

G. L. WALL.  
 DRIVING WHEEL AND GEAR RIM CONNECTION.  
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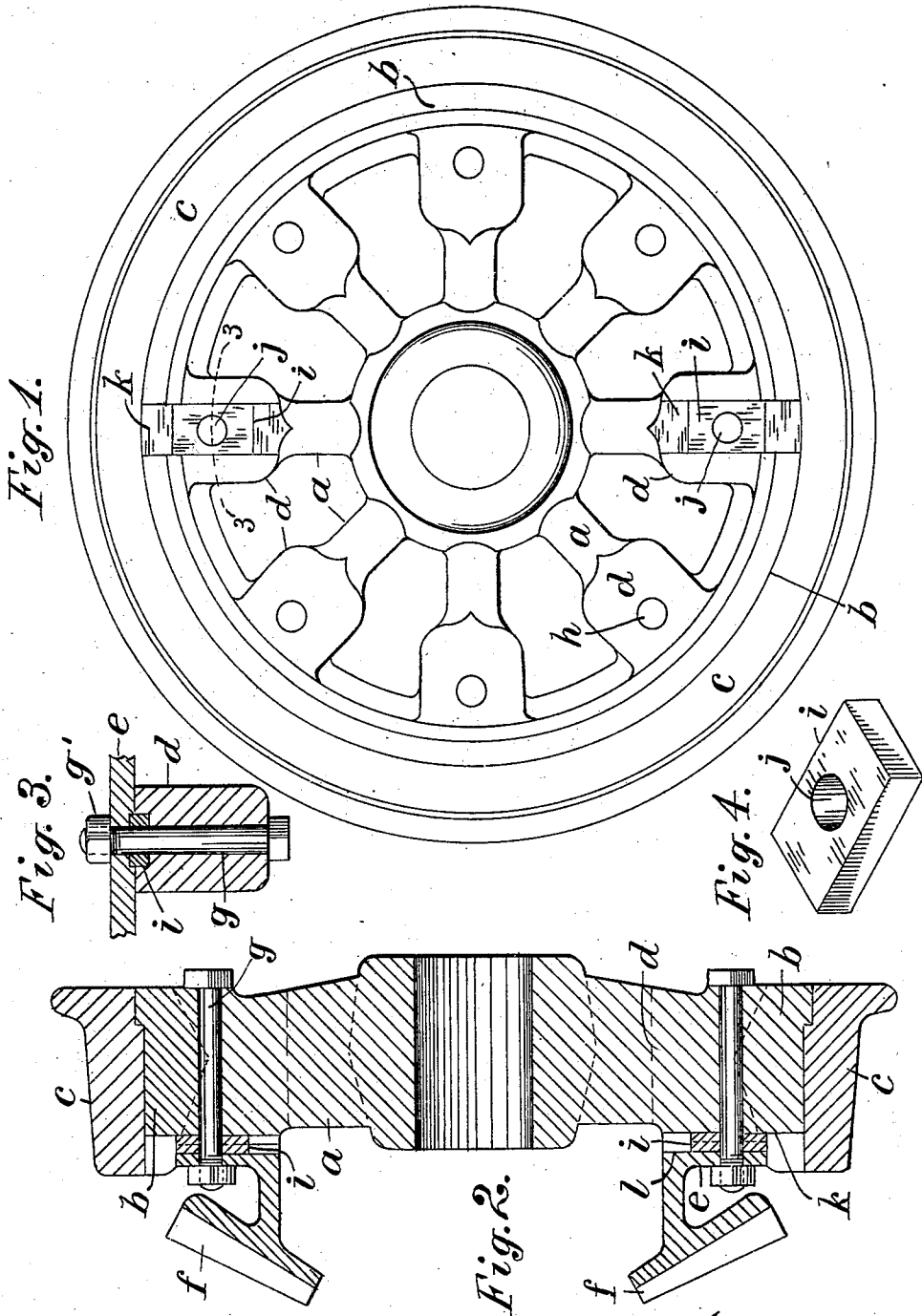


Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

Witnesses:  
 L. Lee.  
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# UNITED STATES PATENT OFFICE.

GEORGE L. WALL, OF LIMA, OHIO, ASSIGNOR TO THE LIMA LOCOMOTIVE AND MACHINE COMPANY, OF LIMA, OHIO, A CORPORATION OF OHIO.

## DRIVING-WHEEL AND GEAR-RIM CONNECTION.

No. 884,693.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE L. WALL, a citizen of the United States, residing at 1103 West High street, in the city of Lima, county of Allen and State of Ohio, have invented certain new and useful Improvements in a Driving-Wheel and Gear-Rim Connection, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention is designed for use upon the driving-wheels of that class of locomotives in which a driving-shaft is extended at the side of the driving-wheels and connected thereto by bevel-wheels.

In such constructions, it is common to secure a bevel gear-rim detachably to the outer face of each driving-wheel, and to provide bevel-pinions upon the driving-shaft to mesh therewith.

To lock the gear-rim securely upon the driving-wheel, and to relieve the bolts of strain, lugs have sometimes been extended from the foot of the gear-rim upon the opposite edges of the wheel-spokes; but when such lugs are used, a great deal of labor is required to fit them accurately, and the gear-rim thus fitted is not interchangeable with any other driving-wheel.

My invention provides an improved locking device in which invention no projections are formed upon the gear-rim to embrace the spokes, but the flange or foot of the gear-rim, as well as the seat upon the driving-wheel, is made quite flat and formed with one or more radial recesses near the periphery to receive a key or keys through which a clamping bolt may be extended, which relieves the bolts of the shearing strain without employing any projections upon the foot of the gear-rim. Gear-rims provided with radial recesses may, therefore, be used to replace gear-rims which have no such locking device, and can be kept in stock and used for any driving-wheel of corresponding size; which could not be effected heretofore with the gear-rims having projections to embrace the wheel-spokes.

The extension of a clamping-bolt through the key serves to hold the key securely in place, without fitting the key so accurately as is required when a key is driven into a tapering seat, and I am therefore enabled to use a recess with parallel sides and entirely open at the outer end, which greatly facili-

tates the formation of the recesses in the seats, by a simple planing operation.

Where two of the keys are employed, the recesses are disposed exactly at opposite sides of the wheel center, and both of such recesses may, therefore, be planed in the wheel-seat at a single setting upon the planing machine.

The invention will be understood by reference to the annexed drawing, in which

Figure 1 is a front view of a driving-wheel prepared with two keys to receive the gear-rim; Fig. 2 is a central vertical section of the wheel, and bevel-gear-rim; Fig. 3 is a section on line 3—3 in Fig. 1; and Fig. 4 is a perspective view of the key.

The driving-wheel is represented with spokes *a*, rim *b* and tire *c*, and seats *d* upon the outer sides of the spokes to receive the flange *e* of the gear-rim *f*.

Bolts *g* are shown inserted through the wheel-spokes and flange by holes *h* in the seats; and a key *i*, having a bolt-hole *j* extended through the thickness of the same, is shown in Fig. 4, adapted to fit a radial recess *k* in one of the seats *d* intersecting the bolt-hole *h*, and an opposed similar radial recess *l* formed upon the inner side of the flange *e* (see Fig. 2).

In Fig. 1, the perforated key *i* is shown in the recess *k*, with the holes *h* and *j* coincident, so that when the gear-rim is set in place, the bolt *g* can be inserted through the wheel-spoke and key, and secured by nut *g'*. The recess *k* is, for convenience of planing it out, extended from the extreme inner end of the seat *d* to the periphery of the wheel-rim *b*, where its outer end is covered by the tire *c*, when the tire is applied.

In Figs. 1 and 2, two keys are shown at opposite sides of the wheel center, as one key alone would not relieve all the bolts from shearing strain; but the construction may be used with one key whenever required.

It will be noticed that the seats formed upon the spokes, or side of the driving-wheel, are plane surfaces, as well as the surface of the flange *e*, so that the forming of the recesses is readily effected by planing or milling tools. It is obviously immaterial whether the bolts extend wholly through the wheel.

Owing to the flat character of the flange *e*, the construction permits the gear-rim prepared for new driving-wheels, having the keys and recesses, to be used equally well upon old driving-wheels which have been

used without such keys; and thus greatly facilitates the repairing of old locomotives. The keys serve the same purpose as the lugs heretofore fitted to the edges of the wheel-seats or spokes, while the construction is very much cheaper than the lugs, and possesses the interchangeable character referred to above.

Having thus set forth the nature of the invention what is claimed herein is:

1. The combination, with a driving-wheel, of a gear-rim having a flat circular flange fitted thereto, bolts connecting the flange and wheel, the wheel and the gear-rim having opposed radial recesses in their contiguous surfaces intersecting one of the bolt-holes, and a key fitted to the opposed recesses and perforated for the passage of a bolt.

2. The combination, with a driving-wheel, of a gear-rim having a flat circular flange fitted to the wheel with bolt-holes extended through the flange and the wheel, the wheel and the gear-rim both having opposed radial recesses in their contiguous surfaces intersecting one of the bolt-holes, a key fitted to the opposed recesses and perforated for the passage of a bolt, and a bolt extended through the flange, key and wheel, with nut to lock it in place, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE L. WALL.

Witnesses:

JOHN H. PHILLIPS,  
F. A. CRUM.