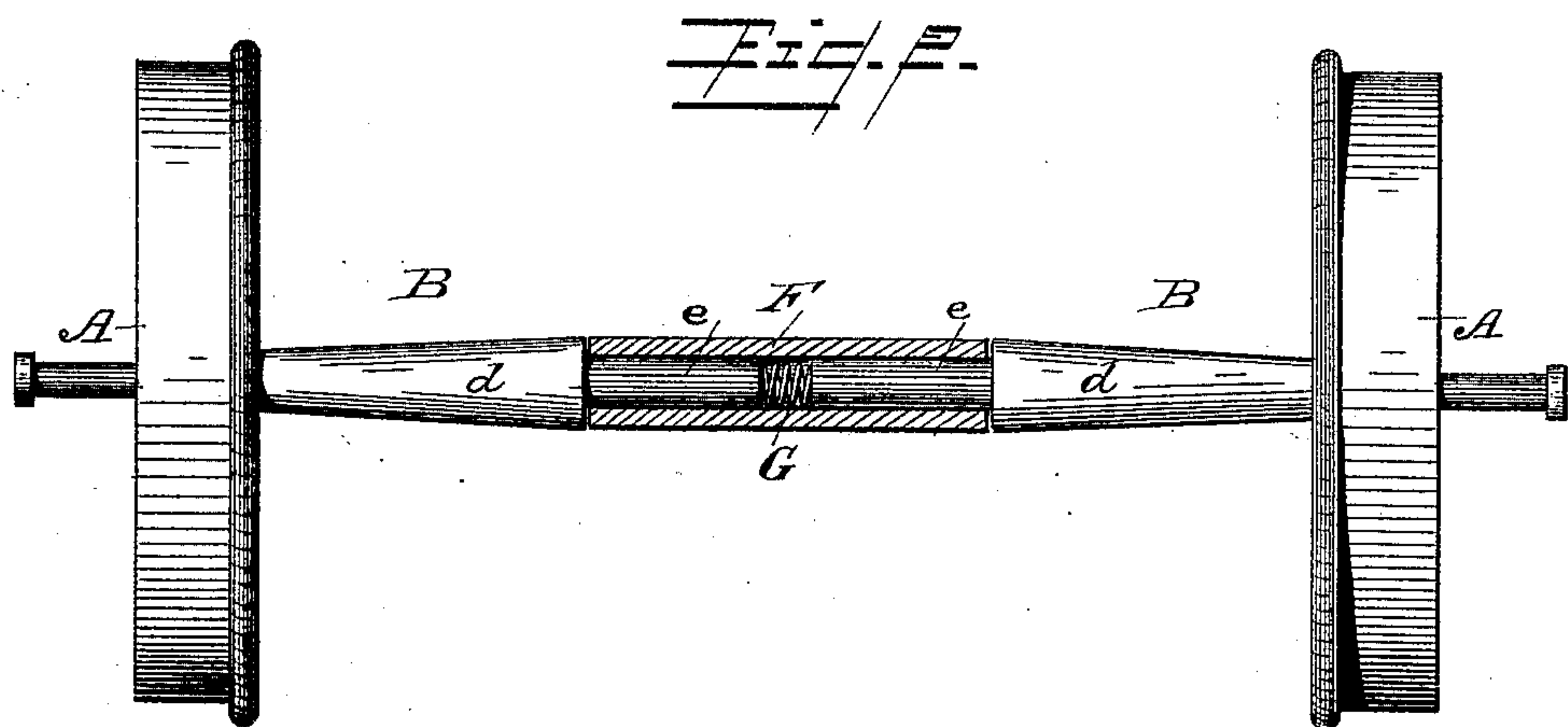
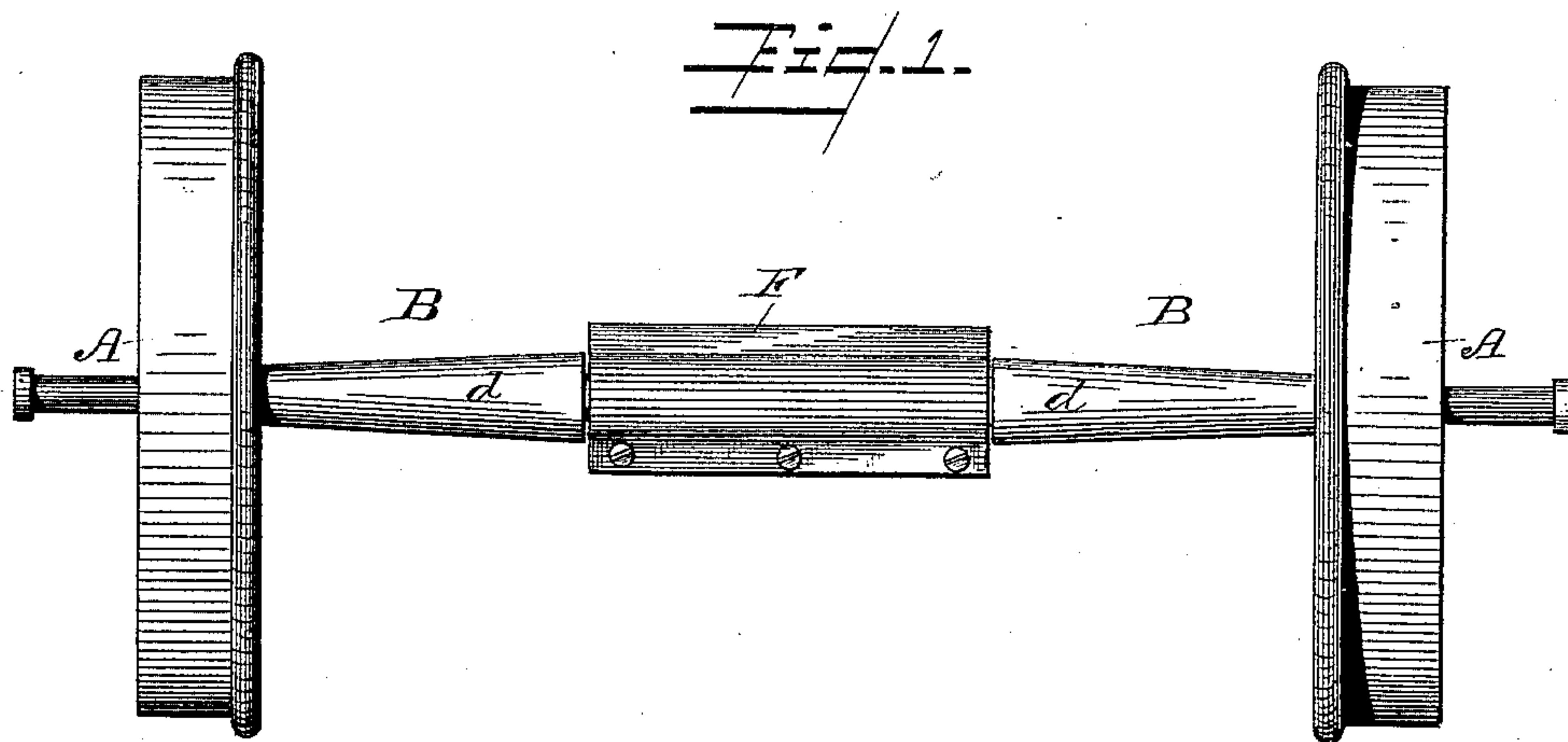


(No Model.)

F. J. HOYT.  
CAR AXLE.

No. 420,624.

Patented Feb. 4, 1890.



WITNESSES

Joseph Blackwood.  
W. G. Roolittle.

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Attorney

# UNITED STATES PATENT OFFICE.

FREDERICK J. HOYT, OF CHICAGO, ILLINOIS.

## CAR-AXLE.

SPECIFICATION forming part of Letters Patent No. 420,624, dated February 4, 1890.

Application filed April 6, 1889. Serial No. 306,209. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK J. HOYT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Axles; 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.

My invention relates to an improvement in the construction of car-axles; and its object is to relieve the car-wheels and rails from grinding and wearing away, due to the sliding and unequal pressure of the wheels on the rails when the cars are turning sharp curves or when switched.

My invention is designed for use alone on car-tracks in which switches or frogs of that character are employed by which the rails are made substantially continuous—as illustrated, for instance, in my former patent.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan, and Fig. 2 a similar view, partly in section.

Referring to the drawings, A are the ordinary car-wheels.

B is an axle in two sections, each formed with a hub *d* and a shaft *e*. The shafts *e* have their bearings in a hollow box F. This box may be cast in one piece, or formed, as shown, of two plates bolted together. In the center of the box is placed a spiral spring G. The shafts *e* of the axle are made to fit closely in the box, so that the box will revolve with the axle, but at the same time not so tightly as to prevent free endwise movement of the axle-sections. The axle-shafts are extended to near the center of the box, so as to bear against the spring G. When a curve is reached, the usual binding of the flange of the wheel or wheels on one side, which is caused by the faster running of the outside wheels, is obviated by the pressure of the outside shaft against the spring, which has the effect to force the inside axle-section outward, thus relieving the strain against the wheel on that side. The spring has also the effect to maintain an equal pressure on the flanges of the car-wheels when-

ever inequalities as to width of the track are met.

In order that the axle-sections may be retained within the sleeve, the spring is adjusted to only throw them out a certain distance, when it loses its effect. If, for instance, the tension on the spring were taken up by the pressure of the flanges of the wheels on the inside of each rail—say one-half of an inch—and the trucks were removed from the rails, the spring would force the axle out of the center of the box, or when its bearing is against the spring only one-fourth an inch each way or one-half an inch altogether. Again, when the trucks are set into the frame-work, the boxes that carry the end of the axle inside the wheel will permit of only such extension of the axle from the center each way as is deemed best for the working of the device. Therefore while a box is fitted on the axle over the center—that is, from two feet to eighteen inches long—with a spring between the ends of the axle in the center, which is in length, say, four inches, the box when open to its full capacity will still bear on the axle about nine inches on each side of the spring. Of course when the spring is compressed on the rails the flanges prevent the sections opening only so far. If removed from the rail, the boxes then prevent their opening only to a limited distance farther, so at all times when put together on the frame-work ready for service the sections can separate only a given distance.

What I claim is—

A car-axle in two sections, in combination with a central revolving hollow box, the said sections being provided with shafts *e*, that extend into near the center of said box, and which box forms the bearings of the shafts and revolves therewith, and a spiral spring held undetached in said box, and against which the ends of said shafts are adapted to impinge, substantially as described.

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

FRED. J. HOYT.

Witnesses:

JAS. H. BLACKWOOD,  
W. G. DOOLITTLE.