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### **BICYCLE FRONT FORKS WITH STEERER TUBES HAVING MARKINGS**

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#### **Abstract**

An example front fork for a bicycle disclosed herein includes a crown having a top side and a bottom side opposite the top side. The front fork includes at least one leg coupled to and extending downward from the bottom side of the crown. The front fork also includes a steerer tube coupled to and extending upward from the top side of the crown. The steerer tube includes first and second markings on an outer surface of the steerer tube. The first marking indicates a distance between the first marking and the top side of the crown to enable a user to cut the steering tube to a desired length. The first marking extends in a circumferential direction on the outer surface. The second marking is used to align a stem or handlebars on the steerer tube. The second marking extends in an axial direction and intersects the first marking.

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**U.S. Cl.:**

## Background/Summary

### FIELD OF THE DISCLOSURE

[0001] This disclosure relates generally to bicycle components and, more particularly, to bicycle front forks with steerer tubes having markings.

### BACKGROUND

[0002] Bicycles are known to have front forks. A front fork typically includes a steerer tube, a crown, and first and second legs. The first and second legs extend downward from the crown and are coupled to the hub or axle of the front wheel. The steerer tube extends upward from the crown and is installed through a head tube on the bicycle frame and coupled to the handlebars. Typically, front forks are manufactured with a steerer tube that is longer than necessary for a given bicycle. When a user receives a new front fork, the user cuts the steerer tube to a desired length based on the height of the head tube and the rider's desired handlebar height. After inserting the steerer tube through the head tube, the user connects the handlebars to the top portion of the steerer tube via a stem. The user aligns the handlebars with the front wheel before tightening the stem.

### SUMMARY

[0003] An example front fork for a bicycle disclosed herein includes a crown having a top side and a bottom side opposite the top side. The example front fork includes at least one first leg coupled to and extending downward from the bottom side of the crown. The example front fork also includes a steerer tube coupled to and extending upward from the top side of the crown. The steerer tube includes a first marking and a second marking on an outer surface of the steerer tube. The first marking indicates a distance between the first marking and the top side of the crown to enable a user to cut the steering tube to a desired length. The first marking extends in a circumferential direction on the outer surface of the steerer tube. The second marking to be used to align at least one of a stem or handlebars on the steerer tube. The second marking extends in an axial direction and intersects the first marking.

[0004] An example front fork for a bicycle disclosed herein includes a crown having a top side and a bottom side opposite the top side. The example front fork includes at least one first leg coupled to and extending downward from the bottom side of the crown. The example front fork also includes a steerer tube coupled to and extending upward from the top side of the crown. The steering tube having a marking on an outer surface of the steerer tube. The marking to be used to align at least one of a stem or handlebars on the steerer tube. The marking comprises a line extending in an axial direction along the outer surface of the steerer tube such that the line is visible in a gap between ends of the stem when the stem is installed on the steerer tube.

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## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 is a side view of an example bicycle that can employ example front forks disclosed herein.

[0006] FIG. 2A is a rear side view of an example front fork with an example steerer tube with example markings that can be implemented on the example bicycle of FIG. 1.

[0007] FIG. 2B is a side view of the example front fork of FIG. 2A.

[0008] FIG. 3 is an enlarged view of the callout in FIG. 2A showing the example markings on the example steerer tube.

[0009] FIG. 4 is a side view of the example steerer tube of the example front fork of FIG. 2A and an example handlebar stem connected to the example steerer tube.

[0010] FIGS. 5A and 5B are perspective views showing an example process of assembling the example front fork and example handlebars on the example bicycle of FIG. 1.

[0011] FIG. 6A is a rear side view of the example steerer tube and the example stem of FIG. 4.

[0012] FIG. 6B is an enlarged view of the callout of FIG. 6A.

[0013] FIG. 7A is a top view of the example front fork of FIG. 2A, an example stem, and example handlebars installed on the example bicycle of FIG. 1.

[0014] FIG. 7B is a rear perspective view of the front fork, the example stem, and the example handlebars of FIG. 7A.

[0015] FIG. 7C is an enlarged view of the callout of FIG. 7B.

[0016] The figures are not to scale. Instead, the thickness of the layers or regions may be enlarged in the drawings. In general, the same reference numbers will be used throughout the drawing(s) and accompanying written description to refer to the same or like parts.

[0017] Descriptors “first,” “second,” “third,” etc. are used herein when identifying multiple elements or components that may be referred to separately. Unless otherwise specified or understood based on their context of use, such descriptors are not intended to impute any meaning of priority or ordering in time but merely as labels for referring to multiple elements or components separately for ease of understanding the disclosed examples. In some examples, the descriptor “first” may be used to refer to an element in the detailed description, while the same element may be referred to in a claim with a different descriptor such as “second” or “third.” In such instances, it should be understood that such descriptors are used merely for ease of referencing multiple elements or components.

#### DETAILED DESCRIPTION

[0018] Disclosed herein are example front forks for a bicycle that include a crown having a top side and a bottom side opposite the top side. The example front fork includes at least one leg coupled to and extending downward from the bottom side of the crown. The example front fork also includes a steerer tube coupled to and extending upward from the top side of the crown. The steerer tube includes a marking on the outer surface of the steerer tube. The marking is used to indicate a characteristic of the front fork. In some examples, the marking is used to indicate a distance between the marking and the top side of the crown to enable a user to cut the steerer tube to a desired length. Providing a marking to indicate the distance between the marking and the top side of the crown eliminates the need for a user to dry-fit the front fork and handlebar assembly and estimate the length of the steerer tube to cut. Instead, in the example steerer tubes disclosed herein, the user may utilize the marking on the steerer tube to assist in cutting the steerer tube to a desired length. In some examples, the steerer tube includes multiple markings, which are spaced at a certain increment, such as every 10 millimeters (mm), every 20 mm, etc.

[0019] Also disclosed herein are markings on the steerer tube that can be used to assist the user in aligning the stem on the steerer tube, so that the handlebars are aligned with the front wheel on the bicycle. For example, the marking may be a vertical line on the rear side of the steerer tube. When connecting the handlebar stem to the steerer tube, the arms on the stem can be aligned on opposite sides of the vertical line before tightening the stem onto the steerer tube. This ensures the handlebars are perpendicular to the front wheel and/or otherwise align with the front axle of front wheel. Therefore, the example steerer tubes disclosed herein can allow a user to cut more precisely the preferred length of the steerer tube and/or align the steerer tube with the handlebars on the bicycle. In some examples, the marking(s) are formed directly on the outer surface of the steerer tube, such as by etching, engraving or any other method of removing material from the outer surface of the steerer tube. Additionally or alternatively, the marking(s) can be paint, a sticker, a decal, a pre-finish masking, and/or another type of material applied or added to the outer surface of the steerer tube.

[0020] Turning now to the figures, FIG. 1 illustrates one example of a human powered vehicle on which the example front forks with marked steerer tubes disclosed herein may be implemented. In this example, the vehicle is one possible type of bicycle **100**, such as a mountain bicycle. In the illustrated example, the bicycle **100** includes a frame **102** and a front wheel **104** and a rear wheel **106** rotatably coupled to the frame **102**. In the illustrated example, the front wheel **104** is coupled to the front end of the frame **102** via a front fork **108**. A front and/or forward riding direction or orientation of the bicycle **100** is indicated by the direction of the arrow A in FIG. 1. As such, a forward direction of movement for the bicycle **100** is indicated by the direction of arrow A. The terms “upper,” “lower,” “top,” “bottom,” “rear,” “front,” “fore,” “aft,” “vertical,” “horizontal,” “right,” “left,” “inboard,” “outboard” and variations or derivatives thereof, refer to the orientations of the exemplary bicycle **100**, shown in FIG. 1, from the perspective of a user seated thereon.

[0021] In the illustrated example of FIG. 1, the bicycle **100** includes a seat **110** coupled to the frame **102** (e.g., near the rear end of the frame **102** relative to the forward direction A) via a seat post **112**. The bicycle **100** also includes handlebars **114** coupled to the front fork **108** for steering the bicycle **100**. The handlebars **114** are coupled to the front fork **108** by a stem **115**. The bicycle **100** is shown on a riding surface **116**. The riding surface **116** may be any riding surface such as the ground (e.g., a dirt path, a sidewalk, a street, etc.), a man-made structure above the ground (e.g., a wooden ramp), and/or any other surface.

[0022] In the illustrated example, the bicycle **100** has a drivetrain **118** that includes a crank assembly **120**. The crank assembly **120** is operatively coupled via a chain **122** to a sprocket assembly **124** mounted to a hub **126** of the rear wheel **106**. The crank assembly **120** includes at least one, and typically two, crank arms **128** and pedals **130**, along with at least one front sprocket, or chainring **132**. A rear gear change device **134**, such as a derailleur, is disposed at the rear wheel **106** to move the chain **122** through different sprockets of the sprocket assembly **124**. Additionally or alternatively, the bicycle **100** may include a front gear change device to move the chain **122** between a plurality of chainrings **132**.

[0023] The example bicycle **100** can include a suspension system having one or more suspension components. For example, the front fork **108** can be implemented as a front suspension component that integrates a spring and/or a damper. Further, in the illustrated example, the bicycle **100** includes a rear suspension component **136**, which is a shock absorber, referred to herein as the rear shock absorber **136**. The rear shock absorber **136** is coupled between two portions of the frame **102**, including a swing arm **138** coupled to the rear wheel **106**. The front fork **108** and the rear shock absorber **136** absorb shocks and vibrations while riding the bicycle **100** (e.g., when riding over rough terrain). In other examples, the front fork **108** and/or the rear shock absorber **136** may be integrated into the bicycle **100** in other configurations or arrangements. Further, in other examples, the suspension system may employ only one suspension component (e.g., only the front fork **108**) or more than two suspension components (e.g., an additional suspension component on the seat post **112**) in addition to or as an alternative to the front fork **108** and rear shock absorber **136**.

[0024] While the example bicycle **100** depicted in FIG. 1 is a type of mountain bicycle, the example front forks disclosed herein can be implemented on other types of bicycles. For example, the disclosed front forks may be used on road bicycles, as well as bicycles with mechanical (e.g., cable, hydraulic, pneumatic, etc.) and non-mechanical (e.g., wired, wireless) drive systems. The disclosed front forks can also be implemented on other types of two-wheeled, three-wheeled, and four-wheeled human powered vehicles. Further, the example fork forks can be used on other types of vehicles, such as motorized vehicles (e.g., a motorcycle).

[0025] FIG. 2A is a rear side view of an example front fork **200** (referred to herein as the fork **200**) that can be implemented as the front fork **108** on the bicycle **100** of FIG. 1, and FIG. 2B is a side view (e.g., a left side) of the example fork **200**. When the fork **200** is installed on the bicycle **100**, the rear side shown in FIG. 2A is the side facing the rear wheel **106** (FIG. 1). In the illustrated

example, the fork **200** includes a steerer tube **202**, a crown **204**, a first leg **206**, and a second leg **208**. Alternatively, the fork **200** may only include one leg. The crown **204** includes first and second bores **260**, **262** extending therethrough for receiving the first and second legs **206**, **208**, respectively. The crown **204** has a top side **205** and a bottom side **207** opposite the top side **205**. As shown in FIGS. 2A and 2B, the crown **204** includes a third bore **264** extending therethrough and disposed between the first and second bores **260**, **262** for receiving the steerer tube **202**. The steerer tube **202** is coupled to the crown **204** and extends outward (e.g., upward) from the top side **205** of the crown **204**, and the first and second legs **206**, **208** are coupled to the crown **204** and extend outward (e.g., downward) from the bottom side **207** of the crown **204** opposite the steerer tube **202**. As shown in FIG. 2B, the steerer tube **202** is offset in a lateral direction (e.g., rearward) from the legs **206**, **208**. When the fork **200** is installed on the bicycle **100**, the steerer tube **202** extends through an opening in the frame **102** (commonly referred to the head tube), and the handlebars **114** (FIG. 1) are coupled (e.g., clamped, bolted) to a top portion of the steerer tube **202** via the stem **115** (FIG. 1). The steerer tube **202** is coupled to the crown **204** in a non-rotatable manner. For example, the steerer tube **202** can be coupled to the crown **204** via welding, press fit, threaded fasteners and/or other mechanical and/or chemical techniques. As such, when a rider turns the handlebars **114** (FIG. 1), the steerer tube **202** rotates the crown **204** to turn the front wheel **104** (FIG. 1). In some examples, the steerer tube **202**, the crown **204**, and/or the legs **206**, **208** are constructed of metal, such as aluminum, steel, stainless steel, or carbon fiber. In other examples, the steerer tube **202**, the crown **204**, and/or the legs **206**, **208** can be constructed of other materials.

[0026] In this example, the fork **200** is a suspension fork that includes telescoping legs. However, the steerer tube **202** with markings of this disclosure may be implemented on forks having fixed legs that do not telescope, such as on rigid fork configurations used on road bicycles, etc. As shown in FIG. 2A, the first and second legs **206**, **208** include first and second upper tubes **210**, **212** (sometimes referred to as leg portions or stanchions), respectively, and first and second lower tubes **214**, **216** (sometimes referred to as leg portions or lowers), respectively. The first and second upper tubes **210**, **212** may be collectively referred to as an upper tube assembly, and the first and second lower tubes **214**, **216** may be collectively referred to as a lower tube assembly. The first and second upper tubes **210**, **212** are coupled to and extend downward from the crown **204**. In some examples, the first and second lower tubes **214**, **216** are coupled via an arch **218** (sometimes referred to as a fork brace or stabilizer). The first and second lower tubes **214**, **216** include respective front wheel attachment portions **220**, **222**, such as holes (e.g., eyelets) or dropouts, for attaching the front wheel **104** (FIG. 1) to the fork **200**. FIG. 2A shows an example axle **224** that extends through a hub of the front wheel **104** (FIG. 1) and is connected at the front wheel attachment portions **220**, **222**. The first and second upper tubes **210**, **212** are slidably received within the respective first and second lower tubes **214**, **216**. Thus, the first and second upper tubes **210**, **212** form a telescopic arrangement with the respective first and second lower tubes **214**, **216**. In some examples, a spring (e.g., an air spring) is disposed in one of the legs **206**, **208** and a damper is disposed in the other one of the legs **206**, **208**. The spring and damper control the movement of the first and second lower tubes **214**, **216** relative to the first and second upper tubes **210**, **212** to absorb impacts and vibrations. During a compression stroke, the first and second upper tubes **210**, **212** move into or toward the respective first and second lower tubes **214**, **216**, and during a rebound stroke, the first and second upper tubes **210**, **212** move out of or away from a respective first and second lower tubes **214**, **216**.

[0027] In the illustrated example of FIG. 2A, the steerer tube **202** has a first end **226** and a second end **228** (shown by dashed lines) opposite the first end **226**. The first end **226** is the top or distal end of the steerer tube **202**. In this example, the steerer tube **202** has a first portion **230** that is straight, a second portion **232** that is tapered, and a third portion **234** that is straight. The first portion **230** extends between the second portion **232** and the first end **226**, and the third portion **234** extends between the second portion **232** and the second end **228**. The second portion **232** is tapered to seat against a corresponding surface in the head tube of the frame **102**. In this example, the third

portion **234** is partially disposed or inserted into the third bore **264** in the crown **204**. In some examples, the steerer tube **202** is coupled to the crown **204** by press fitting the third portion **234** into the third bore in the crown **204**.

[0028] In the illustrated example, the first portion **230** of the steerer tube is relatively long and is typically longer than needed for a given bicycle. Fork manufacturers often sell forks with longer steerer tubes. This enables a user or customer to cut the steerer tube **202** down to the desired length for their bicycle and handlebar height. For example, a user may cut (e.g., via a saw) a few inches from the top of the steerer tube **202**.

[0029] In the illustrated example, the steerer tube **202** has one or more markings **250** on an outer surface **252** of the steerer tube **202**. In some examples, the markings **250** include height or distance indicators or markings **249** that can be used to help a user determine how much of the steerer tube **202** to cut. Additionally or alternatively, the markings **250** can include alignment indicators or markings **251** that can be used to help align the stem and the handlebars on the steerer tube **202**, examples of which are disclosed in further detail herein. In the illustrated example, the markings **250** are on the first portion **230** of the steerer tube **202**, which is the straight (non-tapered) portion that remains outside of the head tube after the steerer tube **202** is installed. However, in other examples, the markings **250** can be formed on another portion of the steerer tube **202**. Further, in other examples, the steerer tube **202** may not have a tapered portion, and instead may be entirely straight between the first and second ends **226**, **228**. In the illustrated example, the markings **250** are on a rear side of the steerer tube **202**, which is the side facing rearward and toward the rider when the fork **200** is installed on the bicycle **100** (FIG. 1). However, in other examples, one or more of the markings **250** can be positioned on another side of the steerer tube **202**.

[0030] FIG. 3 is an enlarged view of the callout **254** of FIG. 2A showing the distance markings **249** on the steerer tube **202**. In this example, the distance markings **249** include a plurality of lines **300** (one of which is referenced in FIG. 3). The lines **300** are spaced from each other in an axial direction along the outer surface **252** of the steerer tube **202**. The lines **300** indicate or represent the distance (e.g., height or length) between the respective line **300** and the top side **205** (FIG. 2A) of the crown **204** (FIG. 2A). The distance markings **249** can include any number of lines **300**. In some examples, the distance markings **249** may include only one line. However, in other examples, such as shown in FIG. 3, the distance markings **249** can include multiple lines **300**.

[0031] In the illustrated example, each of the lines **300** extends in a direction (e.g., a horizontal direction) that is perpendicular to an axial direction of the steerer tube **200**. For example, the lines **300** extend in a circumferential direction on the outer surface **252**. In the example of FIG. 3, the lines **300** are of differing horizontal lengths to indicate various measurement intervals. In particular, the lines **300** alternate between longer lines and shorter lines. However, in other examples, the lines **300** may be the same horizontal length or a variety of differing lengths. In some examples, the lines are spaced apart at a certain increment or interval, such as every 5 mm, every 10 mm, etc. In some examples, the distance markings **249** include one or more numerical values **302** (one of which is referenced in FIG. 3) adjacent to one or more of the lines **300**. The numerical values **302** are the measurements for the distances between the respective lines **300** and the top side **205** of the crown **204**. For example, the distance markings **249** includes numerical values **302** for 110 mm, 120 mm, 130 mm, 140 mm, 150 mm, 160 mm, 170 mm, 180 mm, 190 mm, and 200 mm. Therefore, in this example, the distance markings **249** provide a range of distances between 110 mm and 200 mm. In other examples, the distance markings **249** can include a larger or smaller range of distances. For example, the distance markings **249** can provide a range of increments between 100 mm-220 mm.

[0032] In this example the numerical values **302** are in metric units, but in other examples can be in standard units (e.g., inches) or another unit. In the illustrated example, the numerical values **302** are only adjacent to the longer lines **300**, and the shorter lines **300** indicate 5 mm increments between the longer lines **300**. However, in other examples, the numerical values **302** may be adjacent to every line **300**. While in this example the numerical values **302** indicate a measurement for the

distance from the crown **204**, in other examples the numerical values **302** may indicate, additionally or alternatively, the relative distance between the lines **300**. Further, in other examples, the lines **300** and/or the numerical values **302** may indicate a distance to a position other than the crown **204** (FIG. 2), such as the axle **224** (FIG. 2), the front wheel **104** (FIG. 1), etc. Further, the lines **300** may be of differing lengths, shapes, and/or orientations than those depicted in FIG. 3. [0033] As shown in FIG. 3, the alignment markings **251** include a line **304**, which can be used to align the handlebars **114** (FIG. 1) on the steerer tube **202**. The line **304** is disclosed in further detail herein.

[0034] In some examples, the markings **250**, including the lines **300**, the numerical values **302**, and/or the line **304**, may be etched or engraved (i.e., carved) into the outer surface **252** of the steerer tube **202** by removing material. For example, the markings **250** can be formed using a laser, a machining tool (e.g., a bit), or a chemical etching process. For example, the markings **250** can be formed by laser etching the markings **250** into black anodized material of the steerer tube **202**. Additionally or alternatively, any of the markings **250** can be formed by at least one of a paint, a sticker, a decal, a pre-finish masking, and/or another type of material applied to the outer surface **252** of the steerer tube **202**. For example, the markings **250** can be printed (e.g., via pad printing) onto the outer surface **252** of the steerer tube **202**.

[0035] The markings **250** may be a first color and at least a portion of the outer surface **252** of the steerer tube **202** where the markings **250** may be a second color different than the first color to improve visibility of the markings **250**. The distance markings **249** and the alignment markings **251** may be the same color or different colors. For example, the lines **300** may be the first color and the line **304** may be a third color. The numerical values **302** may be a fourth color. Alternatively, the lines **300** and the numerical values **302** may be the first color and the line **304** is the third color. The first color, the second color, the third color and the fourth color may differ from one another in at least one of brightness, colorfulness and hue.

[0036] FIG. 4 is a side view showing the stem **115** connected to the steerer tube **202**. In the illustrated example, the stem **115** has a first upper arm **404a** and a first lower arm **406a** that are connected (e.g., via bolts) to second upper and lower arms **404b**, **406b** (labeled in FIGS. 6B and 7C) on the other side of the steerer tube **202** and can be tightened onto the steerer tube **202**. The stem **115** also has a clamp **407** for clamping onto the handlebars **114** (FIG. 1).

[0037] The stem **115** is connected to the steerer tube **202** at the desired handlebar height of the user. As shown, a portion **408** of the steerer tube **202** is located above the handlebar attachment **402**. This portion **408** may be deemed by the user as excessive length based on the desired height of the handlebars **114** (FIG. 1). Therefore, the user may use the lines **300** to determine how much of the steerer tube **202** to cut off. For example, the user may know their desired handlebar height correspond to the top of the stem **115** being 180 mm from the crown **204**. Therefore, the user may cut the steerer tube **202** at or just above the 180 mm marking. As such, the user does not need to assemble the parts, mark the cut location, and disassemble the parts for cutting, as experienced in the past. Further, in some examples, the markings **250** can be used to help the user attach the stem **115** (and, thus, the handlebars **114**) at a certain height on the steerer tube **202**. In some examples, the handlebars **114** (FIG. 1) may be attached further up or down on the marked steerer tube **202** (FIG. 3A) to adjust the height of the handlebars **114** (FIG. 1).

[0038] FIG. 5A shows the steerer tube **202** after being cut to a desired length. As compared to the steerer tube **202** of FIG. 4, the steerer tube **202** of FIG. 5A is shorter in length. As shown in FIG. 5A, the steerer tube **202** has been inserted through a head tube **500** on the frame **102** of the bicycle **100**. The handlebars **114** can then be connected, via the stem **115**, to the portion of the steerer tube sticking upward from the head tube **500**.

[0039] FIG. 5B shows the handlebars **114** attached via the stem **115** to the steerer tube **202**. As compared to the steerer tube **202** of FIG. 4, the steerer tube **202** of this example does not extend as far above the stem **115**. Instead, only a small amount (e.g., 3-5 mm) of the steerer tube **202** extends

above the stem **115**. In this example, a cap **502** is coupled to the top end of the steerer tube **202** to close off the steerer tube **202**. In some examples, the stem **115** is spaced from the top of the head tube **500**. In some examples, one or more spacers can be used to space the stem **115** from the top of the head tube **500**.

[0040] Referring back to FIG. 3, one or more of the alignment markings **251** can be used to help align the handlebars **114** on the steerer tube **202** to ensure the handlebars **114** are properly aligned with the front wheel **104** (FIG. 1). In the illustrated example, the alignment markings **251** include a line **304**. The line **304** is a vertical line that extends in an axial direction along the outer surface **252** of the steerer tube **202**. In this example, the line **304** is positioned along a center plane extending through the steerer tube **202**. As such, the line **304** indicates the center of the steerer tube **202**. The line **304** enables the user to center the handlebars **114** (FIG. 1) on the steerer tube **202** with respect to the front wheel **104** (FIG. 1). In some examples, the alignment markings **251** can include more than one line **304** to indicate to the user various alignments. Further, the line(s) **304** may be of differing lengths, shapes, and orientations than those depicted in FIG. 3. As shown in FIG. 2A, the line **304** extends from the first end **226** of the steerer tube **202** through the last of the lines **300**. However, in other examples, the line **304** may only extend through a portion of the first portion **230** of the steerer tube **202** and may not intersect with the lines **300**; the line **304** may extend through the first portion **230**, the second portion **232**, and the third portion **234**; or the line **304** may extend any length on the steerer tube **202**.

[0041] FIG. 6A is a rear side view of the steerer tube **202** with the stem **115** attached to the steerer tube **202**. FIG. 6B is an enlarged view of the callout **600** of FIG. 6A. The stem **115** includes the first upper arm **404a**, the second upper arm **404b**, the first lower arm **406a**, and the second lower arm **406b**. The first and second upper arms **404a**, **404b** are connected by first bolt **602a**, and the first and second lower arms **406a**, **406b** are connected by a second bolt **602b**. The first bolt **602a** can be tightened to move the first and second upper arms **404a**, **404b** toward each other, and the second bolt **602b** can be tightened to move the first and second lower arms **406a**, **406b** toward each other. This tightening clamps the stem **115** onto the steerer tube **202**. As shown in FIG. 6B, a small gap remains between the first and second upper arms **404a**, **404b**, and a small gap remains between the first and second lower arms **406a**, **406b**. The line **304** can be used by the user to help align the stem **115** on the steerer tube **202** so that the handlebars **114** (FIG. 1) are properly aligned with the front wheel **104** (FIG. 1). For example, before tightening the stem **115** onto the steerer tube **202**, the stem **115** is positioned on the steerer tube **202** such that the line **304** is aligned between (e.g., equidistant between) the first and second upper arms **404a**, **404b**, and between the first and second lower arms **406a**, **406b**. This ensures the handlebars **114** will be properly aligned with the front wheel **104**. The line **304** does not contact the first and second upper arms **404a**, **404b** or the first and second lower arms **406a**, **406b** but is visible through the small gap between the upper and lower arms **404a**, **404b** and **406a**, **406b**. The line **304** at least extends along one-third of the length of the gap. In this example, line **304** extends the entire length of the gap between the upper and lower arms of the stem to provide better visibility of the line **304**.

[0042] FIG. 7A is a top view showing the fork **200** installed on the frame **102** of the bicycle **100** and the stem **115** with the handlebars **114** attached to the steerer tube **202**. The steerer tube **202** has a first central axis **700** (extending into/out of the page). The first central axis **700** extends along a first vertical plane **702** (extending into/out of the page) shown in dashed lines. The first and second legs **206**, **208** have respective central axes **704a**, **704b** that form a second vertical plane **706** (extending into/out of the page) shown in dashed lines. The first and second vertical planes **702**, **706** are perpendicular. The first vertical plane **702** also corresponds to the plane along which the front wheel **104** (FIG. 1) is aligned when attached to the fork **200**. The handlebars **114** have a middle portion **707** with a central axis **708**. It is typically desired for this central axis **708** of the handlebars **114** to be aligned perpendicular to the front wheel **104** when viewed from the top view in FIG. 7A. As such, the handlebars **114** are to be positioned such that the central axis **708** of the



handlebars **114** is perpendicular to the first plane **702** and/or parallel to the second plane **706**. In this example, the line **304** (FIG. 3) can be used to aid the user in positioning the stem **115** on the steerer tube **202** so that the handlebars **114** are perpendicular to the first plane **702** and, thus, perpendicular to the front wheel **104**.

[0043] FIG. 7B is a rear perspective view of the fork **200**, the stem **115**, and the handlebars **114** of FIG. 7A. FIG. 7C is an enlarged view of the callout **710** of FIG. 7B. As shown FIG. 7C, the line **304** is aligned with the first vertical plane **702** on the outer surface **252** of the steerer tube **202**. As such, the user can easily align the handlebars **114** perpendicular to the first vertical plane **702** (and, thus, the front wheel **104**) by centering the line **304** between the arms **404a**, **404b**, **406a** **406b** of the stem **115**.

[0044] Additionally or alternatively, the steerer tube **202** can include vertical lines on either side of the first vertical plane **702**. For example, the steerer tube **202** may have 3 vertical lines.

[0045] An example method of assembling the fork **200** and applying the markings **250** is disclosed herein. In some examples, the steerer tube **202** and the legs **206**, **204** are coupled to the crown **204** first, and then the markings **250** are applied to the steerer tube **202**. This helps to ensure the line **304** is aligned along the first vertical plane **702** on the steerer tube **202**. Otherwise, if the line **304** was applied to the steerer tube **202** first, it can be difficult to ensure the line **304** is aligned with the first vertical plane **702** when coupling the steerer tube **202** to the crown **204**. Also, by assembling the steerer tube **202** and the legs **206**, **208** to the crown **204** first, the crown **204** and the legs **206**, **208** can be used as fixture points or datum points when applying the markings **250**. For example, the markings **250** can be etched using a laser machine.

[0046] From the foregoing, it will be appreciated that example systems, apparatus, articles of manufacture, and methods have been disclosed that improve alignment of handlebars onto the steerer tube of bicycles and improve measurement of the steerer tube for cutting by a user.

[0047] Example methods, apparatus, systems, and articles of manufacture provide visual indications on bicycle forks to improve alignment of handlebars on a steerer tube and/or improve measurement of the length of the steerer tube are disclosed herein. Further examples and combinations thereof include the following:

[0048] Example 1 includes a front fork for a bicycle, the front fork comprising a crown having a top side and a bottom side opposite the top side, at least one first leg coupled to and extending downward from the bottom side of the crown, and a steerer tube coupled to and extending upward from the top side of the crown, the steerer tube having a first marking and a second marking on an outer surface of the steerer tube, the first marking indicating a distance between the first marking and the top side of the crown to enable a user to cut the steering tube to a desired length, the first marking extending in a circumferential direction on the outer surface of the steerer tube, the second marking to be used to align at least one of a stem or handlebars on the steerer tube, the second marking extending in the axial direction and intersecting the first marking.

[0049] Example 2 includes the front fork of example 1, wherein the first and second markings are formed by removing material from the outer surface of the steerer tube.

[0050] Example 3 includes the front fork of example 2, wherein the first and second markings are etched or engraved into the outer surface of the steerer tube.

[0051] Example 4 includes the front fork of example 1, wherein the first and second markings are formed by applying material to the outer surface of the steerer tube.

[0052] Example 5 includes the front fork of example 4, wherein the first and second markings are at least one of paint, a sticker, a decal, or a pre-finish masking on the outer surface of the steerer tube.

[0053] Example 6 includes the front fork of any of examples 1-4, wherein the first marking perpendicularly intersects the second marking.

[0054] Example 7 includes the front fork of any of examples 1-5, wherein the first marking includes a numerical value adjacent the line.

[0055] Example 8 includes the front fork of any of examples 1-7, wherein the first marking comprises a plurality of first markings on the outer surface of the steerer tube, the plurality of first markings spaced from each other in an axial direction along the outer surface of the steerer tube, each of the plurality of first markings indicating a distance between the respective marking and the top side of the crown, the second line perpendicularly intersects the plurality of first lines.

[0056] Example 9 includes the front fork of any of examples 1-8, wherein the steerer tube has a first portion that is straight and a second portion that is tapered, the first portion extending between the second portion and a top end of the steerer tube, and wherein the first and second markings are on the first portion of the steerer tube.

[0057] Example 10 includes the front fork of any of examples 1-9, wherein steerer tube has a rear side to be facing rearward and toward a rider when the front fork is installed on the bicycle, and wherein the first and second markings are on the rear side of the steerer tube.

[0058] Example 11 includes the front fork of any of examples 1-10, wherein the first and second markings are a first color and at least a portion of the outer surface of the steerer tube where the first and second markings are formed is a second color different than the first color.

[0059] Example 12 includes the front fork of any of examples 1-11, wherein the front fork is a suspension fork.

[0060] Example 13 includes a front fork for a bicycle, the front fork comprising a crown having a top side and a bottom side opposite the top side, at least one first leg coupled to and extending downward from the bottom side of the crown, and a steerer tube coupled to and extending upward from the top side of the crown, the steerer tube having a marking on an outer surface of the steerer tube, the marking to be used to align at least one of a stem on the steerer tube, the marking comprising a line extending in an axial direction along the outer surface of the steerer tube such that the line is visible in a gap between ends of the stem when the stem is installed on the steerer tube.

[0061] Example 14 includes the front fork of example 13, further comprises a second leg, the steerer tube having a first central axis, the first central axis extending along a first vertical plane, the first leg and the second leg having central axes, the central axes of the first and second legs forming a second vertical plane, the second vertical plane being perpendicular to the first vertical plane, and wherein the line is aligned with the first vertical plane on the outer surface of the steerer tube.

[0062] Example 15 includes the front fork of any of examples 13-14, wherein the marking is formed by removing or adding material to the outer surface of the steerer tube.

[0063] Example 16 includes the front fork of any of examples 13-15, wherein the marking is etched or engraved into the outer surface of the steerer tube.

[0064] Example 17 includes the front fork of any of examples 13-15, wherein the marking is at least one of paint, a sticker, a decal, or a pre-finish masking on the outer surface of the steerer tube.

[0065] Example 18 includes the front fork of any of examples 13-17, wherein the steerer tube has a first portion that is straight and a second portion that is tapered, the first portion extending between the second portion and a top end of the steerer tube, and wherein the marking is on the first portion of the steerer tube.

[0066] Example 19 includes the front fork of any of examples 13-18, wherein the marking is a first color and at least a portion of the outer surface of the steerer tube wherein the marking is formed is a second color different from the first color.

[0067] Example 20 includes the front fork of any of examples 13-19, wherein the front fork is a suspension fork.

[0068] The illustrations of the embodiments described herein are intended to provide a general understanding of the structure of the various embodiments. The illustrations are not intended to serve as a complete description of all of the elements and features of apparatus and systems that utilize the structures or methods described herein. Many other embodiments may be apparent to

those of skill in the art upon reviewing the disclosure. Other embodiments may be utilized and derived from the disclosure, such that structural and logical substitutions and changes may be made without departing from the scope of the disclosure. Additionally, the illustrations are merely representational and may not be drawn to scale. Certain proportions within the illustrations may be exaggerated, while other proportions may be minimized. Accordingly, the disclosure and the figures are to be regarded as illustrative rather than restrictive.

[0069] While this specification contains many specifics, these should not be construed as limitations on the scope of the invention or of what may be claimed, but rather as descriptions of features specific to particular embodiments of the invention. Certain features that are described in this specification in the context of separate embodiments can also be implemented in combination in a single embodiment. Conversely, various features that are described in the context of a single embodiment can also be implemented in multiple embodiments separately or in any suitable sub-combination. Moreover, although features may be described above as acting in certain combinations and even initially claimed as such, one or more features from a claimed combination can in some cases be excised from the combination, and the claimed combination may be directed to a sub-combination or variation of a sub-combination.

[0070] Although specific embodiments have been illustrated and described herein, it should be appreciated that any subsequent arrangement designed to achieve the same or similar purpose may be substituted for the specific embodiments shown. This disclosure is intended to cover any and all subsequent adaptations or variations of various embodiments. Combinations of the above embodiments, and other embodiments not specifically described herein, are apparent to those of skill in the art upon reviewing the description.

[0071] The Abstract of the Disclosure is provided to comply with 37 C.F.R. § 1.72 (b) and is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims. In addition, in the foregoing Detailed Description, various features may be grouped together or described in a single embodiment for the purpose of streamlining the disclosure. This disclosure is not to be interpreted as reflecting an intention that the claimed embodiments require more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive subject matter may be directed to less than all of the features of any of the disclosed embodiments. Thus, the following claims are incorporated into the Detailed Description, with each claim standing on its own as defining separately claimed subject matter.

[0072] It is intended that the foregoing detailed description be regarded as illustrative rather than limiting and that it is understood that the following claims including all equivalents are intended to define the scope of the invention. The claims should not be read as limited to the described order or elements unless stated to that effect. Therefore, all embodiments that come within the scope and spirit of the following claims and equivalents thereto are claimed as the invention.

## Claims

1. A front fork for a bicycle, the front fork comprising: a crown having a top side and a bottom side opposite the top side; at least one first leg coupled to and extending downward from the bottom side of the crown; and a steerer tube coupled to and extending upward from the top side of the crown, the steerer tube having a first marking and a second marking on an outer surface of the steerer tube, the first marking indicating a distance between the first marking and the top side of the crown to enable a user to cut the steering tube to a desired length, the first marking extending in a circumferential direction on the outer surface of the steerer tube, the second marking to be used to align at least one of a stem or handlebars on the steerer tube, the second marking extending in an axial direction and intersecting the first marking.
2. The front fork of claim 1, wherein the first and second markings are formed by removing material from the outer surface of the steerer tube.

3. The front fork of claim 2, wherein the first and second markings are etched or engraved into the outer surface of the steerer tube.
4. The front fork of claim 1, wherein the first and second markings are formed by applying material to the outer surface of the steerer tube.
5. The front fork of claim 4, wherein the first and second markings are at least one of paint, a sticker, a decal, or a pre-finish masking on the outer surface of the steerer tube.
6. The front fork of claim 1, wherein the first marking perpendicularly intersects the second marking.
7. The front fork of claim 6, wherein the first marking includes a numerical value adjacent a first line.
8. The front fork of claim 1, wherein the first marking comprises a plurality of first lines on the outer surface of the steerer tube, the plurality of first lines spaced from each other in an axial direction along the outer surface of the steerer tube, each of the plurality of first lines indicating a distance between the respective line and the top side of the crown, the second marking comprising a second line intersecting the plurality of first lines, the second line perpendicularly intersects the plurality of first lines.
9. The front fork of claim 1, wherein the steerer tube has a first portion that is straight and a second portion that is tapered, the first portion extending between the second portion and a top end of the steerer tube, and wherein the first and second markings are on the first portion of the steerer tube.
10. The front fork of claim 9, wherein the steerer tube has a rear side to be facing rearward and toward a rider when the front fork is installed on the bicycle, and wherein the first and second markings are on the rear side of the steerer tube.
11. The front fork of claim 1, wherein the first and second markings are a first color and at least a portion of the outer surface of the steerer tube where the first and second markings are formed is a second color different than the first color.
12. The front fork of claim 1, wherein the front fork is a suspension fork.
13. A front fork for a bicycle, the front fork comprising: a crown having a top side and a bottom side opposite the top side; at least one first leg coupled to and extending downward from the bottom side of the crown; and a steerer tube coupled to and extending upward from the top side of the crown, the steerer tube having a marking on an outer surface of the steerer tube used to align a stem on the steerer tube, the marking comprising a line extending in an axial direction along the outer surface of the steerer tube such that the line is visible in a gap between ends of the stem when the stem is installed on the steerer tube.
14. The front fork of claim 13, further comprises a second leg, the steerer tube having a first central axis, the first central axis extending along a first vertical plane, the first leg and the second leg having central axes, the central axes of the first and second legs forming a second vertical plane, the second vertical plane being perpendicular to the first vertical plane, and wherein the line is aligned with the first vertical plane on the outer surface of the steerer tube.
15. The front fork of claim 13, wherein the marking is formed by removing or adding material to the outer surface of the steerer tube.
16. The front fork of claim 15, wherein the marking is etched or engraved into the outer surface of the steerer tube.
17. The front fork of claim 15, wherein the marking is at least one of paint, a sticker, a decal, or a pre-finish masking on the outer surface of the steerer tube.
18. The front fork of claim 13, wherein the steerer tube has a first portion that is straight and a second portion that is tapered, the first portion extending between the second portion and a top end of the steerer tube, and wherein the marking is on the first portion of the steerer tube.
19. The front fork of claim 13, wherein the marking is a first color and at least a portion of the outer surface of the steerer tube where the marking is formed is a second color different than the

first color.

**20.** The front fork of claim 13, wherein the front fork is a suspension fork.

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