B. HINKLEY.

Car-Wheel Journal.

No. 220,921. Patented Oct. 28, 1879.

Fig. 1.

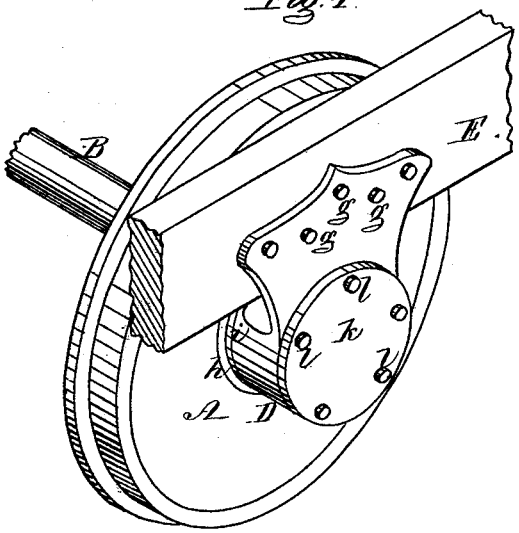


Fig. 4.

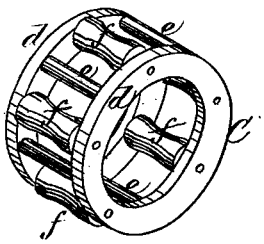


Fig. 2.

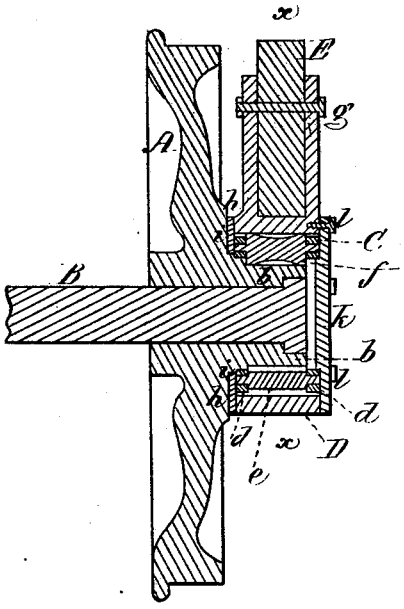
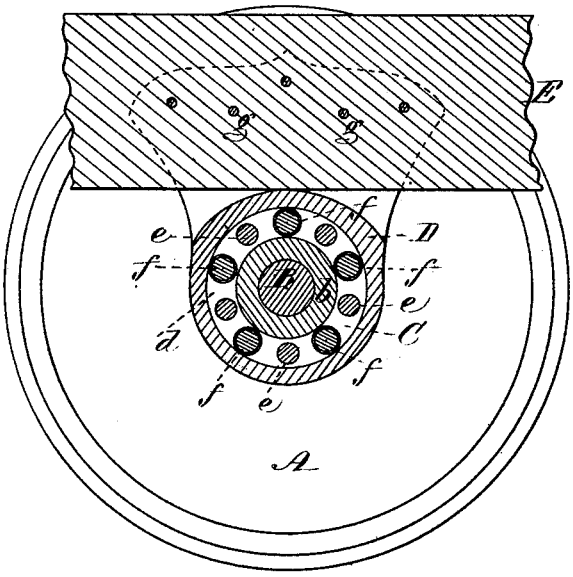


Fig. 3.



Witnesses;
W. J. Cambridge
Chas. E. Griffin

Inventor,
Benjamin Hinkley
per P. E. Teschemacher
Atty.

UNITED STATES PATENT OFFICE.

BENJAMIN HINKLEY, OF STOUGHTON, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO HOWARD G. HINKLEY, OF NORTH MIDDLEBOROUGH, AND ALEXANDER S. JOHNSTON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CAR-WHEEL JOURNALS.

Specification forming part of Letters Patent No. **220,921**, dated October 28, 1879; application filed April 14, 1879.

To all whom it may concern:

Be it known that I, BENJAMIN HINKLEY, of Stoughton, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Car-Wheels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a car-wheel and its box having my improvement applied thereto. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a vertical section on the line *x x* of Fig. 2; Fig. 4, detail in perspective.

My invention consists in a car-wheel provided with a central circular projection or hub on its side, in combination with a frame or holder carrying a series of anti-friction rollers, which are interposed between the outer periphery of the hub and the interior of the box or chamber within which the rollers are placed, whereby the axle is relieved of strain, as the weight of the load is supported by the hub instead of by the journal of the axle, as heretofore, and consequently the liability of that class of accidents which have been caused by the breaking of that part of the axle outside of the wheel composing the journal is entirely avoided.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents a car-wheel, which may rotate independently of the axle B, or be fixed firmly thereon, as preferred. On the outer side of the wheel A is a hub, *b*, cast in the same piece therewith, the outer end of the axle B being flush with the end of the hub. Around the outer periphery of the hub *b* is fitted a circular frame or holder, C, composed of two parallel rings, *d d*, firmly connected together by a series of studs or short rods, *e*, arranged at equal distances apart, and at the center of each space between two contiguous studs is placed an anti-friction roller, *f*, formed of hardened steel, these rolls *f* being journaled in the frame C, so as to revolve freely, and being of such diameter as to project above and below the planes of the edges of the rings *d d*, so as to bear on the periphery of the hub *b* and the interior of a box or chamber, D, which is adapted to receive the hub and its roller-frame C, which fit snugly therein, as seen in Figs. 2 and 3, the frame or holder C, with its rollers *f*, being free to revolve within the box D, which is secured by bolts *g*, or otherwise, to the frame E of the truck.

The diameter of the central portion of each of the rollers *f* is, preferably, made less than that of the ends, in order to reduce the area of the bearing-surface as much as possible. By thus interposing a series of friction-rollers between the hub *b* and the interior of the box or chamber within which they are placed, the axle B is relieved of the strain and weight of the load, which is brought directly upon the hub *b*, and is thence distributed throughout the entire body of the wheel A. The hub revolving as described, in contact with the anti-friction bearing-surface composed of the rolls *f*, which materially lessens the friction on the moving parts in contact, and by thus causing the weight to be sustained by the hub of the wheel instead of by a journal formed on the end of the axle, as heretofore, the liability of accident is greatly diminished, while the increased diameter of the bearing-surface affords solidity and great strength.

The outer surface of the wheel at *h* is so formed as to fit up snugly against the open inner side of the roller-box D, a washer, *i*, of leather or other suitable material, being interposed between them, in order to completely exclude dust and all other extraneous matter from the bearing-surfaces, and the outer side of the box D is provided with a cap or disk, *k*, secured in place by screws *l*, which may be removed to afford convenient access to the interior of the box and rollers *f*.

I am aware that a series of anti-friction rollers has been applied to the journal of a car-axle; but such rollers have been placed in direct contact with the journal itself, and between it and the interior of the journal-box.

To such construction and arrangement of parts I lay no claim, as the axle is not thereby relieved of the strain or weight of the load.

What I claim as my invention, and desire to secure by Letters Patent, is—

The wheel A, with its hub *b*, in combination with the box or chamber D and the frame or holder C, with its anti-friction rollers *f*, interposed between the outer periphery of the hub and the interior of the box or chamber D, substantially as and for the purpose set forth.

Witness my hand this 20th day of March, A. D. 1879.

BENJAMIN HINKLEY.

In presence of—
L. H. PACKARD,
J. A. HINKLEY.