

(No Model.)

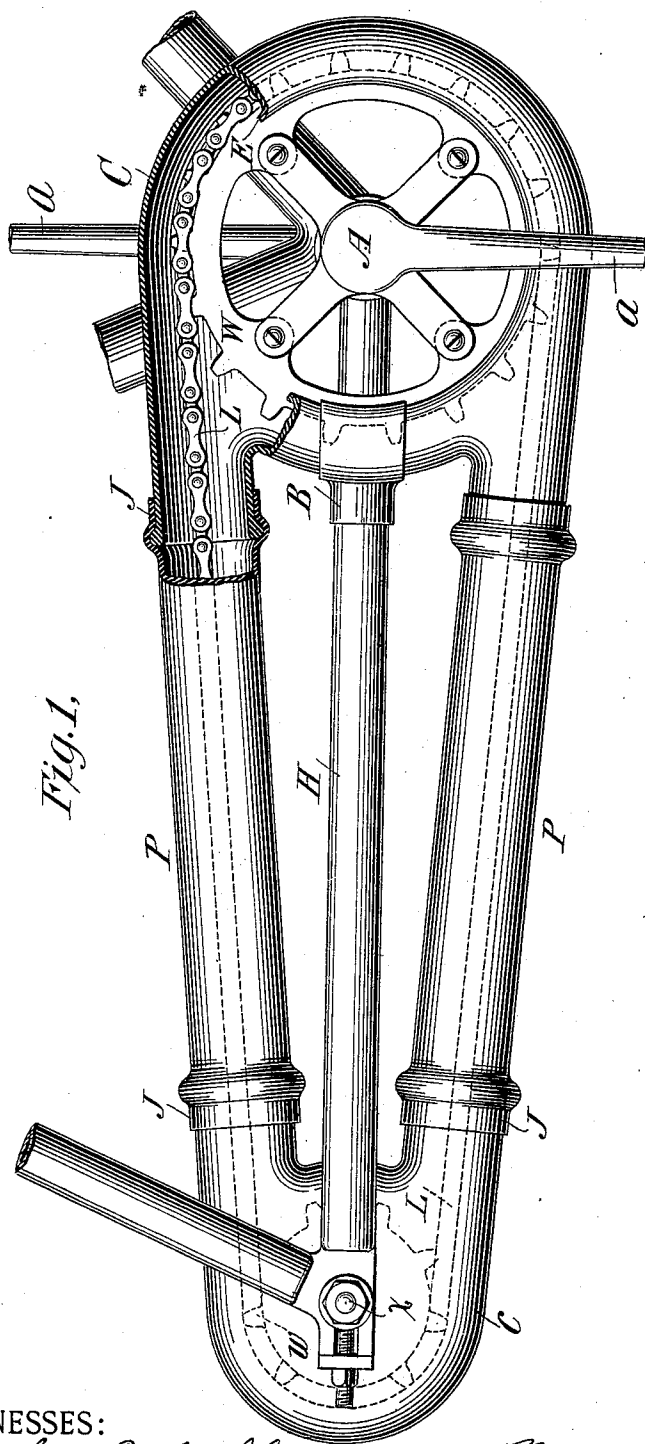
2 Sheets—Sheet 1.

W. H. FROST.

CASE FOR DRIVING GEAR OF WHEELED VEHICLES.

No. 583,798.

Patented June 1, 1897.



WITNESSES:

Cawlin E. Ashley
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INVENTOR:

Wm. H. Frost
By his Attorney
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(No Model.)

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Fig. 2,

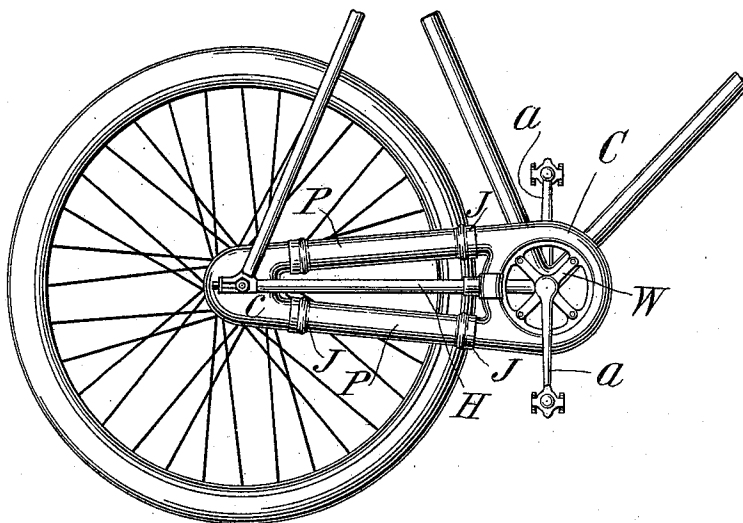


Fig. 4,

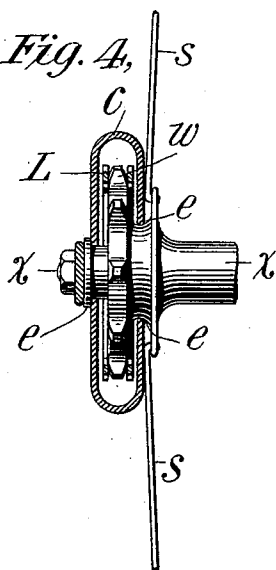
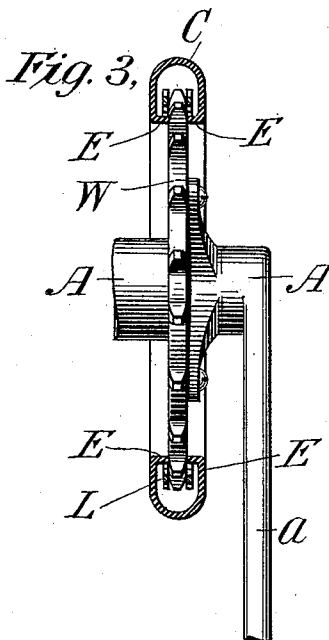


Fig. 3,



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UNITED STATES PATENT OFFICE.

WARREN H. FROST, OF NEW YORK, N. Y., ASSIGNOR TO THE FROST GEAR CASE COMPANY, OF SAME PLACE.

CASE FOR DRIVING-GEAR OF WHEELED VEHICLES.

SPECIFICATION forming part of Letters Patent No. 583,798, dated June 1, 1897.

Application filed June 24, 1896. Serial No. 596,689. (No model.) Patented in France July 15, 1896, No. 258,085; in England July 15, 1896, No. 15,701, and in Germany July 15, 1896, No. 11,502.

To all whom it may concern:

Be it known that I, WARREN H. FROST, a citizen of the United States, and a resident of New York, in the county and State of New York, have made certain new and useful Improvements in Cases for the Driving-Gear of Wheeled Vehicles, (for which foreign patents have been obtained as follows: in France, No. 258,085, dated July 15, 1896; in Great Britain, No. 15,701, dated July 15, 1896, and in Germany, No. 11,502, dated July 15, 1896,) of which the following is a specification.

My invention is an improvement in cases for the driving-wheels and chain used in the propulsion of wheeled vehicles, and it is especially useful in connection with bicycles.

The object of my invention is to supply a light, slightly, but unobtrusive and noiseless casing easily applied to various styles of vehicles, which shall be impervious to oil and capable of excluding dust, mud, and moisture.

I provide a flexible elastic case, preferably made of soft rubber. When applied to bicycles, I make a case for each sprocket-wheel, completely inclosing the periphery of the wheel and clamping with elastic pressure against the faces of the wheel at a point between the hub and rim. This arrangement provides for easily applying the gear-case to wheels differing as regards any projections or connecting devices located on their sides or faces and permits of stretching the case into position and supporting it there by such elastic pressure as it applies to the wheel-surfaces. Each case has a pipe-like junction or projection, and two pipe-sections, preferably of flexible elastic material, respectively inclose the two sections of chain located between and extending from one wheel to the other, and these pipe-sections make a junction with the pipe-like projections on the wheel-cases, the whole forming a complete casing for the running-gear, impervious to oil and excluding dust, mud, and moisture, while light in weight, noiseless, and unobtrusive in appearance.

The accompanying drawings illustrate my invention.

Figure 1 is a complete view of the driving-

gear and casing in position, part of the case being shown as broken away. Fig. 2 is a similar view showing, in addition, part of a bicycle frame and wheel. Fig. 3 shows the front sprocket-wheel with case in section, illustrating the manner in which the edge of the case clasps the wheel. Fig. 4 is the small or rear sprocket-wheel with the case in position.

W and w are the two sprocket-wheels usually employed as driving-gear for bicycles in connection with a chain L. The wheel W is upon the axle A, and a is a driving-crank.

C is a case or cover for wheel W, made of flexible or elastic material, such as india-rubber, partly vulcanized, but soft and yielding and having sufficient thickness to maintain its form. It may be produced by molding or in any suitable manner.

The case C, is circular like a hollow ring, and is divided upon its interior edge to fit over the rim of wheel W, the edge E of the case clasping the faces of wheel W at a point between the hub and periphery. This arrangement permits of applying the case to wheels of various constructions. At points where the chain leaves the wheel there are tubular junctions J to connect with sections of rubber tubing or pipe P. The wheel w has a similar case c, the edges of which clasp the hub of the wheel or engage the axle x on which wheel w is fixed at points e e. The spokes of the wheel are shown at s.

H is a horizontal member of the bicycle-frame, and a bracket B is fixed upon H and connected to the case C of wheel W to hold and steady the case in its position.

The cases C and c can be placed in position by stretching them over the periphery of their respective wheels. The chain is divided and threaded through the pipe-sections P. The junctions J are then properly adjusted, the amount of lap depending upon the length of the chain-section between wheels, which length is variable and may be changed from time to time. When in position, this casing for driving-gear is light in weight, and it has a light and unobtrusive appearance. There is no rattling or slapping as a slack chain drops or straightens out in the pipe-sections P. The casing cannot be permanently dented or in-

jured by rough usage, and it is extremely effective in excluding dirt, mud, dust, moisture, and water. As shown in Figs. 3 and 4, as the wheels rotate there is a scraping engagement between the edges of the cases and the line of contact between such edges and said wheels.

What I claim, and desire to secure by Letters Patent, is—

10 1. In a wheeled vehicle the combination of a chain and a sprocket-wheel having a hub or projection and a flexible case for the wheel surrounding the edge and making flexible contact with opposite faces between the hub
15 and the periphery, substantially as described.

2. In a wheeled vehicle the combination with a gear-wheel of a casing therefor surrounding the periphery, its inner edges making flexible rubbing contacts with the surface
20 of the wheel, substantially as described.

3. In a wheeled vehicle the combination with a gear-wheel, of a casing therefor composed of soft rubber surrounding the periphery of the wheel, the interior edge of said casing making flexible rubbing contact with
25 the surface of the wheel, substantially as described.

4. In a wheeled vehicle, the combination with a gear-wheel, of a ring-shaped casing of
30 soft elastic rubber adapted to be sprung over

the wheel and to embrace the same, said casing being suitably supported and apertured for the driving connection of said gear-wheel, substantially as described.

5. In a wheeled vehicle, the combination 35 with gear-wheels and a chain forming part of the driving-gear of said vehicle, of a casing inclosing said wheels and chain, the portions of the casing which inclose the wheels comprising each a removable ring of soft elastic 40 material adapted to be sprung into position around the wheel, and being suitably supported and apertured for the passage of the chain, substantially as described.

6. In a wheeled vehicle the combination 45 with a gear-wheel of a casing therefor surrounding the periphery, the inner edge making flexible rubbing contact with the surface of the wheel, substantially as described.

7. In a wheeled vehicle the combination 50 with a gear-wheel of a casing suitably perforated for the driving connection and having a side wall of flexible elastic material suitably perforated for the passage of the axle, substantially as described.

WARREN H. FROST.

Witnesses:

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