

(No Model.)

2 Sheets—Sheet 1.

E. J. SWEDLUND.
SPROCKET CHAIN AND WHEEL.

No. 545,213.

Patented Aug. 27, 1895.

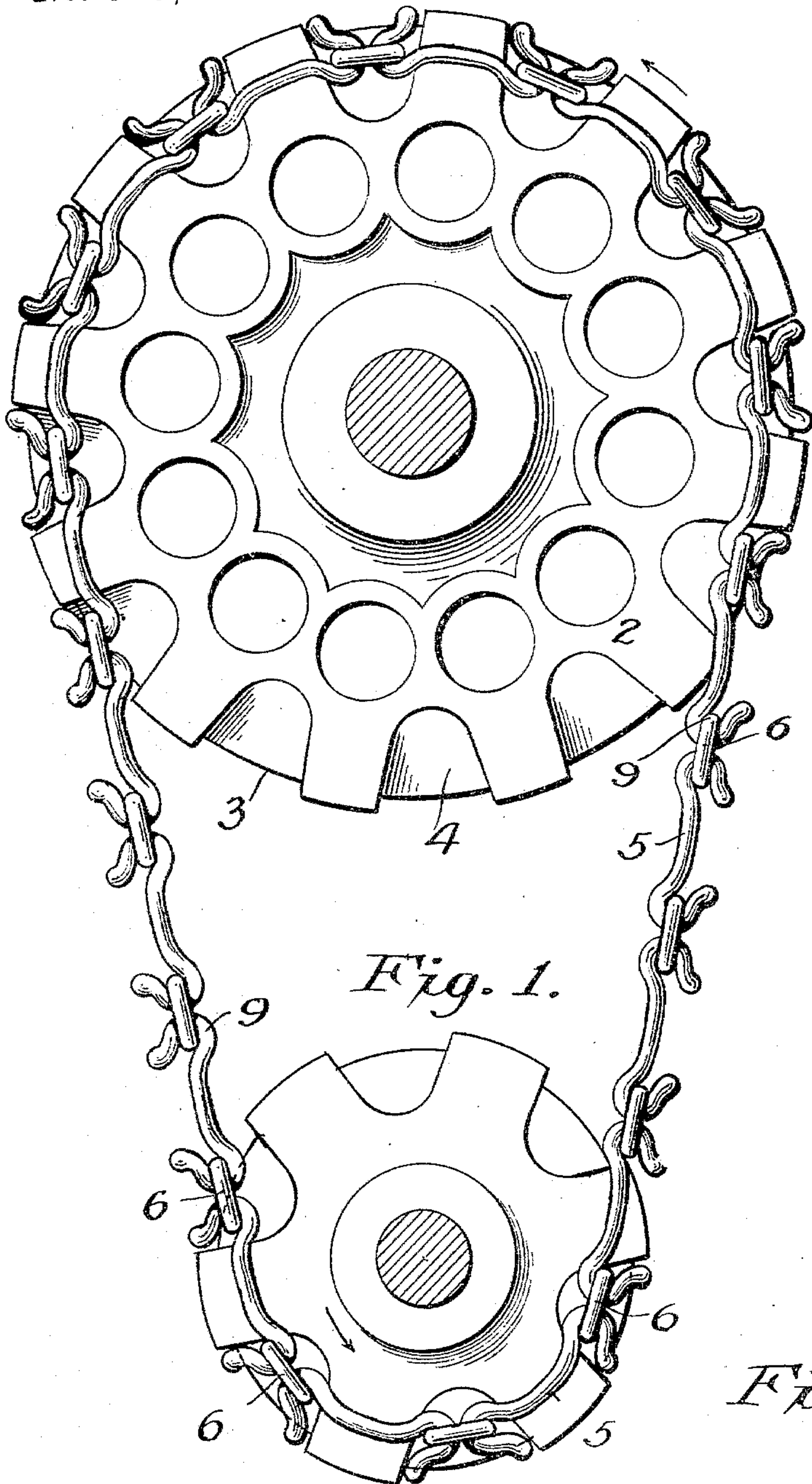


Fig. 1.

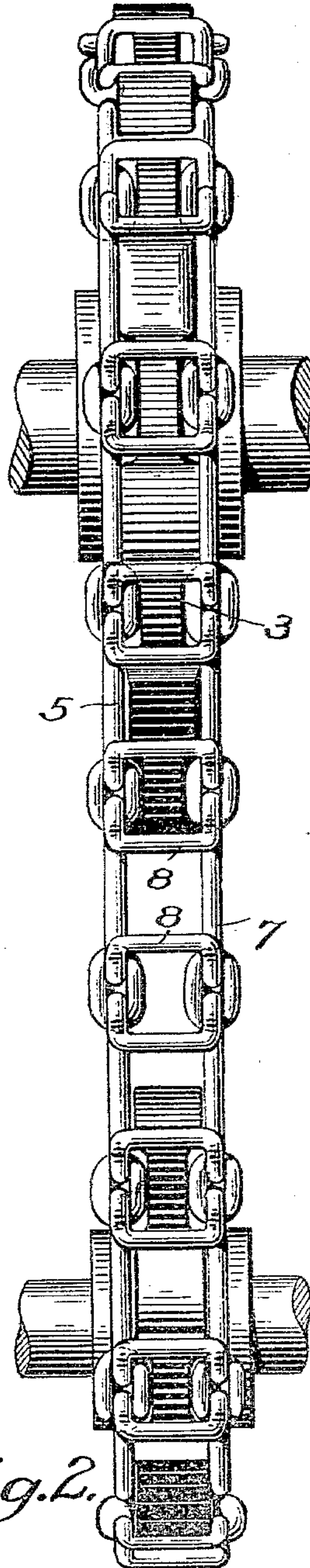


Fig. 2.

Witnesses:
C. E. Van Dorn.
M. E. Gooley

Inventor:
Erick J. Swedlund,
By *Paul H. H. H.*
his Attorneys.

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Fig. 6.

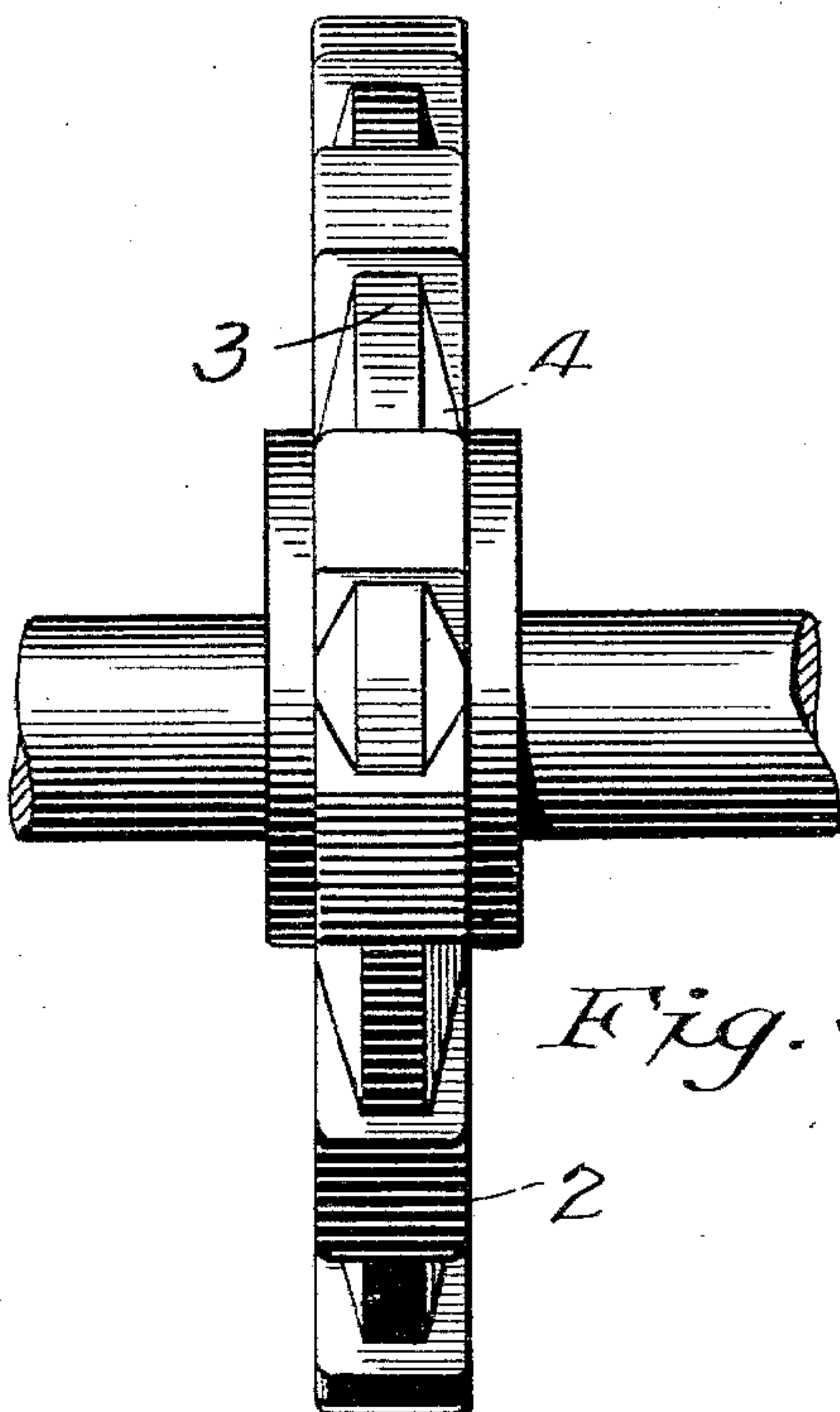
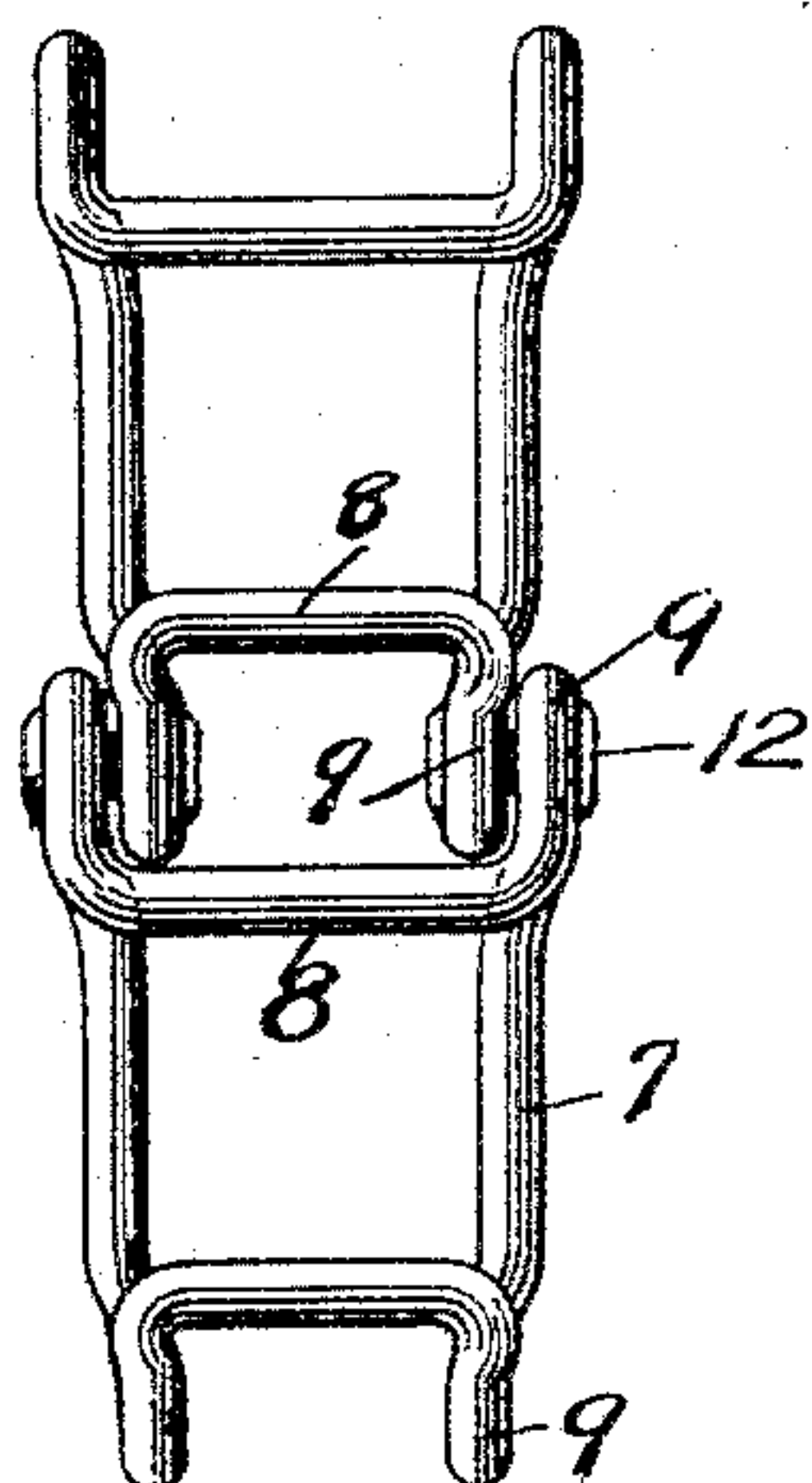


Fig. 5.

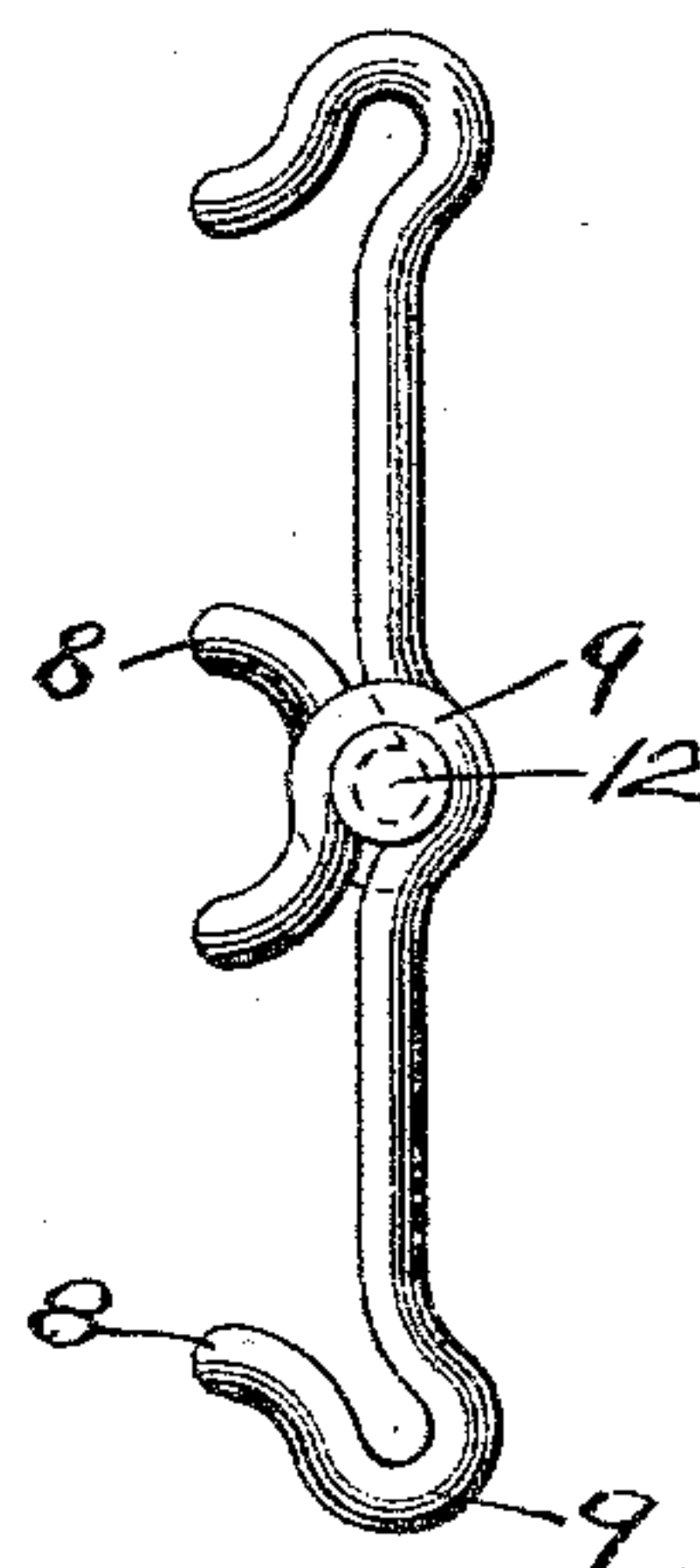
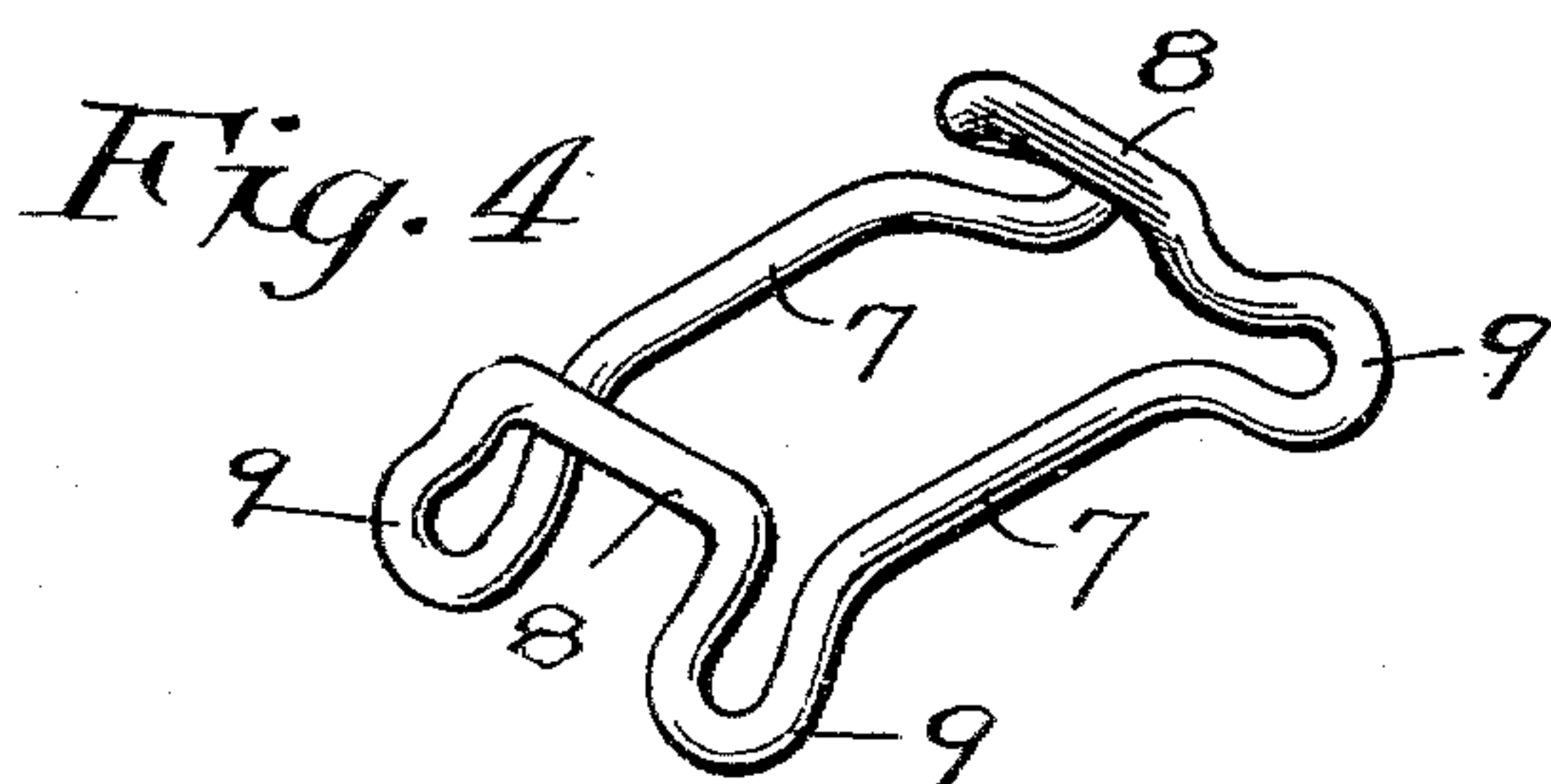


Fig. 3.



Witnesses:
C. E. Van Dorn
M. E. Cooley

Inventor:
Erich J. Swedlund.
By *Paul H. Hawley*
his Attorneys.

UNITED STATES PATENT OFFICE.

ERICK J. SWEDLUND, OF ATWATER, MINNESOTA.

SPROCKET CHAIN AND WHEEL.

SPECIFICATION forming part of Letters Patent No. 545,213, dated August 27, 1895.

Application filed June 1, 1894. Serial No. 513,131. (No model.)

To all whom it may concern:

Be it known that I, ERICK J. SWEDLUND, of Atwater, in the county of Kandiyohi and State of Minnesota, have invented certain new and useful Improvements in Sprocket Chains and Wheels, of which the following is a specification.

My invention relates to sprocket-chains of a peculiar construction, and to sprocket-wheels to be used in connection therewith.

The object of my invention is to provide sprocket-chains which when used in belt-form upon sprocket-wheels will operate thereon with a minimum friction and with a maximum grip or hold upon the wheels.

A further object is to so form the sprocket or link chain and the wheels as to greatly reduce the wear on the face and teeth of the wheels.

My invention consists generally in a link or sprocket chain and in peculiar wheels for use in connection therewith, all of the construction of and combination of parts herein-after described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side view showing a sprocket or link belt and sprocket-wheels embodying my invention. Fig. 2 is a face or edge view thereof. Fig. 3 is a face view of one of the wheels alone. Fig. 4 is a perspective view of one of the links, more clearly showing the form or construction of the links and the manner of connecting the same. Fig. 5 is a side view of two links, showing them connected by rivets or bolts; and Fig. 6 is a face view thereof.

As shown in the drawings, the sprocket-wheels differ in construction from the ordinary sprocket-wheels in having shorter teeth measured from the face 3 to the ends thereof. A further difference consists in the side recesses 4, provided in the side of the wheel and between the teeth. The teeth are wider than the face or periphery, which latter serves simply to carry the chain or belt while the ends of the links engage the wide surface of the teeth. The main links 5, which make up the

chain or belt, do not hook directly into one another, but are either connected by two short side links 6, one at each corner of the main link, or by pivots 12 placed in the end loops thereof. 55 Each link is of a general rectangular form, being made either of wire or of rod material or cast metal. Each link consists of the straight side portions 7, the inwardly-turned cross-bar portions 8, and the loops 9, formed at the end 60 of the side portions and intervening between the straight side portions and the cross-bar portions and extending beyond the cross-bar portions, as shown in Fig. 4. The adjacent links are connected by small links 6, which 65 are fastened in these loops or partial eyes, or, as shown in Figs. 5 and 6, the links may be pivoted by small rivets or bolts placed in and connecting abutting loops, which in this case are placed side by side. This construction is 70 also shown and described in another application. The cross-bar portions are, so to speak, projected inwardly toward the middle of the link, so that when the chain is placed upon the sprocket-wheel the gap between each two 75 teeth thereon is substantially filled by the end portions of the links, the coupling or connecting links 6, or the inner head of the rivets or bolts 12 being accommodated in the recesses 4 in opposite sides of the wheel. Where the 80 rivet connections are used the loops are preferably made longer. The cross-bar portions rest upon the face parts of the wheel and engage the backs of the teeth, drawing directly against the same at the greatest possible dis- 85 tance from the center of the wheel. As the links are pivoted upon one another by means of links or rivets at the intermediate loops 9, and as the actual ends—namely, cross-bar portions of the links—are quite widely sep- 90 arated, all slippage and consequent friction and wear upon the face of the wheel is avoided. Further, owing to this pivoting action, the ends of the link just leaving the wheel will be lifted out of engagement there- 95 with when the links arrive in a straight line between the wheels, removing from the tooth without slippage on the back thereof, the next link in the meantime engaging and holding the following tooth. As the spaces be- 100 tween the teeth are substantially filled by the ends of the links, all wear which might be

caused by a relative backward and forward movement of the wheel caused by changing the load thereon is avoided. Furthermore, the direction of rotation may be changed repeatedly without danger of extra wear upon the chain or wheel and without danger of throwing the chain off the wheel. I prefer to make all the parts of the chain or belt of wire or rod material, bending the same on suitable forms and either welding the ends of each link or not, as desired. As there is no considerable strain upon the ends of the link the welding may be dispensed with and the ends of the wire loop of which the link is formed being simply pressed together. Where the links are so formed these ends may be spread apart to permit the small connecting-links to be placed in position, making the assembling of the parts a very simple matter.

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

1. The sprocket chain, consisting of bent links, each comprising side portions 7 and inwardly turned cross bar portions 8 with the intervening loops 9 between said portions, and small connecting links extending between the same, substantially as described.

2. The sprocket chain, consisting of the main links each comprising the side portions 7 and cross bar portions 8 at each end thereof, said side portions being provided at each end with corner loops 9 extending beyond said cross bar portions, and suitable connections

between the loop portion of adjacent links, substantially as described.

3. The sprocket chain, consisting of the main links each comprising the side portions 7 and cross bar portions 8 and corner loop portions 9 extending beyond said cross bar portions and small links 6 connecting said loop portions of the main links, in combination with the sprocket wheel having teeth, and the narrower face portion whereby side recesses are provided to admit the connecting links 6 of the chain, substantially as described.

4. The sprocket wheel provided with the short teeth 2, and opposite shallow recesses in each side between every two teeth, whereby the narrower convex face portion between the same is formed, substantially as described.

5. The sprocket belt composed of the main links having the inwardly turned cross portions 8, and side connecting links 6 in combination with the sprocket wheel having short teeth 2 and narrow face portions 3 between said teeth, said chain being so formed that the spaces between the teeth are substantially filled by the adjacent or abutting ends of the links, whereby slippage on the face of the wheel is avoided substantially as described.

In testimony whereof I have hereunto set my hand this 14th day of May, A. D. 1894.

ERICK J. SWEDLUND.

In presence of—

HENRY STENE,
C. L. ANDERSON.