W. O. STARK.

METALLIC LINK CHAIN.

APPLICATION FILED AUG. 20, 1913.

1,126,904.

Patented Feb. 2, 1915.

2 SHEETS—SHEET 1.

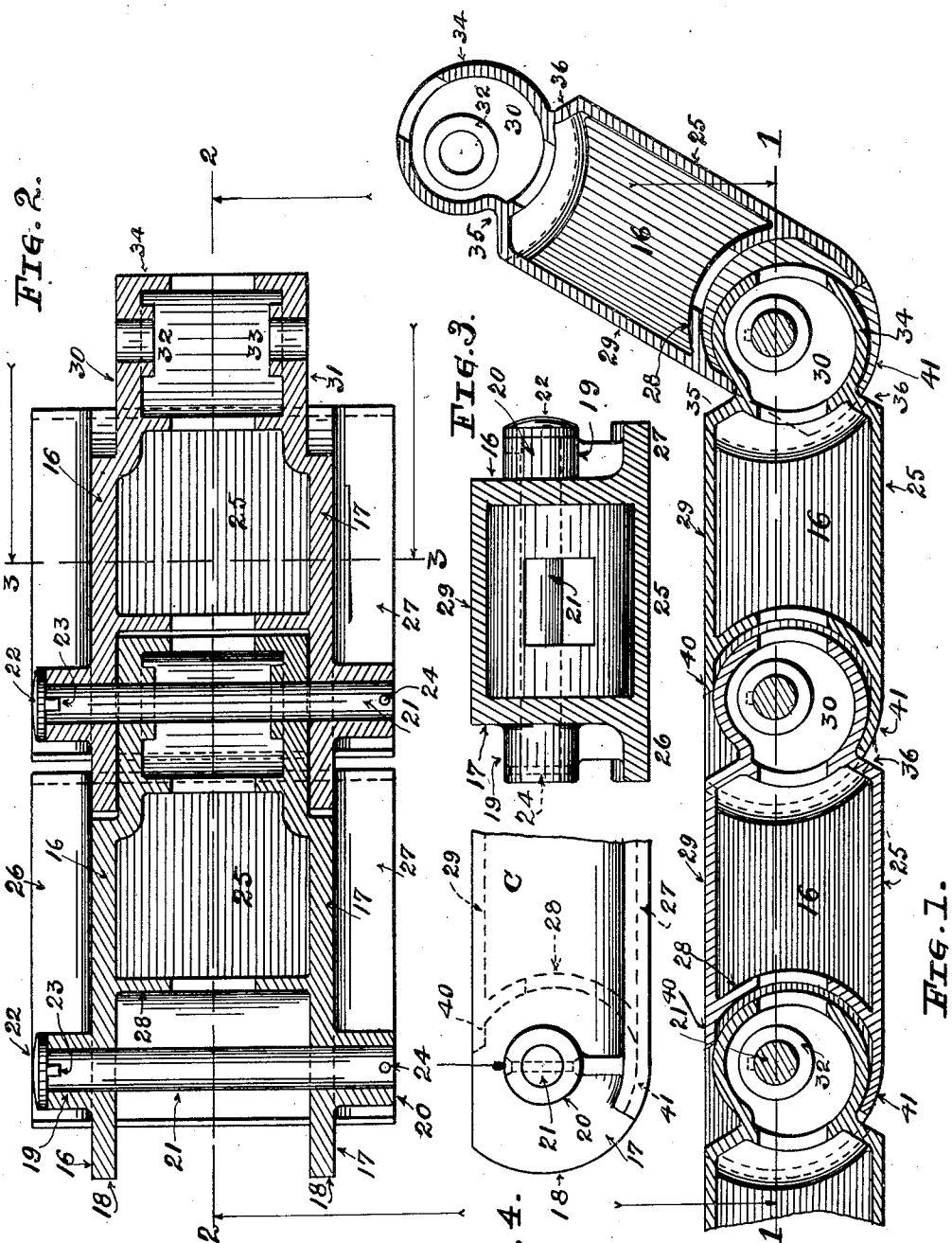

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

WITNESSES:

Ada M. Stark

J. K. Sterleck

INVENTOR:

William O. Stark

by Michael J. Stark.

ATTORNEYS.

W. O. STARK.

METALLIC LINK CHAIN.

APPLICATION FILED AUG. 20, 1913.

1,126,904.

Patented Feb. 2, 1915.

2 SHEETS—SHEET 2.

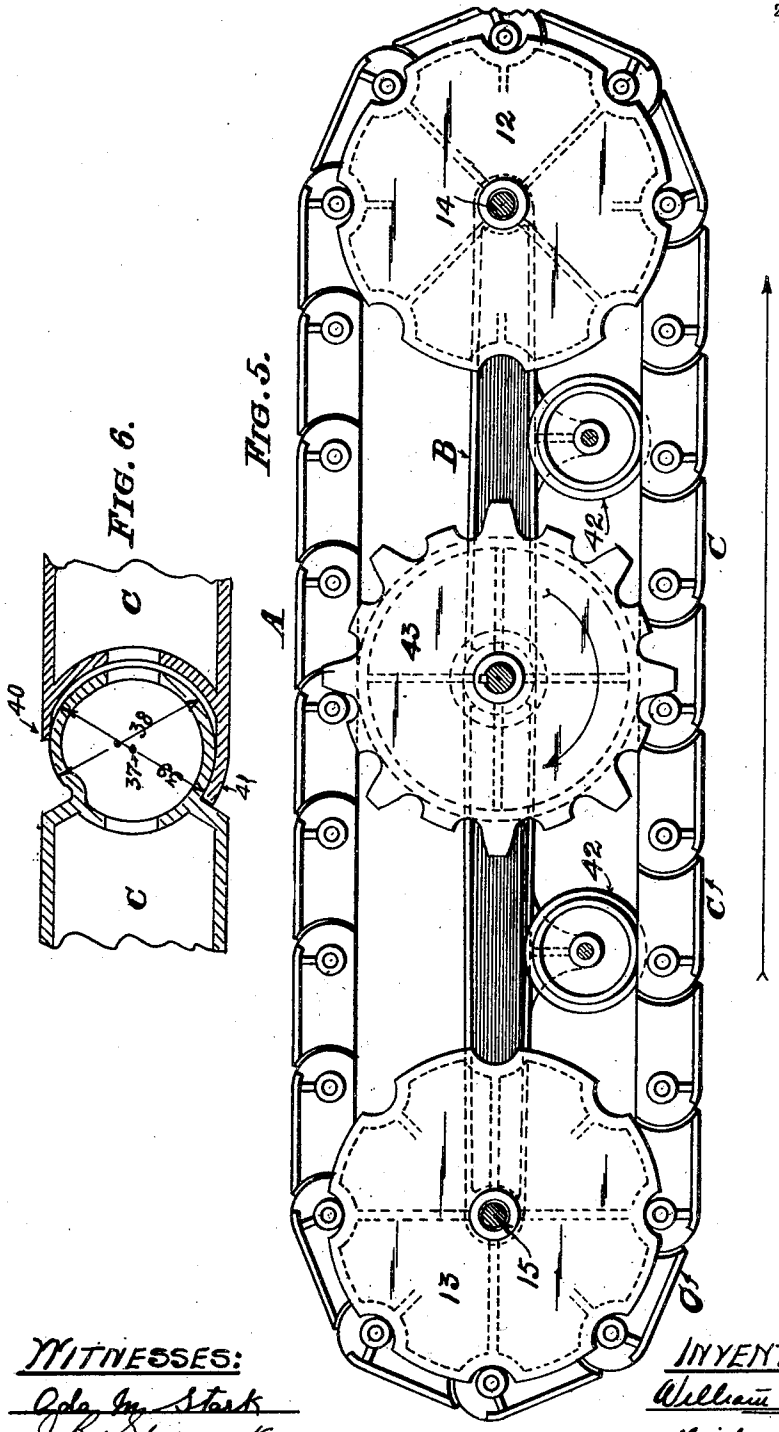

FIG. 5.

FIG. 6.

WITNESSES:

Ada M. Stark

J. R. Steneck

INVENTOR:

William O. Stark

Michael P. Stark,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM O. STARK, OF CHICAGO, ILLINOIS, ASSIGNOR TO BULLOCK TRACTOR COMPANY, A CORPORATION OF ILLINOIS.

METALLIC LINK CHAIN.

1,126,904. Specification of Letters Patent. Patented Feb. 2, 1915.

Application filed August 20, 1913. Serial No. 785,672.

To all whom it may concern:

Be it known that I, WILLIAM O. STARK, a resident of Chicago, in the county of Cook and State of Illinois, a citizen of the United States of America, have invented certain new and useful Improvements in Metallic Link Chains and Which are Especially Well Adapted for Use in the Caterpillar Type of Tractors; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying two sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which my said invention appertains to make and use the same.

One of the objects of this present invention is the production of an efficient, serviceable, durable and comparatively inexpensive link-chain for use in caterpillar tractors, that can be readily applied to and removed from the machine, and that will resist the severe service to which such a link-chain is always subjected.

Other objects of this invention will hereinafter fully appear.

This invention consists, essentially, in the novel and peculiar combination of parts and details of construction as hereinafter first fully set forth and described and then pointed out in the claims.

In the drawings already referred to, which serve to illustrate the preferred embodiment of my invention, Figure 1 is a sectional elevation on line 2—2 of Fig. 2. Fig. 2 is a sectional plan on line 1—1 of Fig. 1. Fig. 3 is a transverse sectional view on line 3—3 of Fig. 2. Fig. 4 is an elevation of a fragment of one of the chain links. Fig. 5 is a side-elevation of one of the caterpillars, of a traction engine. Fig. 6 is a diagrammatic view of adjacent ends of a pair of links.

Like parts are designated by the same character or symbol in all the various figures.

A in the drawings Fig. 5—designates an endless metallic belt which is trained over two end-sprocket wheels 12, 13, mounted on shafts 14, 15, having bearings in a truck-frame B of peculiar construction which forms the subject matter of an application for patent filed by me on the twentieth day of August 1913, Serial No. 785,673 and to which reference may be had for a full and detailed disclosure of that invention, so that a description thereof in this present application is deemed superfluous. This chain-belt A consists of a series of like links C so that a detailed description of one of these links will be applicable to all of said links. Each link comprises two parallel members, 16, 17, in spaced relation, the rear end of each member being curved at 18 as will hereinafter appear. Laterally projecting from the members 16, 17 and in alined relation there are tubular bosses, 19, 20, bored to receive a bolt or pintle 21, the head 22 of which abuts the face of the boss 19, there being a key 23 adjacent this head engaging a keyway in the bore of said boss to prevent said bolt from rotating, while a pin 24, passing transversely through the pintle and boss 20 on the member 17, prevents the pintle from being withdrawn from its assembled position, the horizontal center line of the bosses 19, 20, designated by the dotted line 1—1 in Fig. 1, is located above the median horizontal line of the links the object of which will further on be explained.

The lower horizontal margins of the members 16, 17 are connected to each other by a horizontal web 25, which web extends beyond the outer flanks of the link members 16—17, as indicated at 26—27, and these side-members 16—17 are further connected by an approximately semi-circular web 28, which web is, however, eccentrically located with reference to the pintle 21. The upper margins of the side members 16—17 are also connected to each other by a web 29, as clearly illustrated especially in Figs. 1 and 3.

The forward end of the link includes two vertically disposed walls 30—31 the outside to outside distance of which corresponds to inside distance of the sides 16—17, so that this forward end is adapted to be engaged by the rear end of the next succeeding link. This forward end of each link is approximately circular in contour; and projecting inwardly and opposing each other there are tubular bosses which afford bearings for the pintle 21 on which the links may oscillate. These bearings are eccentrically located with reference to the outer contour of this end of the links.

The web 29 that connects the upper margins of the side-members is continued over and connects, the two forward vertical walls

as indicated at 34 and is integrally connected to the lower web 25, thus forming a box-like structure which is particularly well adapted to lend stiffness and strength to the link without unduly increasing the weight thereof. The approximately circular end of the link has, on account of this end not being a complete circle, two indentations 35, 36 the object of which will be later on referred to. The lower web 25 and the side-extensions 26, 27 thereof, extend rearwardly a distance beyond or form a continuation of the curved transverse wall as clearly indicated in Figs. 1 and 4, so that the space from the end of this continuation to the end of the upper web 29, forms an opening through which the rear end of the link may be passed over the forward end of the next succeeding link, not however, unless the link is first placed into a position shown at the right of Fig. 1, or approximately at an angle of 45 degrees. Now referring to Fig. 6, I will explain the peculiarity of this link-connection, the figure representing the forward end of one and the rear end of the next adjacent link when detached. The upper portion of this forward end is concentric to the pintle 21 or has their centers in common, but the remaining portions to the indentation 36 is drawn from a center 37, remote from the center of the pintle. Hence the diameter of this forward portion of the link on the line designated 38 is less than that on the line marked 39. The distance at the rear end of the link designated 39 is substantially equal to the distance 38 so that when one link is at about an angle of 45 degrees to the adjacent end, these ends can be passed one into the other and the pintle 21 inserted. When the inclined link is then turned downwardly the upper end 40 will follow the curvature of that portion having its center in the pintle, but the lower end 41 will approach the curvature having its center at 37 so that when this end reaches the indentation 36, it will bear snugly against the curved portion 34 of this adjacent link and the two links will then be in alinement. It follows that the lower run of the complete chain as shown in Fig. 5 cannot be deflected upwardly from a straight line and that, therefore, all the weight and strain to which this lower run of the chain is subjected will not cause an upward deflection of the lower run, thus obviating the necessity of providing bearers for this chain although, if so desired bearing rollers 42, may be provided when the load upon the chain is rather excessive. The operation of this caterpillar drive is effected through a sprocket wheel 43 and suitable mechanism which forms the subject matter of a separate application for Letters Patent, and will not, therefore, be herein described.

While I have hereinbefore shown and described the preferred embodiment of my invention, I desire it understood that many minor changes in the details of construction may be made, and I do not, therefore, wish to confine myself to the precise construction shown but may change the same without, however, departing from the scope of the claims.

Having thus fully described this invention, I claim as new and desire to secure by Letters Patent:—

1. A link chain comprising a series of like links each of said links having a main portion of substantial tubular rectangular shape comprising two side-walls in parallel spaced relation, a curved transverse wall near one end connecting said side walls, a bottom web projecting beyond, and forming a continuation of, said side-walls, an upper web projecting beyond and forming a continuation of said curved transverse wall, and a forward contracted portion having an approximately circular contour the periphery of which has different centers there being at the rear end tubular, outwardly projecting bosses and at the forward end inwardly projecting tubular bosses, and a pintle constructed to connect the rear end of one link to the forward end of the next adjacent link, as described.

2. A metallic chain adapted for use in the caterpillar type of tractors, comprising a series of pivotally connected links, each link consisting of a main portion having an open rear end, the outer contour of which is approximately semicircular and a box like front end the outer contour of which is approximately circular but having two different radii, there being at the junction of the front end and the main body depressions, and a pintle constructed to connect the front end of one link to the rear end of the next succeeding link, the rear end of said link having members, the lower ones of which are constructed to engage the lower depressions in the forward end when the lower run of the chain assumes a straight line, said lower run of the chain being prevented from upward deflection by the engagement of said members with said depressions.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM O. STARK.

Witnesses:
A. N. LURIE,
MICHAEL J. STARK.