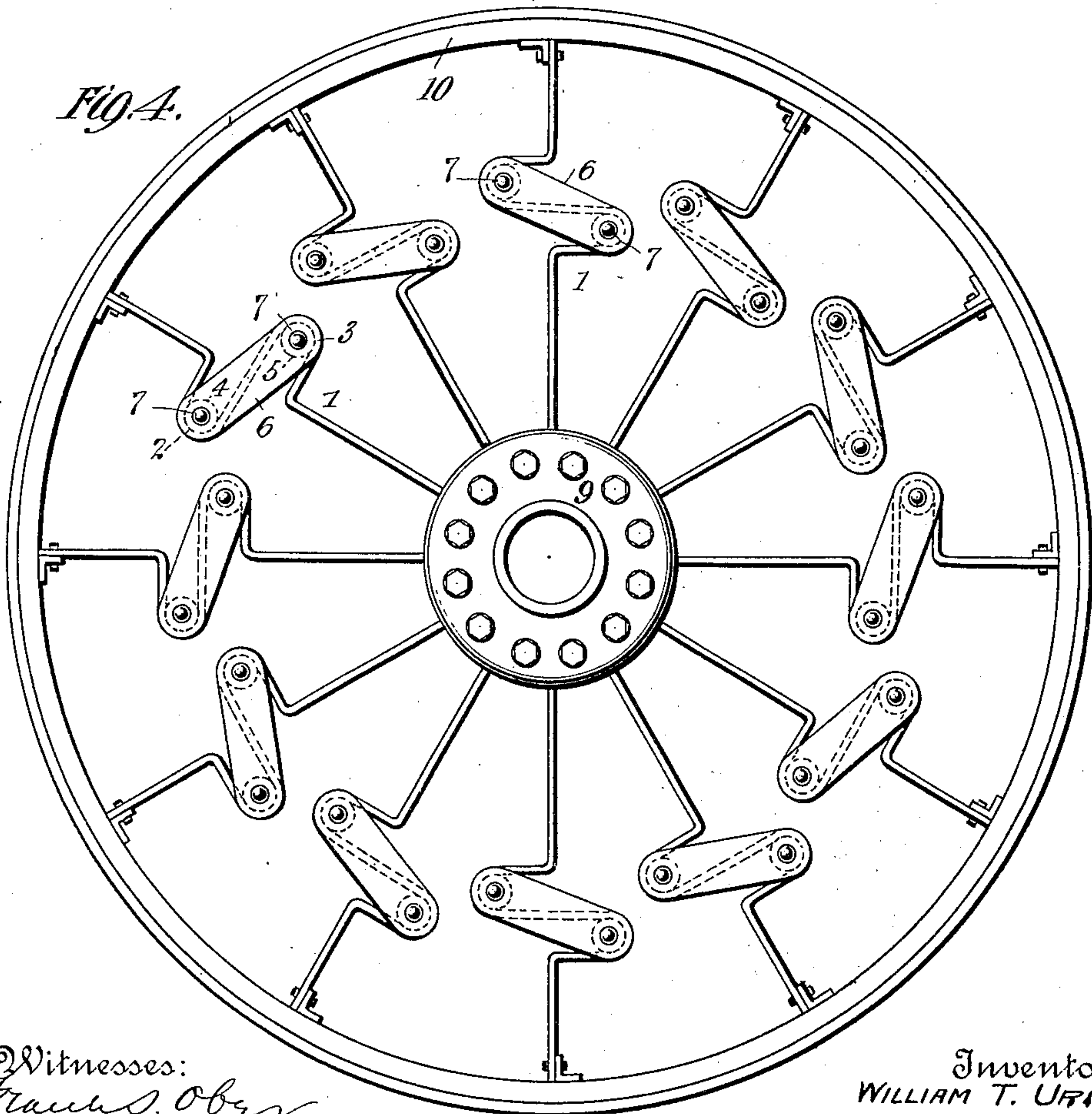
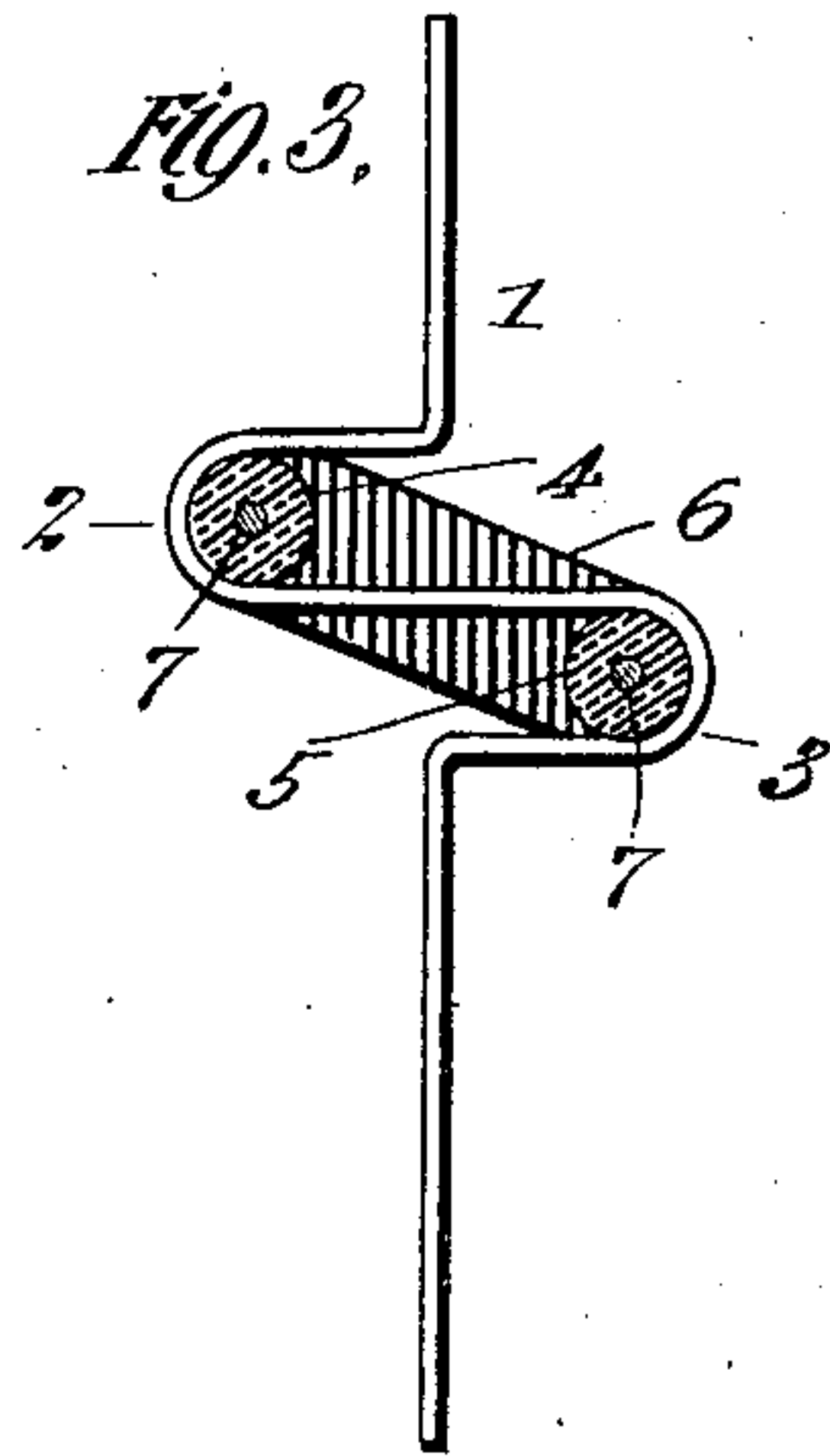
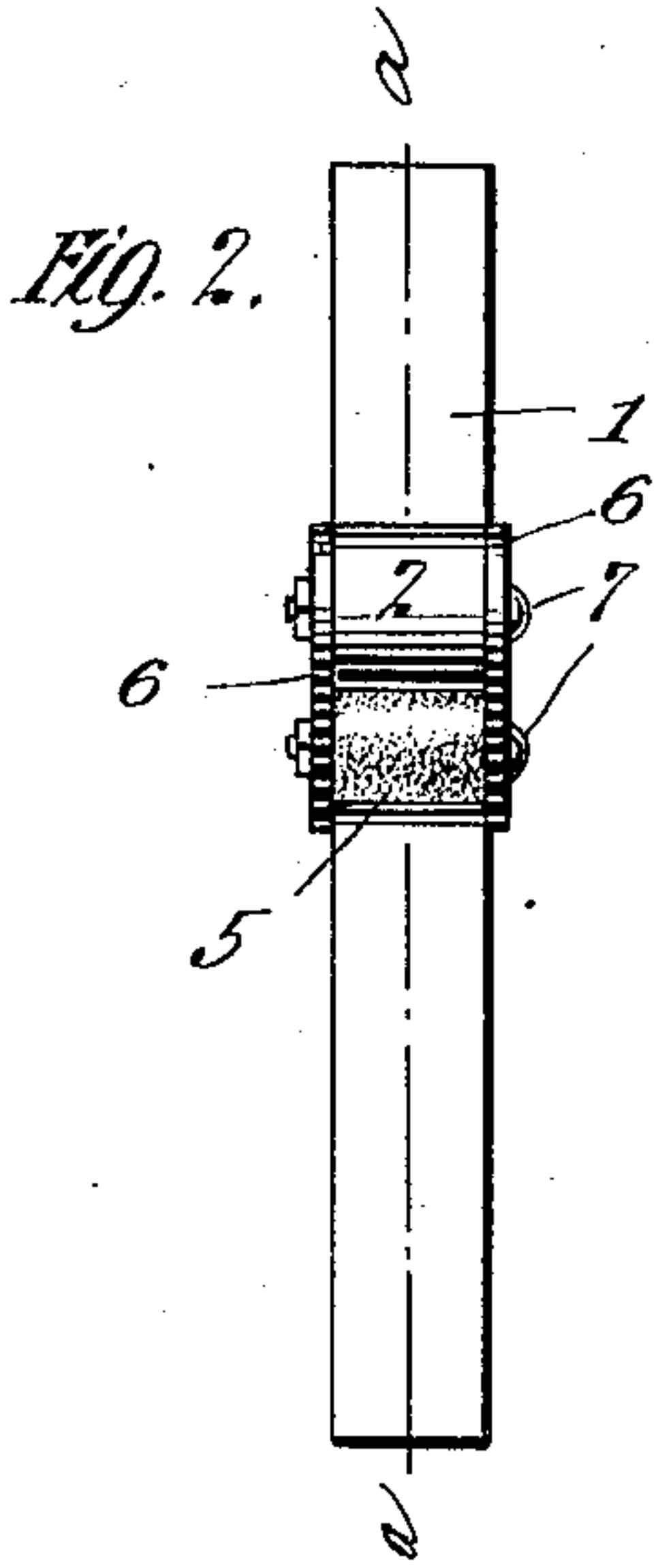
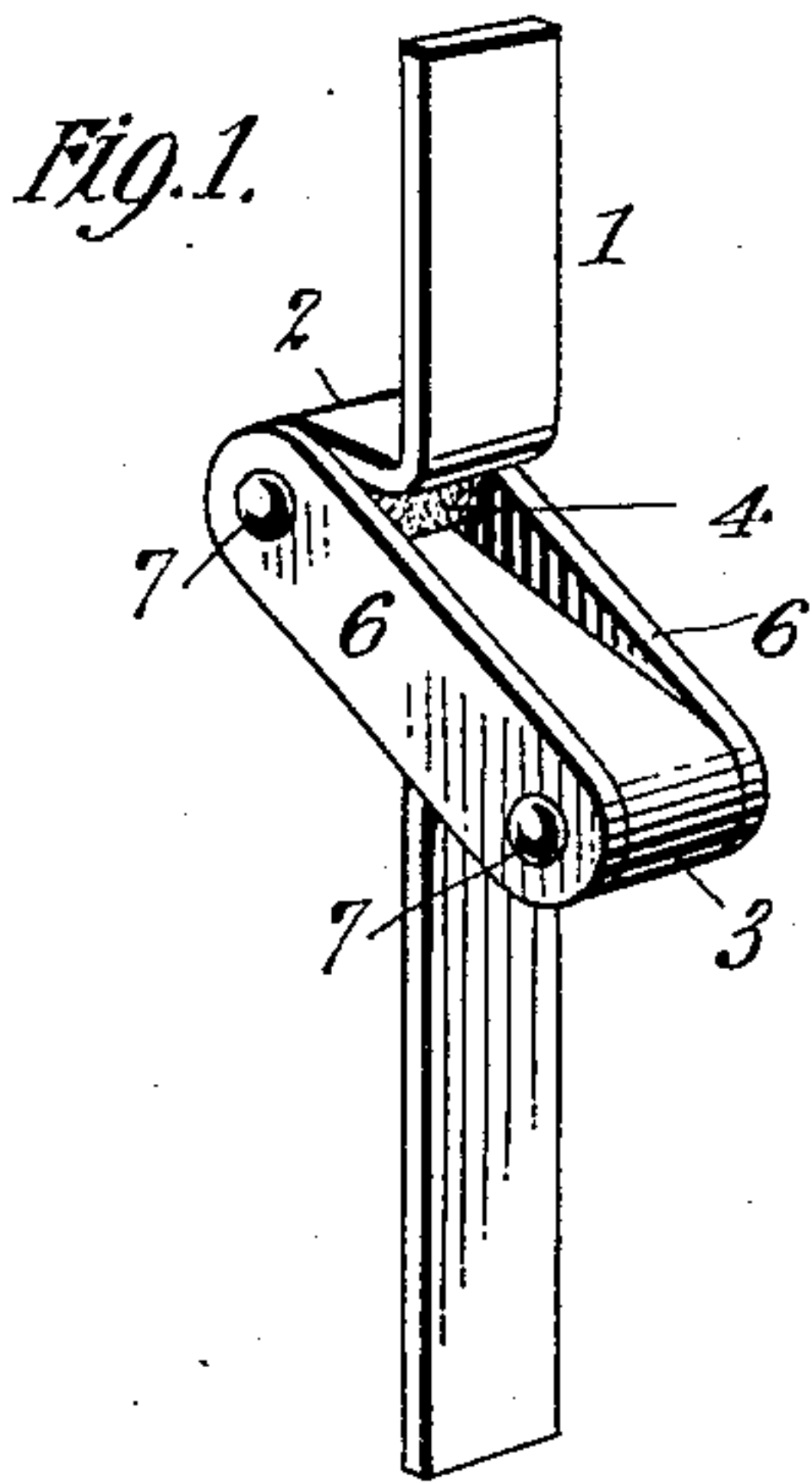


W. T. URIE.  
 SPRING WHEEL.  
 APPLICATION FILED JULY 16, 1910.

998,937.

Patented July 25, 1911.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILLIAM T. URIE, OF KANSAS CITY, MISSOURI.

## SPRING-WHEEL.

998,937.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed July 16, 1910. Serial No. 572,353.

*To all whom it may concern:*

Be it known that I, WILLIAM T. URIE, of Kansas City, county of Jackson, and State of Missouri, have invented a new and useful  
5 Improvement in Spring-Wheels, of which the following is a specification.

This invention relates to improvements in wheel spokes designed more particularly for use in resilient or spring vehicle wheels, in  
10 which provision is made for a yielding or resilient movement of the felly or tire relative to the hub.

The object of the invention is to produce a spoke of such character that when assembled in the wheel and connected with the hub and felly, the parts of the wheel will be capable of limited relative motions in the proper directions to prevent the shocks from being transmitted to the body of the vehicle,  
15 and at the same time will resist the tendency of the hub to push endwise or bulge when the parts are subjected to severe side strains, such as are created for instance when the vehicle is turned.

With this end in view, my invention consists primarily of a spoke provided with a spring element of such character and so disposed that the spoke may yield with a resilient action both radially and circumferentially of the plane of the wheel, means being  
20 provided for restraining a bending or yielding movement in a direction axially of the wheel.

The invention consists also of a spoke  
25 formed with a spring loop and having a cushioning member coöperating with the said loop.

In the accompanying drawings: Figure 1 is a perspective view of my improved spoke.  
30 Fig. 2 is an end elevation of the same. Fig. 3 is a sectional elevation on the line *a— a* of Fig. 2. Fig. 4 is a side elevation of a wheel equipped with my improved spoke.

Referring to the drawings: as shown  
35 more particularly in Figs. 1, 2 and 3, my improved spoke 1 is formed from a single piece or section of flat spring steel, bent between its ends to form connected spring loops 2 and 3, which loops extend in opposite directions transversely with reference to the longitudinal axis of the spoke. These loops constitute in effect a spring element interposed between the ends of the spoke, and  
40 give to the end portions of the same the

property of a relative resilient yielding action both endwise and laterally in one direction, but stiffening the spoke against, and preventing a relative motion of its ends in an edgewise direction. Seated in the respective loops and partially embraced by the  
55 same, are yielding cushioning rolls 4 and 5, preferably of rubber, which rolls are retained in position by means of confining plates 6 applied to the opposite edges of the loops and over the ends of the rolls, and  
60 held by means of bolts 7 extending through the ends of the plates and centers of the rolls. These cushioning rolls when thus applied, serve to reinforce the spring loops and prevent the same from being broken or  
65 injured in the event of severe shocks exerted either endwise of the spoke or laterally, the loops in the spring action of the spoke clamping around the rolls and compressing the same. The said plates 6, in addition to  
70 their function of confining the rolls in the loops, serve also to stiffen the loops against edgewise bending, and materially assist the loop portion of the spoke in resisting strains exerted in an edgewise direction. 80

In assembling the spokes in a wheel, their inner and outer ends are connected in any suitable manner to the hub 9 and the felly or tire 10, respectively, and disposed so that the loops will extend transversely of the  
85 axis on which the wheel rotates. When assembled in these relations, the end portions of the spokes are capable of a relative resilient movement both radially and circumferentially of the wheel, but are restrained from  
90 relative motions axially, so that while the parts of the wheel may move relatively in the proper directions for preventing the transmission of shocks to the vehicle body, they are effectively restrained from relative  
95 motions in the direction of the axis of rotation, with the result that the wheel will effectually resist the tendency of side strains, such as are created in turning the vehicle to  
100 displace the parts axially.

In the accompanying drawings I have illustrated my invention in the form which I prefer to adopt, but it will be understood that the details may be variously modified within the skill of the mechanic without departing from the limits of my invention,  
105 and it is to be further understood that the invention is not limited to any particular



form or construction of the parts except in so far as such limitations are specified in the claims.

Having thus described my invention, what I claim is:—

1. A spoke for a spring wheel, said spoke comprising a plate adapted at its ends to be secured to the hub and felly of the wheel, respectively, and provided between its ends with a circumferentially offset bend forming an open spring loop the sides of which are adapted to approach each other when the spoke is subjected to endwise pressure, and a cushioning member seated in the bend of and closely embraced by said loop; whereby said cushioning member will act to reinforce the bend of the loop while not interfering with the resiliency of the adjacent portions thereof.
2. A spoke for a spring wheel, said spoke being formed with two spring loops, cushioning members seated respectively in the loops, and confining plates applied to the opposite edges of the loops.
3. A spoke for a spring wheel, said spoke being formed with a spring loop extending circumferentially of the wheel, and a strengthening plate supported wholly by said spoke and applied to the edge of the loop.

4. A spoke for a spring wheel, said spoke being formed with oppositely extending loops, and plates applied to the opposite edges of said loops and extending from one to the other and supported wholly by the same.

5. A spoke for a spring wheel, said spoke being provided with spring loops, cushioning members situated respectively in the loops, and a plate connected to said cushioning members.

6. An improved wheel comprising a hub, a surrounding felly, and a series of spokes connected respectively to the hub and felly, said spokes each consisting of a plate bent between its ends to form an open spring loop, a plurality of said spokes having seated in their loops each a cushioning member closely embraced by the bend of the loop and acting to reinforce said bend without interfering with the resiliency of the loop beyond the bend.

In testimony whereof I hereunto set my hand this 11th day of July, 1910, in the presence of two attesting witnesses.

WILLIAM T. URIE.

Witnesses:

JAMES M. COOK,  
JOHN H. CLEWER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."