

No. 813,035.

PATENTED FEB. 20, 1906.

F. A. BORN.  
SPRING WHEEL.

APPLICATION FILED MAY 17, 1905.

2 SHEETS—SHEET 1.

FIG. 1.

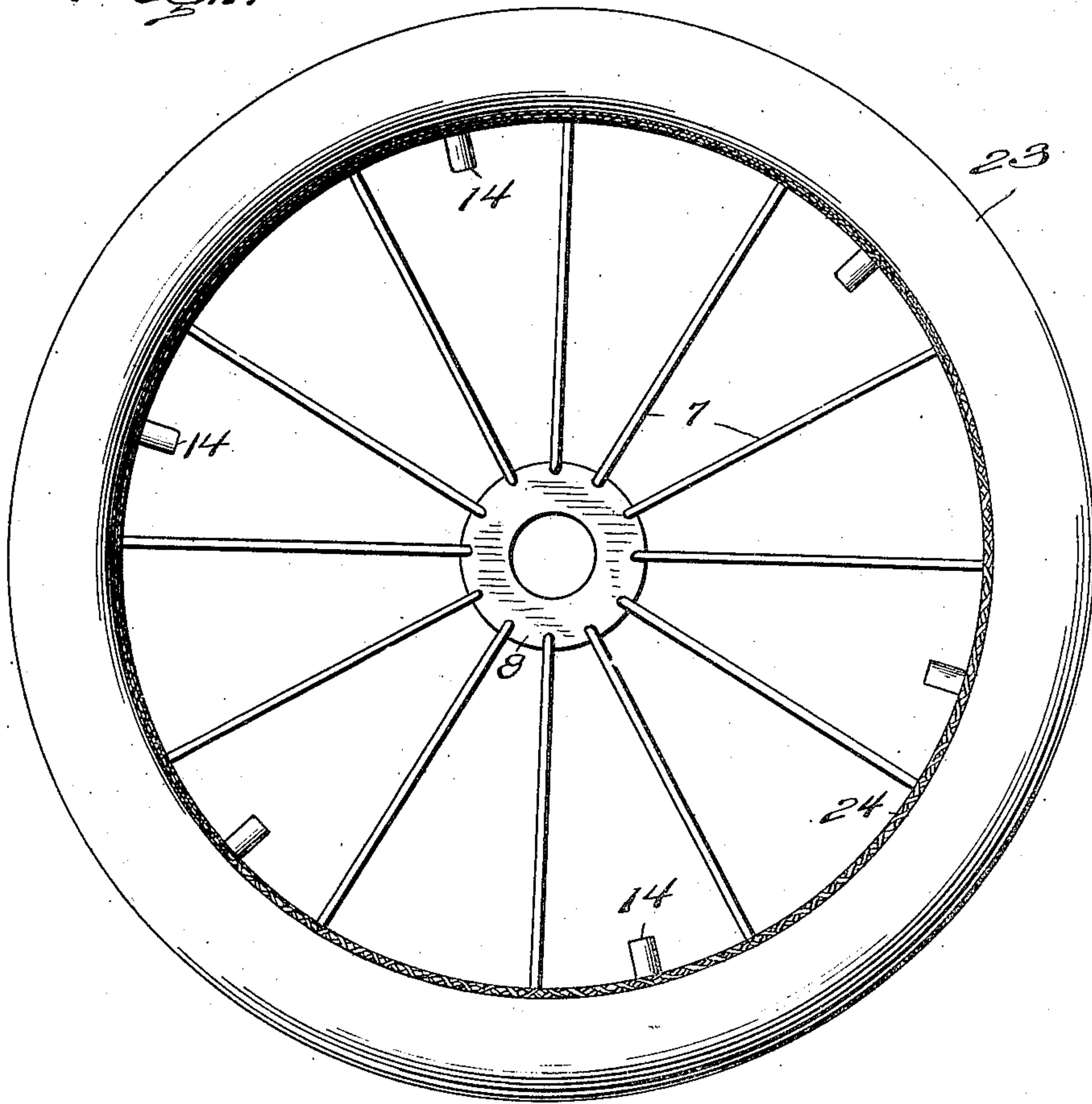
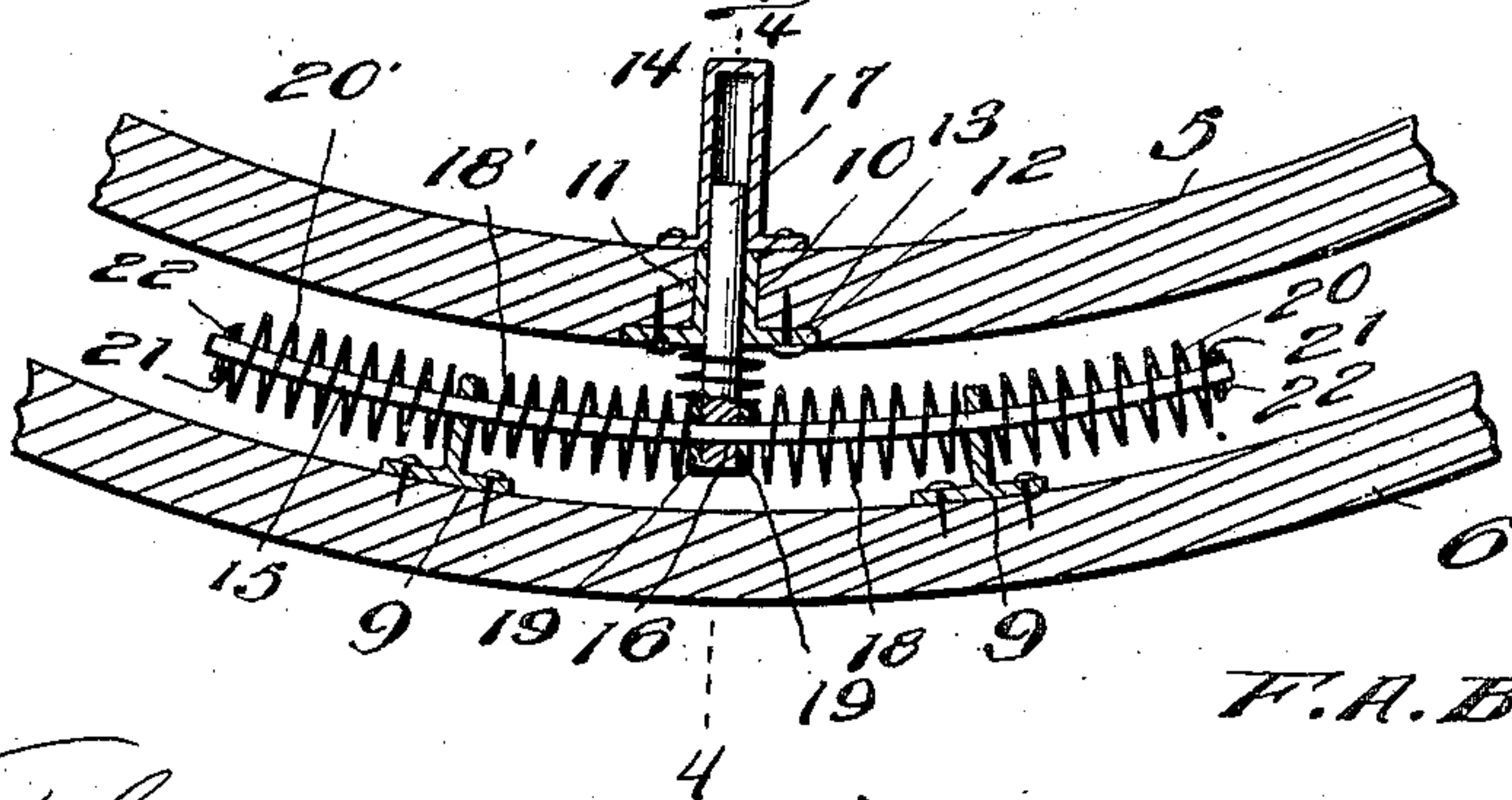


FIG. 3.



Witnesses

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2 SHEETS—SHEET 2.

FIG. 2

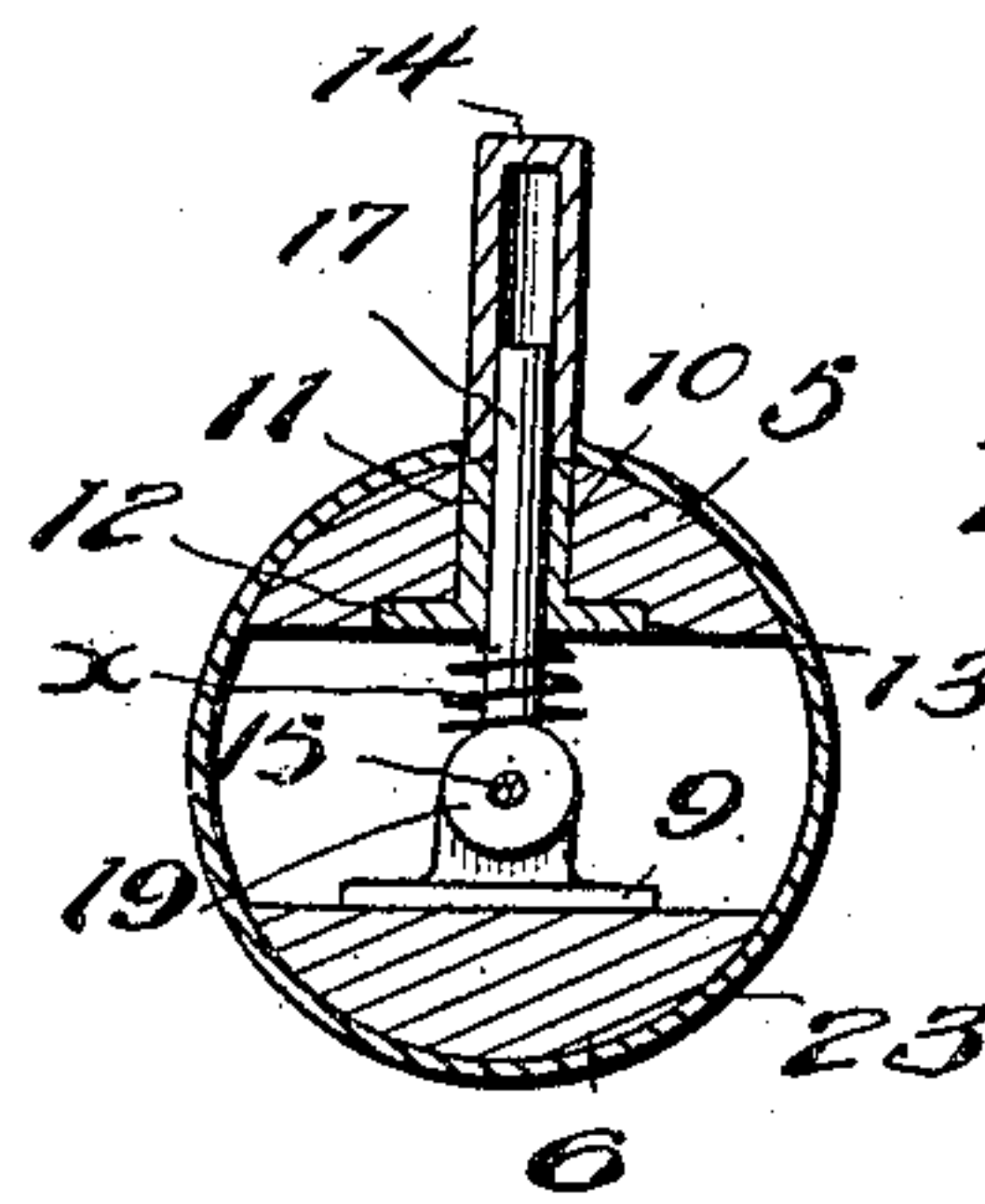
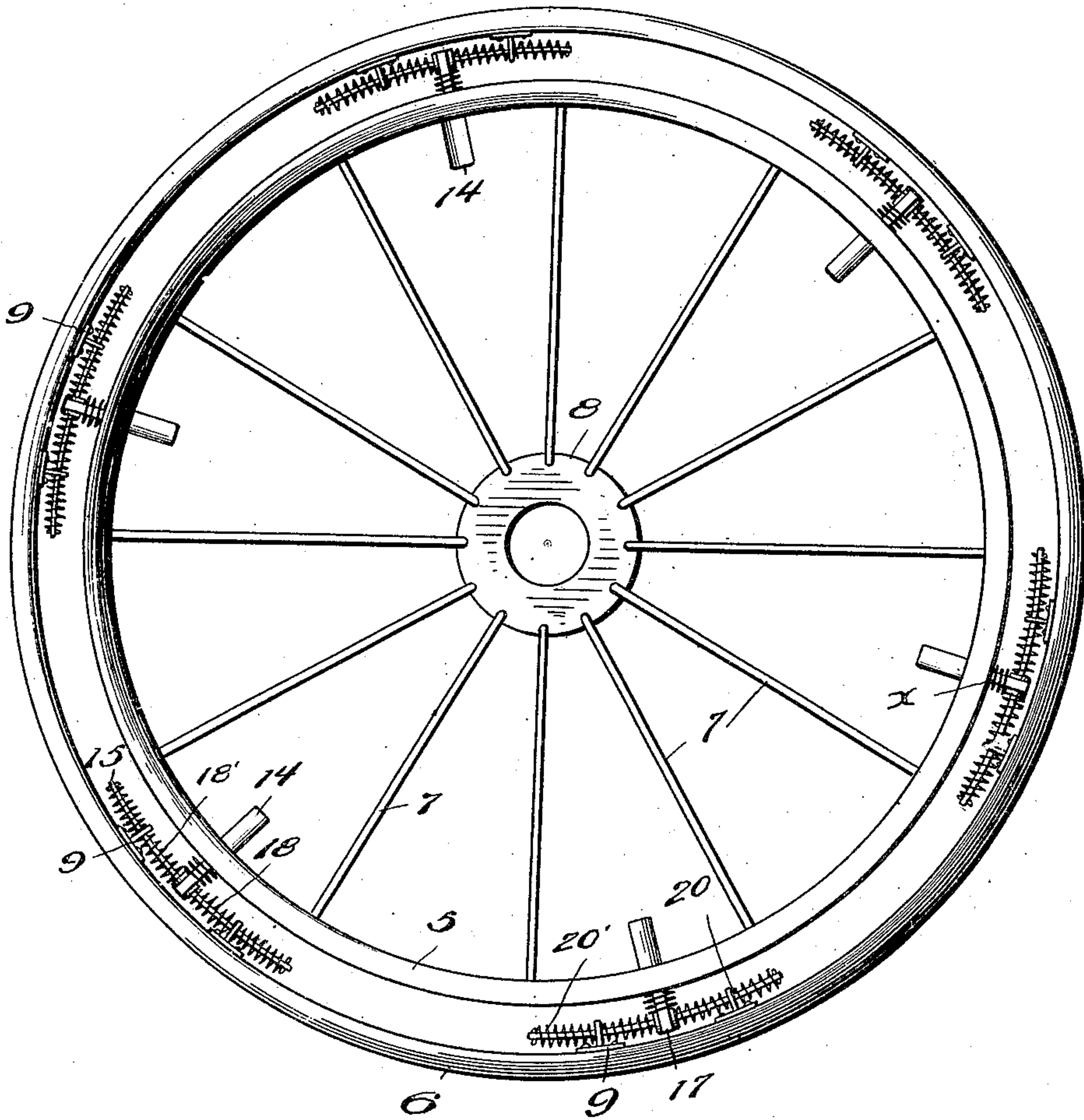


FIG. 4.

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# UNITED STATES PATENT OFFICE.

FRANK A. BORN, OF GROVER, SOUTH DAKOTA.

## SPRING-WHEEL.

No. 813,035.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed May 17, 1905. Serial No. 260,874.

*To all whom it may concern:*

Be it known that I, FRANK A. BORN, a citizen of the United States, residing at Grover, in the county of Codington, State of South Dakota, have invented certain new and useful Improvements in Spring-Wheels; and I 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 nature especially adapted for use on automobiles or bicycles to take the place of the more perishable and exceedingly expensive rubber tires in use at present.

Another object is to provide a wheel including a novel arrangement of parts which will produce a maximum of resilience and strength with a minimum of weight.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific construction shown and described may be made within the scope of the claims and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like characters of reference indicate similar parts in the several views, Figure 1 is a side elevation of the present wheel. Fig. 2 is a view similar to Fig. 1, the casing being removed. Fig. 3 is an enlarged detail view showing the section through one of the pairs of brackets and the adjacent elements, and Fig. 4 is a transverse section on line 4 4 of Fig. 3.

Referring now to the drawings, the present wheel comprises inner and outer spaced rims 5 and 6, respectively, the former having the outer ends of spokes 7 secured thereto, the inner ends of the spokes being secured to a central hub 8. Inwardly-projecting spaced pairs of brackets 9 are carried by the outer rim 6, the brackets of each pair being also spaced from each other, and the rim 5 has a plurality of radially-extending passages 10 formed therethrough, one of these passages being located between each pair of brackets, and disposed in these passages are metallic bushings 11, having attaching-plates 12, which are secured in recesses 13, formed in the outer face of the rim 5 and surrounding the passages 10. Tubes 14, having closed inner ends, are disposed with their open outer

ends over the passages 10 at the inner ends thereof.

Slidably engaged in each of the pairs of brackets 9 there is a rod 15, and these rods are slidably engaged in transverse passages 16, formed in the outer ends of plungers 17, which are slidably engaged in the bushings 11 and extend into the tubes 14. Engaged with the rods 15 at opposite sides of the plungers 17 are helical springs 18 and 18', which rest at one end against washers 19, disposed against the plungers 17, and at their other ends against mutually adjacent faces of the brackets 9. The rods 15 extend outwardly beyond the brackets, and other helical springs 20 and 20' are engaged with the rods outwardly of the brackets, resting against the latter at one end and at their other ends against washers 21, disposed upon the outer ends of the rods and held in position by cotter-pins 22.

The outer face of the rim 6 and the inner face of the rim 5 are transversely convex, and secured around these rims there is a suitable covering of leather or other material 23, held in position by laces 24, extending across the rim 5. Springs 25 are engaged with the plungers 17 between the rods 15 and the plates 12 to hold the outer rim yieldably against movement toward the inner rim.

What is claimed is—

1. The combination with a wheel including inner and outer spaced rims, pairs of brackets carried by the outer rim, a rod slidably engaged in each pair of brackets, plungers having passages therein in which the rods are engaged between the brackets, said plungers being slidably engaged in the inner rim, helical springs engaged with the rods between the plungers and the brackets, helical springs engaged with the rods outwardly of the brackets, washers engaged with the rods outwardly of the last-named helical springs and cotter-pins engaged in the rods beyond the washers, and means for holding the outer rim yieldably against movement toward the inner rim.

2. The combination with a wheel including inner and outer spaced rims, pairs of brackets carried by the outer rim, a rod slidably engaged in each pair of brackets, said inner rim having openings formed therein, a bushing in each of said openings, a housing located above each of said bushings and communicating therewith, a plunger slidably engaged in each of said bushings and said housings



and with the said rod intermediate between  
the said brackets, a helical spring engaged  
with the said plunger between said inner rim  
and said rod, helical springs engaged with  
5 the rods between the plungers and the brackets,  
helical springs engaged with the rods  
outwardly of the brackets, washers engaged  
with the rods outwardly of the last-named

helical springs and cotter-pins engaged in the  
rods beyond the washers. 10

In testimony whereof I affix my signature  
in presence of two witnesses.

FRANK A. BORN.

Witnesses:

S. B. SHELDON,  
PAUL BORN.