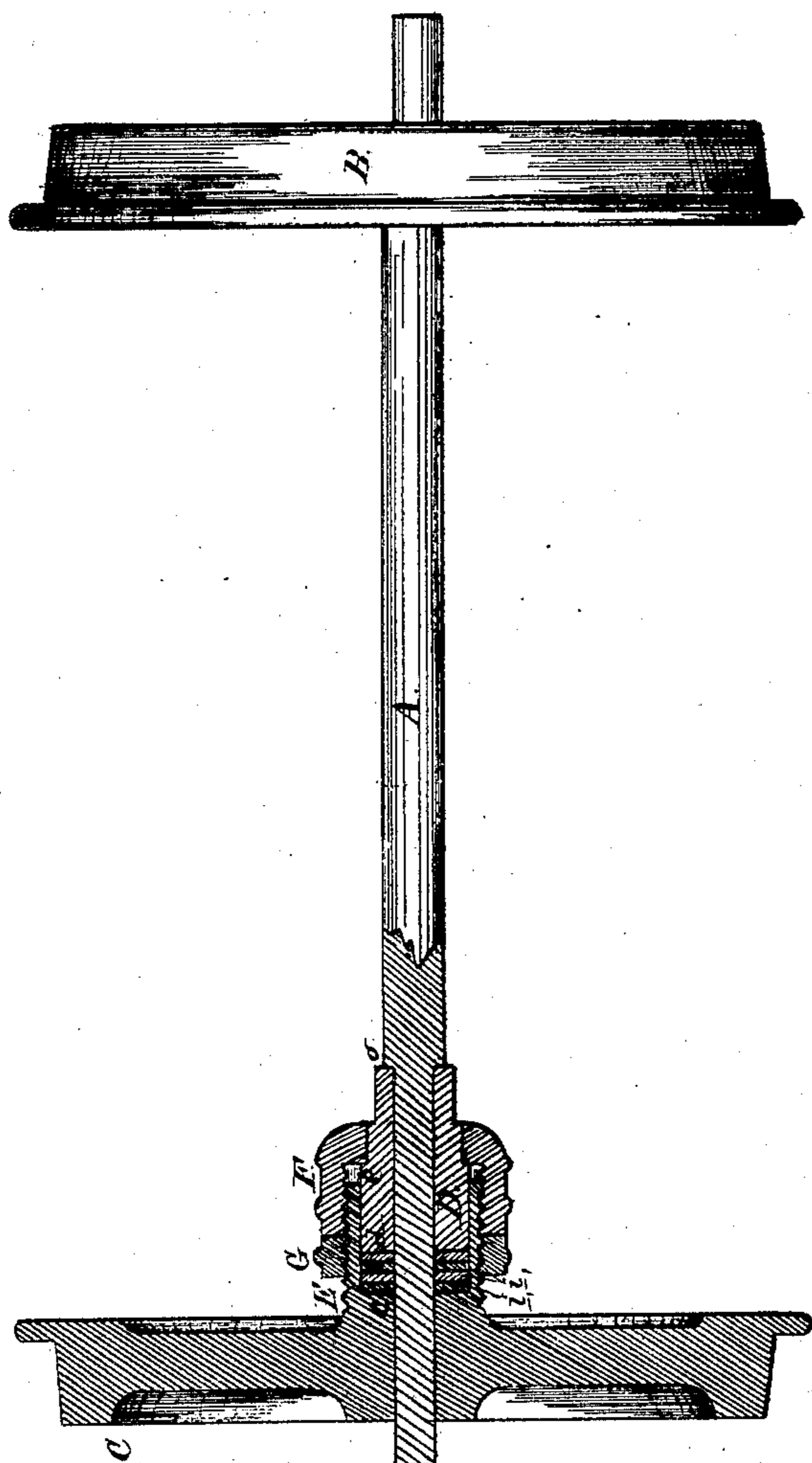


F. HUDNER.
Car Wheel and Axle.

No. 94,414.

Patented Aug. 31, 1869.



Witnesses:
Phil. F. Larnon
E. J. Brooke.

Inventor:
Frank Hudner
By Geo. W. Rothwell
att'y

United States Patent Office.

FRANK HUDNER, OF NEW YORK, N. Y.

Letters Patent No. 94,414, dated August 31, 1869.

IMPROVED CAR-WHEEL AND AXLE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FRANK HUDNER, of the city, county, and State of New York, have invented a new and useful Improvement in Fitting Car-Wheels to Axles; and I do hereby declare the following to be a full, clear, and exact description thereof, sufficient to enable those skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawing, forming part of this specification, and in which the figure is a front view, partly in section, of a car-axle, having a fixed and a loose wheel at opposite ends.

In order to enable street and other railroad-cars to readily turn short curves, the plan has been tried of fitting one wheel of each pair loosely to the axle, so as to revolve thereon, while the other is fixed as usual.

The great difficulty attending this plan has been that the friction of the revolving parts is so great as, in a little time, to shorten the distance between the two wheels, thereby making it less than the width or gauge of the road, which tends to throw the car from the track.

My invention is an improvement in this class of wheels and axles, intended principally to overcome the objection just stated; and

It consists mainly in so constructing the revolving parts, that as the contact-surfaces are worn by friction, washers may be interposed to compensate for the wear, and in the employment of an annular jam-nut, so arranged as to prevent the screw-collar which forms the connection between the loose wheel and the axle from working loose and turning off.

In order to enable others to fully understand my invention, I will now proceed to describe it in detail.

In the drawing—

A represents an axle, having a fixed wheel, B, as usual, near one end.

Near the opposite extremity of the axle is fitted a wheel, C, in the following manner, so as to revolve independently of the axle.

D is a sleeve, which is fitted on to the axle A, and abuts against a shoulder, *a*, on the latter. This sleeve is made fast in any suitable manner.

A wedge-shaped pin passing through the sleeve and axle will be found a secure and ready means of fixing the sleeve to the axle.

Instead of a separate sleeve, an annular projection may be formed on and with the axle itself.

A sleeve, D, as described, will, however, be probably most used, as it can be applied to axles already in

use by simply turning the latter to form the shoulder *a*. Even this might be dispensed with.

The wheel C is provided with a tubular projection, E, on its inner face, and a shoulder, *c*, inside.

The shoulder *c* is, when the parts are not worn, in contact with the shoulder *d* of sleeve D.

On the outer surface of the part E is formed a screw-thread, as represented.

F is a collar, fitted to turn loosely on the sleeve D, and abutting against a shoulder, *e*, formed on said sleeve.

On the inner surface of the collar F is cut a screw-thread corresponding to that on the projection E of the wheel C.

It will be seen that by screwing the collar F into the projection E, the wheel C will be kept from sliding on the axle, but will be capable of free and independent revolution thereon.

As a natural consequence of the friction between the wheel C and sleeve D, the contact-surfaces will become gradually worn to such an extent as to allow a sliding movement of the wheel on the axle.

To prevent this, and thereby remove the liability of accidents, washers *i i*, which may be of steel, are interposed between the contact-surfaces, to compensate for the wear.

These washers are introduced, one at a time, as the wear of the parts demands.

The collar F has a tendency at all times to become loose and unscrew, by reason of the excessive jarring while running, and especially on account of the great friction in backing.

To prevent this occurrence, a ring, G, or annular jam-nut, is screwed on to the part E, between the wheel and collar F.

It will be seen that when the nut G is in contact with the collar F, friction between them will counteract any tendency of the collar to work loose.

The provision of this jam-nut will be very useful and almost indispensable when, from any cause, the collar F has but a slight hold on the hub of the wheel; and by this means, in connection with the washers, the distance between the wheels B and C can be increased so as to be used on a wider-gauge track.

The screw-collar and jam-nut may be provided with small lugs, to which a spanner may be applied for purposes of adjustment, when necessary.

From the foregoing description, it will be obvious that in turning a curve with my wheel and axle, the fixed wheel B acts as a pivot, while the wheel C, revolving around the axle, carries with it the car until the straight track is reached, when the axle again turns on its journals, as usual.

It is believed that by my improvement the objections attending the use of wheels and axles of this kind are obviated.

Having thus fully described my invention,

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

1. The jam-nut G, arranged as described, in combination with the screw-collar and wheel C, with threaded hub-extension E, for the purpose set forth.

2. The sleeve D, when made separate from the axle, substantially as herein described, in combination with the axle A, wheel C, and screw-collar F.

3. The washers *i i*, interposed between the wheel C and sleeve D, for the purpose set forth.

FRANK HUDNER.

Witnesses:

H. L. WATTENBERG,

G. M. PLYMPTON.