(No Model.)

H. B. WILLIAMS.

CAR SPRING.

No. 496,144. Patented Apr. 25, 1893.

Fig. 1.

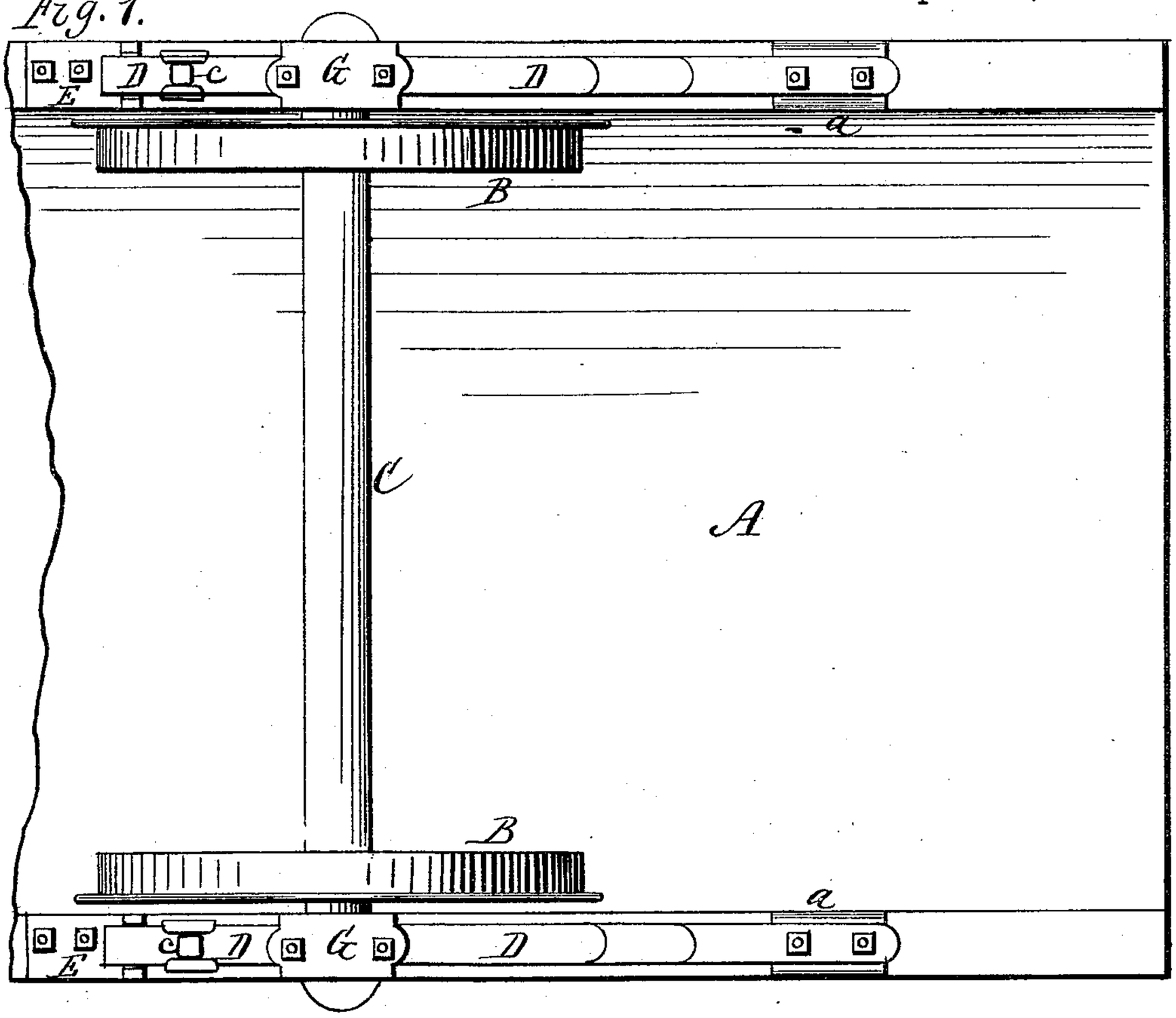

Fig. 2.

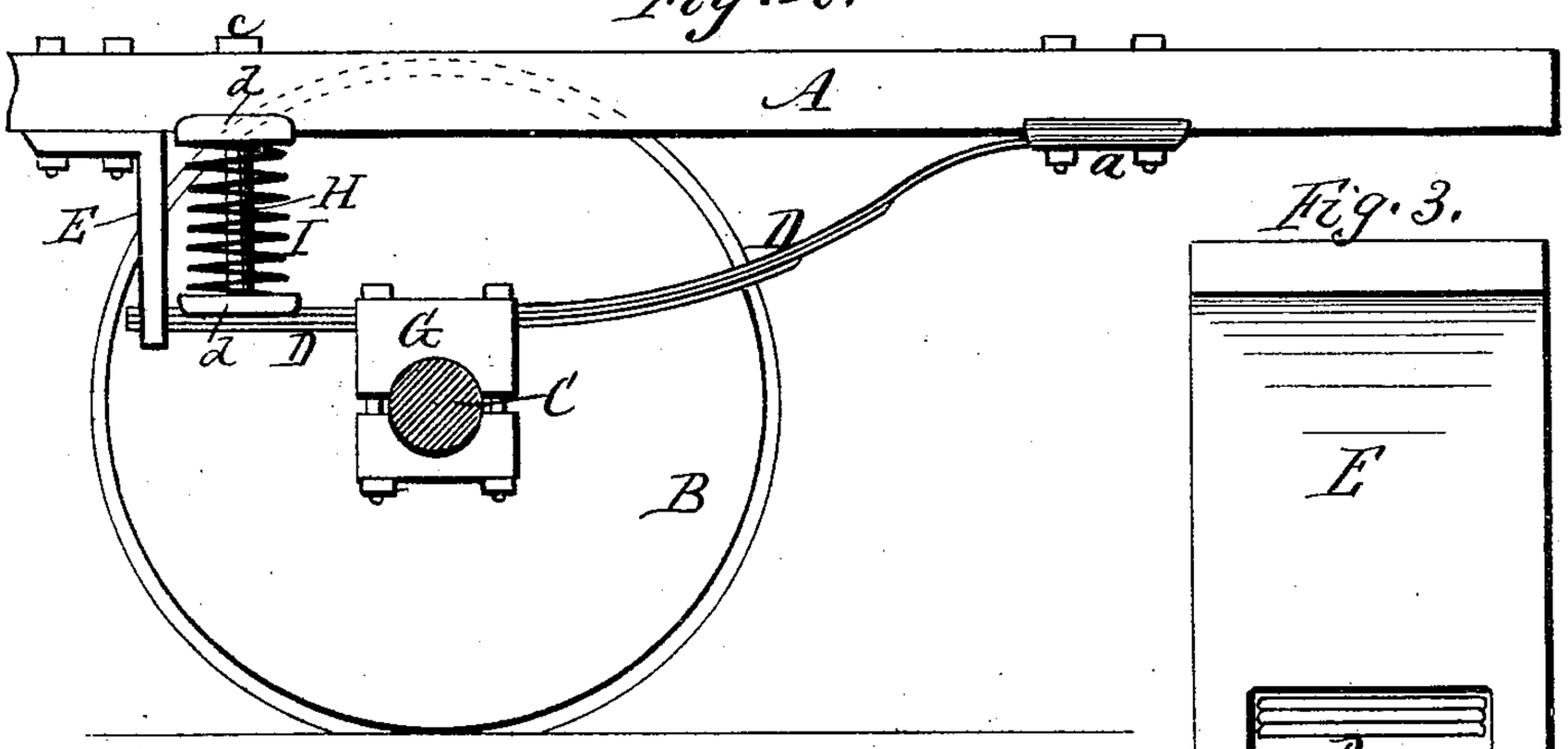

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY B. WILLIAMS, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO LEMUEL A. JEFFREYS, OF SAME PLACE.

CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 496,144, dated April 25, 1893.

Application filed May 28, 1891. Serial No. 394,440. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. WILLIAMS, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Car-Springs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this specification.

My improvement relates to the springs and running gear of railway cars, particularly street cars, and consists in the combination of spiral and flat springs, so arranged that when the full capacity of the spiral springs is exhausted by a heavy load, the flat springs still retain their elastic action, thus insuring easy movement, all as hereinafter described.

In the drawings—Figure 1 is a bottom or under side view of one end of a street car showing my improvement. Fig. 2 is a central, vertical section. Fig. 3 is a face view of the guide piece for the flat springs.

A indicates the car, B B the wheels, and C the axle, connected with or forming one truck. Two of these trucks are used on a car, each having two wheels, as shown. My improvement is as follows:—

D D are the flat springs, one on each side. They are preferably leaf springs to give the necessary strength and stiffness. At the front end they are bolted or otherwise secured to the bottom of the car, or to the sills, by means of a clip plate *a*. From this point they curve downward and then extend horizontally to the rear, their rear ends resting freely in a notch or guideway *b*, of a guide block E, bolted to the sills and extending down vertically, as shown in Fig. 2. This allows the springs free action and prevents them from getting out of place. To these flat springs are attached the boxes G G, which rest on the axles. These boxes serve as the fulcrum, and as the springs are connected with the car at opposite ends, they bend over the boxes and thus give elastic action to the car.

H H are vertical bolts, having their bearing on top of the flat springs back of the boxes, and passing loosely up through the sills, where they are provided with heads *c c*, that prevent them from drawing through. Around these bolts are stiff coiled springs I I, which rest between wear plates *d d*, under the sills, and on top of the flat springs.

In use both sets of springs act conjointly to sustain the load. In case of heavy loads when the spiral springs are depressed so that they stiffen and lose their elastic action to a great degree the flat springs still retain sufficient elastic action to give ease to the movement. The two combined act more efficiently than either would alone, for the tendency of the spiral springs is to stiffen while the flat springs alone are too elastic in action. This construction is specially applicable to street cars and by reason of its simplicity saves great expense over the trucks in common use.

Having described my invention I do not claim broadly two springs resting one upon the other and supported by the axle, but

What I claim as new, and desire to secure by Letters Patent, is—

In a street car, the combination, with the flat spring D, attached at its front end to the car, its rear end being free and projecting back of the axle, of the fixed block E provided with the guide way *b* in its lower end, the free end of the spring playing in said guide way, and the spiral spring I located in the rear of the axle and resting on the free end of spring D, as shown and described and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HENRY B. WILLIAMS.

Witnesses:
R. F. OSGOOD,
WM. J. MCPHERSON.