To all whom it may concern:

Be it known that I, Judson P. Fowler, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Disk-Wheel Straighteners, of which the following is a specification.

My invention relates to disk wheel straighteners, and has for its object to provide a new and novel device whereby a disk wheel when twisted or smashed may be straightened and restored to its original shape, contour and position.

In the use of disk wheels on road vehicles, it is frequently necessary to provide a device whereby said wheels may be straightened and trued up after they have become tilted or sprung to such an extent as not to be at right angles to their axles. These objects I accomplish with the device illustrated in the accompanying drawings in which similar letters and numerals of reference indicate like parts throughout the several views and as described in the specification forming a part of this application and pointed out in the appended claims.

In the drawings in which I have shown a substantial embodiment of my invention, Fig. 1 is a view in perspective of the invention. Fig. 2 is an end elevation with parts cut away and showing a disk wheel in place thereon. Fig. 3 is a side elevation showing a disk wheel in place after it has been straightened, with dotted lines showing a tilted wheel before straightening.

My invention consists of a flat table A, formed of two spaced-apart parallel angle irons 1 of sufficient length to support any size vehicle wheel, with the end portions of each angle iron bent upwardly to form the braces B, and held in spaced relation to each other by the cross bars 20 at one end. At the other end a base block C is rigidly secured. A plate D having longitudinally disposed slots 2 near each end thereof is adjustably carried on said table A. Screw clamps 3 are carried in said slots 2 and, having hooks on one end thereof, are used to engage an edge of the wheel to hold it from lateral displacement during the process of straightening. Wing nuts screwed on the bottom portion of said clamps 3 adjust them to wheels of different dimensions. An axle bar 5, on one end of which is an enlarged head 6, which head engages the vertical edges of said angle irons 1, is passed through a hole medially in said plate D and secured thereto, and that is movable longitudinally in the space between said angle irons 1. The upper portion of said axle bar 5 is threaded to receive the wing nut 4. A cone-shaped hub clamp 7 is on said axle bar 5, with its base resting on said plate D, or, if necessary, upon bushing washers 8, which hub clamp engages the interior of the hub of the wheel, and said clamp on said axle bar 5 is an inverted cone-shaped hub clamp 9 to engage the interior of the small end of the hub of the wheel. A stay bar 10 is provided having an eye in one end, and is carried on said axle bar 5 between the said hub clamp 9 and said wing nut 4. The other end of said stay bar 10 is passed between the vertical portions B of said angle irons 1 and is threaded to receive a wing nut 11. The base block C is laterally bored to receive the standards 12 which are slidable in the holes of said base block. A threaded opening is provided through said base block C in which is operated the jack screw 13. Rigidly secured to the upper ends of said standards 12 is a jack block E having an opening medially therein in which is carried the upper portion of said jack screw 13, which opening is not as large as the body of the screw. An enlarged head piece 14 is fastened on the upper end of said jack screw 13 by the lever bar 15, and the said lever bar 15 is passed through the upper portion of said jack screw 13 and its head piece 14. One end of said jack block E is curved to conform somewhat to the periphery of the wheels to be straightened.

The operation of my device is as follows:

The wheel W is placed on the cone-shaped hub clamp 7 with the axle bar 5 taking the place of the regular axle of the wheel, with the inverted cone-shaped hub clamp 9 resting within the smaller end of the hub. The purpose of the conical shape given to the said hub clamps 7 and 9 is to hold the hub of the wheel concentric with the said axle bar 5 and to provide a clamp that will fit different sized axle bars, as well as different length hubs. The eye portion of the said stay bar 10 is then placed on the axle bar 5 and contiguous with the hub clamp 9.
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The plate D with the hub clamps 7 and 9 and wheel W is then moved laterally on the platform A to bring the outer portion of the wheel on a lower plane than the jack block E and under its curved edge. This lateral adjustment allows me to straighten wheels of different diameters. Having thus centralized the wheel in reference to the said plate D and the said jack block E, the said wheel W is then turned or rotated until the point of greatest displacement of its periphery is directly under the said jack block E. The said clamps 3 are then engaged over the upper edge of the said wheel W and their respective wing nuts turned up to aid in holding the hub of the said wheel W in fixed position. The said wing nut 11 is then turned up on the said brace rod 10 to hold said axle bar 5 vertical and at right angles to the said table A. The said wing nut 4 on said axle rod 5 is then turned down to hold the hub of the wheel rigidly in place. By turning the said jack screw 13 the said jack block E is brought to bear on the outer and upper side of the said wheel W, and by the operation of the jack screw the tilted portion of the wheel is again forced down to its original position relative to its hub and axle. Should the opposite portion of the wheel be tilted it may be forced upwardly into position by the use of any common hand jack, shown at J; or, if the displacement or tilting is extreme, or the wheel of exceptional weight and strength of parts, the wheel may then be turned over and the device used in a like manner to straighten it. The said wing nut 4 may be loosened and the wheel on the said axle bar 5 and the said hub clamps 7 and 9 and the said plate D may be moved from under the jack block E until said jack block E can be screwed down to a lower plane than that of the wheel. The wheel then being rotated on its axle until the next place of greatest displacement is adjacent the said jack block E. The wheel may then be moved laterally as to the jack until its edge is above the said jack block E and again secured in its former position. The said jack screw 13 may then be turned in its reverse direction and the said jack block E be brought into contact with the lower edge of the said wheel W forcing the tilted portion upwardly into its true and original shape. With the said wing nut 4 loosened on the said axle bar 5 and the said clamps 3 removed from engagement with the wheel, the wheel may then be rotated on the said axle bar 5 to ascertain when it is true, using the jack block E as the gauge, whether positioned above or below the rim of the wheel. As will be obvious, the platform may be supported on legs, a bench or any suitable support.

I thus provide an economical and powerful device for straightening and truing up tilted disk wheels, and one which may be used on wheels of all diameters and of different patterns and makes.

Having thus described my invention I desire to secure by Letters Patent and claim:

1. In a device for straightening disk wheel the combination of spaced-apart parallel bars, a portion of each bar bent at right angles to the main body; a plate having longitudinally disposed slots near each end thereof adjustable on said parallel bars; clamp rods operable in each of said slots, an axle bar having an enlarged head and which engages said parallel bars, and is passed through an opening medially in said plate; opposed cone-shaped clamps carried on said axle bar; a stay rod, having an eye on one end through which said axle bar is passed, and whose other end is passed between the right-angled portions of said parallel bars; a wing nut operable on said stay rod, another wing nut on said axle bar; a base block rigidly secured on the end of said parallel bars having openings therein, one of which is threaded; vertical standards operable in some of said last mentioned openings; a threaded jack screw operable in the threaded opening of said base block; a jack block secured on the upper end of said standards and carrying said jack screw; and means to manually operate said jack screw to raise or lower said jack block.

2. A disk wheel straightener comprising a platform; a hub engaging clamp longitudinally slidable on said platform; a base block rigidly secured on said platform, with a threaded hole therein and other unthreaded openings parallel to said threaded hole; standards operable in said unthreaded openings; a jack block secured on said standards and movable therewith; and a jack screw carried in said jack block with its threads engaging the threads in said base block.

In testimony whereof I have affixed my signature.

JUDSON P. FOWLER