

J. L. MOTT.  
Car Wheel.

No. 10,672.

Patented Mar. 21, 1854.

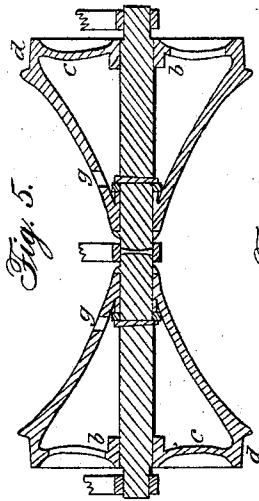
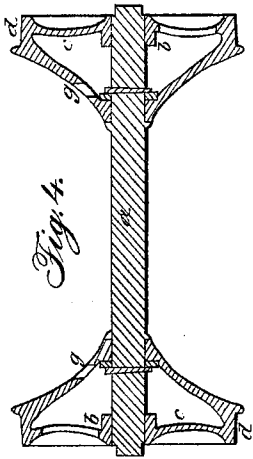
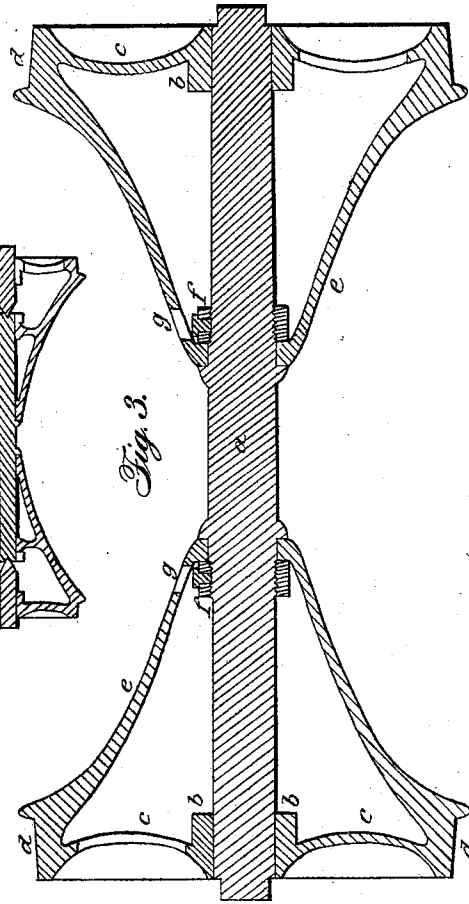
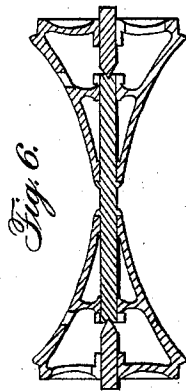
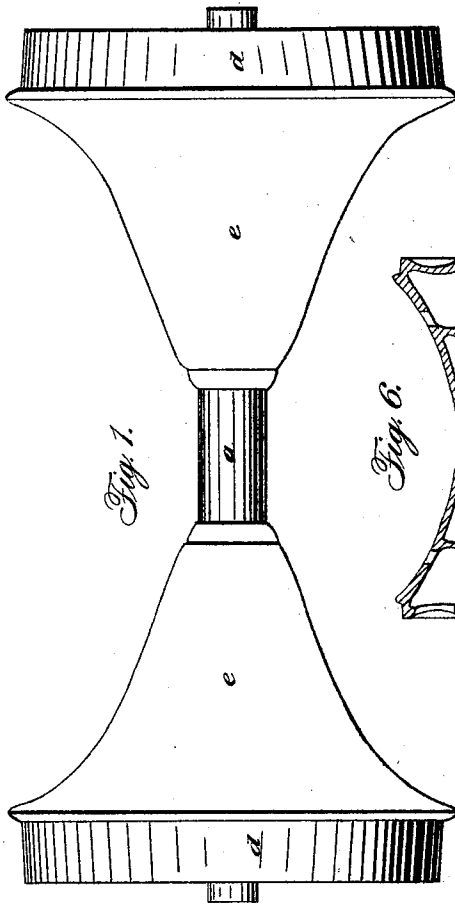
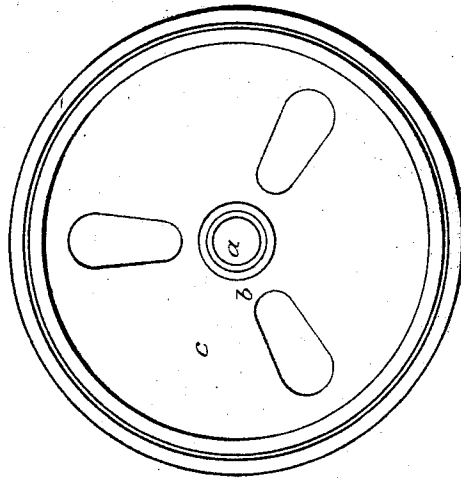


Fig. 2.



# UNITED STATES PATENT OFFICE.

JORDAN L. MOTT, OF NEW YORK, N. Y.

## RAILROAD-CAR WHEEL.

Specification of Letters Patent No. 10,672, dated March 21, 1854.

*To all whom it may concern:*

Be it known that I, JORDAN L. MOTT, of New York city, New York, have invented a new and useful Improvement in Railroad-Wheels, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is an elevation of two wheels on an axle; Fig. 2, a face view of a wheel; Fig. 3, a section of the two wheels on their axle and taken in the plane of the axes; and Figs. 4, 5 and 6 like sections of modifications, represented on a smaller scale.

The same letters indicate like parts in all the figures.

As railroad wheels have heretofore been made and mounted on their axles, the semi-diameter is much greater than the length of the hub, so that when the flanch strikes against the rail in the lateral thrust of railroad trains the tendency of the force to break or bend the wheels and axles is much increased by reason of this leverage of the semi-diameter of the wheels over the length of the hubs. And again; it is desirable that the two wheels on an axle, be free to turn independently of each other that they may adapt themselves to the difference in length between the inner and outer rails or curves. Many attempts have been made to accomplish this, but so far as I am informed without success. If the axle be made in two parts and coupled in the middle, the connection cannot be made practically efficient to resist the lateral thrusts and jars to which railroad trains are exposed; and if one wheel be permanently secured on one end of the axle, and the other free to turn on the other end, the length of the hub is not sufficient to resist the thrusts, aided by the leverage of the semi-diameter of the wheel.

The object of my invention is so to construct railroad wheels as to avoid the difficulties above enumerated, and to meet these contingencies, the nature of the first part of my invention consists in making railroad wheels with the outer face of any suitable form, and with the central hub fitted to the axle, in combination with the making of the inner plate of a conical or nearly conical form, and with the extremity thereof fitted

to the axle toward the middle of its length. The outer plate gives the required vertical support while the inner conical plate braces it against all lateral thrusts, thus presenting greater strength with a given weight of metal than by any other mode of construction heretofore practised. The rim of the wheel having its support on the axle toward the middle of its length, by the bracing action of the inner conical plate will be better supported to resist lateral thrusts, and this point of support being removed to a greater distance from the plane of the flanch, will reduce, if not entirely avoid the breaking or bending of the axle, while at the same time one or both the wheels can be fitted to the axle so as to turn independently to run on curves, the two points of support of each wheel on the axle being so far apart as effectually to resist the lateral thrusts.

In the accompanying drawings *a*, represents the solid axles with two wheels thereon. Each wheel is composed of a hub *b*, fitted to the axle near the outer journal and either fixed or free to turn thereon; a plate *c*, or spokes or other equivalents therefor, and connecting the hub with the rim *d*; and an inner plate *e*, of a conical or nearly conical form extending from the inner or flanch side of the wheel to the shaft to which it is fitted either to be secured or to turn thereon. If desired, and to facilitate the casting of such wheels I make the outer plate slightly curved from the hub to the rim, as also the inner or conical plate. The inside is cast on a core of the required form, supported in the usual or any suitable manner; and, if desired the securing nut *f*, previously made of wrought iron and tapped, is inserted in the sand core by which it is protected from the molten iron in the process of casting, so that after casting it can be liberated from the sand. Or instead of this, the nut can be introduced through holes in the outer plate.

The axle may be made of greater diameter between the two wheels, or with collars, leaving two shoulders for the inner end of the cones of the two wheels to rest against, and at the required distance from the shoulders the axle is tapped to receive the nuts. When the axle is inserted in the wheel the

nuts are slipped thereon and then screwed up against the inner face of what may be termed the hub of the conical plate. Or instead of the securing nut, a washer can be substituted and secured to the axle by a key or screw inserted through the hole *g*, in the conical plate. In this way both wheels can be secured on the axle so as not to turn thereon; or one may be so secured and the other held in its place on the axle and be left free to turn on the axle, so that in turning curves one wheel may turn independently of the other, or both may be secured on the axle so as to turn thereon.

I do not claim the making of hollow railroad wheels, that is wheels with two plates connecting the hub and rim, nor making

wheels with separate hubs for the two plates. But

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

Making railroad wheels with the outer face of any of the usual forms in combination with the inner plate of a conical or nearly conical form connected with the axle toward the middle of its length, to brace the rim of the wheel to resist lateral thrusts, and greatly reducing the liability, if not entirely avoiding the breaking or bending of the axle, all substantially as specified.

JORDAN L. MOTT.

Witnesses:

WM. H. BISHOP,  
CHAS. W. BAMBURGH.