No. 836,294. PATENTED NOV. 20, 1906.

F. J. & O. BIEHN.

SPRING WHEEL.

APPLICATION FILED MAR. 17, 1906.

2 SHEETS—SHEET 1.

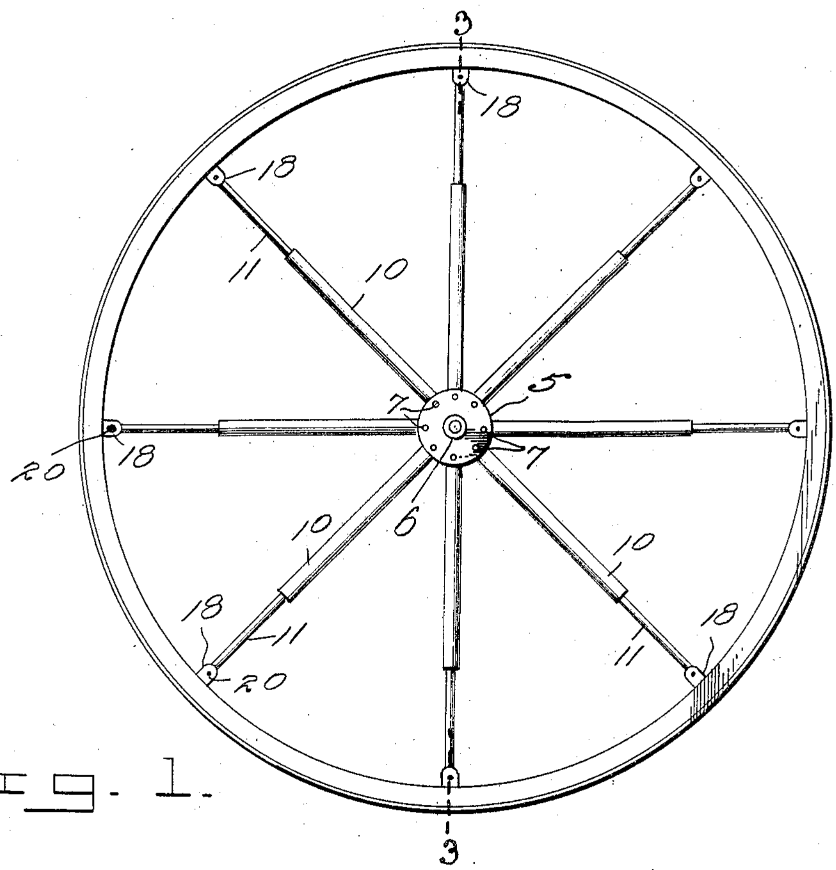

Fig. 1.

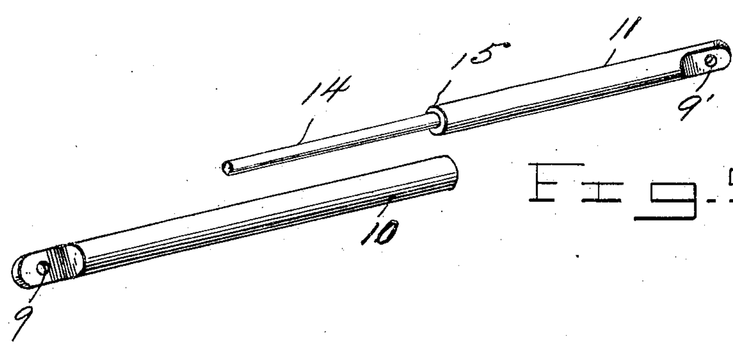

Fig. 5.

Witnesses
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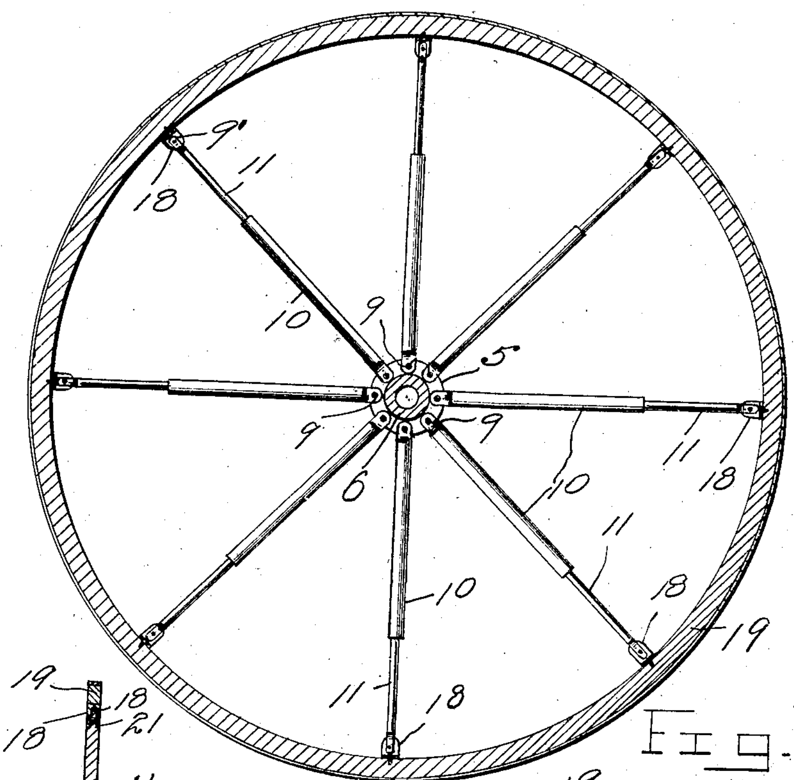

Fig. 2.

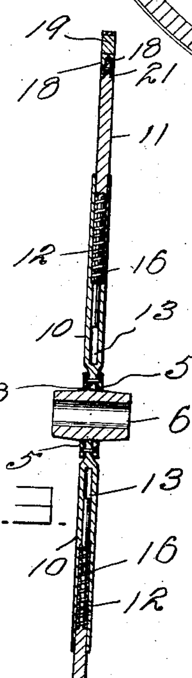

Fig. 3.

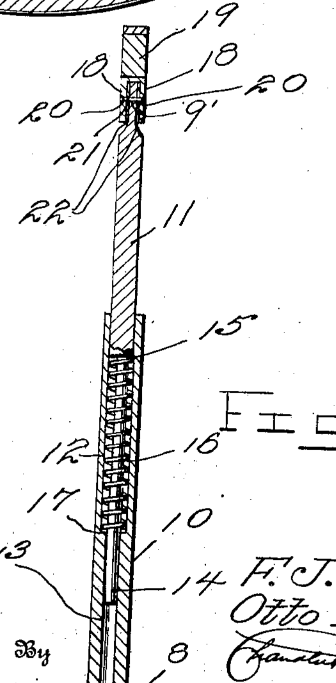

Fig. 4.

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UNITED STATES PATENT OFFICE.

FELIX J. BIEHN AND OTTO BIEHN, OF MADISON LAKE, MINNESOTA.

SPRING-WHEEL.

No. 836,294. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed March 17, 1906. Serial No. 306,680.

To all whom it may concern:

Be it known that we, FELIX J. BIEHN and OTTO BIEHN, citizens of the United States, residing at Madison Lake, in the county of Blue Earth, State of Minnesota, have invented certain new and useful Improvements in Spring-Wheels; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to wheels, and more particularly to spring-wheels, and has for its object to provide a wheel of this kind which will be simple, which will include few parts, and which may be produced at low cost.

The primary object of the invention is to provide a wheel of a resilient nature which will absorb the shocks incident to passing over rough or uneven surfaces.

Other objects and advantages will be apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is an elevational view of the present wheel. Fig. 2 is a vertical sectional view. Fig. 3 is a section taken at right angles to Fig. 2 on line 3 3 of Fig. 1. Fig. 4 is an enlarged detail section of one of the spokes. Fig. 5 is a perspective view showing the members of one of the spokes disconnected.

Referring now to the drawings, there is shown a wheel comprising a hub including a pair of spaced annular plates 5, the openings of which register for the reception of a boxing 6, and the plates thus form what are, in effect, spaced circular flanges lying in parallel relation. The flanges are each provided with a plurality of perforations 7, the perforations of the two flanges alining in pairs for the reception of pivot-pins 8, and pivotally engaged with each of these pins is the inner end of a spoke, there being thus a plurality of these spokes having perforations 9 therein at their inner ends in which the pivot-pins 8 are engaged. Each spoke consists of two telescoping sections—an inner section 10, in which the opening 9 is formed, and an outer section 11, having at its outer end a perforation 9′ parallel with the perforation 9. The section 10 has a longitudinal chamber 12 therewithin which opens through the outer end of this section, and at its inner portion the chamber 12 is reduced, as shown at 13, both portions of the chamber being transversely circular. The outer section 11 of each spoke is engaged within the chamber 12 of the inner section and has an inner reduced end 14, which extends into the reduced portion 13 of the chamber 12. The formation of the reduced end 14 of the section 11 results in a shoulder 15, and engaged with the portion 14 there is a helical spring 16, resting at one end against the shoulder 15 and at its other end against a shoulder 17, formed, as will be understood, by the reduction of the inner portion of the chamber 12.

The sections 11 of the several spokes, as will be readily understood, are held by the springs 16 yieldably against inward movement, and the outer end of each of these sections 11 lies between a pair of inwardly-extending wings 18, which are carried by a felly 19, there being one pair of these wings 18 for each spoke, and the perforations 9′ of the sections 11 register with alining pairs of perforations 20, formed in the wings 18 for the reception of pivot-pins 21. It will thus be seen that the spokes, the hub, and the felly are susceptible of slight pivotal movement at their connections. Washers 22 are engaged with the pivot-pins 8 and 21 at opposite sides of the spokes to prevent lateral movement of the spokes upon the pivot-pins, and it will be seen that new washers may be substituted for worn ones.

What is claimed is—

A wheel comprising a pair of spaced annular plates, a boxing engaged within the plates, said plates having pairs of alining perforations therethrough, a pivot-pin engaged in each pair of perforations, spokes including inner and outer sections and having perforations at their inner ends in which the pivot-pins are engaged, said inner sections having chambers therewithin opening through their outer ends and having reduced inner portions and resultant shoulders, said outer sections being engaged within the chambers of the inner sections and having reduced portions extending into the reduced portions of the chambers, helical springs engaged with the reduced portions of the outer sections, between the shoulders of the inner section and the inner ends of the unreduced portions

of the outer sections, to hold the sections yieldably against inward telescoping movement, a felly surrounding the spokes, pairs of spaced wings carried by the felly, the outer end of each spoke lying between a pair of said wings, and pivot-pins engaged in the wings and in the spokes.

In testimony whereof we affix our signatures in presence of two witnesses:

FELIX J. BIEHN.
OTTO BIEHN.

Witnesses:
GEO. T. SWEARINGEN,
F. B. KNOFF.