

No. 846,937.

PATENTED MAR. 12, 1907.

L. A. NOEL.
SPRING WHEEL.
APPLICATION FILED JULY 2, 1906.

FIG. 1.

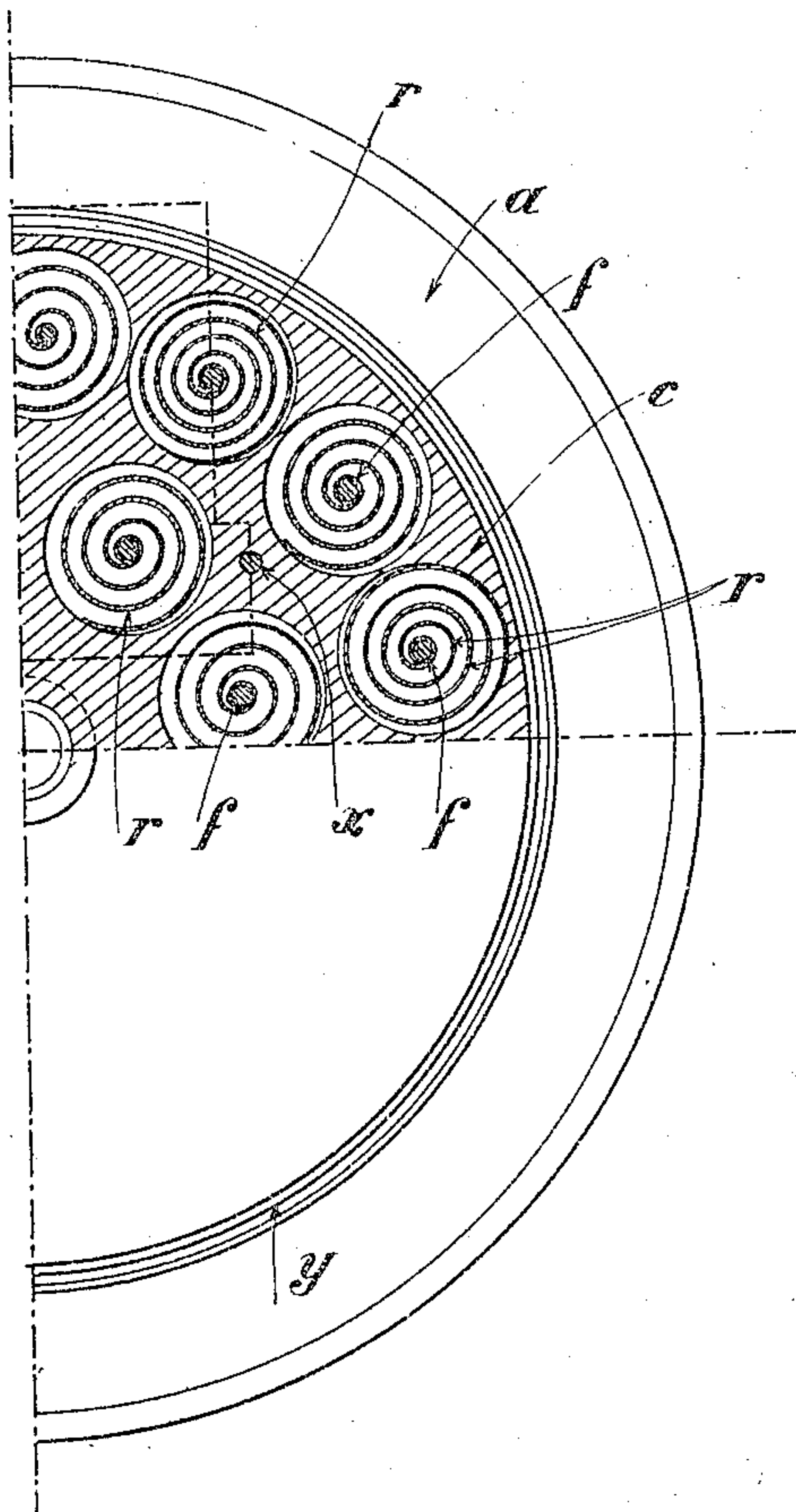
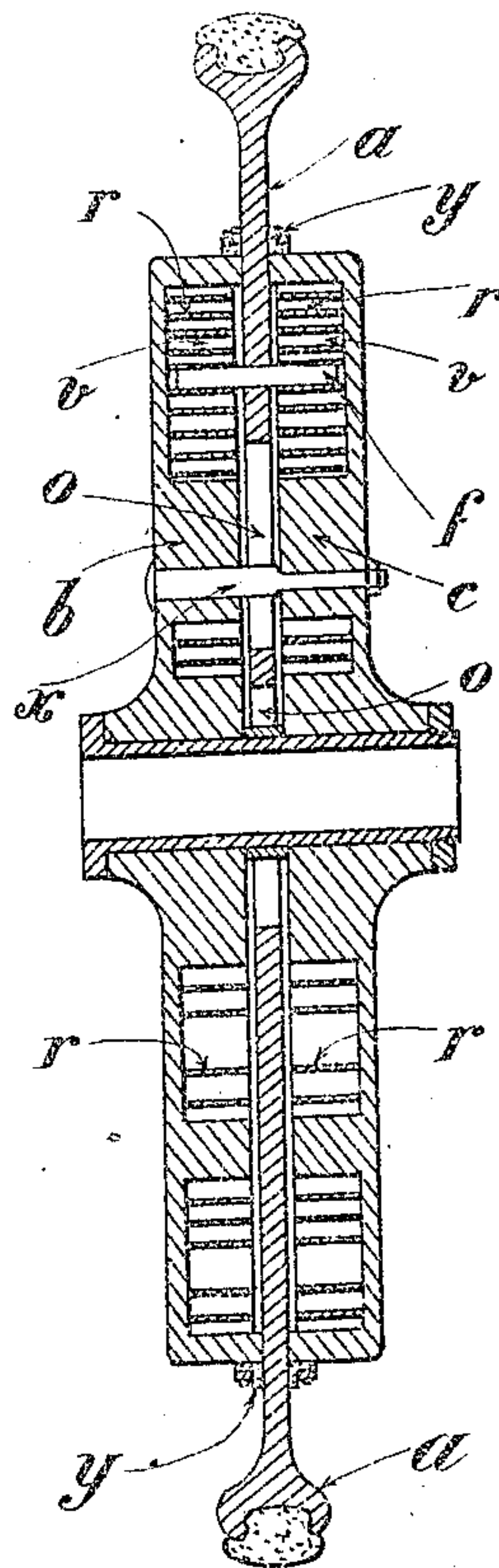


FIG. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

LOUIS ANDRÉ NOËL, OF PARIS, FRANCE.

SPRING-WHEEL.

No. 846,937.

Specification of Letters Patent.

Patented March 12, 1907.

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To all whom it may concern:

Be it known that I, LOUIS ANDRÉ NOËL, civil engineer, a citizen of France, residing at 52 Boulevard Haussmann, Paris, France, have invented new and useful Improvements in Spring-Wheels, of which the following is a specification.

This invention relates to a spring-wheel of uniform resiliency, the characteristic feature of which consists in the application of spiral springs, all arranged to work constantly and simultaneously in all directions and on all the coils, whatever be the point of the felly which receives a shock or impact.

The wheel consists of a felly-plate moving between two plates solid with the hub, between which are disposed spiral springs on which the felly works, and the distinguishing feature is that the springs are placed outside of the felly-plate in pockets suitably formed in the plates solid with the hub and that the inner ends of these springs are solid with axles fixed on the felly-plate and which project from each side of this plate. With such a construction the felly-plate is extremely light, the springs being outside this plate, and its inertia is very slight, which increases its sensitivity, and therefore the elasticity of the wheel. On the other hand, the springs bear constantly at their outer coil in the recesses in the side plates, and as they have their inner coil solid with the axles carried by the central plate or felly-plate it will be understood that these springs are forced to work constantly and simultaneously all at one time in all directions and on all the coils either under tension or compression or rolling strain and following all the radial directions into which they are brought by the movement of the felly-plate.

In the annexed drawing, Figure 1 shows one-half of a wheel, partly in section and partly in elevation; and Fig. 2 is a longitudinal section following a broken line to show the various details.

Referring to the drawing, the wheel comprises a central plate *a*, which carries the rim, and two side plates *b* and *c*, solid with the hub, rigidly connected together by the adjustable cross-pins *x* and kept at a suitable distance apart to allow of play from the central plate *a* in its plane.

In the plates *b* and *c* are the cylindrical housings or pockets *v* of variable number and distributed over the whole surface of the said plates. In these pockets are arranged the flat spiral springs *r*, bearing at their outer coil in the said pockets.

The central plate *a* has fixed thereto corresponding to the pockets *v* axles or spindles *f*, which enter from each side the center of these pockets and on which axles are fixed the inner coils of the springs *r*. This attachment is generally made by making the inner coil in the form of a cylindrical tube which is engaged on the corresponding spindle *f*.

The construction is completed by the provision of perforations *o*, formed in the plate *a* for the free passage of the hub and the cross-bolts *x* during the movement of the plate, and, if necessary, by the packing *y*, fixed on the plates *b* and *c* and intended to prevent mud and dust from penetrating between these plates and the central plate *a*.

It will be understood that each shock received by the rim causes the plate *a* to slide and by its spindles *f* to tighten all the spiral springs of which all the coils contribute simultaneously to the cushioning effect and then to restore the plate *a* to its normal position concentric with the axle.

The lightness and small inertia of the felly-plate are evident.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A spring-wheel comprising in combination a central plate carrying the felly, two side plates solid with the hub and provided with recesses or pockets formed therein, spiral springs located within said recesses or pockets, axles or spindles fixed to the central plate, extending from each side in the recesses or pockets and on which are fixed the inner coils of the springs, and means for keeping the two side plates at a suitable distance apart.

2. A spring-wheel comprising in combination a central plate carrying the felly, two side plates solid with the hub and provided with recesses or pockets formed therein, spiral springs located within said recesses or pockets, axles or spindles fixed to the central plate, extending from each side in the

recesses or pockets and on which are fixed the inner coils of the springs, adjustable cross-bolts connecting the two side plates, and perforations formed in the central plate
5 for the free passage of the hub and the cross-bolts.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

LOUIS ANDRÉ NOËL.

Witnesses:

ANTOINE LAVOIX,
HANSON C. COXE.