This invention relates to handles for automobile steering wheels arranged to be attached preferably to the rim of the wheel to facilitate turning, as well as minimize fatigue by making it possible to hold the wheel with the hands in a more natural position.

The device of my invention embodies various novel features of construction, which will be enumerated presently, with a view to providing for quick and easy attachment and a positive hold on the rim of the wheel so that there will be no danger of the same working loose, as well to avoid any likelihood of any parts of the handle itself developing a rattle. Moreover, the construction is such that a place is provided for the resting of the side of the hand in gripping the handle, that being a salient feature of the device of my invention. The construction is also designed with a view to neatness in appearance. More specifically stated, the features of the present invention are:

1. The provision of a flexible strap or band attached to the base under the hand rest having means attached to the free end thereof inside the hollow post on which the knob is carried for drawing up on the band, there being an abutment on the base disposed low enough with reference to the point of attachment of the end of the band so that the band which passes around the outside of said abutment forces the base sideways toward snug engagement with the side of the rim more and more firmly as the band is tightened.

2. The provision of a coiled compression spring inside the knob acting between the post and the knob for holding the knob under a light spring pressure sufficient to take up any end play resulting from wear, and thereby keep the same from rattling.

3. The provision of a novel means and method of locking the knob to its swivel sleeve on the post such that there is no danger of its working loose and requiring tightening, once the same has been properly fastened, nor is there much likelihood of anyone succeeding in removing the knob in order to steal the device, especially if the thief is not familiar with the method of locking, and hasn't the locking pin or its equivalent required for removing the knob.

4. The provision in connection with the band tensioning nut, of means for holding the nut against turning out of a certain position when the same is lowered as far as it will go for attachment of the free end of the band thereto, whereby to facilitate the mounting of the handle on the rim of the steering wheel.

The invention is illustrated in the accompanying drawing wherein—

Figure 1 is a central vertical section through the handle, showing the same applied to the rim of a steering wheel;

Fig. 2 is an elevation of Fig. 1 with a portion shown in section, and illustrating the method and means for locking the knob, the knob being shown threaded on part-way;

Fig. 3 is a plan view of Fig. 1, and

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 1.

The same reference numerals are applied to corresponding parts throughout the views.

This invention is an improvement on my co-pending application, Serial No. 340,482, filed February 16, 1929, and certain general features of similarity, such as the hand rest, for example, are covered in that application, although reference is made thereto in this application. The handle shown is the left hand one of a pair, it being preferable to use two handles, either in diametrically opposed relation on the rim of the steering wheel, or nearly so, depending on the preference of the driver, although, of course, some might prefer to have only one handle disposed in a mid position. The rim 10 of the steering wheel appears in section and a portion of one spoke 11 appears in elevation in Fig. 1. The handle comprises a base 12 suitably cast to fit over
the top and on the inside of the rim of the wheel as shown, the top portion 13 being elongated, as best appears in Fig. 3, and flattened on top to provide an ample hand rest about the base of the knob or grip 14 of the handle. Thus, the driver does not have to keep a tense grip on the knob 14, which would be tiring, but while holding the knob can rest the side of his hand on the broad, flat hand rest. A rest of this kind is found to be quite a luxury, particularly on a long, steady drive. This handle, therefore, in avoiding the necessity for the driver having to hold his wrists in an unnatural position, is not objectionable as are most, if not all, of the devices of a similar kind provided in the past in making it a tedious and tiresome proposition by necessitating a constant close grip thereon. It will be observed that the hand rest 13 is sufficiently elongated to accommodate the full length of the fleshy part of the side of the hand, and that the knob 14 is disposed midway of the ends thereof so that the rounded upper end thereof fits nicely in the palm of the hand. This is found to be most advantageous.

A hollow, cylindrical post 15 is preferably cast integral with the base 12. The outside of the post is smooth and provides a bearing for a sleeve 16 which, as will presently appear, serves as a swivel mounting for the knob 14, and a smooth, annular shoulder 17 is provided about the lower end of the post on the base 12 on which the sleeve 16 is arranged to rest. The bore of the post is smooth and cylindrical from end to end, and slidably receives a cylindrical nut 18 having an eccentric hole 19 for threaded reception of a bolt 20. The latter passes through an eccentric hole 21 provided in a cap 22 which has a reduced portion permitting the same to be set in the upper end of the post 15, as shown, with a radial pin 23 provided thereon extending into a slot 24 provided in the upper end of the post 15, whereby to positively locate the cap and hold the same against turning and thereby also positively locate the bolt 20. The head of the bolt rests on top of the cap 22, as shown. The nut 18 has two notches 25 cut into the same on one side, as shown in Fig. 4, whereby to form a lug 26. The lug 26 is arranged to fit in the slotted free end 27 of a steel strap or band 28, and to have a cross pin 29 mounted in the end of the band engage the top thereof whereby the lug is arranged to pull the free end of the band up into the post as the nut 18 is drawn up by the tightening of the bolt 20. The band 28 has on the other end thereof riveted or otherwise suitably secured to the base 12 under the hand rest 13, as indicated at 30, the band extending from the point 30 around the rim 10 of the steering wheel and upwardly through a bifurcated portion 31 of the base 12 into the post 15. The bifurcated portion 31 extends approximately at right angles to the hand rest portion 13.

Felt or other suitable cushioning material 32 is cemented to the inside of the bifurcated portion 31 and extends completely about the rim 10, being cemented to the inside of the band 28, the remainder of the length thereof. It serves to protect the rim of the steering wheel against marring when the band is tightened thereon. It will be evident from this much description that when the handle is being applied to the rim of a steering wheel, the nut 18 will be brought far enough down on the bolt 20 to permit attachment of the slotted end of the band onto the lug 26, and that thereafter the bolt can be tightened to draw the nut up into the post to place the band under tension. Obviously, the fact that the cap 22 is held against turning and thus definitely fixes the location of the bolt 20, prevents the nut 18 from turning, since the bolt 20 is eccentric with respect thereto. When the nut 18 is lowered as far as it will go, that is, when it rests on top of the cross bar 33, the side thereof diametrically opposite the lug 26 enters a notch 44 provided in the fixed end of the band 28, the nut being notched out, as indicated at 45, for this purpose. Thus the nut cannot turn to a position where it would be impossible to attach the end of the band onto the lug 26. This greatly facilitates assembling.

The band 28 has the points of fastening 30 located as far inward as possible toward the apex of the angle formed between the portions 13 and 31 of the base 12 with the idea of making it possible to attach the handle to steering wheels having rims of extremely small cross section. The rim 10 shown is of a medium size, and it will be evident that the band could be drawn up farther to fasten the handle to a rim of much smaller size, or, on the other hand, to a rim of larger size. If the band had the end fastened further outwardly from the apex of the angle referred to, there might be some difficulty in fastening the handle to small sized rims. An abutment 33, formed by a cross bar or web suitably cast integral with the base 12 near the top of the bifurcated portion 31, has the band 28 passing about the outside thereof where it extends up into the post 15 for connection with the nut 18. This abutment, it will be observed, is disposed far enough below the points of attachment of the end of the band at 30 so that when the band is tightened, considerable pressure is brought to bear on the abutment 33 by the band with the result that the whole base is forced to the left, as viewed in Fig. 1, into snug engagement with the inside of the rim. The hand rest portion 13 is, of course, drawn downwardly at the same time as the band is tightened, so that the base has snug engagement with the rim of the steering wheel across the top and across the inside, in addition to the bearing which the band itself has thereon about the
outer and under sides. As a result, the device is extremely rigid when the band is drawn up tightly. It is found that there is never any occasion for having to tighten the handle after it has been fastened properly.

The cap 22 has an annular flange 34 projecting about the upper end of the post 15 to retain the sleeve 16 previously referred to. A sleeve 35, suitably cemented or molded in place in the knob 14, is internally threaded at its lower end, as shown, to thread on the externally threaded lower end of the sleeve 16. The lower end of the sleeve 35 is counterbored, as indicated at 36, to fit over the lower end of the sleeve 16 in the manner indicated in Fig. 1. This is important for the reason that it thereby covers up holes 37 and 38 provided in the lower end of the sleeve 16 and post 15, respectively. A locking pin 39, shown in Fig. 2, is furnished with each handle or pair of handles having the end thereof bent at right angles, as shown at 40, to permit insertion thereof into the holes 37 and 38 when the sleeve 16 is turned to bring the hole 37 in register with the hole 38. When the pin 39 is so inserted, the sleeve 35 can be turned by the knob 14 to thread the same onto or off from the sleeve 16. Obviously, once the knob has been drawn up tight, the pin 39 can be removed and thereafter there is absolutely no likelihood of the knob working loose. The sleeve 16 turns with the knob as a unit and, since it is retained by the cap 22, the knob is, of course, held in place. Any one unfamiliar with the special construction just described would have very little prospect of success if he endeavored to remove the knob in order to get at the bolt 20 to remove and steal the device; that is believed to be self-evident.

In a device of this kind, the matter of avoiding rattling is very important. I have found that by simply inserting a conical compression spring 41 acting between the post and the knob, the latter, which is the only rotating part, can be kept from rattling even after the parts have become somewhat worn, the end play resulting from wear being taken up by the spring. The spring seats in an annular groove 42 provided on the top of the cap 22 over the flange 34 thereof, and bears at the center of the upper end of the knob 14 on the inside thereof, so that as the knob is turned relative to the post, the spring will not have to turn, it having practically a point contact with the knob on the axis thereof. The knob 14 is preferably made of bakelite or other molded material, and in order to avoid any danger of the spring wearing away the material of the knob, I contemplate providing a stamped sheet metal thimble 43 inside the upper end of the knob which can be dropped into place in the knob at the time the sleeve 35 is being cemented therein. It is found that the spring does not interfere with the swivel of the handle noticeably because the same is comparatively light and communicates just enough pressure to take up any end play so as to keep the knob from rattling.

In operation, the driver takes hold of the knobs 14 in a free and easy manner, the hands being allowed to rest somewhat on the hand rests 13. There is, therefore, absolutely nothing which might, in any way, cause fatigue even on a long steady drive; the hands are in a perfectly natural position and the muscles are not tensed the least bit. In making a turn there is none of that noticeable awkwardness occasioned by having to shift the position of both hands several times; the driver simply swings the wheel by means of either knob, using it somewhat like a crank handle. Where the wheel is swung through more than a complete turn the driver simply shifts the knob he is moving from one hand to the other. The fact that the knob can be operated like a crank handle is of particular advantage in parking or backing the car, where the wheel frequently has to be turned back and forth repeatedly to maneuver the car into the exact position desired.

It is believed the foregoing description conveys a clear understanding of my invention. The appended claims have been drawn with a view to covering not only the specific construction herein illustrated and described, but also such variations as anyone skilled in the art might devise especially after this disclosure.

I claim:

1. A device of the character described comprising a base arranged to be set on the rim or other part of a steering wheel and formed to provide two portions to engage the same on two adjacent sides, a flexible element permanently fastened at one end to the one portion of the base and extending therefrom around the rim and over the outside of an abutment on the other portion of said base, means carried by the base having connection with the free end of said flexible element for placing the same under tension, the abutment being so located that the pressure of the flexible element against the same causes the said portion of the base to be forced inwardly against the side of the rim, and a knob on said base.

2. A device as set forth in claim 1, wherein the two portions of the base extend approximately at right angles to one another, and wherein the one end of the flexible element is fastened to the one portion in close proximity to the apex of the angle, substantially as and for the purpose described.

3. A device as set forth in claim 1, wherein the two portions of the base extend approximately at right angles to one another, and wherein the one end of the flexible element is fastened to the one portion in close
proximity to the apex of the angle, substantially as and for the purpose described, the abutment on the other portion of the base being disposed in spaced relation to the apex of the angle for the purpose specified.

4. The combination of a hollow member arranged to serve as a mounting for a knob or other rotary part, a sleeve rotatably mounted thereon and held against removal therefrom by endwise movement with respect thereto, said sleeve having an externally threaded portion, and a knob or the equivalent having an internally threaded sleeve portion fitting over the aforesaid rotatable sleeve for threaded engagement with the externally threaded portion of said sleeve, the first mentioned member and the rotatable sleeve being provided with holes arranged at approximately the same level to permit the same to be brought into register with one another, the said registering holes being adapted to removably receive a locking pin whereby to permit holding the sleeve for the purpose of threading or unthreading the knob.

5. The combination of a hollow member arranged to serve as a mounting for a knob or other rotary part, a sleeve rotatably mounted thereon and held against removal therefrom by endwise movement with respect thereto, and a knob or the equivalent having a sleeve portion fitting over the aforesaid rotatable sleeve, the rotatable sleeve and sleeve portion being arranged to interlock when the knob is turned relative to the sleeve whereby to lock the knob to the sleeve to turn therewith as a unit, the first mentioned member and the rotatable sleeve being provided with holes arranged at approximately the same level to permit the same to be brought into register with one another, the said registering holes being adapted to removably receive a locking pin whereby to permit holding the sleeve for the purpose of turning the knob relative to the sleeve to lock or unlock the same.

6. An attachable handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, said base having a hollow post rising therefrom, a flexible band passed around the rim for the purpose of fastening the base thereto, means in the post and operable from the upper end thereof having connection with the band to place the same under tension to clamp the base to the rim, a sleeve swiveled on the post and held against removal therefrom by endwise movement relative thereto, and a knob having a sleeve portion fitting over the post and down over the swiveled sleeve, the swiveled sleeve having an externally threaded portion, and the sleeve portion of the knob having an internally threaded portion for threaded engagement with the externally threaded portion of the swiveled sleeve, the knob when applied to the swiveled sleeve serving to conceal the means in the post and prevent access to the upper end of the post for operation of said means, there being holes provided in the wall of the post and in the swiveled sleeve at approximately the same elevation arranged to be brought into register with one another by the turning of the sleeve on the post to the proper position, the said registering holes being adapted to receive a locking pin or the equivalent whereby to permit holding of the sleeve for the purpose of threading or unthreading the knob by turning the same relative thereto.

7. A structure as set forth in claim 6, wherein the registering holes are provided at the lower end of the post and swiveled sleeve, and wherein the lower end of the sleeve portion of the knob is formed to fit over the lower end of the swiveled sleeve when the knob is threaded onto the sleeve all of the way whereby to conceal the holes.

8. An attachable handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, said base having a hollow post rising therefrom, a flexible band passed around the rim and extending up into the post for the purpose of fastening the base to the rim, said post having a smooth cylindrical bore, a nut slidably received in said bore having a band attached thereto, said nut having an eccentric threaded hole, a bolt extending longitudinally in the post in eccentric relation thereto from the upper end thereof and threaded in said hole arranged when turned to draw the nut upwardly in the post to place the band under tension, the nut being held against turning by reason of the eccentric disposition of the bolt relative thereto, and a knob fitting over the post and suitably secured in place thereon, said knob concealing and preventing access to the end of the bolt at the upper end of the post.

9. A device as set forth in claim 8 including a sleeve swiveled on the post having an externally threaded portion for threaded engagement in an internally threaded portion provided in the knob, and a cap fitting on the upper end of the post and held against turning with respect thereto, said cap having an eccentric hole therein registering with the eccentric hole in the nut to admit the bolt, and having an annular flange seating on and projecting beyond the upper end of the post for the support of the cap thereon and for the purpose of holding the sleeve against endwise removal from the post.

10. A device as set forth in claim 8 including a sleeve swiveled on the post having an externally threaded portion for threaded engagement in an internally threaded portion provided in the knob, a cap fitting on the upper end of the post and held against turning with respect thereto, said cap having an ec-
centric hole therein registering with the eccentric hole in the nut to admit the bolt, and having an annular flange seating on and projecting beyond the upper end of the post for the support of the cap thereon and for the purpose of holding the sleeve against endwise removal from the post, and a spring acting between the cap and the inside of the upper end of the knob normally urging the knob upwardly and the sleeve with it whereby to keep the parts from rattling by taking up any end play.

11. A device as set forth in claim 8 including a sleeve swiveled on the post having an externally threaded portion for threaded engagement in an internally threaded portion provided in the knob, a cap fitting on the upper end of the post and held against turning with respect thereto, said cap having an eccentric hole therein registering with the eccentric hole in the nut to admit the bolt, and having an annular flange seating on and projecting beyond the upper end of the post for the support of the cap thereon and for the purpose of holding the sleeve against endwise removal from the post, said cap having an annular groove in the top thereof, and a coiled conical compression spring having the base thereof seated in said groove and the apex thereof engaging the inside of the upper end of the knob centrally thereof, said spring serving to place the knob under sufficient end thrust to take up any end play in the knob and sleeve to keep the parts from rattling.

12. A handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, means for fastening the base to the rim, said base having a post rising therefrom, a knob fitting over the post and normally held against endwise removal therefrom but swiveled with respect thereto, and a coiled compression spring disposed between the upper end of the post and the inside of the upper end of the knob serving to take up any end play in the knob to keep the same from rattling.

13. A handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, means for fastening the base to the rim, said base having a post rising therefrom, a knob fitting over the post and normally held against endwise removal therefrom but swiveled with respect thereto, and a coiled compression spring on the post serving to take up any end play in the knob to keep the same from rattling.

14. A handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, means for fastening the base to the rim, said base having a post rising therefrom, a knob fitting over the post and normally held against endwise removal therefrom but swiveled with respect thereto, and a coiled conical compression spring having the base portion thereof seated on the upper end of the post in concentric relation therewith with the apex portion thereof bearing against the inside of the upper end of the knob at the center thereof, said spring serving to urge the knob outwardly relative to the post and thereby take up any end play so as to keep the same from rattling.

15. A handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, means for fastening the base to the rim, said base having a post rising therefrom, a sleeve swiveled on the post, a cap piece for the upper end of said post having the rim portion thereof projecting from the post sufficiently to hold the sleeve against endwise removal while permitting turning of the sleeve relative to the post, a knob fitting over the cap and post and down over the sleeve and secured to the latter to turn therewith relative to the post, and a coiled compression spring acting between the cap and the inside of the upper end of the knob normally tending to urge the latter upwardly and the sleeve with it so as to take up any end play in said parts and keep the same from rattling.

16. A handle for a steering wheel or the like, comprising a base arranged to be set on the rim or other part of the wheel, means for fastening the base to the rim, said base having a post rising therefrom, a sleeve swiveled on the post, a cap piece for the upper end of said post having the rim portion thereof projecting from the post sufficiently to hold the sleeve against endwise removal while permitting turning of the sleeve relative to the post, a knob fitting over the cap and post and down over the sleeve and secured to the latter to turn therewith relative to the post, and a coiled conical compression spring mounted on and held in coaxial relation with the cap and knob having the other end thereof bearing against the inside of the upper end of the knob in coaxial relation with the latter, said spring serving normally to urge the knob upwardly relative to the post whereby to take up any end play and thus keep the same from rattling.

17. A device of the character described, comprising a base arranged to be set on the rim or other part of a steering wheel, a flexible element permanently fastened at one end to said base and extending therefrom around the rim, a hollow post rising from said base and arranged to have the free end of said element extended into the same, a nut in said post arranged for detachable connection with the free end of said element, the fixed end of said element having a projecting portion arranged by engagement with said nut in the lowered position thereof to hold the same against turning, whereby to facilitate
attachment of the free end of said element thereto, a bolt cooperating with said nut and arranged when tightened to draw the nut up in the post to place said element under tension, and a handle fitting on said post.

18. A device of the character described, comprising a base arranged to be set on the rim or other part of a steering wheel, a flexible element permanently fastened at one end to said base and extending therefrom around the rim, a hollow post rising from said base and arranged to have the free end of said element extended into the same, a nut in said post arranged for detachable connection with the free end of said element, said nut being held against turning when disposed inside the post during the tensioning of said element, means arranged to cooperate with said nut for holding the same against turning when the same is lowered from the post for attachment of the free end of the flexible element thereto, whereby to facilitate attachment of said element to said nut, a bolt cooperating with said nut and arranged when tightened to draw the nut up in the post to place said element under tension, and a handle fitting on said post.

19. A device of the character described, comprising a base arranged to be set on the rim or other part of a steering wheel and formed to provide two portions to engage the same on two adjacent sides, a flexible element connected to one leg of said base and passed around the other side and bottom of the rim and over a portion of the other leg of the base, means having connection with the free end of said element arranged to place the same under tension whereby to clamp the base to the rim in the manner set forth, and a handle on said base by means of which the wheel is arranged to be operated.

21. A device of the character described comprising a base arranged to be set on the rim or other part of a steering wheel and formed angular in cross-section to straddle the top and one side of the rim, a flexible element connected to one leg of said base and passed around the other side and bottom of the rim and over a portion of the other leg of the base, means having connection with the free end of said element arranged to place the same under tension whereby to clamp the base to the rim in the manner set forth, and a handle on said base by means of which the wheel is arranged to be operated.
attachment of the flexible element thereto, and a bolt extending downwardly from inside the post for threaded connection with the nut for drawing the nut upwardly in the post to place the element under tension to clamp the base to the wheel.

In witness of the foregoing I affix my signature.

MANLY H. SHIPLEY.