T. A. FRAKES.
Tire-Tightener.

No. 219,353. Patented Sept. 9, 1879.

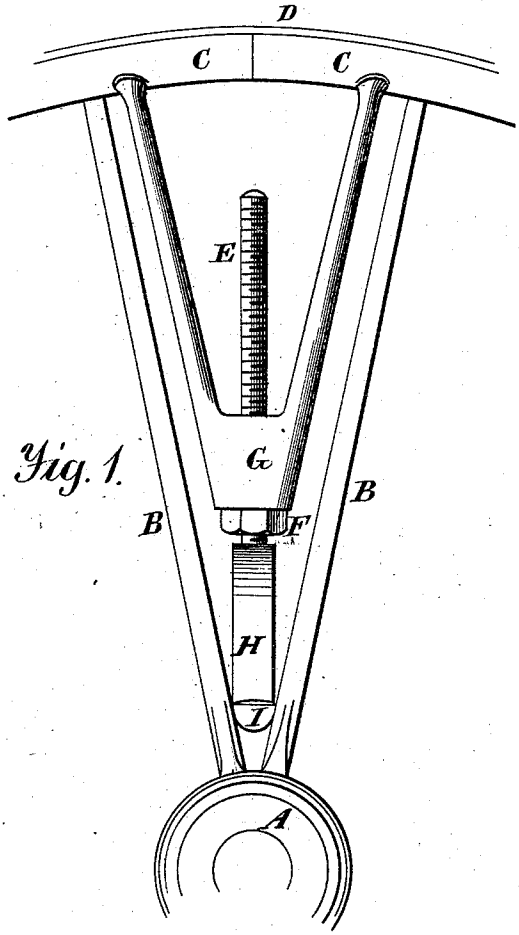


Fig. 1.

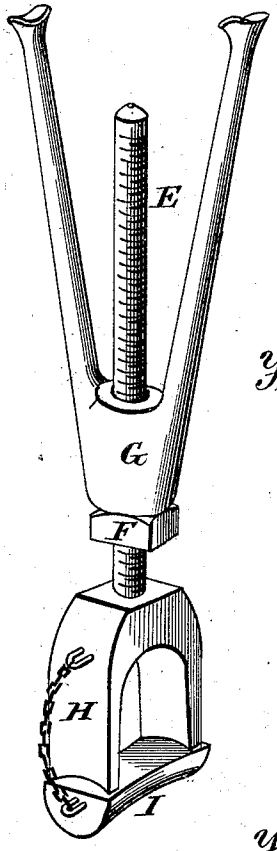


Fig. 2.

Fig. 4.

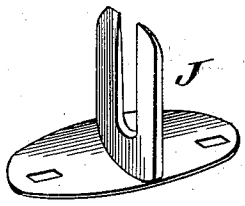


Fig. 3.

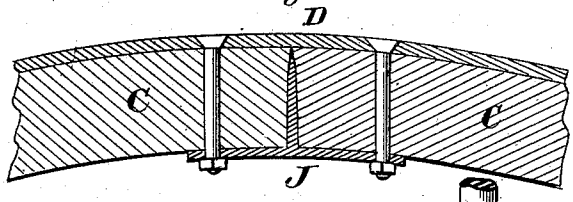
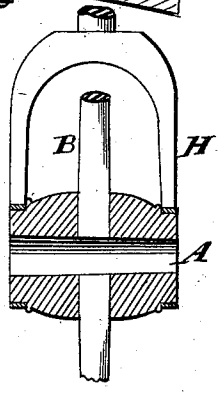


Fig. 5.



Witnesses.
A. Ruppert.
James A. Lange.

Thomas A. Frakes.
Inventor.
per Edson Bros.
Attorneys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS A. FRAKES, OF NEW HOLLAND, ILLINOIS.

IMPROVEMENT IN TIRE-TIGHTENERS.

Specification forming part of Letters Patent No. **219,353**, dated September 9, 1879; application filed June 10, 1879.

To all whom it may concern:

Be it known that I, THOMAS A. FRAKES, of New Holland, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Tire-Tighteners; and I 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, and to letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 represents my improved tire-tightener as applied to a vehicle-wheel. Fig. 2 is a perspective view thereof. Fig. 3 is a longitudinal section of the adjoining ends of two fellies, showing the manner of attaching the felly-cap and wedge between and to the fellies. Fig. 4 is a perspective view of the felly-cap and wedge; and Fig. 5 is a detail view, showing the U-shaped foot resting on the bands of the hub.

Corresponding parts in the several figures are designated by like letters of reference.

This invention appertains to certain improvements upon the patent granted to myself and Jos. Cease, dated March 31, 1874, numbered 149,213, the object of which is to prevent the bruising of the hub and spokes of a vehicle-wheel, and in a neat and workmanlike manner to more effectively and substantially tighten the tire of same; and they consist of the combination and arrangement of parts, substantially as hereinafter described, and pointed out in the claims.

In the accompanying drawings, A represents the hub, B the spokes, C the fellies, and D the tire, of a vehicle-wheel, all of the ordinary construction. E is the screw; F, the nut working on said screw, and G the forked lifter, its arms or tines having the crescent-shaped ends, which abut against the fellies C, all of which parts are fully set forth in the patent granted to myself and J. Cease, hereinbefore mentioned.

Firmly secured to the lower end of the screw E is a U-shaped foot, H, the arms of which are concaved on their ends, so as to fit and rest one on each side of the spokes on the bands of the hub A, said arms being of unequal length to provide for the dish of the wheel. Fastened to the foot H by a chain, or other suitable means, is an oblong block, I, whose under surface is transversely convex and longitudinally concave. The object of this block will be presently set forth.

J marks the felly-cap and wedge, which consists of a U-shaped wedge having its tines made tapering, and their ends beveled in opposite directions, so that when they are forced between the fellies the said ends will strike against the under surface of the tire and clinch, and a felly-cap, of the size of ordinary caps, arranged at right angles to the wedge, and provided with orifices to allow of bolts being passed through them, after having been passed through the tire and fellies, and secured by nuts. This cap and wedge can be made in one piece, or, if desired, of two pieces, firmly fastened together.

The operation of my machine is as follows: Ordinarily—*i. e.*, when the tire is loose, but the spokes are firm in the hub—the tire-tightener is applied to a vehicle-wheel with the arms of the U-shaped foot resting on the hub-bands, one on each side of the spokes, as shown in Fig. 5, and the crescent-shaped ends of the arms of the lifter G abutting against the fellies C, near the spokes B, when power is applied to the nut F by means of a wrench, (not shown,) by which pressure is transmitted to the fellies through the lifter G, and thus the said fellies will be forced apart. At this juncture the wedge J is inserted into the joint, when force is applied to drive it in, in order that the ends will strike the tire and clinch, and the cap neatly fit the ends of the fellies, when bolts are passed down through orifices made in the tire, fellies, and cap, and secured by nuts, by which means the tire is tightened, the joint is neatly covered, and the "chins" of the fellies are prevented from splitting.

If the spokes are loose in the fellies, the same pressure that parts the fellies, so as to receive the wedge J, also forces the fellies from the spokes to allow a ring adapted for such purpose to be placed around the reduced portion of said spokes to tighten or lengthen the same.

When the spokes are loose in the hub, the block I is inserted between them, as shown in

Fig. 1, and the foot of the tire-tightener is placed thereon, when power is applied as before. The object of thus inserting the block between and resting against the spokes is to prevent them (the spokes) from being drawn out of the hub when the tire-tightener is manipulated to tighten the tire.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a tire-tightener, the U-shaped foot having feet of unequal length, as and for the purpose set forth.

2. In a tire-tightener, the U-shaped foot H, having feet of unequal length, in combination with screw E, nut F, and lifter G, substantially as shown and described.

3. The combination, with the screw E, nut F, and lifter G, of the U-shaped foot H and block I, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

THOMAS A. FRAKES.

Witnesses:

GEO. H. WARREN,

J. A. BOLINGER.