

N. PALMER.

Wheels for Vehicles.

No. 135,244.

Patented Jan. 28, 1873.

Fig. 2.

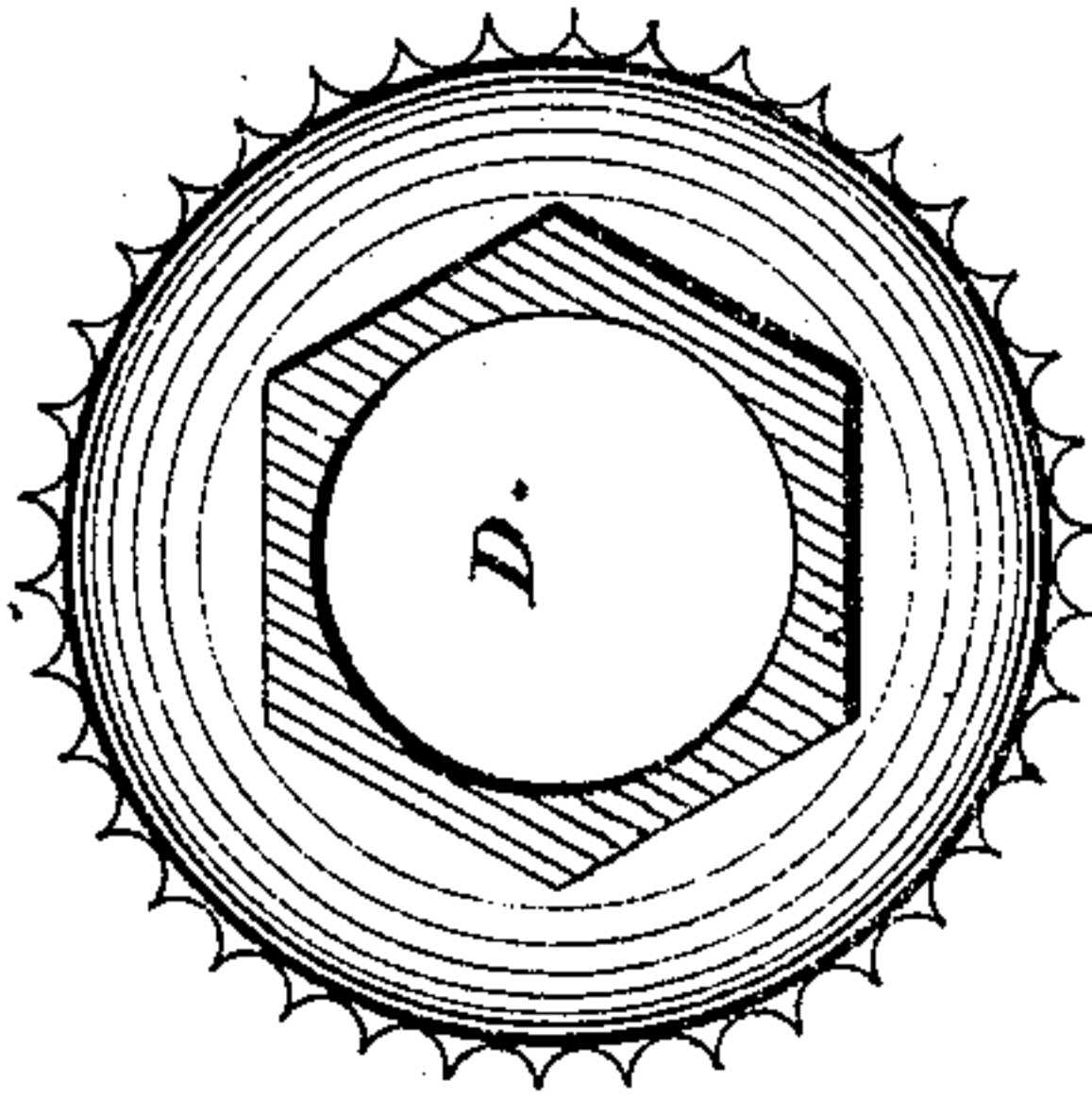
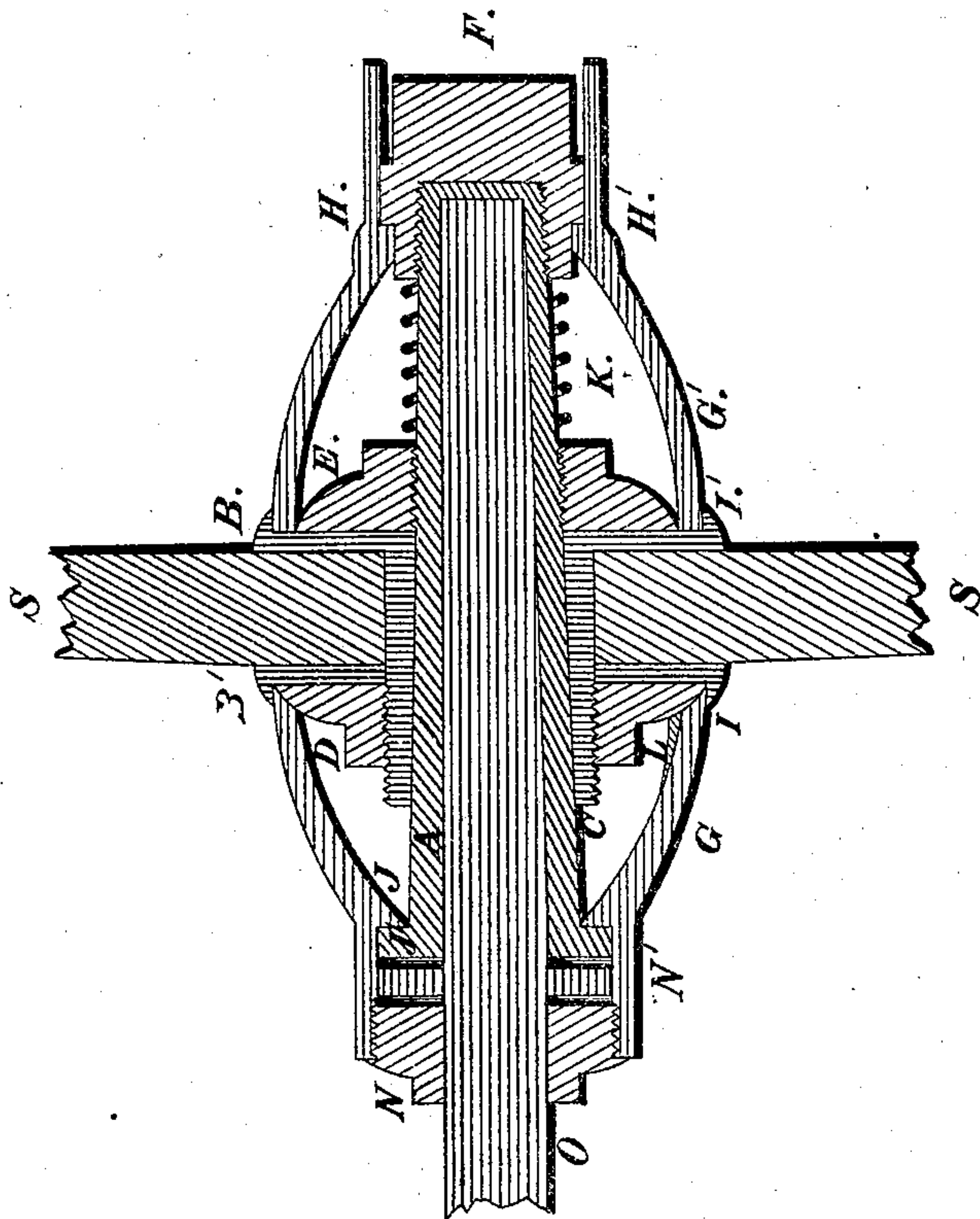


Fig. 1.



Attest;  
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# UNITED STATES PATENT OFFICE.

NELSON PALMER, OF ATHENS, NEW YORK, ASSIGNOR TO DAVIS WHEEL AND PALMER FORK COMPANY, OF NEW YORK, N. Y.

## IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. 135,244, dated January 28, 1873.

*To all whom it may concern:*

Be it known that I, NELSON PALMER, of Athens, in the county of Greene and State of New York, have invented certain Improvements in the Method of Constructing Wheels at the Center for Wheel Vehicles, and for other purposes, of which the following is a specification:

In order to enable others to understand the nature and excellence of this improvement, I will describe the construction of one class of wheels to which it is especially applicable, reference being had to the accompanying drawing which forms part of this specification.

Figure 1 is a longitudinal section of the hub on the axle-spindle, showing its internal arrangement. Fig. 2 is an end view of the nut on the tube in the center of the wheel.

S S are spokes, turned or made in the usual manner, except at the end placed at the center of the wheel; there the spokes contain a larger amount of wood than is found in ordinary spokes of otherwise like dimensions. This bulk of wood is fitted for its place in the wheel by being beveled or made wedge-shaped on both sides to such form and thickness that when placed in position the spokes form a complete circle. These beveled sides are firmly pressed against each other by screw power brought to bear against the outward end of the spokes. A clamping-plate, B, circular in form and of the desired diameter, is made with a tube, C, joined firmly or otherwise to its center, with a continued uniform orifice through the clamping-plate B and tube C sufficient in size to receive an axle-box, A, of any desired dimensions. This tube C is inserted in the center of the wheel into the orifice formed by the position of the inner ends of the spokes, the opposite spokes not being allowed, from the form of their bevels, to approximate each other only in so far as to form an orifice of any desired diameter. When this tube C is so inserted in the center of the wheel, and the clamping-plate B to which it is attached is brought up against the spokes, then another clamping-plate, B', of the same diameter, is put upon the other end of the tube C, and brought up against the opposite side of the spokes. A nut, D, is placed on the end of the tube C prepared to receive it, and screwed up

firmly against the clamping-plate B', which brings both the clamping-plates B and B' so tightly against the spokes as to hold them together in a secure manner. To further secure the spokes against all liability of being moved from their relative position at the center of the wheel, they are dovetailed widthwise on the inner end, and the clamping-plates B B', one or both, are made concave to conform to this increased width. As a further precaution the clamping-plates B B' are or may be corrugated on their inner surfaces, that when they are pressed by screwing up the nut D on the tube C, these protrusions will embed themselves in the edges of the spokes against which they impinge. To guard this nut D against all liability to unscrew and become loosened, except by design, its edge is corrugated or indented in such manner that a lug, L, on the edge of the back shell G of the hub, when in position fits into any one of these indentations, and also in a hole in the back clamping-plate B', and secures the nut D against all possibility of unscrewing until the back shell G of the hub is removed. This lug L on the back shell G also prevents the wheel from turning on the axle-box A when the arm of the axle O becomes heated or from any other cause. The back shell G of the hub is held in its position and becomes a strong support to the wheel by being fitted into an annular recess, I, in the back clamping-plate B' near the edge, and by having a recess, J, in its rear end fitted to a corresponding shoulder, J', on the rear end of the axle-box A. Against this shoulder J' on the one hand, and rear clamping-plate B' on the other, this back shell G is powerfully pressed by means of a screw and nut, E, on and near the center of the axle-box A in front of the front clamping-plate B', against which it is screwed with any desirable force. To complete the strength and beauty of this structure the front shell G' of the hub is put into position, being fitted into an annular recess, I', in the front clamping-plate B near its edge, and having near the front end inside a shoulder, H', to which a nut, F, is fitted with a corresponding shoulder, H. This nut F is screwed onto the front end of the axle-box A, closed or otherwise, and, pressing against the front shell G', and the front shell G' against



the front clamping-plate B, contributes to bind the parts at the center of the wheel together in the most firm and substantial manner. To prevent the nut F on the front end of the axle-box A and the nut E on the axle-box A against the front clamping-plate B from unscrewing and becoming loosened, a spring, K, is put upon the axle-box A under or within the front shell G'. One end of the spring K presses against the nut E on the axle-box A against the front clamping-plate B, and the other end of the spring K is made pointed, and, passing through a hole in the shoulder H of the front shell G', fits into indentations on the inner surface of the nut F on the end of the axle-box A. By this device both are held in their places.

This method of holding the spokes at the center of wheels is regarded as superior to the devices sometimes employed of putting several bolts through holes in clamping-plates and through the spokes, thus weakening the spokes at the point where most strength is needed, and involving the liability of bringing the clamping-plates to bear unequally upon the spokes at different points. By the use of the tube C, nut D, and clamping-plates B B', uniform pressure is brought to bear upon the spokes at any and every point involved. This arrangement also facilitates the construction of wheels by substituting one screw and nut, the screw on the tube C and the nut D, for several bolts and nuts employed in the usual method; and for the same reason it facil-

itates the tightening of the spokes by turning up a single nut should it, from shrinkage of the spokes, become necessary.

This wheel, with such a center and hub as herein described, is secured to the arm of the axle by means of a moon-plate or nut, N, turning loosely on the axle O back of and against a collar, N', attached to the axle O near the shoulder, and screwed into the rear end of the back shell G.

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

1. The spokes S S, held in their position at the center of the wheel by means of a single tube, C, on the axle-box and within the shell of the hub, and nut or nuts D, substantially as set forth.

2. A tube, C, passing through the center of a wheel within the shells G and G' on the axle-box, and receiving a clamping-plate, B', and nut D on one end, and a clamping-plate, B, with or without a nut on the other end, substantially as set forth.

3. In a vehicle-wheel, the combination of the axle-box A, tube C having clamping-plates B B', spokes S S, nuts D, E, and F, shells G G', lug L, spiral spring K, and moon-plate or nut N, all constructed and arranged substantially as set forth.

NELSON PALMER.

In the presence of—

GARDNER S. CUTTING,  
WM. S. REDABOCK, Jr.