

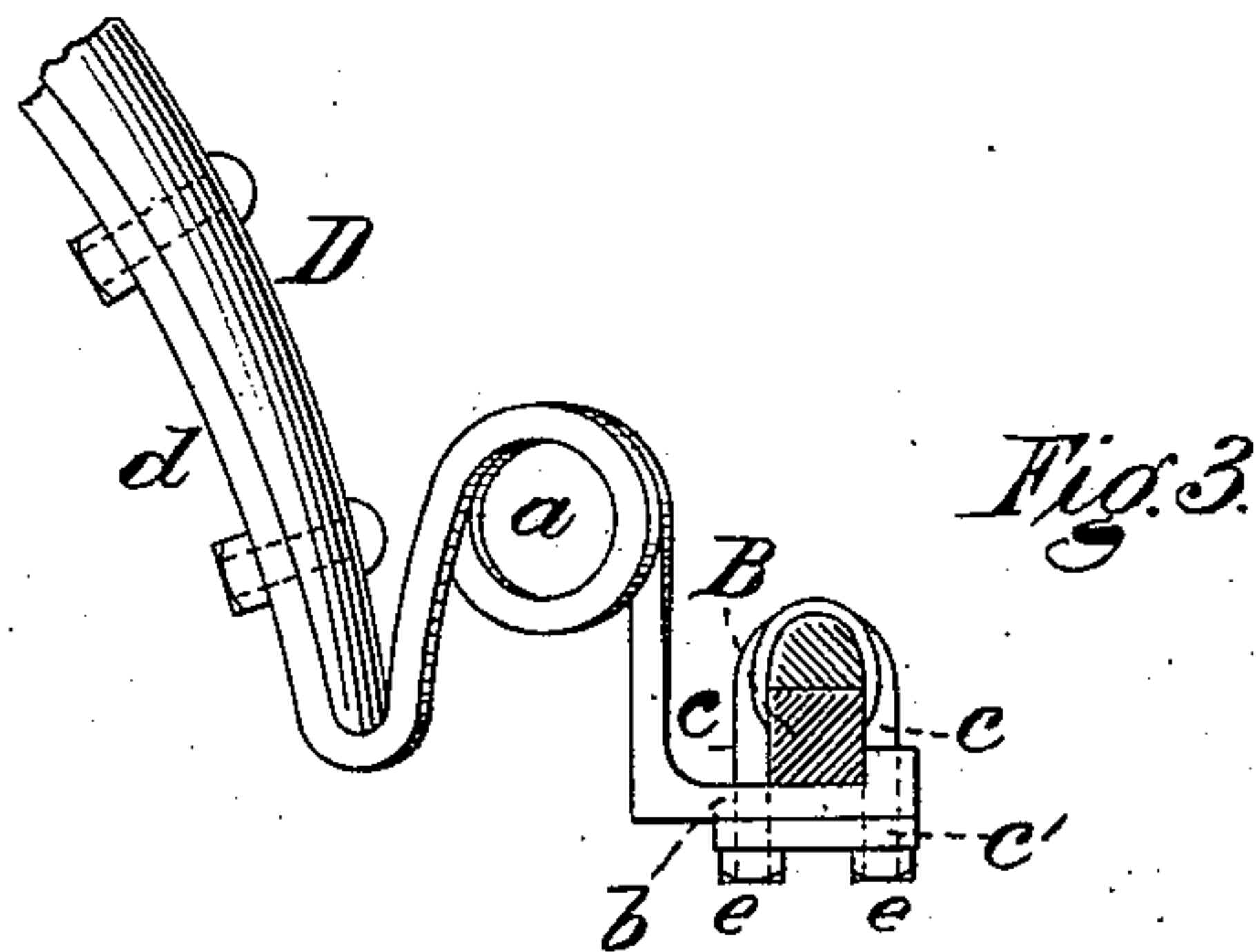
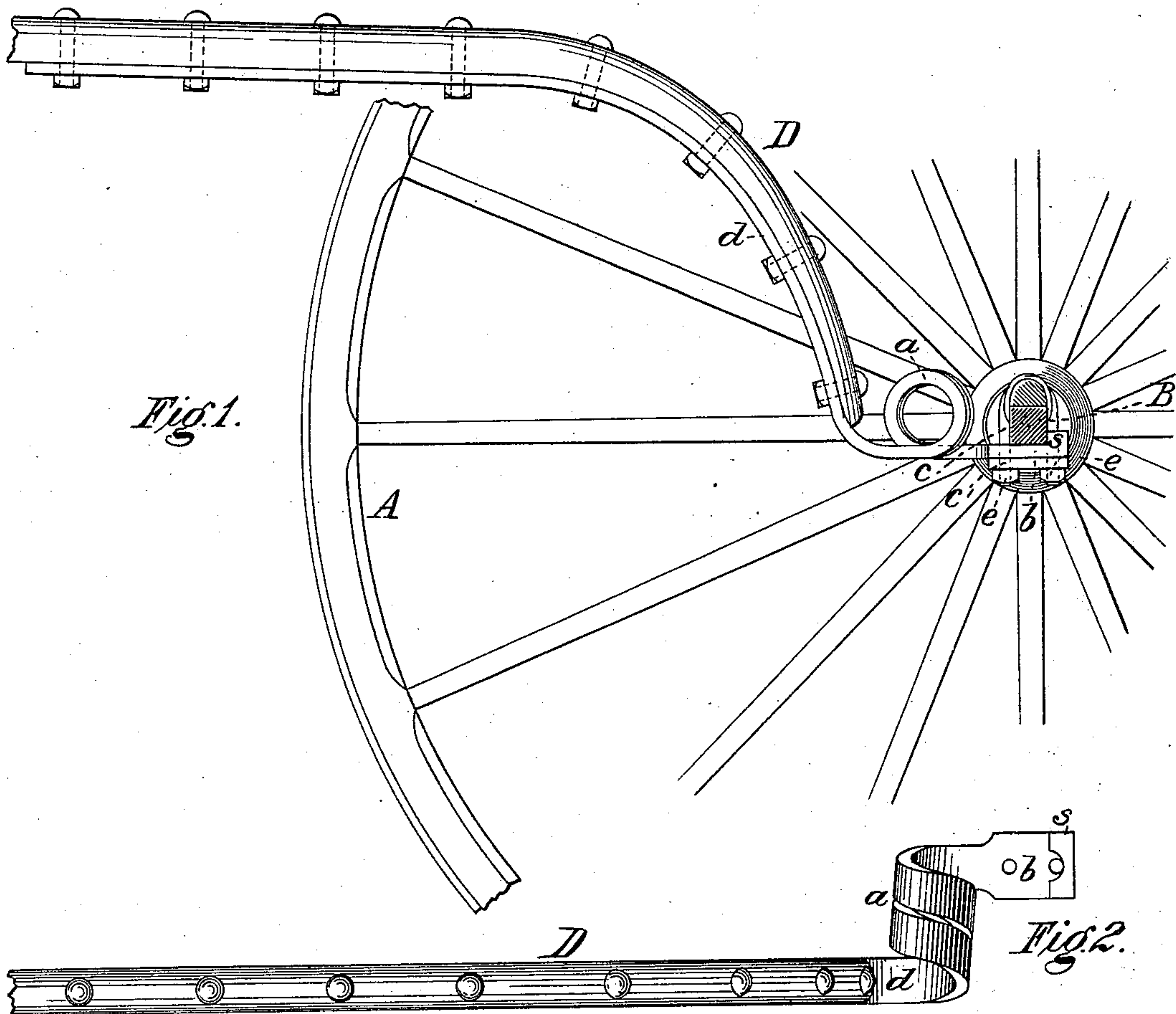
(No Model.)

W. A. SCOTT, Jr.

THILL COUPLING.

No. 332,952.

Patented Dec. 22, 1885.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM A. SCOTT, JR., OF PITTSBURG, PENNSYLVANIA.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 332,952, dated December 22, 1885.

Application filed July 6, 1885. Serial No. 170,691. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. SCOTT, JR., residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered a certain new and useful Improvement in Carriage-Thill Connection, of which improvement the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view in elevation, showing my improved thill coupling or connection as applied to a carriage-axle and to the rear end of a carriage-thill. Fig. 2 shows the coupling or connection in top or plan view, and Fig. 3 by a detached side view illustrates the same in a modified form.

My improvement is designed to get rid of the objectionable rattle ordinarily incident to the use of jointed connections between the thill or thill-frame and the carriage or the running-gear thereof, and it relates more particularly to the introduction of a flexible resilient coil of steel or like material between the thill or thill-frame proper and a permanent fastening to the carriage or its gear.

In the drawings, A represents a carriage or other vehicle wheel; B, its forward axle, and D the rear end of a thill.

The thill iron or strap *d*, instead of terminating at its rear end, as usual, in the eye-half of a coupling-joint, is bent or coiled one or more turns into a spring-coil, *a*, and an extension or prolonged end, *b*, passes under, or in other suitable relation to the axle B, so as, by a clip, *c*, clip-bar *c'*, and nuts *e*, or by other suitable known devices of like function, to be fixedly connected with the axle, as illustrated, or to other desired part of the carriage or other vehicle or to its running-gear.

The material employed is preferably steel, and the part coiled is to be of such size in cross-section and of such temper or quality that it will combine the necessary strength as against breakage, and also the necessary flexibility and resiliency, by which the thills may be used with their forward ends at the varying heights from the ground incident to such use. The number of coils is not material,

though ordinarily one or two will suffice, nor is the direction of coiling material.

In Fig. 3 I have shown the coil as the reverse of that in Figs. 1 and 2, and while I believe a softer comparatively low grade of steel to be the best for the use described, other suitable flexible resilient metal may be employed in the manner set forth.

As the connection of the rear end, *b*, with the axle is fixed or lacks the movability of one part on another which appertains to the ordinary thill-coupling, it obviously cannot rattle or become a source of annoyance to the occupants of the carriage, either by wear or otherwise. The coil being subject to no wear, cannot wear out, so that expense for repairs is entirely obviated. By the use of suitable machinery it can be made at about the same or even at a less cost than the ordinary jointed coupling, with rubber cushioning or pressure blocks, and being practically indestructible its great utility is obvious. To secure greater strength, the extreme rear end of *b* is bent up or has a rib, *s*, which bears against the rear side of the axle; but this is not obviously essential.

I am aware that spiral springs—*i. e.*, a spring having its convolutions arranged in the same plane and at right angles to the axis thereof—have been arranged between the axle and the rear end of the shaft or thill; but this construction of spring is objectionable, for the reasons that the shaft or thill is held a considerable distance away from the axle and the convolutions project below the axle, thus rendering the connection unsightly in appearance, and for the further reason that it is necessary to transversely bend or twist a portion of the spring in order to connect it with the thill or coupling; but I am not aware that helical springs—*i. e.*, springs having their convolutions in different planes—have ever been used, the advantages arising from the use of such springs being that the rear end of the thills can be brought close to the axle, and the spring can be connected to the axle and thills without any transverse bending or twisting of the spring-bar, thereby avoiding any weakening of the spring incident to such trans-



verse twisting; and, further, the helical spring can be arranged in the same plane as the axle on either side of the thill ends, thus effecting a compact and strong arrangement of the parts.

5 I claim herein as my invention—

1. In a thill-connection, a helical coil, *a*, between the thill and the axle, said spring being parallel with the axle and in the same plane therewith, substantially as set forth.

10 2. A thill-strap, *d*, having a helical spring-

coil, *a*, and a rear extension, *b*, by which to make connection with the vehicle, said strap and rear extension being tangential to the coils, substantially as set forth.

In testimony whereof I have hereunto set 15 my hand.

WILLIAM A. SCOTT, JR.

Witnesses:

DARWIN S. WOLCOTT,  
R. H. WHITTLESEY.