

A. BERNIER.
SPRING WHEEL.

APPLICATION FILED MAR. 26, 1912.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 1.

1,060,420.

Fig. 2.

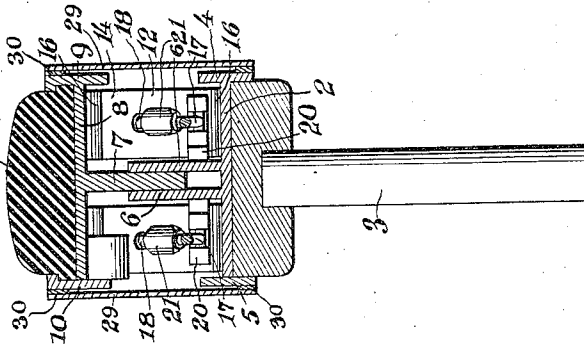
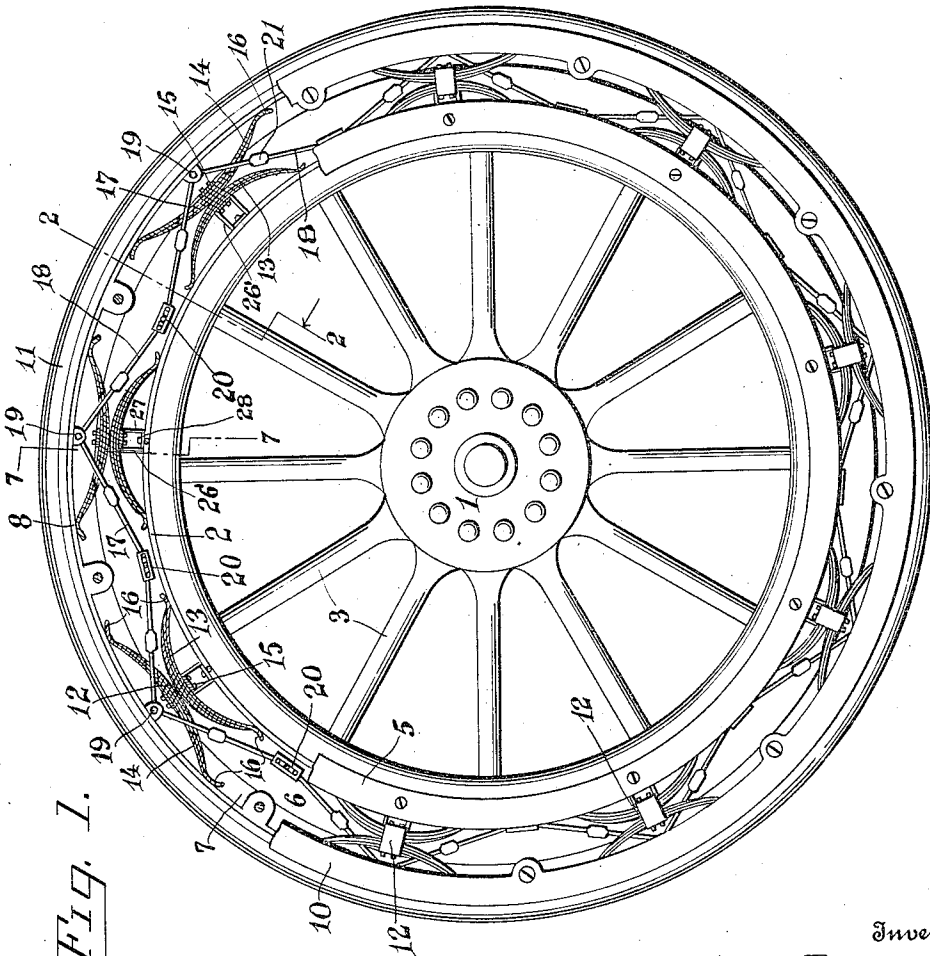


Fig. 1.



Witnesses

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2 SHEETS-SHEET 2.

Fig. 3.

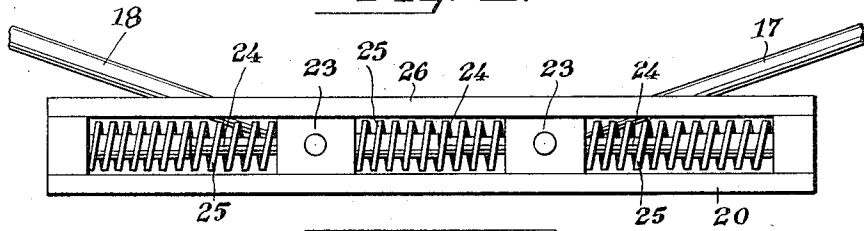


Fig. 4.

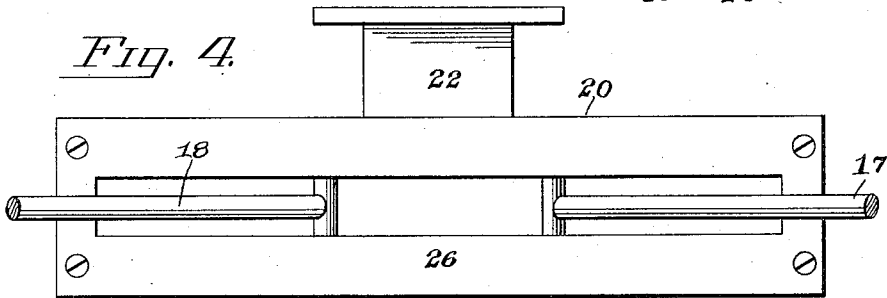


Fig. 5.

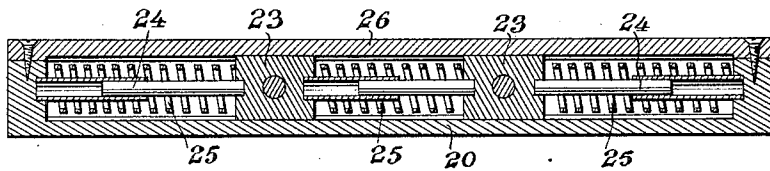


Fig. 6.

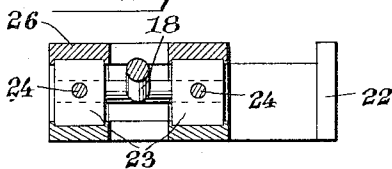
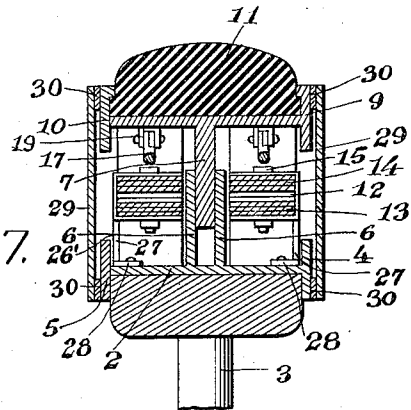


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALPHONSE BERNIER, OF SALEM, MASSACHUSETTS.

SPRING-WHEEL.

1,060,420.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed March 26, 1912. Serial No. 686,250.

To all whom it may concern:

Be it known that I, ALPHONSE BERNIER, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Spring-Wheels, of which the following is a specification.

This invention relates to wheels and more particularly to spring wheels and the object of the invention is the provision of a simple and efficient device of this character which will effectually take the place of the pneumatic tire now in common use.

Another object of the invention is to provide means which will prevent relative circumferential movement between the outer and inner rims of the wheel and at the same time permit their relative movement toward and away from each other.

A still further object of the invention is the novel arrangement of springs and means for preventing their circumferential gripping around the wheel.

Further objects of this invention will appear as the following specific description is read in connection with the accompanying drawing, which forms a part of this application, and in which:—

Figure 1 is a side elevation with the dust guard plates removed. Fig. 2 is a vertical section on the line 2—2 of Fig. 1, showing the dust guard plates applied. Fig. 3 is a detail side elevation of one of the slotted rod retaining plates and its associated parts. Fig. 4 is a top plan view. Fig. 5 is a longitudinal sectional view. Fig. 6 is a transverse sectional view. Fig. 7 is a section on the line 7—7 of Fig. 1.

Referring more particularly to the drawing, 1 represents a hub of any suitable type to which is connected the inner ring or felly 2 by means of the spokes 3 which radiate from the hub. The felly 2 is preferably constructed of an annular strip of metal having a laterally extending annular flange 4 upon one side thereof and a removable flange 5 upon the opposite side. Intermediate the flanges 4 and 5, annular ribs are secured or formed on the felly, as shown at 6, and operating between these ribs is a similar rib 7 which is carried by the rim 8. This rim is constructed in a similar manner to the felly, that is, it has an integral flange 9 lying upon one side and a removable flange 10 upon the other side, which flanges are adapted to hold a tire 11 of any suitable

form, preferably having a roughened anti-slipping tread.

Arranged at intervals around the wheel between the felly and the rim are a series of springs 12 which consist of two semi-elliptic portions 13 and 14 arranged in opposition to each other with their bowed points connected by means of bolts 15 or in any other suitable manner. The ends of these springs or more correctly speaking, the ends of the inner leaf of each spring, is provided with a slight reverse curve, as shown at 16 to produce a bearing surface and each semi-elliptic outer leaf portion is provided with apertures upon opposite sides of its connecting point with the adjoining semi-elliptic portion so as to permit the passage of rods 17 and 18, both of which are pivoted at a common point to the under side of the rim, as shown at 19, and have their opposite ends headed to slide in a slotted plate 20. One of the rods or both of them may have a turn buckle 21 arranged intermediate its length so as to adjust the length of the rods whereby the heads thereof may be always maintained in the proper end of the slot when the rim is fully extended away from the felly. The heads sliding in the slots of the plates 20 permit relative movement of the rim and the felly toward and away from each other and prevent relative circumferential movement between these parts. A plurality of pairs of these rods are arranged around the wheels, as shown.

The slotted retaining members 20 comprise an attaching plate 22 upon which are slidably mounted four blocks 23 arranged in pairs and carried upon guiding rods 24. These blocks 23 are apertured to receive the headed ends of the rods 18 and are held in position between spiral springs 25 which surround the rods between the blocks 23 and retaining plates 26 which are secured to the plates 20 and also prevent any vertical movement of the blocks 23.

Each elliptical spring has secured around same by the bolt 15 a connecting device 26' arranged in the center of the spring and having lateral projections 27 engaged on opposite sides of a clip 28 secured to the felly 2 so as to prevent circumferential movement of the spring, as will be readily understood.

In order to prevent dust and dirt from getting into the space between the rim and the felly, suitable dust guards comprising

annular rings 29 having circular felt washers on their inner faces, as indicated at 30, are secured to the rim and are adapted to operate over the flanges 4 and 5 on the felly.

5 What is claimed is:—

A spring wheel comprising a felly, a rim separated from the felly, means for preventing lateral movement between the rim and felly said means permitting relative
10 vertical movement between the rim and felly, a plurality of double semi-elliptical springs connected together and arranged between the felly and the rim, slotted retaining members carried by the felly, springs
15 arranged therein on opposite sides of the slot, rods pivoted to the rim and having

lateral heads and intermediate turn buckles, said heads adapted to engage the springs in the retaining members whereby the rim and felly are resiliently prevented from circumferential movement one upon the other, said
20 rods passing through the outer half of the elliptical springs and means for preventing circumferential movement of the said elliptical springs.

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

ALPHONSE BERNIER.

Witnesses:

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