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J. E. FORSYTH

DRAFT GEAR

Filed Nov. 15, 1924 2 Sheets-Sheet 1

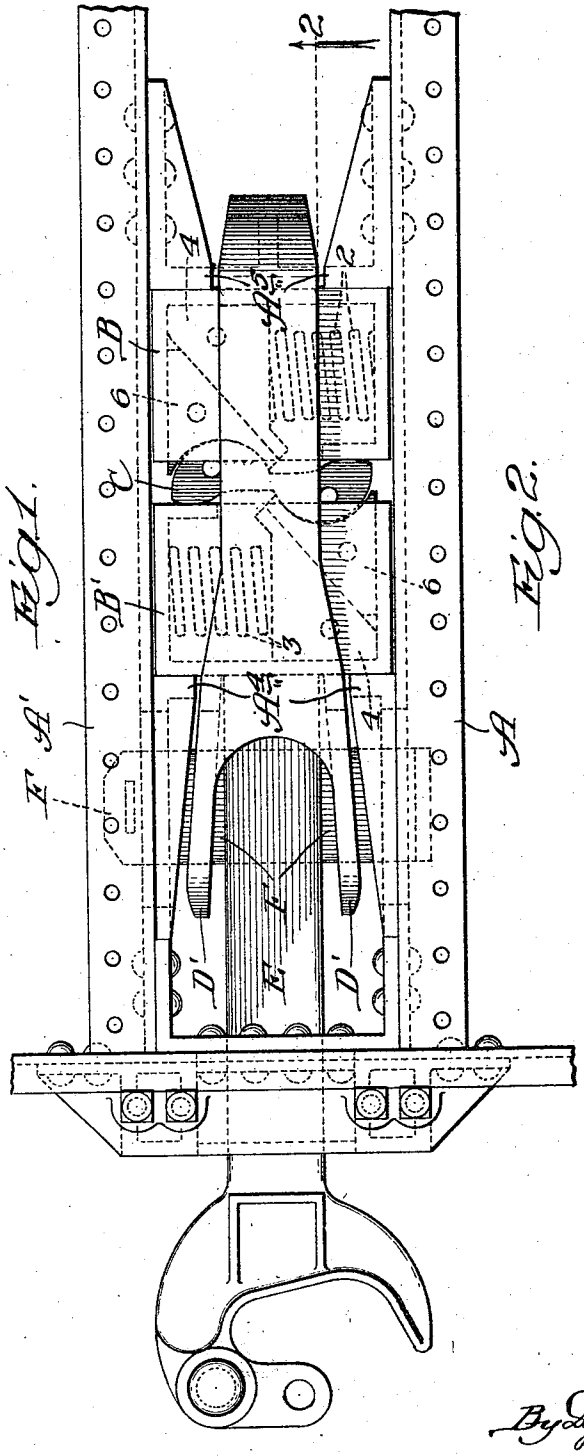


Fig. 1.

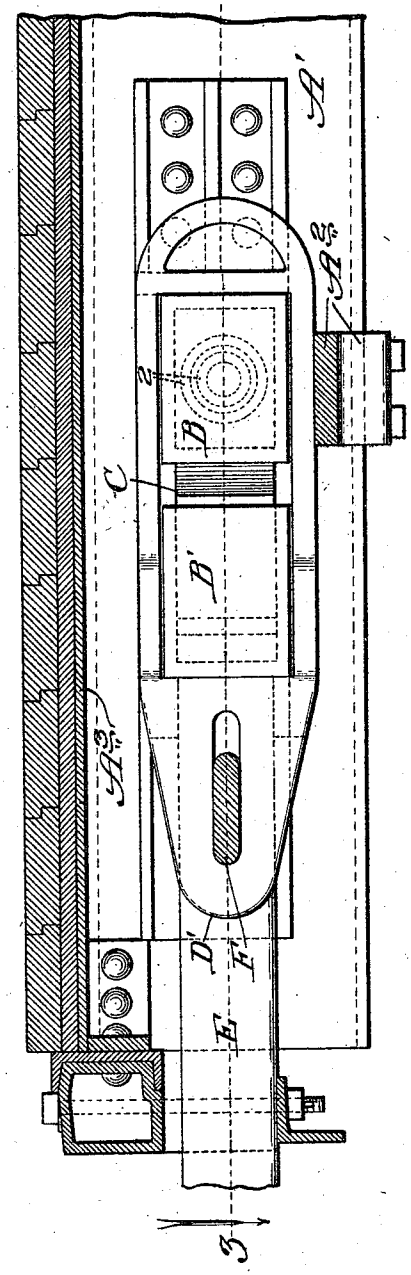


Fig. 2.

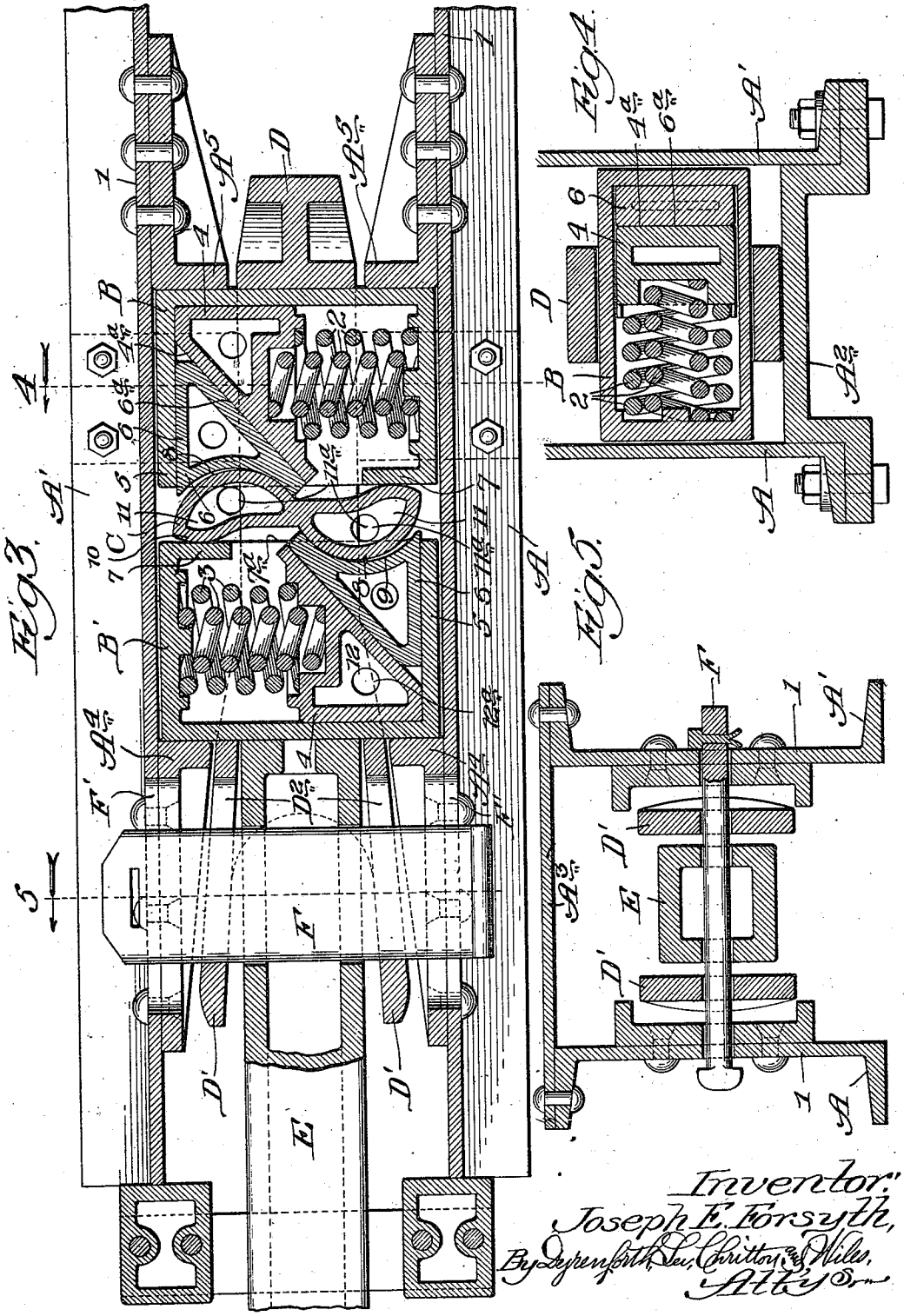
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DRAFT GEAR

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UNITED STATES PATENT OFFICE.

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DRAFT GEAR.

Application filed November 15, 1924. Serial No. 750,077.

This invention pertains particularly to draft-gears of the type utilizing both spring pressure and friction in the buffing and pulling operations.

The primary object of the invention is to provide an improved construction which is strong and durable and which is capable of utilizing the compressive action of springs and, in an unusually high degree, frictional resistance of members employed in the draft-gear, in the operation of the device.

A further object is to provide a simple construction involving few parts, which can be readily assembled.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Fig. 1 represents a plan view of the improved draft-gear applied to the sub-structure of a car, which is shown brokenly; Fig. 2, a broken vertical sectional view taken as indicated at line 2 of Fig. 1; Fig. 3, a plan sectional view taken as indicated at line 3 of Fig. 2; Fig. 4, a transverse sectional view taken as indicated at line 4 of Fig. 3; and Fig. 5, a transverse sectional view taken as indicated at line 5 of Fig. 3.

In the construction illustrated, A, A′ represent longitudinal frame members constituting a part of the substructure of a car; A^2, a transverse plate, or yoke, connecting the lower portions of the members A and A′; A^3, a top plate connecting the upper portions of the members A and A′; A^4, A^4, a pair of front stops for the draft-gear; A^5, A^5, a pair of rear stops for the draft-gear, all of said stops being secured to the members A and A′; B, a rear follower which is so formed as to provide a housing for springs and wedge members; B′, a front follower which is so formed as to provide a housing for springs and wedge-members; C, an interposed wedge-actuating member; D, a yoke which encompasses the members B and B′, said yoke being provided at its outer end with furcations D′ provided with slots D^2; E, a draw-bar which is equipped with the usual coupling-head (not shown); and F, a connecting pin which extends through perforations in the draw-bar and has its ends adapted to work in guide slots F′, with which the frame-structure is provided.

The follower members B and B′ extend transversely with relation to the car-body and have their ends confined between the web-portions 1 of the longitudinal members A and A′. In effect, each of the members B and B′ comprises a hollow block. Within one end of each block is located a coil spring, or a pair of coil springs, preferably the latter. One pair of these springs is designated 2, and the other pair is designated 3. The springs are similar, but are disposed in opposite ends of the spring holders, or followers, B, B′. Each pair of springs bears at one end against the end wall of the spring holder, and at the other end against a transversely movable wedge-member 4. Each wedge-member 4 is provided with an obliquely disposed wedge-surface 4^a, such wedge-surface preferably lying in a vertical plane. Between the end wall 5 of the spring-and-wedge-holder B, or B′, as the case may be, and the wedge-member 4 is located a wedge-member 6 of substantially triangular form and having an oblique wedge-surface 6^a opposed to the wedge-surface 4^a. The hollow blocks B and B′ are provided at their adjacent sides with walls 7 which are cut away, as indicated at 7^a. The wedge-members 6 protrude through the openings 7^a and are engaged by the wedge-actuating member C.

The wedge-actuating member C preferably comprises a floating lever which is provided at opposite ends and on opposite sides with convex bearing portions 8 which engage concavities 9 which are provided in the adjacent surfaces of the wedge-members 6. The member C is also provided at its ends and on opposite sides with bearing surfaces 10 which engage the walls 7 of the hollow blocks B and B′.

The member C is shown provided with cored cavities 11 which communicate with passages 11^a leading to the exterior of the member. The various wedge-members are shown provided with cavities 12 communicating with outlet passages 12^a. The member C and the wedge-members preferably are formed by casting operations.

The operation of the improved draft-gear will be readily understood from the illustrations given. Normally, the members B and B′ are confined between the front stops A^4 and rear stops A^5 of the sub-structure of the car-body. When a pulling action is exerted through the draw-bar E, the innermost follower B is drawn forward away from the stops A^5. As the member B moves towards the member B′, the force exerted

causes the floating lever C to turn about a central point, and the lever C forces the wedge-members 6 longitudinally of the structure, thereby forcing the wedge-members 4 to move transversely in their bearings and compress the coil springs. A similar action occurs in the buffing operation, that is, when the follower B′ is forced towards the follower B while the follower B remains against its stops A^5.

It will be noted that the hollow blocks B and B′ are confined within the yoke D, which affords a guide for said blocks. The yoke itself is adapted to slide on the cross-brace A^2. However, any suitable means of supporting and guiding the yoke may be provided.

It will be noted, also, that by reason of the shape of the wedge pieces and the nature of the movement which occurs, an enormous friction is created between the wedge-blocks themselves, between the wedge-blocks and the walls of the hollow blocks (B, or B′), and between the rock-member C and the members which it engages. The improved construction provides for an unusually large friction surface, so that the resisting action may be very great without causing the exertion of an undue strain upon a given unit of area.

The advantages of the improved draft-gear will be readily understood by those skilled in the art.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. In a draft-gear, the combination with the sub-structure of a car-body provided with sets of stops, a draw-bar and a suitable yoke connected therewith, of a device mounted in said yoke comprising a pair of followers constituting holders for springs and wedges, transverse springs mounted in said holders, wedge-members adapted to compress said springs, and a wedge-actuating device interposed between said followers and adapted to actuate the wedges when said followers are forced towards each other.

2. In a draft-gear, the combination with the sub-structure of a car-body provided with sets of stops, draw-bars, and a yoke connected therewith, of a device mounted in said yoke comprising a pair of hollow blocks having openings in their adjacent walls, coil springs confined in said hollow blocks at opposite ends thereof, transversely movable wedges opposed to said springs, longitudinally movable wedges opposed to said first-named wedges, and a rock-member interposed between said hollow blocks and engaging said second-named wedges and the opposed walls of said hollow blocks.

3. In a draft-gear, the combination of a pair of followers, a yoke within which said followers are mounted, coil springs disposed in opposite ends of said followers, transversely movable wedge-members opposed to said springs, wedge-members adapted to actuate said first-named wedge-members, and a rock-member interposed between said second-mentioned wedge-members and the opposed walls of said followers, said rock-member and the adjacent wedge-members being provided with co-acting concavities and convexities.

4. In a draft-gear, the combination of a pair of followers, a yoke within which said followers are mounted, coil springs disposed in opposite ends of said followers, transversely movable wedge-members opposed to said springs, wedge-members adapted to actuate said first-named wedge-members, and a floating rock-member interposed between said second-mentioned wedge-members and the opposed walls of said followers, said floating rock-member and the adjacent wedge-members being provided with co-acting concavities and convexities.

JOSEPH E. FORSYTH.