

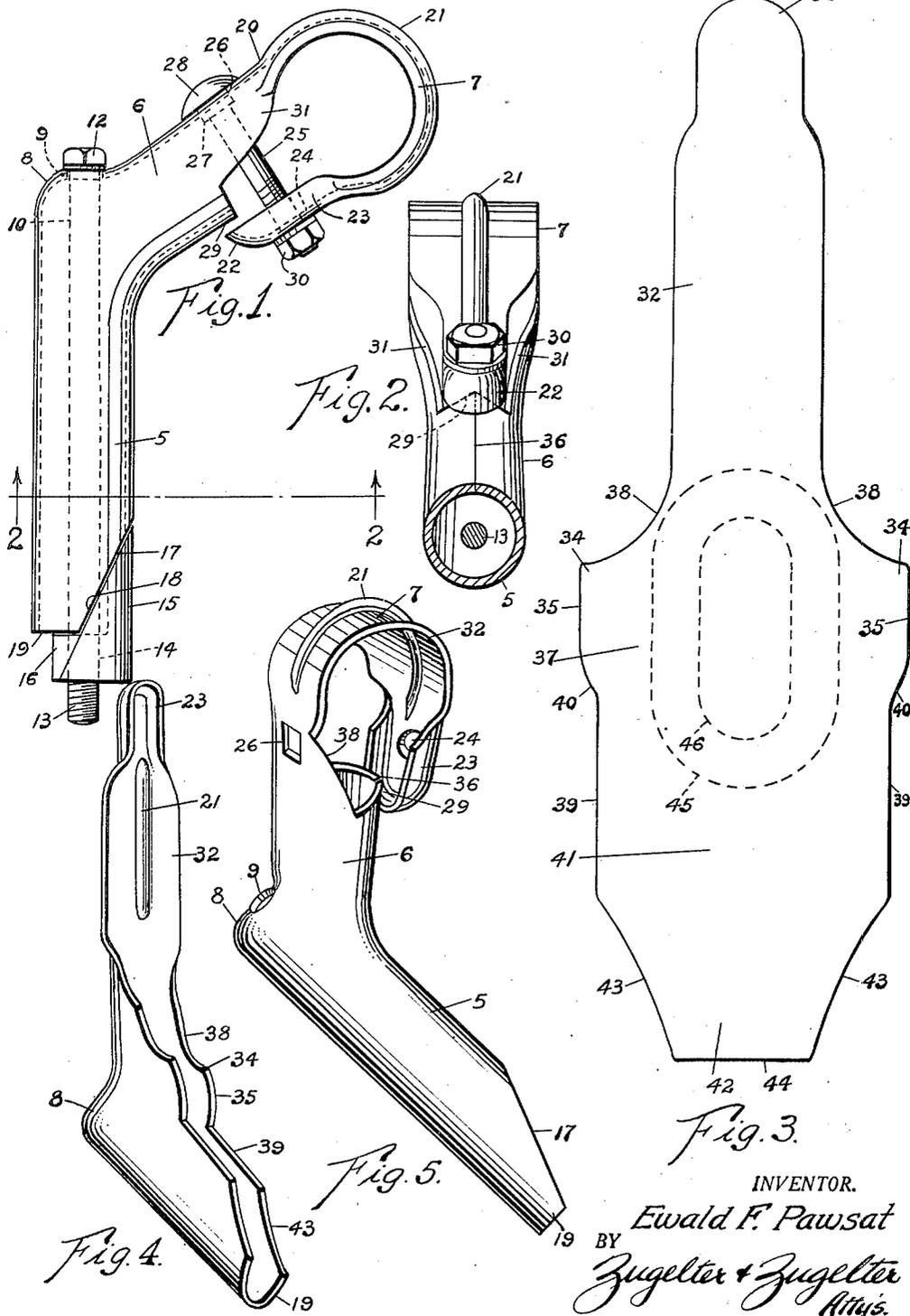
April 25, 1950

E. F. PAWSAT

2,505,648

STEERING POST AND METHOD OF MANUFACTURE

Filed Nov. 5, 1945



INVENTOR.

Ewald F. Pawsat
BY Zugeltes + Zugeltes
Atys.

UNITED STATES PATENT OFFICE

2,505,648

STEERING POST AND METHOD OF MANUFACTURE

Ewald F. Pawsat, Maysville, Ky.

Application November 5, 1945, Serial No. 626,624

1 Claim. (Cl. 287—52.02)

1

The present invention relates to an improved cycle steering post and a novel method of manufacturing the same.

An object of the invention is to facilitate and expedite the production of cycle steering posts, with a substantial saving of labor and expense.

Another object is to produce a steering post which is fabricated almost entirely from sheet metal formed by means of a press or similar machine.

A further object is to provide a steering post with improved means for clamping the handle bar of the cycle, whereby to avoid injurious distortion and enhance the safety of the clamping means for the handle bar.

Another object is to reduce to a minimum the number of machine operations necessary to the production of a steering post.

The foregoing and other objects are attained by the means described herein and illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevational view of the completed steering post.

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a plan view of a sheet metal blank from which the steering post is manufactured.

Fig. 4 is a perspective view indicating in general the process applied to the blank in forming it to shape as a steering post.

Fig. 5 is a perspective view showing an advanced stage of the process.

Referring to the accompanying drawing, it will be noted that the steering post of the invention comprises a straight cylindrical lower portion 5, an integral neck 6 disposed at an obtuse angle to portion 5, and a substantially cylindrical head 7 adapted for receiving and clamping a handle bar to be inserted therein. At the junction of the neck 6 and straight portion 5, there is formed a boss 8 provided with a perforation 9 to receive a stem bolt 10 which extends axially downwardly through the straight cylindrical portion 5 of the steering post. At its upper end the stem bolt carries a head 12 to receive a tool whereby the bolt may be rotated. At the opposite end, the bolt is furnished with threads 13 which engage complementary threads within the longitudinal bore 14 of a wedge piece 15, the function of which is to impart an expanding action within the hollow stem of a bicycle front wheel fork, to preclude relative movement of the steering post with respect thereto. The wedge piece includes an internally threaded boss 16, which may enter the lower open end of post 5. The

2

post is provided with an obliquely disposed seat or taper 17, the angularity of which is complementary to the angle of the oblique surface 18 of the wedge piece. As will readily be understood, rotation of screw 10 in one direction serves to elevate the wedge piece 15 and cause it to gradually progress laterally as it slides upon the tapered portion 17 of the post. In this way the aforesaid clamping action is effected within the hollow stem of the steering fork. The free lower end of the steering post is indicated by the character 19.

The neck 6 of the steering post extends obliquely upwardly and outwardly from the axis of the post, at an obtuse angle thereto. At approximately the location 20, the material of the neck is bent to circular formation for establishing the head 7. The head may be provided circumferentially thereof with a reinforcing rib 21 pressed into the material of the head. At the free end 22 of the piece forming the head, the material is pressed so as to cup it, the concavity at this location being toward the inside of the head. The cupped portion furnishes a very substantial head end 23 which may be perforated at 24 to receive a head clamp bolt 25. The same bolt passes through a perforation 26 of the neck 6, this perforation being preferably angular in shape to receive the squared portion 27 of the bolt head 28.

Underneath the neck of the steering post, the material is formed to provide a stool 29, located in position to provide a stop against which the perforated cupped end of the clamping head may abut when the head is contracted about a handle bar by tightening the clamping nut 30. It will be noted that the terminal end 22 normally overlies the stool 29 in spaced relationship; however, as nut 30 is tightened to contract the head 7, the end 22 eventually is forced into contact with the stool, and as the nut is further tightened, the full force of the clamping means is translated substantially into a force of contraction applied to the handle bar clamping head. This arrangement prevents injurious bending of the end 22 toward tangency with the circular head 7, with the possibility of severely bending and breaking the metal of the clamping head in the region of the cupped portion 23. Consequently, the clamping means at the head is rendered very secure and safe, and may be relied upon to firmly hold the handle bar in adjusted position within the head, so that accidental loosening of the handle bar by breakage or fatigue of the metal at the underside

of the head 7, is effectively prevented. To furnish maximum strength between the stool 29 and the upper portion of head 7, a reinforcing strut 31 is made integral with the neck, and these struts are duplicated at opposite sides of the neck.

As was previously stated herein, the entire steering post, exclusive of the wedge piece 15, is to be formed in one piece from a sheet metal blank as illustrated by Fig. 3. This blank has at its one end a tongue 32 of limited width, to be curved and centrally ribbed as indicated at 21—32 upon Fig. 5, to establish the clamping head of the steering post. The extreme end 37 of the tongue is pressed to develop it into the cup shaped end 23 of Figs. 4 and 5, this end being adapted to overlie the stool 29 as previously explained. The stool is formed from the pair of shoulders 34 of the blank, the side edges 35 of which are brought into abutment at the joint 36, Fig. 5. From the shoulders 34 to the nearest portion of tongue 32, the main body portion 37 of the blank is gradually reduced in width at the curved sections 38 which, in the finished steering post, provide the reinforcing struts 31 (Figs. 1 and 2).

A short intermediate section of the blank body 37 is provided with slightly tapered edges 40, at which the width of the blank is reduced across the edges 39—39; to form the section 41 which constitutes the lower straight cylindrical portion of the post, as indicated at 5 upon Fig. 1. The section 37 of the blank is utilized in forming the neck 6 and the boss portion 8 of the steering post.

The butt end 42 of the blank is angularly tapered to furnish the oblique side edges 43 and the bottom edge 44, said oblique side edges in the finished article being adapted to provide the tapered seat 17 previously mentioned in connection with Fig. 1. The straight transverse lower edge 44 forms the terminal end 19 of the post, this terminal end being approximately of half cylinder extent (see Figs. 1 and 2).

In the initial pressing or forming operation, the blank is first embossed along the broken line 45 to form a deep recess resulting in a central depression 46, the width of which approximates the diameter of the steering post when finished. Thereafter, the embossed blank is subjected to a forming operation which bends it longitudinally, as illustrated by Fig. 4, and establishes the U-shaped form of the body, the cup at 23, the rib 21, and the boss at 8. In subsequent operations, the body portion of the blank is to be bent to form the cylindrical post section 5 with its edges meeting along the seam 36, and the tongue will be given its curvature to provide the handle bar clamping head 7. These operations may be simultaneous in practice, although it is obviously possible to form the section 5 and head 7 by means of separate forming operations, if desired. The necessary apertures for receiving the bolts 10 and 25 may be punched, drilled, or otherwise formed in the material at any stage of the process.

After the blank has been formed up to the completed shape of the steering post, the seam

indicated at 36, and which extends from stool 29 to the oblique end portion 17 of the post, may be welded or brazed, should the article require the additional strength obtainable by means of this extra operation. It may be noted in this connection, however, that welding or brazing of the seam may be dispensed with if the blank initially is cut from metal of sufficient strength and thickness. A highly satisfactory and substantial steering post may be produced in accordance with the present invention, for example, by using a blank of steel sheet approximately $\frac{1}{8}$ inch in thickness. This thickness may be varied depending upon the character of the metal used, and the strength required in the finished article.

Steering posts produced in accordance with the invention are found highly acceptable for use as substitutes for forged or cast steering posts, and they possess a number of advantages thereover. The improved steering post can be produced in the press with a great saving of time and labor; so that the cost of production may be maintained at a minimum. The production involves a cold forming process, whereas heretofore it was necessary to form the steering posts with the aid of heat. These advantages and others will be readily apparent to persons skilled in the art to which the invention appertains.

What is claimed is:

In combination, a one-piece sheet metal steering post for a cycle which comprises a hollow cylindrical lower portion adapted to be held within a fork stem of the cycle, a hollow substantially cylindrical central portion integral with and extending at an obtuse angle to the lower portion, and a handle bar clamping head of substantially cylindrical shape integral with an upper side of the free end of the central portion and having a perforated free end cupped to impart strength and resistance to deformation of said end, the axis of the clamping head being substantially perpendicular to the axis of the central portion, the clamping head having a free end adapted to engage the underside of the central portion, said clamping head being provided with a pair of aligned bores disposed adjacent opposite ends of the clamping head and adjacent the central portion of the post, and a bolt disposed in said bores and adapted to contract the clamping head forcing the free end of the clamping head against the underside of the central portion.

EWALD F. PAWSAT.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
752,828	Devine	Feb. 23, 1904
1,510,501	Ross	Oct. 7, 1924
1,791,985	Valkenburg	Feb. 10, 1931
1,857,573	Strebe et al.	May 10, 1932
1,928,044	Andres et al.	Sept. 26, 1933
2,280,662	Pawsat	Apr. 21, 1942
2,383,273	Pawsat	Aug. 21, 1945