

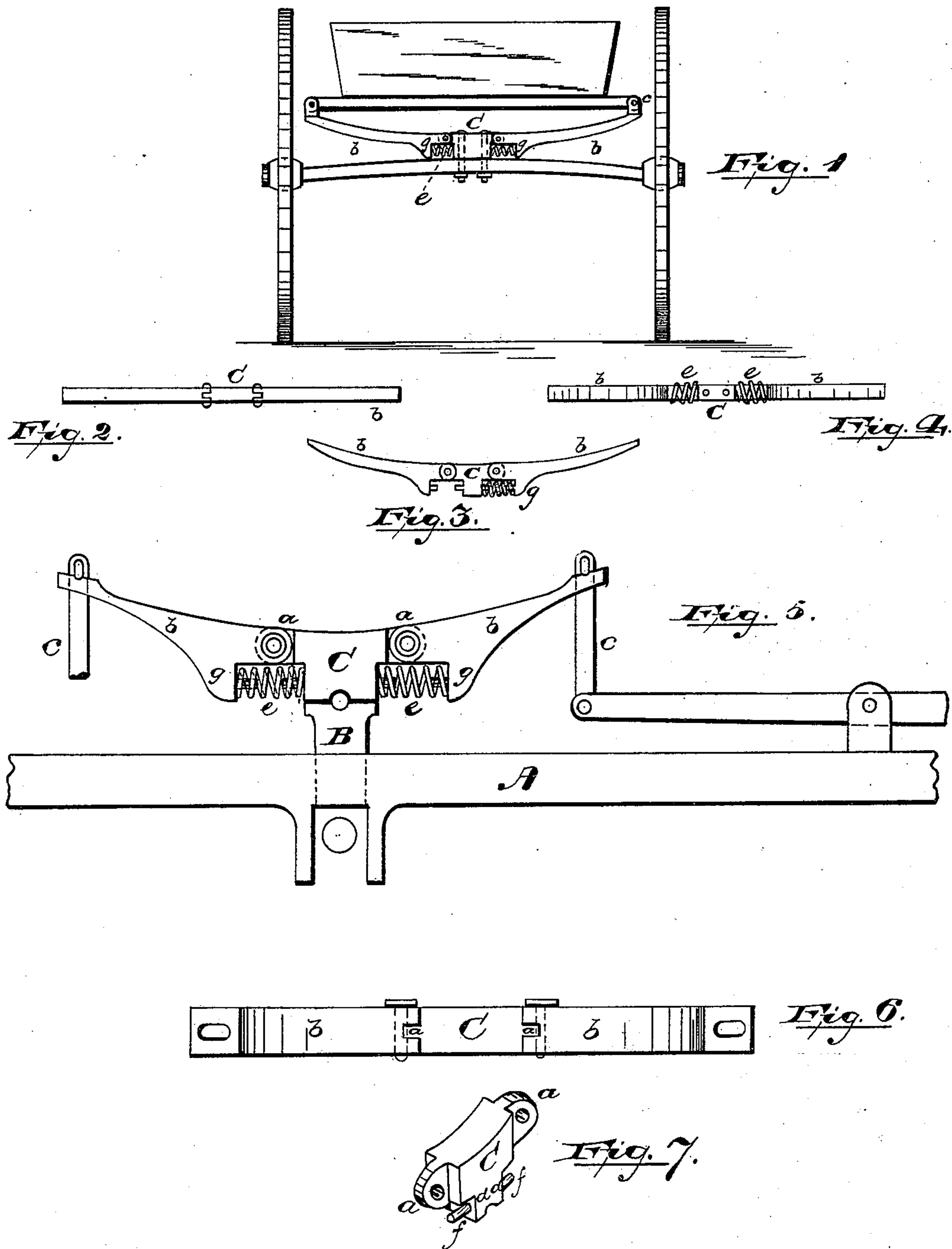
(No Model.)

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LOCOMOTIVE SPRING.

No. 350,629.

Patented Oct. 12, 1886.



WITNESSES:

INVENTORS:

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UNITED STATES PATENT OFFICE.

ROBERT H. ILLINGWORTH, OF JERSEY CITY, AND DE WITT C. SMILEY, JR.,
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LOCOMOTIVE-SPRING.

SPECIFICATION forming part of Letters Patent No. 350,629, dated October 12, 1836.

Application filed November 9, 1885. Serial No. 182,212. (No model.)

To all whom it may concern:

Be it known that we, ROBERT H. ILLINGWORTH and DE WITT C. SMILEY, Jr., citizens of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, and Newark, Essex county, New Jersey, respectively, have invented certain new and useful Improvements in Springs for Locomotives and other Vehicles; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide, at a reduced cost of manufacture, a spring for use more especially in locomotives, railway-cars, and other vehicles, that will be more durable and avoid the great loss now sustained through the breakage of elliptic springs now very generally in use.

The invention consists in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the several figures, Figure 1 is an end elevation of a vehicle to which the improved spring is attached. Figs. 2, 3, and 4 are respectively top, side, and bottom views of the spring in detail. Fig. 5 is a side view of the device as applied to locomotives. Fig. 6 is a top view of the same, and Fig. 7 is a view in perspective of a certain central bearing block or piece.

Heretofore helical springs have in some cases been employed in connection with bearing arms or levers in certain respects resembling those herein shown; but in the cases referred to the devices have been complicated and expensive, and defective in that the springs in said devices have been arranged in sockets beneath central pivotal joints, so that should one of said springs break the removal of the broken parts and the substitution of a new spring would involve great labor and expense of time. Again, in carriages oppositely-extending arms have been centrally pivoted upon a single pin

arranged in suitable bearings, and have rested upon caps, beneath which vertical spiral springs have been stationed. This construction is defective, and especially so for locomotive purposes, in that the vertical arrangement of the springs takes up more room than ordinarily is afforded by the peculiar construction of the frame and other co-operating parts of the said locomotive to get the necessary play.

In the improved device, by simply raising one of the levers by a jack the broken spring may be easily replaced by another without the trouble referred to, and the spring-arms may be brought quite close to the frame.

In the said drawings, A indicates a portion of a locomotive frame or truck with which my improved device is connected. B is a bearing, which forms a portion of the journal-box of the driving-wheel. C is a bearing or block, which is supported on said bearing B. This takes weight on its opposite sides of the frame or truck and the car, &c., thereon. Said block C separates the two horizontal springs, so that they may act independently of one another, and is provided with ears or pivotal or fulcrumal bearings *a* on opposite sides thereof, to receive oppositely-projecting arms *b*, which take the weight of the body of the vehicle from hangers, straps, or portions *c*, which are in one way or another connected with the body of the vehicle. Below said ears, on the opposite sides of the block C, are seats *d d*, to receive the inner ends of helical springs *e e*, which latter may be held on said seats by pins *f f* or other suitable means. The said springs *e e* are arranged horizontally on each side of the center bearing and work horizontally, to allow a full spring action to be gained without consuming or occupying undue vertical space.

Upon the pivotal or fulcrumal bearings *a a* are arranged the arms *b b*, which latter are provided with depending bearings *g g*. These are disposed at points opposite or approximately opposite the seats *d d*, and co-operate with said seats to hold the springs in position. Pressure brought to bear on the extremities of the arms is received by the springs and transmitted to the central bearing.

The springs are preferably made in accordance with the weight they are to bear, the

spring on the side of the center bearing corresponding with the heavy end of the locomotive being made much heavier than that on the opposite side corresponding with the less weighty end. This feature is of much importance in balancing the locomotive, as will be evident. By the construction described the accessibility of the springs is apparent.

The invention can be applied to wagons, trucks, carriages, and other vehicles, as will be seen upon reference to Fig. 1, and be used with the best results.

Having thus described the invention, what we claim as new is—

1. In combination with the frame A and hangers *c* of a locomotive, the central bearing-block, the oppositely-extending arms pivoted thereon, and horizontally-arranged springs separated by said block, said springs having their bearings on or between the sides of said

block and depending bearings of said arms, substantially as and for the purposes set forth.

2. The improved spring herein shown and described, combining therein a central bearing-block, C, having pivotal bearings *a a* and side spring bearings or seats, *d d*, oppositely-extending arms *b b*, pivoted on said bearings *a a* and provided with depending bearings *g g*, and horizontal springs *e e*, separated by the central block and arranged between said block and depending bearings, all substantially as and for the purposes set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 28th day of October, 1885.

ROBERT H. ILLINGWORTH.

DE WITT C. SMILEY, JR.

Witnesses:

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