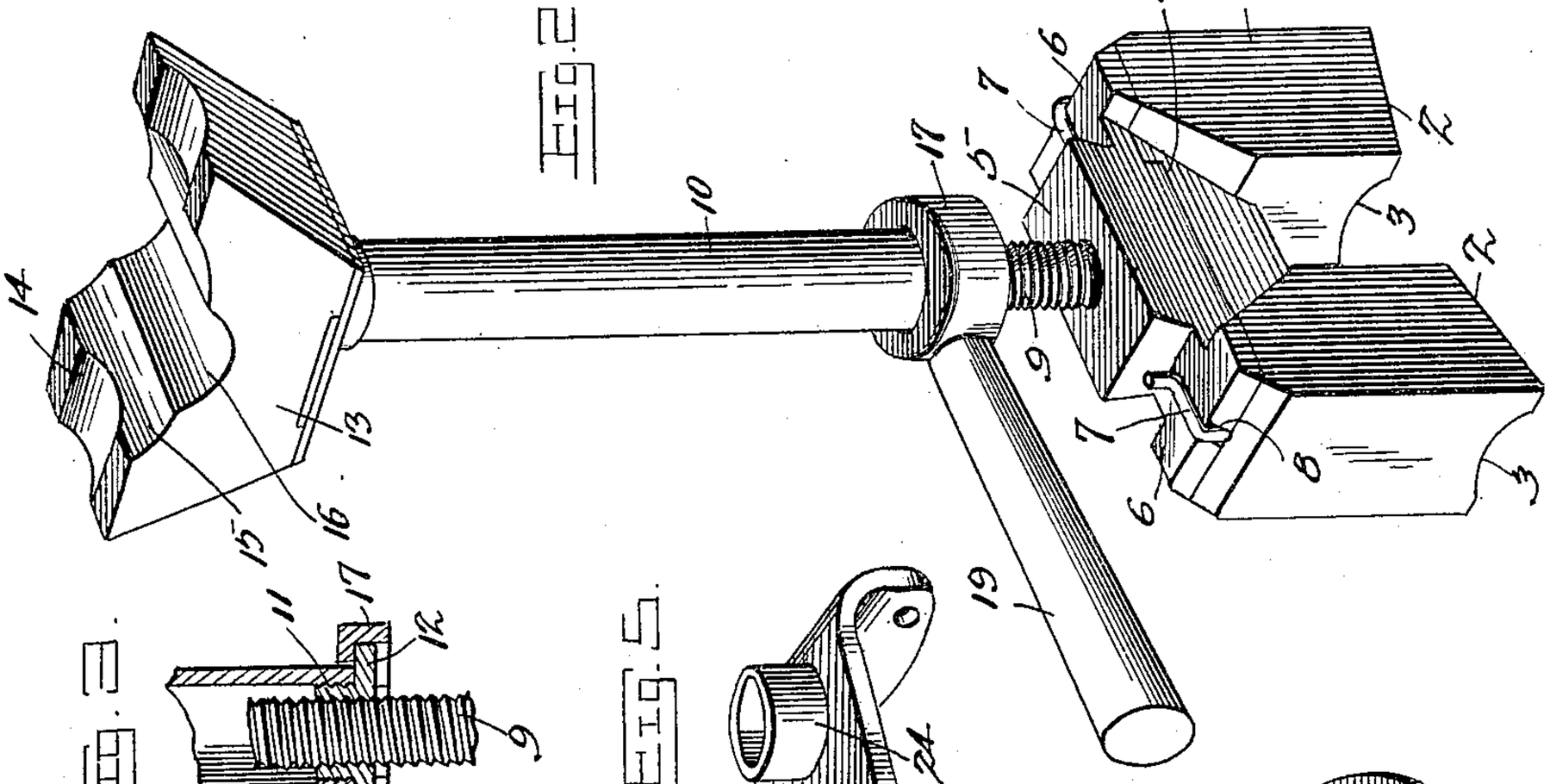
No. 698,868. Patented Apr. 29, 1902.

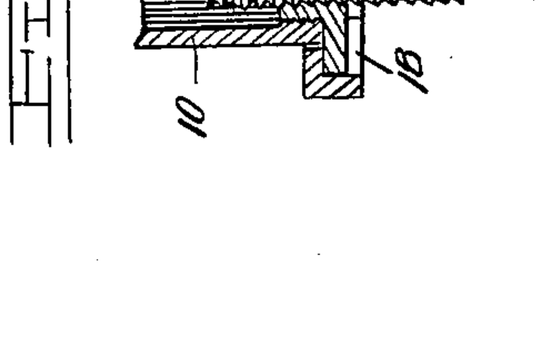
J. E. SOUER.

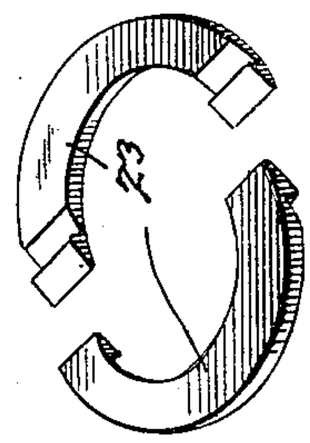
TIRE TIGHTENER.

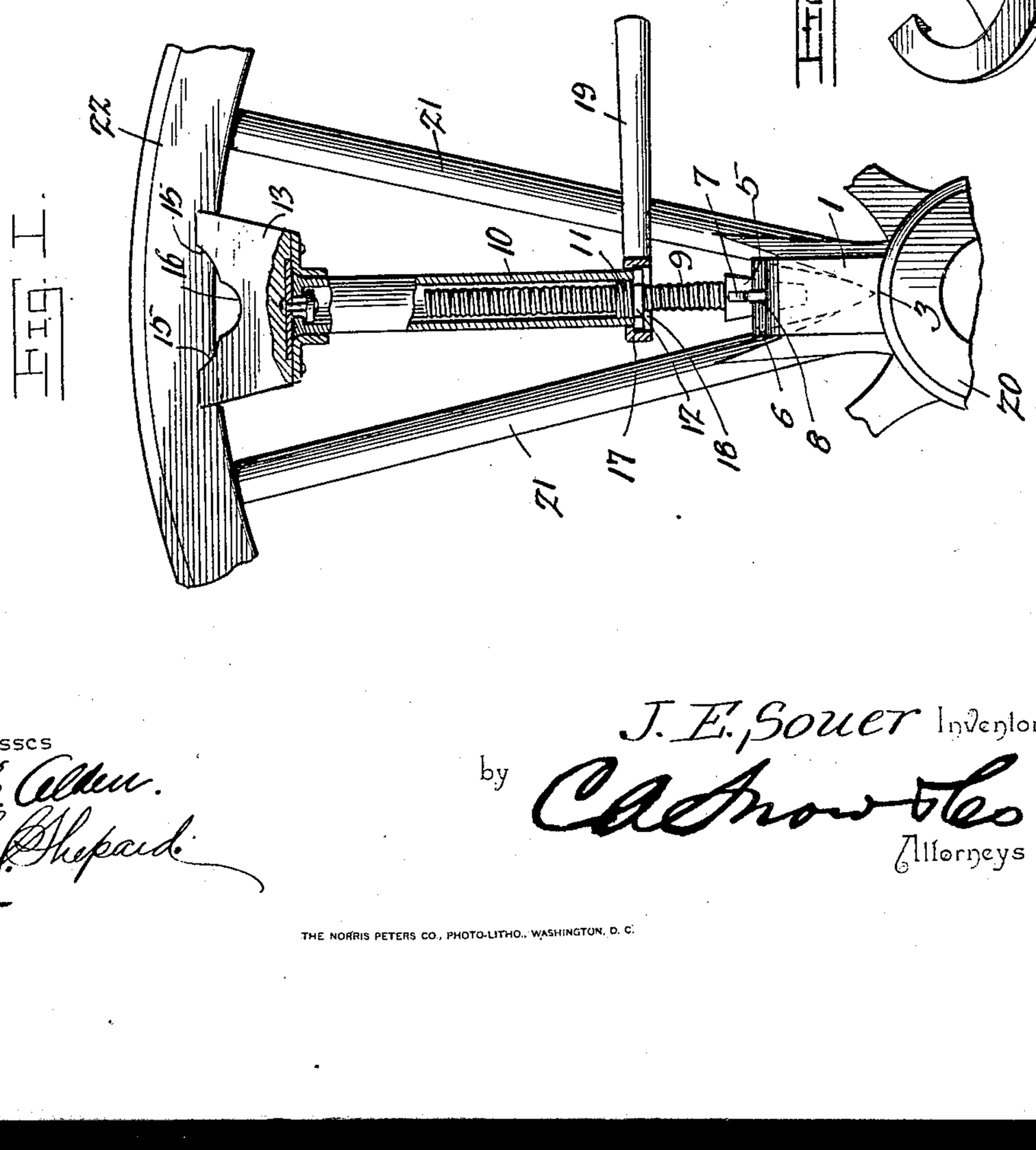
(Application filed June 20, 1901.)

(No Model.)









Witnesses
F. E. Allen.
H. J. Shepard.

J. E. Souer Inventor
by C. A. Snow & Co
Attorneys

UNITED STATES PATENT OFFICE.

JOHN E. SOUER, OF CRAIGVILLE, INDIANA.

TIRE-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 698,868, dated April 29, 1902.

Application filed June 20, 1901. Serial No. 65,305. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SOUER, a citizen of the United States, residing at Craigville, in the county of Wells and State of Indiana, have invented a new and useful Tire-Tightener, of which the following is a specification.

This invention relates to tire-tighteners, and has for its object to provide an improved device of this character which is arranged to be supported upon the hub of a wheel and to bear against the inner side of the rim or felly, there being means for adjusting the device to force the rim outwardly to permit of the insertion of washers or other devices between the end of a spoke and the rim to take up the space made by the forcing outwardly of the rim. It is furthermore designed to arrange for facilitating the adjustment of the device to accommodate the base thereof to a hub and adjacent spokes and also to render the crown or head applicable to rims of different sizes.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a side elevation of a portion of a wheel having the present device applied thereto and partly in section to illustrate the internal arrangement thereof. Fig. 2 is a perspective view of a tire-tightener embodying the present invention. Fig. 3 is a detail sectional view taken through the adjusting portion of the device. Figs. 4 and 5 are detail perspective views of means for insertion between the outer end of a spoke and the rim to hold the same tight.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

Referring to the drawings, 1 designates the base of the device, which has its intermediate bottom portion cut away transversely to form a bridge-shaped base and the intermediate side portions beveled inwardly and downwardly to accommodate the spokes of a wheel, as will be hereinafter described. The bottom of the base has its end portions beveled upwardly and inwardly in opposite directions, as at 2, and also grooved longitudinally, as at 3, to fit a hub. The intermediate portion of the base is provided with a top socket 4 for the reception of the wedge-shaped upper base member 5, the sides of which are beveled to correspond to those of the lower base member. The opposite ends of the base member 5 are provided with intermediate outwardly-directed wings 6, that rest upon the tops of the respective end portions of the lower base member and are detachably connected thereto by means of the turn-button fastenings 7, each of which consists of an upright stem rotatably mounted in the top of the lower base-section and has a crank-arm which is designed to overlap the top of the adjacent wing; also, the outer edge of the wing is provided with a notch or recess 8 for the reception of the stem, so as to prevent lateral displacement of the upper base member.

From the intermediate portion of the upper base member there rises a screw-threaded standard 9, upon which is telescopically mounted a tubular member or sleeve 10, which has an internal screw-threaded portion to fit the screw-threaded standard. This screw-threaded portion is preferably formed by an internally and externally screw-threaded nut 11, which is fitted into the lower end of the sleeve and has an outwardly-directed polygonal marginal flange 12 at its outer end and against the lower end of the sleeve, also projected beyond the sleeve, so as to be accessible to form a wrench-head.

Upon the upper end of the sleeve there is swiveled a felly-engaging head 13, which is provided in its top with the right-angularly related and intersecting grooves or seats 14 and 15, there also being a narrower and deeper groove or seat 16, formed in the bottom of the groove 15, thereby securing a plurality of seats of different sizes for the reception of the inner sides of wheel-rims.

To adjust the sleeve endwise upon the standard, there is provided a wrench-collar 17, which has the upper portion of its opening made circular to slidably and rotatably

receive the sleeve, and the lower portion of the opening being made polygonal, as at 18, to form a wrench-socket for the snug reception of the wrench-head 12, there being a lateral handle 19 upon the collar for convenience in manipulating the same for turning the sleeve, and thereby feeding the same upwardly upon the screw-threaded standard.

To understand the operation of the device, reference is had to Fig. 1 of the drawings, wherein 20 designates the hub of a wheel, 21 adjacent spokes, and 22 a portion of the rim or felly. The base of the device is placed upon the hub so as to straddle the inner end portions of adjacent spokes, the intermediate portion of the base being beveled to accommodate the spokes, and then the head 13 is adjusted to bear against the inner side of the rim, the latter being received within one of the seats, after which the handle 19 is manipulated to turn the sleeve, and thereby feed the same outwardly to force the rim outwardly. In view of the limited play of the wrench-handle the wrench-collar has been constructed to slide vertically upon the sleeve, so as to be disengaged with the wrench-head and also arranged to be rotated upon the sleeve to obtain a new hold upon the head, whereby a plurality of revolutions may be given to the sleeve. After the rim has been forced away from the end of a spoke the space may be filled by means of a split washer 23 (shown in Fig. 4) or by means of a spoke-socket 24.

The purpose of the detachable base-section 1 is to accommodate the device to wheels of different diameters, as it is designed to remove the lower base-section and apply the upper section directly to a hub should the device be too long to be conveniently fitted between the hub and rim of a comparatively small wheel, the lower end of the device being placed at one side of the spokes or directly between them if the space be of sufficient width.

What is claimed is—

1. A tire-tightener, comprising a base, a screw-threaded standard rising therefrom, a sleeve mounted upon the standard, a rim-engaging head carried by the outer end of the sleeve, a polygonal wrench-head upon the sleeve, and a wrench, having a circular opening slidably and rotatably embracing the sleeve, and an enlarged polygonal wrench-socket to detachably embrace the wrench-head.

2. A tire-tightener, comprising a base, a screw-threaded standard rising therefrom, an endwise-adjustable sleeve mounted upon the standard, and provided at its outer end with a rim-engaging head, the inner end of the sleeve having a polygonal wrench-head, and a wrench, having a handle and an opening for the reception of the sleeve, one end of the opening being circular to rotatably and slidably embrace the sleeve, and the opposite end of the opening being enlarged and made polygonal to form a wrench-seat for the detachable reception of the wrench-head.

3. A tire-tightener, comprising a two-part base, of which the lower part is bridge-shaped and provided with opposite intermediate inwardly and downwardly inclined side portions, there being a detachable connection between the base members, a screw-threaded standard rising from the upper base member, and an endwise-adjustable sleeve rotatably mounted upon the standard, and having its outer end provided with a swiveled rim-engaging head.

4. A tire-tightener, comprising a two-part base, opposite detachable fastenings therefor, each of which consists of a rotatable stem mounted upon the lower base-section, and a crank-arm to overlap the adjacent portion of the upper base-section, the edge of the latter having a recess for the reception of the adjacent stem, a screw-threaded standard rising from the upper base-section, and an internally-screw-threaded sleeve mounted upon the standard, and provided at its outer end with a rim-engaging head.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN E. SOUER.

Witnesses:
JOHN P. STROHM,
A. S. ABBOTT.