

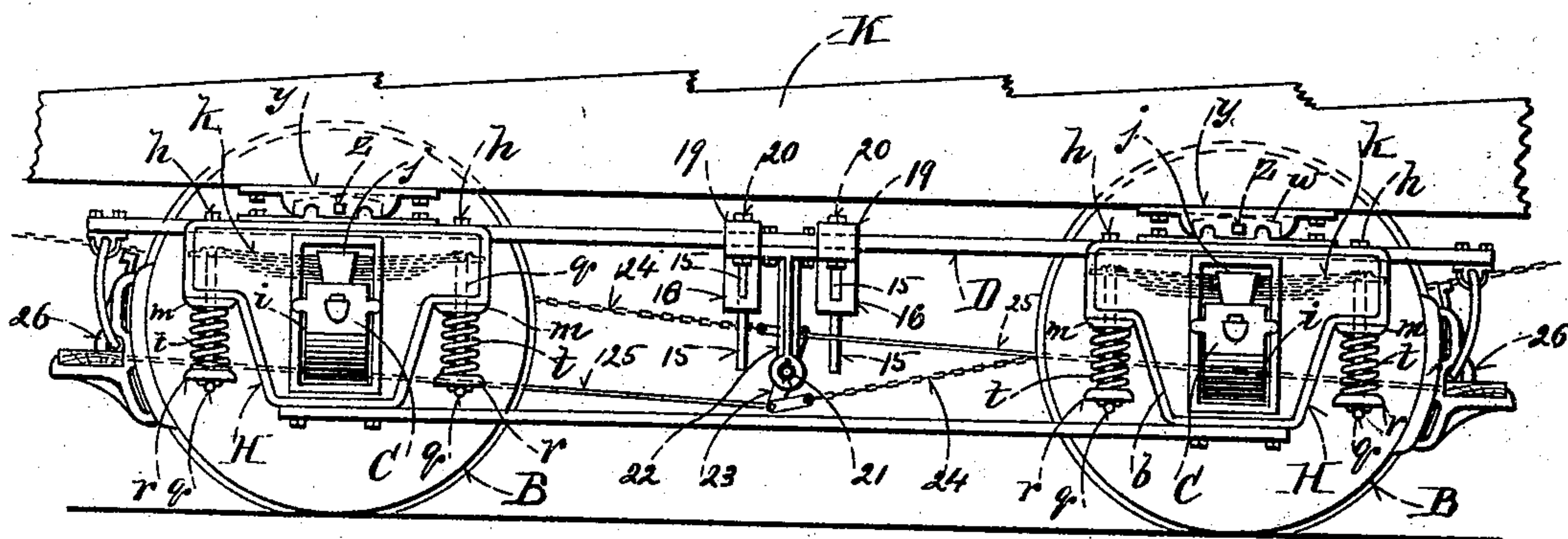
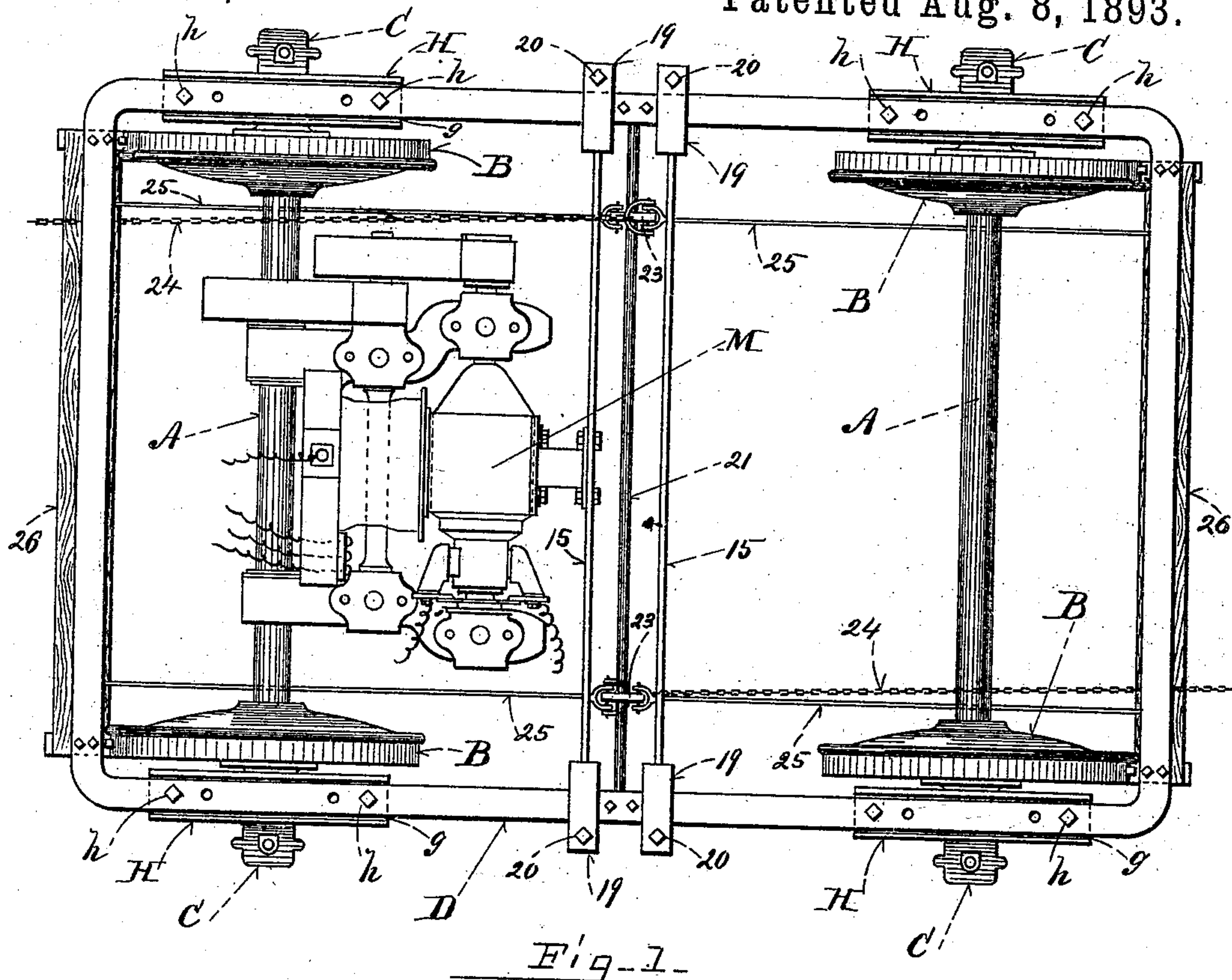
(No Model.)

2 Sheets—Sheet 1.

J. H. GRAHAM.
CAR TRUCK.

No. 503,044.

Patented Aug. 8, 1893.



WITNESSES=
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Fig. 2.

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(No Model.)

2 Sheets—Sheet 2.

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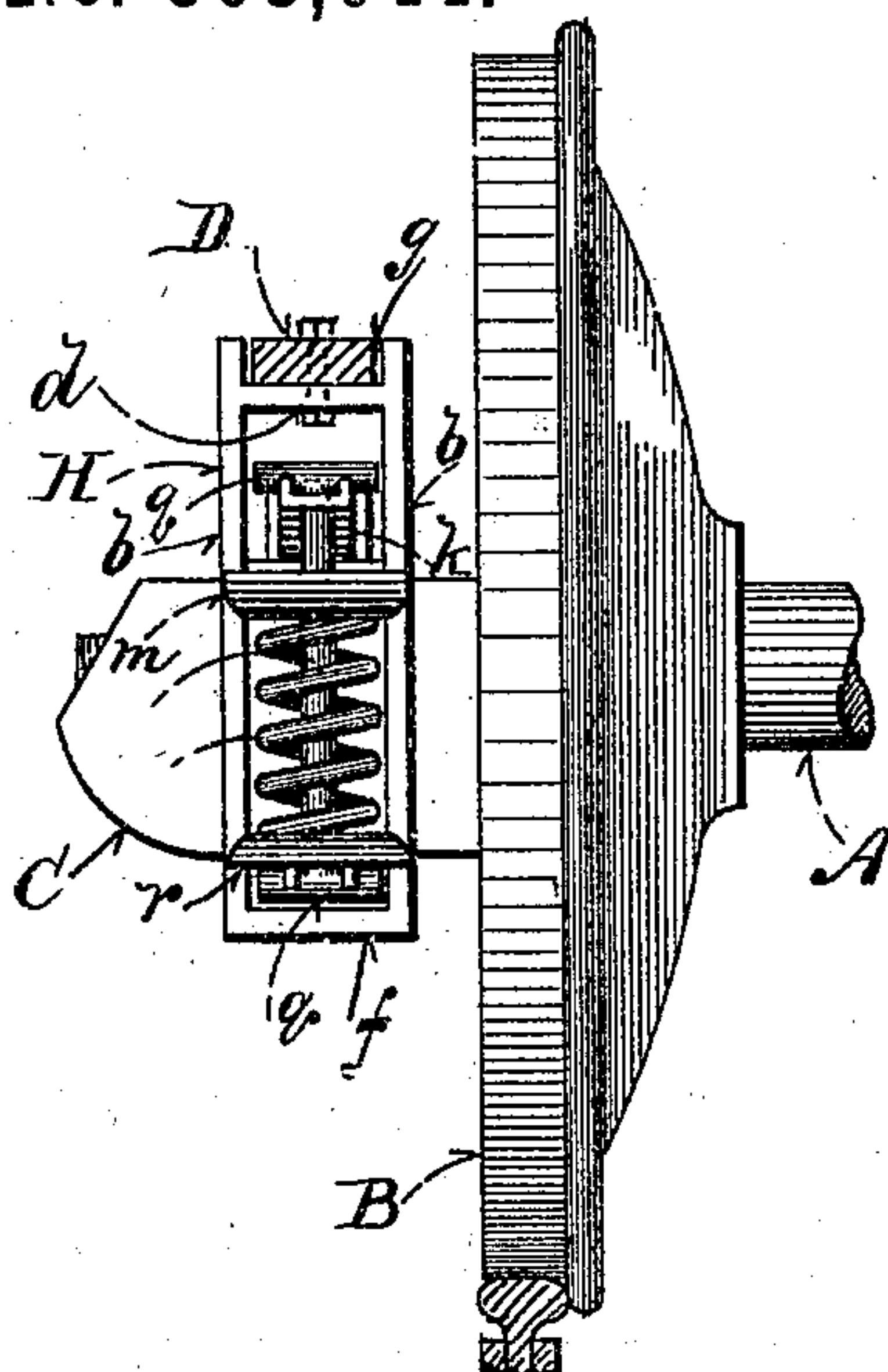


Fig-4-

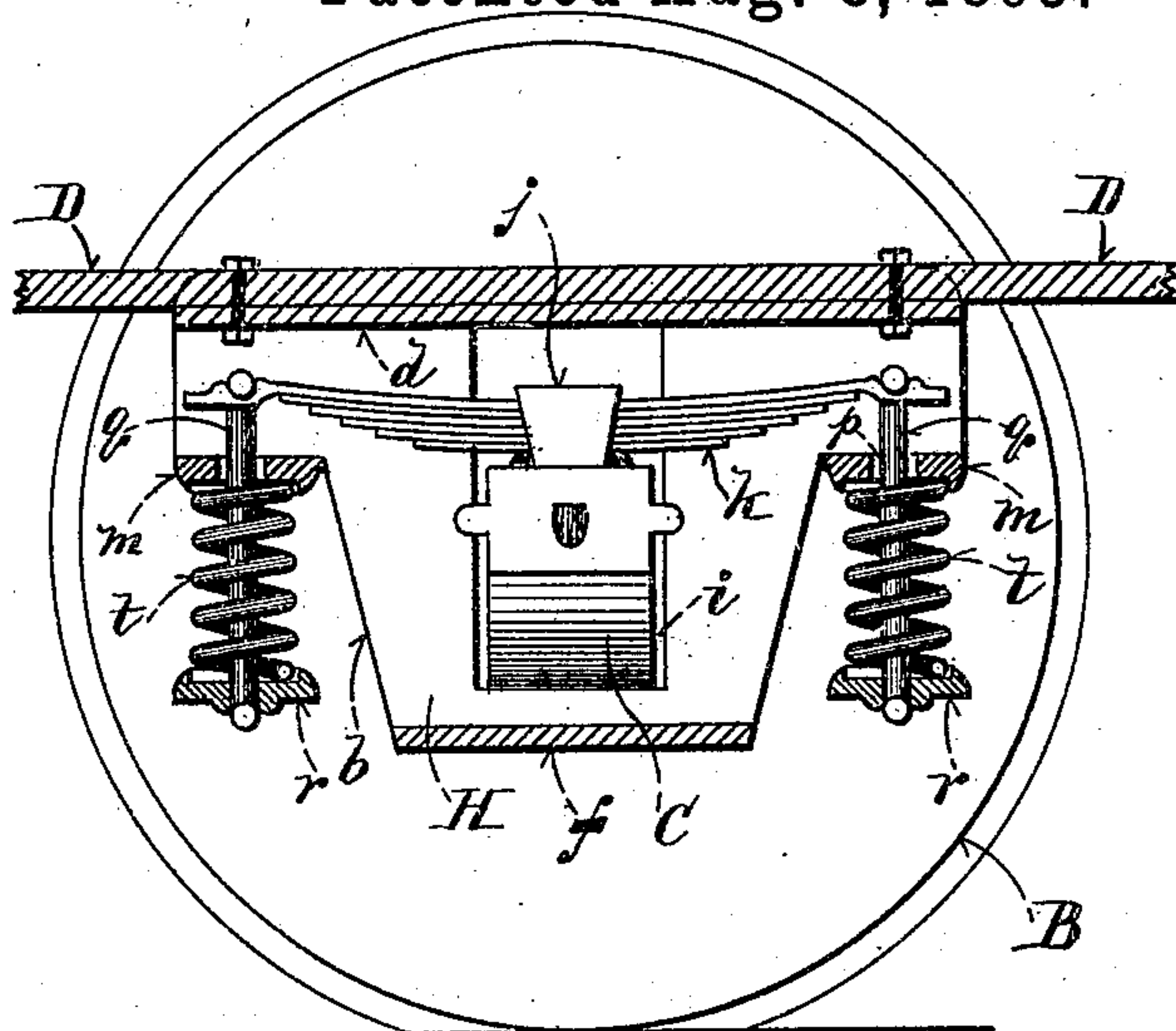


Fig-3-

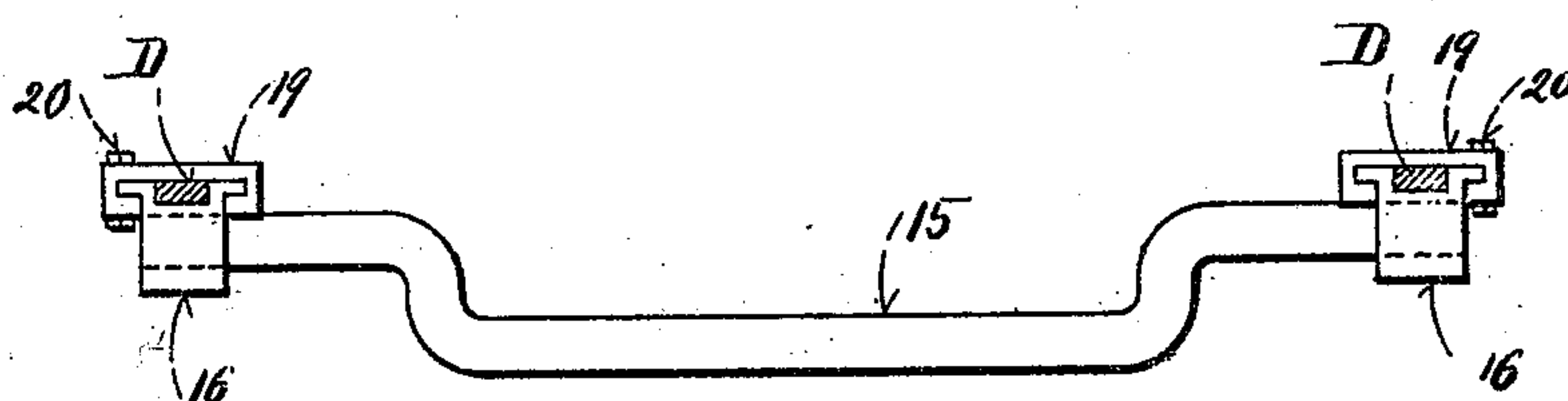


Fig-5-

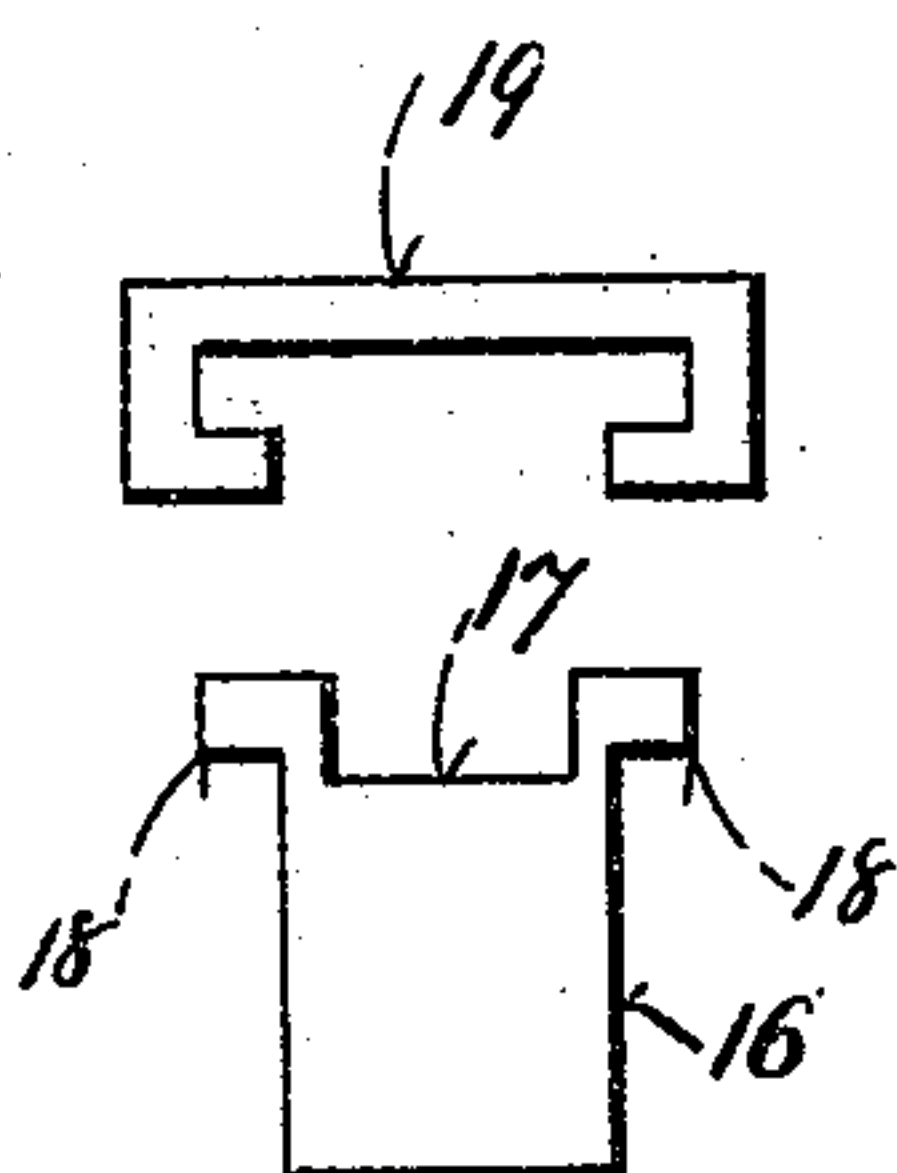


Fig-6-

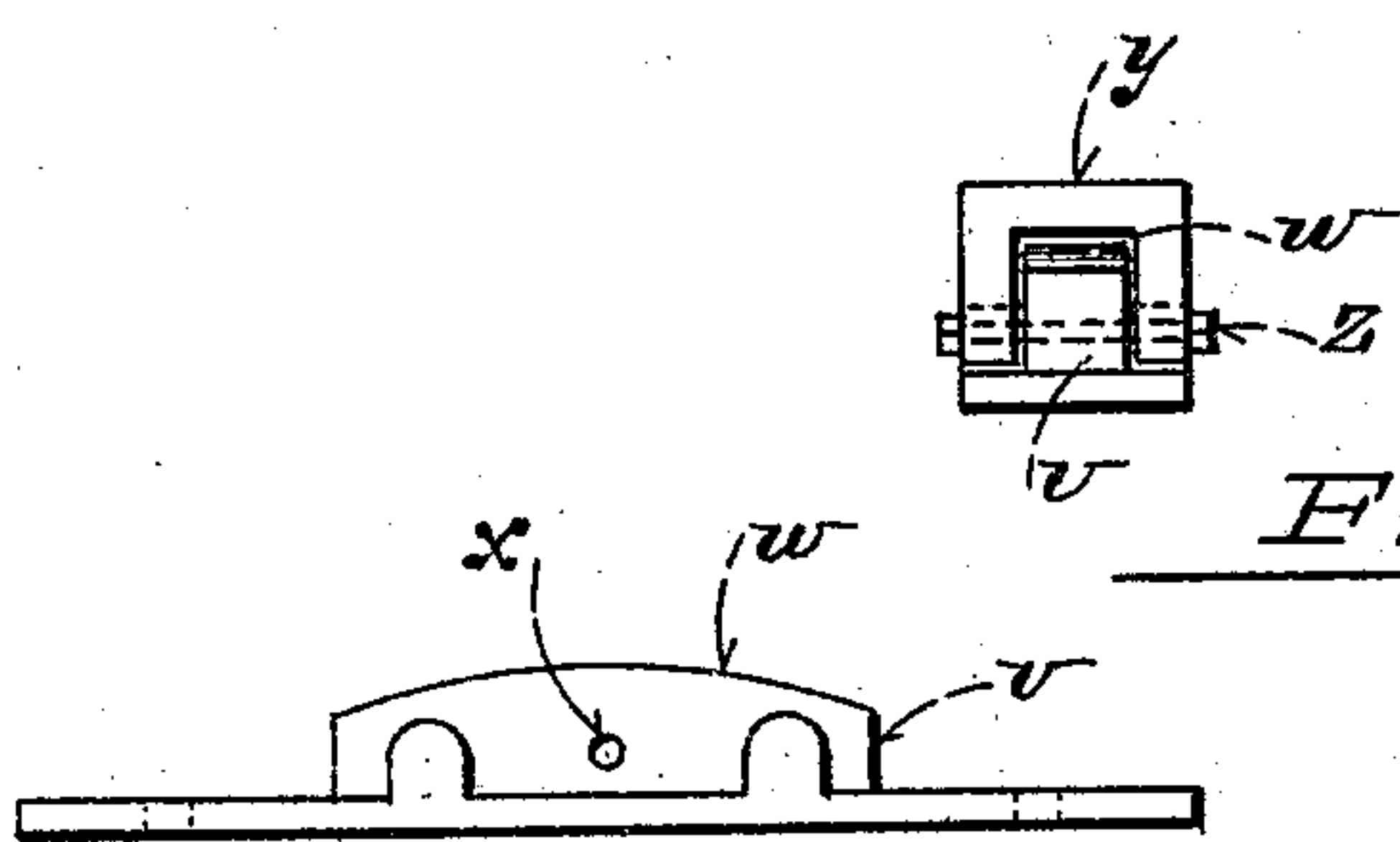


Fig-7-

Fig-B-

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UNITED STATES PATENT OFFICE.

JOHN H. GRAHAM, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE CONSOLIDATED RAILWAY SUPPLY COMPANY, OF SAME PLACE, AND OF PROVIDENCE, RHODE ISLAND.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 503,044, dated August 8, 1893.

Application filed February 6, 1893. Serial No. 461,279. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GRAHAM, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and
5 useful Improvements in Cars, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings,
10 forming part of this specification, in which—

Figure 1 is a top plan view of my improved street-car truck; Fig. 2 a side elevation of the same; Fig. 3 a side elevation enlarged showing the pedestal and method of mounting the
15 truck frame on the axles; Fig. 4 an edge elevation of the same; Fig. 5 a front elevation of one of the arch-bars; Fig. 6 elevation showing the arch-bar locking mechanism; Fig. 7
20 an end elevation of the castings connecting the frame and car-body; and Fig. 8 a side elevation of the pivot-block.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.
25

My invention relates especially to improvements in trucks for electrically propelled street-cars, and a brake-mechanism therefor; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation:
35

In the drawings, A represents the car-axles supported on wheels, B, and bearing journal-boxes, C, in the ordinary manner.
40

The truck-frame, D, is approximately rectangular and comprises a flat metallic-bar. Said frame is mounted on the pedestals, H, supported on the boxes, C. These pedestals
45 comprise two parallel plates, b, connected near their tops by a cross-piece, d, and at their lower ends by a similar cross-piece, f. The sides, b, are extended vertically above the cross-piece, d, forming a groove, g, longitudi-

nally of the pedestal in which the frame, D, rests and is secured by bolts, h. The pedestal is provided centrally with a transverse opening through which the journal-boxes, C, project.

Mounted centrally in a suitable clamp, j, secured on the top of the journal boxes between the side-plates, b, of the pedestal there is a half-elliptical spring, k, curved vertically upward and containing as many leaves as will afford sufficient rigidity for the purposes hereinafter described. At each end the side-plates, b, of the pedestal are connected by a cupped-piece, m, disposed vertically under the ends of the spring, k, and provided with a central opening, p, shown in Fig. 3. A T-rod, q, is
50 55 60 65 70 passed through said opening and through the end of the spring, k. On the lower ends of said rods and supported by their heads there are cups, r. Resting in said cups and butting in the rigid cup, m, there are spirally-coiled springs, t, of like tension in relation to the semi-elliptical spring.

The weight of the car-body on the truck-frame, D, forcing the pedestals downward is cushioned by the coiled springs, t. As the load on the car increases these springs still serve to cushion it until their limit is reached when the downward pull on the T-rods, q, for any further increase of the load, is supported by the semi-elliptical springs, k. By this arrangement of parts and springs, all variations in the load on the car are cushioned effecting a result not attainable by the coiled-springs in ordinary use which are of necessity so wound to resist the maximum load on the car that they will not compress to cushion a light load, or the weight of the car-body.
75 80 85

Centrally over each pedestal a pivot-block, v, is bolted to the frame, D. This block is shown in Fig. 8, and comprises a vertically curved head, w, through which a bolt-opening, x, is formed. An approximately U-shaped casting, y, (see Fig. 7) is bolted to the car-body, K, and astrides the head, w, of the pivot-blocks, said blocks engaging within said castings and forming the bearing-points of the car-body on the truck-frame. Bolts, z, passing through the sides of the casting and
90 95

the opening, α , of the pivot-block head, secure the same together.

The motor, M, of which one or more may be employed in the ordinary way is supported from the axle, A, at one side and an arch bar, 15, connecting the side-bars of the truck frame, D. The ends of the arch-bar, shown in elevation in Fig. 5, pass through locks, 16, which are provided on their upper faces with a groove, 17, of size suitable to receive the side-bars of the frame. Flush with said groove the blocks, 16, are provided with laterally projecting flanges, 18. A dovetailed cap or locking block, 19, (see Fig. 6) receives the flanged heads of the blocks, 16, locking the frame therein. One of these arch-bars, 15, is employed for each motor. The blocks, 19, are held by bolts, 20, (see Fig. 2).

A brake-mechanism for the truck comprises a rock-bar, 21, supported and fitted to rotate in brackets, 22, bolted to the frame, D, between the arch-bars. Fast or loose on said lock-bar as may be deemed preferable there are two cranks or levers, 23, fitted to swing vertically. A chain, 24, connects each crank or lever by an end with the ordinary brake-staff. The opposite end of said levers, 23, are connected by rods, 25, with the brake-beam, 26, hung from the truck-frame in the ordinary manner. By this arrangement as the brake-staffs are actuated at their end of the car both brake-beams of the truck are operated simultaneously in manner which will be readily understood by all conversant with such matters without a more explicit description.

I do not confine myself to the use of coiled springs, t , as any form of spring of less tension than the semi-elliptical spring may be substituted therefor without departing from the spirit of my invention, the primary feature of which consists in so grading the springs supporting the car-body that the variations in the load may be compensated for.

Having thus explained my invention, what I claim is—

1. In a car-truck the combination of a semi-elliptical spring supported on an axle-box; springs of less resistance than the semi-elliptical spring supported therefrom and a pedestal supported by said springs.

2. In a car-truck a semi-elliptical spring supported on an axle-box in combination with coiled springs supported from the ends thereof and a pedestal supported by said coiled springs, substantially as described.

3. In a car-truck the combination of a frame-supporting pedestal; a semi-elliptical spring mounted on the car-axle; rods pendent from the ends of said spring; coiled springs supported by said rods and carrying said pedestal.

4. In a car-truck, the combination with the semi-elliptical spring secured to the axle-box, of the T-rods pendent therefrom, the coiled springs supported on said rods and the pedestal supported by said springs.

5. The pedestal, H, flanged to receive the truck-frame in combination with the semi-elliptical spring, k , supported on an axle-box; rods pendent from the ends of said spring; coiled springs mounted on said rods and supporting said pedestal.

6. The combination with the wheels, axle and journal-boxes of an inverted semi-elliptical spring supported on said boxes, coiled-springs supported from the ends of said semi-elliptical spring and the pedestal, H, bearing on said coiled springs and supporting the truck-frame.

7. In a car-truck, the pedestal, H, provided with the groove, g , in combination with the frame, D, secured in said groove; the semi-elliptical springs, k , mounted centrally on an axle-box; the rods, q , pendent from the ends of said springs and the coiled-springs mounted on said rods and supporting said pedestal, substantially as described.

8. In a car-truck, an electric-motor connected with an axle of said truck; flanged locks grooved to receive the truck-frame; dovetailed blocks for locking said frame therein and an arch-bar mounted in said flanged-box and supporting said motor.

9. In a car-truck, the combination with the frame of the flanged blocks, 16; the dovetailed blocks, 19, for locking said frame therein and the arch-bar, 15, supported in said block, 16, substantially as and for the purpose set forth.

10. The combination with a car-body of a truck-frame; vertically curved pivot-blocks on said frame and bearings for said blocks on the car-body.

11. The combination with a car-body of a truck; the pivot-blocks, v , on the frame of said truck; the castings, y , on said car forming steps for said blocks and secured thereto.

JOHN H. GRAHAM.

Witnesses:

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O. M. SHAW.