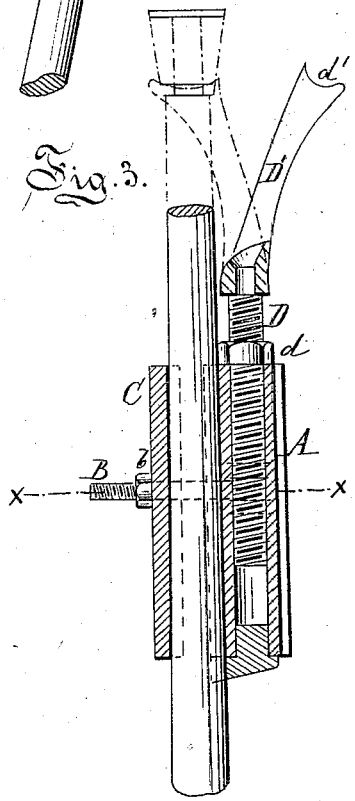
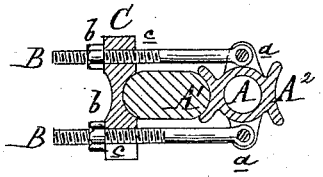


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM O. JOHNSON, OF ALMA, MICHIGAN.

IMPROVEMENT IN TIRE-TIGHTENERS.

Specification forming part of Letters Patent No. **169,814**, dated November 9, 1875; application filed August 27, 1875.

To all whom it may concern:

Be it known that I, WILLIAM O. JOHNSON, of Alma, in the county of Gratiot and State of Michigan, have invented an Improved Portable Tire-Tightener, of which the following is a specification:

My invention has for its object to provide a portable device by means of which a loose tire may be readily tightened without removing the wheel from the axle—first, by spreading the fellies at the joints, and, secondly, by raising the fellies from the shoulders of the spokes—the same device being used in both processes, and equally serviceable for tightening the tire of the lightest phaeton or that of the heaviest lumber-wagon.

The invention consists in the peculiar construction and combination of the various parts, as more fully hereinafter set forth and claimed.

Figure 1 is a side elevation, showing the arrangement of the device for expanding the felly at a joint. Fig. 2 is an elevation of the device as clamped to a spoke for raising the felly. Fig. 3 is a longitudinal section. Fig. 4 is a cross-section at *x x*.

In the drawing, A represents a cast-iron socket having a pair of lugs, *a*, on each side. Between each pair of said lugs is pivoted a bolt, B, on which a nut, *b*, is threaded. On one face of the socket there is molded a longitudinal groove, A^1, adapted to embrace the lighter class of spokes, and on the other side is a similar groove, A^2, adapted to embrace the spokes of lumber and other heavy wagons. C is a clamp-plate whose faces are grooved to embrace light and heavy spokes, and is cast with two lugs, *c*, one at each side, one of which has an open slot, and the other a hole drilled in it, both of which are thereby adapted to receive the bolts B. The said device may be readily clamped to a spoke by means of the nuts *b* on the bolts B, as represented in Fig. 2. D is a screw-bolt loosely fitted in the bore of the socket A, and has threaded on it a nut, *d*, which bears against the end of said socket. At the outer end of said bolt D there is a crotch or fork, D′, whose arms are inclined to reach under a felly at each side of a spoke, and are hollowed at the extremities, as at *d′*, to embrace the inner face of the said felly.

A suitable wrench to turn the nuts should be provided, and thin leather washers, cut at one side, are required to fill out the joints in the felly and those of the spoke and felly when expanded.

To tighten a tire, the wheel of the vehicle is turned so as to bring a felly-joint to the top. The device is then introduced between two spokes, and as near the felly as convenient, the base of the socket resting against one spoke and the hollow of the fork against the other. Then, by turning the nut *d*, the bolt D will be forced out of the socket, and the wheel-felly will be expanded so as to open its joint, in which a thin leather washer should be inserted, when the pressure may be taken off and the device detached preparatory to the second step in the process. The socket should now be clamped to a spoke with the extremities of the forks resting under the felly, which may be forced partly off the spoke-tenon by turning the nut *d*, so as to lift the screw D partly out of its socket. A split washer of thin leather is then laid between the shoulder of the spoke and the felly, when the nut *d* may be eased away to let the felly down upon the interposed washer.

The process above described is to be repeated around the circumference of the wheel until it is uniformly expanded into the tire, and requires but little time to accomplish it.

I do not claim, broadly, the invention of a device to be clamped to a spoke and provided with screws for forcing outwardly the felly, as such is not original with me; but

What I do claim as my invention is—

The socket A, having the bolts B B hinged to its sides, the clamp-plate C, the nuts *b b*, the screw D, terminating in a fork, D′, and provided with the nut *d*, substantially as and for the purpose set forth.

WILLIAM O. JOHNSON.

Witnesses:

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