No. 877,005. PATENTED JAN. 21, 1908.

R. SCHWARZ.

ELECTRIC LOCOMOTIVE.

APPLICATION FILED OCT. 18, 1906.

Fig. 2

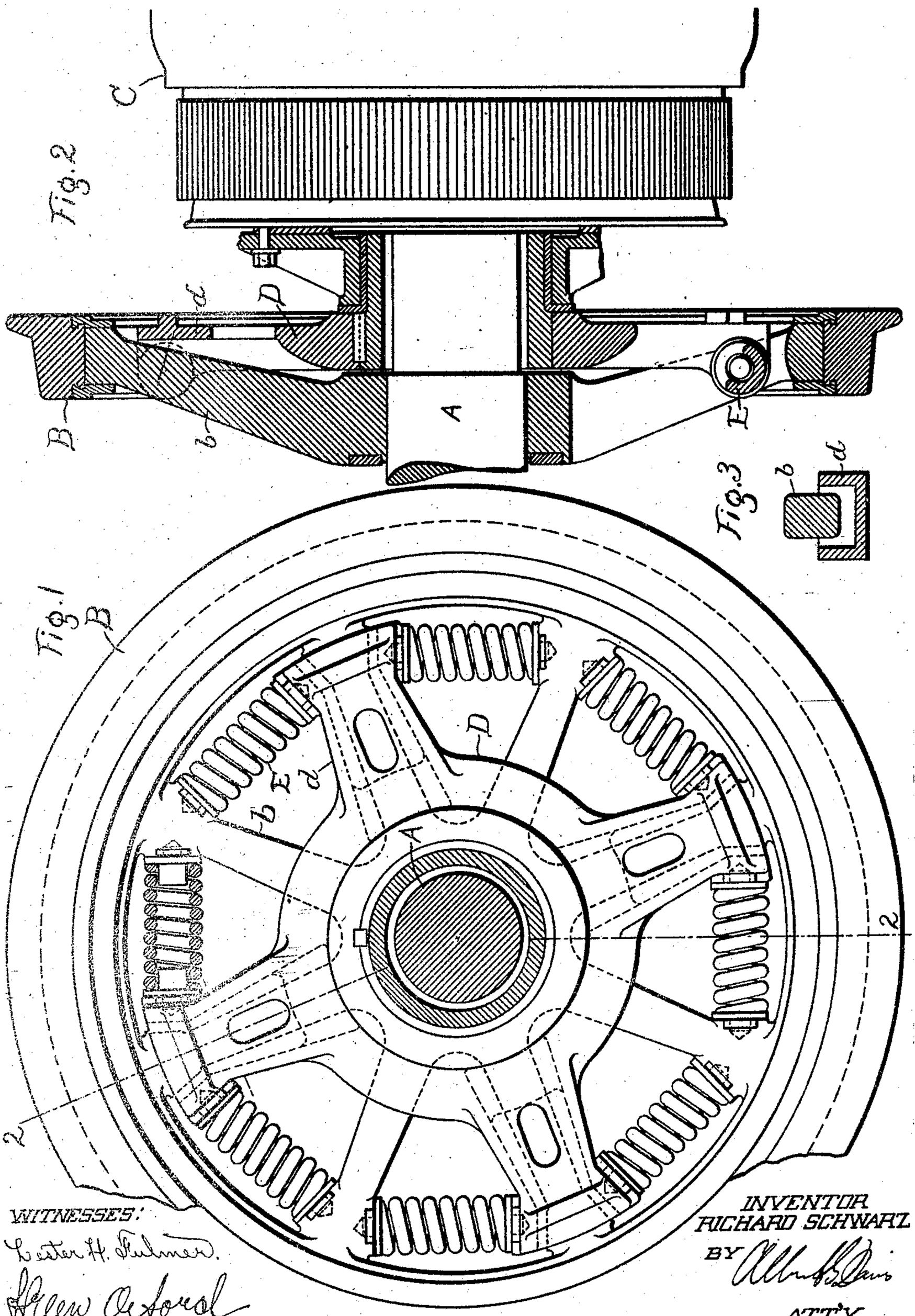

Fig. 3

Fig. 1

WITNESSES:

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UNITED STATES PATENT OFFICE.

RICHARD SCHWARZ, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC LOCOMOTIVE.

No. 877,005. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed October 18, 1906. Serial No. 339,497.

To all whom it may concern:

Be it known that I, RICHARD SCHWARZ, a subject of the Emperor of Germany, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Electric Locomotives, of which the following is a specification.

My invention relates to electric locomotives of the type in which the armatures of the driving motors surround the driving axles and have their torque transmitted to the driving-wheels by means of spiders connected to the driving-wheels by compression-springs; and its object is to provide a novel construction which, without sacrificing strength, renders possible the use of longer springs than has been possible heretofore.

Since the spokes of the driving-wheel must be large or numerous, and since the spokes of the spider must be brought into the plane of the spokes of the driving-wheel in order to avoid twisting strains on the springs, the spaces between the spokes of the spider and driving-wheel have been small with constructions used heretofore, so that short springs were necessary. If these short springs are made sufficiently strong, they become too rigid for satisfactorily relieving the armature from shocks. By my invention I am enabled to increase the length of spring, so as to obtain greater elasticity without decreasing the number or size of spokes. I accomplish this by making one set of spokes,—for instance, the spokes of the spider—hollow, so that each spoke of the spider can partly surround one spoke of the driving wheel. With this construction, if a spring is placed between one of the spider spokes and an adjacent wheel-spoke, the length of the spring may be almost as great as the distance between the spokes of the wheel.

My invention will best be understood by reference to the accompanying drawing, in which

Figure 1 shows an elevation of a driving-wheel and supporting spider viewed from the inside of the wheel with the armature removed; Fig. 2 shows a cross-sectional elevation of the same on the line 2—2 of Fig. 1; and Fig. 3 shows a cross-sectional detail view of the spokes.

In the drawings, A represents the driving axle, on which is mounted the driving-wheel B provided with spokes *b*.

C represents the armature of the driving motor, which loosely surrounds the axle A, and is carried by the spider D, which is provided with the spokes *d*. Each of the spokes *d* is made hollow, as shown in cross-section in Fig. 3, and partly surrounds a spoke *b* of the driving-wheel, there being space enough in the hollow spokes *d* to allow movement of the wheel spokes *b* therein. Compression-springs E are placed between each spoke *d* of the spider and the adjacent wheel-spokes *b*, which may support the weight of the armature besides transmitting the driving torque from the armature to the wheel. The length of these springs, as is seen from Fig. 1, is nearly equal to the distance between the spokes of the driving-wheel, so that a strong and yet flexible spring-support for the armature is obtained without reducing the number or size of spokes of the driving-wheel.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In an electric locomotive, a driving-axle, a spoked driving-wheel thereon, a motor armature surrounding said axle, a supporting spider for said armature, and compression-springs between the spokes of said wheel and said spider, one set of spokes being hollow and partly surrounding a portion of the spokes of the other set.

2. In an electric locomotive, a driving-axle, a spoked driving-wheel thereon, a motor armature surrounding said axle, a supporting spider for the armature having hollow spokes, each partly surrounding a spoke of said wheel, and compression-springs between the spokes of the spider and the adjacent wheel-spokes not surrounded thereby.

In witness whereof, I have hereunto set my hand this 17th day of October, 1906.

RICHARD SCHWARZ.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.